

# 2722 - CID510048\_EssexCounty\_CFPF

## Application Details

**Funding Opportunity:** 2335-Virginia Community Flood Preparedness Fund - Capacity Building/Planning Grants - CY24 Round 5  
**Funding Opportunity Due Date:** Mar 28, 2025 11:59 PM  
**Program Area:** Virginia Community Flood Preparedness Fund  
**Status:** Under Review  
**Stage:** Final Application

**Initial Submit Date:** Jan 24, 2025 7:40 PM  
**Initially Submitted By:** Lauren Colley  
**Last Submit Date:**  
**Last Submitted By:**

## Contact Information

### Primary Contact Information

**Active User\*:** Yes  
**Type:** External User  
**Name\*:** Ms. Lauren Colley  
Salutation First Name Middle Name Last Name  
**Title:** Deputy Zoning Administrator  
**Email\*:** [lcolley@essexva.gov](mailto:lcolley@essexva.gov)  
**Address\*:** 202 South Church Lane  
  
Tappahannock Virginia 22560  
City State/Province Postal Code/Zip  
**Phone\*:** 804-443-3489 Ext.   
Phone  
### ### #####  
**Fax:** ### ### #####  
**Comments:**

### Organization Information

**Status\*:** Approved  
**Name\*:** Essex County  
**Organization Type\*:** County Government  
**Tax ID\*:** 54-6001264  
**Unique Entity Identifier (UEI)\*:** U527P3R44GF3  
**Organization Website:** <https://www.essexva.gov/>

**Address\*:** 202 South Church Lane  
Tappahannock Virginia 22560-  
City State/Province Postal Code/Zip  
**Phone\*:** 804-443-3489 Ext.  
### ### #####  
**Fax:** ### ### #####  
**Benefactor:**  
**Vendor ID:**  
**Comments:**

## VCFPF Applicant Information

### *Project Description*

**Name of Local Government\*:** Essex County  
Your locality's CID number can be found at the following link: [Community Status Book Report](#)

**NFIP/DCR Community Identification Number (CID)\*:** 510048

If a state or federally recognized Indian tribe,

**Name of Tribe:**

**Authorized Individual\*:** Lauren Colley  
First Name Last Name

**Mailing Address\*:** 202 South Church Lane  
Address Line 1  
Address Line 2  
Tappahannock Virginia 22560  
City State Zip Code

**Telephone Number\*:** 804-443-4951

**Cell Phone Number\*:** 804-443-3489

**Email\*:** [icolley@essexva.gov](mailto:icolley@essexva.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\*:**

Capacity-building activities, including:

- (1) Incorporating geospatial tools to enhance flood risk analysis and floodplain ordinance enforcement.
- (2) Providing comprehensive training for staff to become CFMs and proficient in floodplain administration.
- (3) Engaging with consultants to assist with CRS program support, updating the County's floodplain ordinance with higher standards and comprehensive flood policy reform
- (4) Dedicating staff to pursue joining Community Rating System (CRS) Program

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](http://census.gov)

**Census Block(s) Where Project will Occur\*:** 9506,9507,9508

<b>Is Project Located in an NFIP Participating Community?*</b> :	Yes
<b>Is Project Located in a Special Flood Hazard Area?*</b> :	Yes
<b>Flood Zone(s) (if applicable):</b>	VE,AE,AO,A
<b>Flood Insurance Rate Map Number(s) (if applicable):</b>	51057C0135E, 51057C0165E,51057C0170E

## 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\*:** Yes  
 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\*:** N/A  
 Yes - Eligible for consideration  
 No - Not eligible for consideration  
 N/A - Match not required

## Scoring Criteria for Capacity Building & Planning - Round 4

### Scoring

Eligible Capacity Building and Planning Activities (Select all that apply) ? Maximum 100 points. To make multiple selections, Hold CTRL and click the desired items.

#### Capacity Building and Planning\*:

Floodplain Staff Capacity, Other Capacity Building and Planning Activities, Resource assessments, planning, strategies, and development - Policy management and/or development, Resource assessments, planning, strategies, and development - Stakeholder engagement and strategies.

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\*:** High Social Vulnerability (1.0 to 1.5)

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

**NFIP\*:** Yes

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

Does this project provide ?community scale? benefits?

**Community Scale Benefits\*:**

More than one census block

**Comments:**

All but sixteen (16) of the identified SFHA structures are located in moderate to very high social vulnerability scoring tracts.

## Scope of Work and Budget Narrative - Capacity Building and Planning - Round 4

### Scope of Work - General Information

**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 Attachment\*:**

[Final CFPF Scope of Work 1.24.25.pdf](#)

**Comments:**

### Budget Narrative

**Budget Narrative Attachment\*:**

[Final CFPF Budget Narrative 1.24.25 Essex Co.pdf](#)

**Comments:**

## Scope of Work Supporting Information - Capacity Building and Planning

### Scope of Work Supporting Information

Describe identified resource needs including financial, human, technical assistance, and training needs

**Resource need identification\*:**

Our community faces significant challenges in addressing flood resilience due to limited financial resources, insufficient staff training, and gaps in technical floodplain management experience. Financial constraints currently limit our ability to fully implement effective floodplain management strategies, such as the use of tools like CrisisTrack and the development of comprehensive training programs for staff to take on floodplain administration roles. Funding from the Community Flood Preparedness Fund (CFPF) would enable us to address these gaps, build capacity, and enhance our community's participation in the Community Rating System (CRS), which could ultimately reduce flood insurance costs for residents and incentivize mitigation of flood risk. We can provide greater detail about existing staff dedication to these tasks, we anticipate FTE 5% of the four staff in the budget will be dedicated to tasks relating to this work. If our match waiver is not approved by DCR we can provide this documentation of in-kind match.

Describe the plan for developing, increasing, or strengthening knowledge, skills and abilities of existing or new staff. This may include training of existing staff, hiring personnel, contracting consultants or advisors

**Development of Existing or New Staff\*:**

One of the greatest challenges is human resource capacity. To address this, we propose a two-pronged approach: first, providing targeted training to existing staff on topics such as flood ordinance enforcement and CRS program implementation, and second, promoting one existing personnel, a floodplain administrator to assume the role of CRS Coordinator, to ensure the longevity of these efforts.

Where capacity is limited by funding, what strategies will be developed to increase resources in the local government? (This may include work with non-governmental organization, or applying for grants, loans, or other funding sources)

**Resource Development Strategies\*:**

In addition to addressing internal capacity, this project includes a robust plan for resource development. Partnerships with groups like the Virginia CRS Workgroup, Friends of the Rappahannock, Wetlands Watch, will be pursued to highlight opportunities for additional technical and financial support.

Describe policy management and/or development plans

**Policy management and/or development\*:**

We recognize the importance of policy development as a cornerstone of effective floodplain management. This initiative will include a comprehensive review and update of local ordinances and enforcement policies to ensure alignment with state guidelines and best practices.

Technical assistance and expert guidance are also critical to our success. Consultants will play a vital role in supporting staff training, reviewing and updating local ordinances, and ensuring compliance with state and federal flood management requirements and higher standards to develop greater flood resilience, including freeboards, development setbacks, and industrial use analysis. With their help, we will build and align our policies with best practices, incorporate nature-based solutions, and explore and prepare for CRS enrollment.

Describe plans for stakeholder identification, outreach, and education strategies

**Stakeholder identification, outreach, and education strategies\*:**

Stakeholder engagement is central to our capacity-building efforts. Through workshops, public meetings, and educational campaigns, we aim to build up and support a local government and residents dedicated to flood resilience. Public outreach will include distributing materials credited in the CRS Program, flood mitigation benefits, nature-based solutions, and flood insurance education, ensuring that stakeholders are informed and empowered to take action. This includes mailings, updated website information, and potentially outreach events. These efforts will not only build local capacity but also strengthen the community's overall preparedness for flood risks. Finally, we recognize the importance of policy development as a cornerstone of effective floodplain management. This initiative will include a comprehensive review and update of local ordinances

## Budget

### Budget Summary

#### Grant Matching Requirement\*:

LOW INCOME - Planning and Capacity Building - Fund 90%/Match 10%

\*Match requirements for Planning and Capacity Building in low-income geographic areas will not require match for applications requesting less than \$3,000.

Is a match waiver being requested?

**Match Waiver Request** Yes

Note: only low-income communities are eligible for a match waiver.

\*:

**I certify that my project is in a low-income geographic area:** Yes

**Total Project Amount (Request + Match)\*:** \$217,699.00

\*\*This amount should equal the sum of your request and match figures

**REQUIRED Match Percentage Amount:** \$21,769.90

## BUDGET TOTALS

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

**Match Percentage:** 15.15%  
Verify that your match percentage matches your required match percentage amount above.

**Total Requested Fund Amount:** \$217,699.00

**Total Match Amount:** \$38,885.00

**TOTAL:** \$256,584.00

### Personnel

Description	Requested Fund Amount	Match Amount	Match Source
New tasks for existing staff	\$73,423.00	\$0.00	
In kind staff time	\$0.00	\$36,385.00	In Kind, 5%FTE (Two years x 4 staff x .5%)
	<b>\$73,423.00</b>	<b>\$36,385.00</b>	

### Fringe Benefits

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

### Travel

Description	Requested Fund Amount	Match Amount	Match Source
Training Cost x 4 Staff	\$4,376.00	\$0.00	
	<b>\$4,376.00</b>	<b>\$0.00</b>	

### Equipment

Description	Requested Fund Amount	Match Amount	Match Source
Geospatial and Flood Damage Tracking Software/Tools	\$53,500.00	\$0.00	
Training Room	\$0.00	\$2,000.00	Use of Office Space for Trainings offered
	<b>\$53,500.00</b>	<b>\$2,000.00</b>	

### Supplies

Description	Requested Fund Amount	Match Amount	Match Source
Office Supplies	\$0.00	\$500.00	Supplied Office Supplies for Trainings
	<b>\$0.00</b>	<b>\$500.00</b>	

### Construction

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

### Contracts

Description	Requested Fund Amount	Match Amount	Match Source
Third Party Consultant	\$86,400.00	\$0.00	
	<b>\$86,400.00</b>	<b>\$0.00</b>	

### Pre-Award and Startup Costs

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

### Other Direct Costs

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

## Supporting Documentation - General

### Supporting Documentation

Named Attachment	Required	Description	File Name	Type	Size	Upload Date
Detailed map of the project area(s) (Projects/Studies)		Map of buildings in SFHA	<a href="#">BuildingsinSFHAbbyTract.pdf</a>	pdf	927 KB	01/24/2025 02:42 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		Zoning Ordinance	<a href="#">Supporting Docs_Ordinance.pdf</a>	pdf	3 MB	01/24/2025 02:38 PM

Maintenance and management plan for project

A link to or a copy of the current hazard mitigation plan

[https://library.municode.com/va/essex\\_county/codes/code\\_of\\_ordinances?nodeId=CD\\_ORD\\_CH18FLMA](https://library.municode.com/va/essex_county/codes/code_of_ordinances?nodeId=CD_ORD_CH18FLMA)

[Supporting Docs\\_HMP.pdf](#) pdf 27 MB 01/21/2025 12:58 PM

A link to or a copy of the current comprehensive plan

Comp Plan

[Supporting Docs\\_CompPlan.pdf](#) pdf 1 MB 01/24/2025 02:38 PM

Social vulnerability index score(s) for the project area

SVI Map

[VFRIS SVI Score.pdf](#) pdf 272 KB 01/24/2025 02:39 PM

Authorization to request funding from the Fund from governing body or chief executive of the local government

Authorization and Waiver Request

[Signed Request-Waiver Letter CFPF Grant.pdf](#) pdf 360 KB 01/24/2025 02:40 PM

Signed pledge agreement from each contributing organization

Letter of Support - Town of Tappahannock. Tappahannock relies upon Essex County for floodplain management services and support including permit review and inspections for floodplain development.

[Tappahannock CFPF Letter of Support for Essex County.pdf](#) pdf 389 KB 01/24/2025 02:41 PM

Maintenance Plan

Maintenance and Work Plan

[Work Plan.docx](#) docx 21 KB 01/24/2025 06:47 PM

*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
Tappahannock Letter of Support	<a href="#">Tappahannock CFPF Letter of Support for Essex County.pdf</a>	pdf	389 KB	01/24/2025 06:43 PM



Established 1692

## Capacity Building & Planning Application

### Introduction

Essex County, Virginia, recognizes the critical importance of proactive flood resilience planning and capacity building. As a community with high social vulnerability indicators and designated as a low-income geographic area, the County faces unique challenges in addressing flood risks and maintaining compliance with federal standards. Additionally, Essex County faces future increases in coastal hazards, including the frequency and extent of flooding along the Rappahannock River. This application for the Community Flood Preparedness Fund (CFPF) seeks to address these challenges while enhancing the County's floodplain management program.

Essex County has an estimated four hundred and fourteen (414) structures in the Special Flood Hazard Area<sup>1</sup>. The county Community Development department serves an estimated eight thousand fifty-eight (8,058) total structures as of 2022, while also acting as the Building Official office for the Town of Tappahannock. With all three (3) of the Essex County Census Tracts being identified as Low-Income Geographic areas by VADCR, all four hundred and fourteen (414) of these SFHA structures fall within this defined Low-Income area. There are one hundred and seventy (170) of the SFHA structures identified are within the two (2) Disadvantaged Communities Census tracts; and one hundred and nine (109) structures fall with the Community Disaster Resilience Zones (CDRZ) designated by FEMA. Community Disaster Resilience Zones are identified as the most at-risk and in-need jurisdictions across the nation for resilient efforts and funding. All but sixteen (16) of the SFHA structures are located in moderate to very high social vulnerability scoring tracts.

The Middle Peninsula PDC Hazard Mitigation Plan identified Essex County as having thirty-two (32) Repetitive Loss (RL) properties, and two (2) Severe Repetitive Loss properties (DCR, 2021). The County has been working towards implementing a Substantial Improvement/Substantial Damage Plan to allow more equitable and transparent procedures to take place, but also to boost the recovery efforts after flooding events take place when damage determinations need to take place.

In May 2024, a FEMA Community Assistance Visit (CAV) audit highlighted significant enforcement actions needed for Essex County to maintain compliance with the National Flood Insurance Program (NFIP). This project will provide the necessary resources and expertise to meet and exceed NFIP minimum standards, join the Community Rating System, and safeguard the County's participation in the NFIP by establishing clear, higher standards, written policies, and ordinances to withstand typical barriers to local government enforcement such as capacity and staff turnover.

<sup>1</sup> Essex County Building Footprints Layer from January 11, 2022, was compared to the FEMA SFHA layer and determined that 414 structures are within the SFHA.

## Need

1. Essex County will lose good standing with the NFIP if they do not gain the internal capacity to enforce floodplain development standards consistent with the minimum of the NFIP. The locality has been working with Berkley Group to improve record-keeping procedures and has identified the need for qualified staff capacity to review flood development permits and elevation certificates. These are critical components of a Floodplain Management program required to comply with the NFIP minimum standards.
2. Essex County currently does not have the resources and staff capacity to pursue joining the Community Rating System (CRS) without the CFPF grant. The CRS Program incentivizes flood mitigation and resilience while providing flood insurance discounts to policyholders. Beneficiaries include property owners at large, particularly policyholders in the most socially vulnerable census tract of Essex County, as identified using the DCR map explorer.
3. Future sea level rise will compromise critical facilities and natural infrastructure. Joining the CRS monetizes natural resources and promotes the preservation of these resources, which in turn provides critical flood buffering benefits to businesses and homes along the Rappahannock River.

**Objectives** The primary objectives of this project are to:

- Enhance Essex County's capacity to manage flood risks effectively.
- Consult with a Third-party to support compliance with state and federal floodplain regulations and address enforcement actions identified during the FEMA CAV audit.
- Increase resilience through incorporating higher standards into floodplain ordinances and pursuing participation in the Community Rating System (CRS).
- Equip County staff with the knowledge and tools needed to administer floodplain management programs effectively through staff training and Certified Floodplain Manager (CFM) certification in addition to employing Flood Risk Tools.
- Empower residents through targeted outreach and education initiatives.

**Task: Training and Capacity Building** Training programs will be conducted to prepare County staff to become Certified Floodplain Managers (CFMs) and proficient in floodplain administration. This task also includes technical training for enhanced flood risk assessment and emergency response, components of flood resilience that are scored in the Community Rating System as part of holistic flood preparedness and mitigation.

### Deliverables:

- Training materials and agendas.
- CFM certifications for participating staff within twenty-four months of project kickoff.
- Proficiency evaluations for floodplain administration.

**Task 3: Flood Ordinance Review and Enhancement** Essex County's floodplain ordinances will be reviewed and updated to meet state and federal standards while incorporating higher standards to increase resilience. This includes addressing enforcement actions from the FEMA CAV audit.

### Deliverables:

- Comprehensive review report of current ordinances.
- Draft and final updated ordinances within eighteen months of project kickoff.
- Documentation of compliance with NFIP and state standards.

**Task 4: CRS Participation Support** This task involves exploring Essex County's participation in the Community Rating System (CRS) program to achieve long-term flood mitigation benefits and potential insurance savings for residents. New staff responsibilities will be established to support CRS activities.

**Deliverables:**

- CRS participation action plan within eighteen months of project kickoff.
- Staff trained in CRS

**Task 5: Deployment of Flood Risk Tools** Resources and tools, potentially geospatial tools for flood risk analysis and flood damage assessment, will be deployed to enhance Essex County's flood risk awareness and emergency management capabilities. The following functionalities will be utilized:

- Damage Assessment
- Incident Action Plans
- Debris Monitoring
- Resource Time Tracking
- FEMA Documentation
- Grants Management

**Deliverables:**

- Flood Risk Tool analysis of products (potentially CrisisTrack and/or ESRI products)
- Deployment and implementation plan within eighteen months of project kickoff.

**Task 6: Reporting and Evaluation** Regular progress reports will document the project's achievements and challenges. A final report will summarize the project's impact, evaluate compliance improvements, and outline recommendations for sustained resilience.

**Deliverables:**

- Annual progress reports.
- Final comprehensive project report.

**Timeline** This project will be completed in 60 months.

**Budget Narrative** The total budget for this initiative is \$217,699. Major cost allocations include \$86,400 for third-party consultant fees to address floodplain ordinance review, comprehensive floodplain policy and enforcement structuring, CRS preparation. Staff training, including travel, exam fees, and certification, is budgeted at \$12,799. This includes the salaries of the Planning Director, Deputy Director and CRS Coordinator (New tasks and position for existing staff), GIS Specialist, and Building Codes Compliance Officer, who will dedicate time to training and CRS participation tasks. New staff tasks to support CRS-related activities are allocated \$65,000, with 20% of the Deputy Director and CRS Coordinator's FTE dedicated to this role. Additionally, \$53,500 is allocated for critical geospatial tools, including \$3,500 for software startup and \$50,000 for a five-year software license to enhance flood risk monitoring and emergency response. This software will be deployed pre and post flood to analyze flood damage, conduct substantial damage and substantial improvement determinations, and facilitate federal grant applications. Essex County respectfully requests a waiver of the local match requirement due to its designation as a low-income geographic area.

**Conclusion** This Scope of Work reflects Essex County's commitment to advancing equitable floodplain management and addressing the unique challenges identified during the FEMA CAV audit. The proposed activities will build the foundational capacity needed to safeguard the community from flooding impacts while enhancing compliance with NFIP standards. By leveraging CFPF resources, Essex County will take a significant step toward long-term flood resilience and community protection. Without this critical investment from the Virginia Department of Conservation and Recreation (DCR), Essex County's ability to achieve flood resilience will remain an unattainable goal. The community stands at a precarious crossroads, where the lack of resources

and capacity threatens not only compliance with the National Flood Insurance Program (NFIP) but also the safety and future of its residents.

Task	Details		Budget	Match
Third Party Consultant Fee	Refer to work plan for third party consultant task list			
		Total	86400	0
Staff Training				
	Travel mi (320 mi (roundtrip Essex to Emmitsburg) x .70 cents)		224	
	Meal Ticket		235	
	ASFPM Annual Membership		330	
	CFM Exam Fee		185	
	ASFPM CFM Biennial Renewal Fee		120	
	Subtotal training costs		1094	
	Total training costs x four staff		4376	
	Hourly rate x 60 hours			
Staff Salary (no fringe/in-direct costs included*)				
Planning Director (88,000)				
Deputy Director and CRS Coordinator, (65,000)				
GIS Specialist (74,000)				
Building Codes Compliance Officer (65,000)	42.3	2,538		4483.8
	31.25	1,875		3312.5
	35.58	2,135		3771.48
	31.25	1,875		3312.5
	Total Staff time + training costs for 4 staff	12,799		18192.78
	Staff to undergo floodplain management training (including L273 (CFM), 0278 (CRS), and ASFPM Floodplain 101 Online Training )			
			12799	0
New Tasks for Existing Staff				
Analysis and Preparation to join the CRS to lower insurance premiums; conduct education and outreach within the county to boost knowledge about flooding, nature based solutions for proactive resilience and insurance	New staff tasks dedicated to: analysis of CRS participation costs and benefits, preparation to join the CRS, annual dedication of time to initial cycle visit, annual recertification, and five-year cycle to support enhanced floodplain management, floodplain development review and enforcement of increased standards.			
	20% of FTE - Deputy Director and CRS Coordinator Position	65,000x.2 = 13,000	65000	0
Coverage for critical geospatial tools to expand upon monitoring, tracking, and analysis of flood risk as well as post-storm response				
	Estimated Monitoring/Tracking, Geospatial Software Start-up fee	one time cost	3500	
	5 years of software	10,000 per year	50000	
Match				
Equipment	Room use for hosting L0273 Training			2000
Supplies	5 years of postage, mailings related to flood risk public outreach			500
In Kind Staff Time Dedication (5%) x two years				
	Staff Salary (no fringe/in-direct costs included*)			
	Planning Director (88,000)			
	Deputy Director and CRS Coordinator, (65,000)			
	GIS Specialist (74,000)			
	Building Codes Compliance Officer (65,000)			36385
<b>Total Requested</b>			<b>217,699</b>	<b>38885</b>

\*Fringe and indirect costs were not available before the deadline of the CFPF application.

**April L. Rounds**  
**County Administrator**  
202 South Church Lane  
Post Office Box 1079  
Tappahannock, Virginia 22560  
(804) 443-4331  
(804) 445-8023 – Fax  
www.essex-virginia.org



**Essex County**  
**Virginia**

## **Board of Supervisors**

Rob Akers, Chairman  
Greater Tappahannock Election District

Ronnie Gill, Vice-Chairman  
South Election District

Sidney N. Johnson  
North Election District

John C. Magruder  
Central Election District

Edwin E. "Bud" Smith Jr.  
At Large Election District

Angela Davis  
Director of Dam Safety and Floodplain Management  
Virginia Department of Conservation and Recreation  
600 East Main Street, 24<sup>th</sup> Floor  
Richmond, VA 23219

January 23, 2025

RE: Authorization of Essex County CFPF Capacity Building and Planning Application ID 2722

Dear Ms. Davis,

Essex County greatly appreciates the Virginia Department of Conservation and Recreation's (DCR) continued efforts to enhance flood resilience across the Commonwealth. We recognize the importance of addressing flood risks through proactive planning and capacity building and are pleased to submit our first application for the Community Flood Preparedness Fund (CFPF).

Essex County seeks CFPF assistance to support capacity-building activities, including:

1. Deployment of Flood Risk Tools to enhance emergency response and flood risk assessment capabilities.
2. Providing comprehensive training for staff to become Certified Floodplain Managers (CFMs) and proficient in floodplain administration.
3. Engaging with consultants to assist with updating the County's floodplain ordinances to meet state and federal standards while incorporating higher standards to increase resilience.
4. Exploring participation in the Community Rating System (CRS) Program, by establishing new staff tasks which will provide long-term flood mitigation benefits and potential flood insurance savings for our residents.

As a documented low-income geographic area with high social vulnerability indicators, Essex County respectfully requests a waiver of the local match requirement. This waiver is critical to enabling the County to pursue this vital work without burdening our limited budget resources. The requested funding will allow Essex County to establish the foundational resources and expertise needed to effectively implement floodplain ordinances and reduce flood risks for our community. Additionally in May 2024, FEMA audited Essex County in a CAV which triggered many enforcement actions and jeopardizes the County's participation in the NFIP. This funding will support the County in complying with and improving beyond the minimum NFIP standards.

This project will empower Essex County to take proactive steps toward building resilience by equipping staff with essential knowledge and tools, modernizing our floodplain management framework, and providing targeted outreach and education to residents and property owners.

Please accept this letter as my formal authorization of Essex County's request for CFPF assistance and a waiver of the local match requirement. This funding will allow Essex County to make significant progress in advancing equitable floodplain management and safeguarding our community from the impacts of flooding.

Sincerely,

A handwritten signature in black ink, appearing to read "April L. Rounds". The signature is fluid and cursive, with the first name "April" and last name "Rounds" clearly distinguishable.

April L. Rounds  
County Administrator

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State of Virginia Statutory Authority for this Plan

The preparation, adoption, and implementation of a local comprehensive plan are governed by the Code of Virginia of 1950, as amended. Relevant portions of the Code follow:

Title 15.2  
Article 3

The Comprehensive Plan

§ 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.

In the preparation of a comprehensive plan, the commission shall make careful and comprehensive surveys and studies of the existing conditions and trends of growth, and of the probable future requirements of its territory and inhabitants. The comprehensive plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants, including the elderly and persons with disabilities.

The comprehensive plan shall be general in nature, in that it shall designate the general or approximate location, character, and extent of each feature, including any road improvement and any transportation improvement, shown on the plan and shall indicate where existing lands or facilities are proposed to be extended, widened, removed, relocated, vacated, narrowed, abandoned, or changed in use as the case may be.

This section of the Virginia Code continues on regarding information that shall be outlined in the Comprehensive Plan, specifically transportation planning and coastal zone management which applies to Essex County.

§ 15.2-2224. Surveys and studies to be made in preparation of plan; implementation of plan.

A. In the preparation of a comprehensive plan, the local planning commission shall survey and study such matters as the following:

1. Use of land, preservation of agricultural and forestal land, production of food and fiber, characteristics and conditions of existing development, trends of growth or changes, natural resources, historic areas, ground water, surface water, geologic factors, population factors, employment, environmental and economic factors, existing public facilities, drainage, flood control and flood damage prevention measures, dam break inundation zones and potential impacts to downstream properties to the extent that information concerning such information exists and is available to the local planning authority, the transmission of electricity, road improvements, and any estimated cost thereof, transportation facilities, transportation improvements, and any cost thereof, the need for affordable housing in both the locality and planning district within which it is situated, and any other matters relating to the subject matter and general purposes of the comprehensive plan.

However, if a locality chooses not to survey and study historic areas, then the locality shall include historic areas in the comprehensive plan, if such areas are identified and surveyed by the Department of Historic Resources. Furthermore, if a locality chooses not to survey and study mineral resources, then the locality shall include mineral resources in the comprehensive plan, if such areas are identified and surveyed by the Department of Mines, Minerals and Energy. The requirement to study the production of food and fiber shall apply only to those plans adopted on or after January 1, 1981.

2. Probable future economic and population growth of the territory and requirements therefor.

B. The comprehensive plan shall recommend methods of implementation and shall include a current map of the area covered by the comprehensive plan. Unless otherwise required by this chapter, the methods of implementation may include but need not be limited to:

1. An official map;
2. A capital improvements program;
3. A subdivision ordinance;
4. A zoning ordinance and zoning district maps;
5. A mineral resource map;
6. A recreation and sports resource map; and
7. A map of dam break inundation zones.

§15.2-2230. Plan to be reviewed at least once every five years.-At least once every five years, the comprehensive plan shall be reviewed by the local commission to determine whether it is advisable to amend the plan.

§15.2-2231. Inclusion of incorporated town in county plan; inclusion of adjacent unincorporated territory in municipal plan.-Any county plan may include planning of incorporated towns to the extent to which, in the county local commission's judgment, provided, however, that the plan shall not be considered as a comprehensive plan for any incorporated town unless recommended by the town commission, if any, and adopted by the governing body of the town.

Any municipal plan may include the planning of adjacent unincorporated territory to the extent to which, in the municipal local commission's judgment, it is related to the planning of the incorporated territory of the municipality; provided, however, that the plan shall not be considered as a comprehensive plan for such unincorporated territory unless recommended by the county local commission, if any, and approved and adopted by the governing body of the county.

§15.2-2232. Legal status of plan.-Whenever the local commission shall have recommended a comprehensive plan or part thereof for the county or municipality and such plan shall have been approved and adopted by the governing body, it shall control the general or approximate location, character and extent of each feature shown on the plan. Thereafter no street, park or other public area, public building or public structure, public utility facility or public service corporation facility other than railroad facility, whether publicly or privately owned, shall be constructed, established or authorized, unless and until the general location or approximated location, character, and extent thereof has been submitted to and approved by the local commission as being substantially in accord with the adopted comprehensive plan or part thereof. In connection with any such determination the commission may, and at the direction of the governing body shall, hold a public hearing, after notice as required by §15.2-2204.

The commission shall communicate its findings to the governing body, indicating its approval or disapproval with written reasons there for. The governing body may overrule the action of the commission by a vote of a majority of the membership therefore. Failure of the commission to act within sixty days of such submission, unless such time shall be extended by the governing body, shall be deemed approval.

# SECTION ONE

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## INTRODUCTION AND FRAMEWORK FOR PLANNING

### Background Description

Essex County is a predominantly rural County situated on the northeastern most section of the Middle Peninsula in the Commonwealth of Virginia. It is bounded on the north by King George and Westmoreland Counties, on the east by Richmond County, south by Middlesex County, and by Caroline and King and Queen Counties on the west. The east boundary of Essex County is the Rappahannock River (See Map 1-1). The land area of the County is approximately 257 square miles (165,000 acres).

Formed in 1692 when Old Rappahannock County was divided into Essex and Richmond, the County was named for either the English County or the Earl of Essex. In 1652, a port settlement began in the area of New Plymouth, later renamed Tappahannock for the Indian name meaning Town on the River. Tappahannock was incorporated in 1926 and serves as the County seat covering an area of roughly 2.75 square miles and located near the center of the County. An elected Board of Supervisors and an appointed County Administrator govern the County and a Town Council-Town Manager form of government serves the Town.

Tappahannock is the employment and population center for the County and the commercial center for the Middle Peninsula region. Residential developments exist as small rural communities along the Rappahannock River or as strip residential along primary roadways. Growth has been gradual and slow allowing the County to retain its predominantly rural character. As the County grows and changes over the next 20 years, this Comprehensive Plan will serve as a guide for making growth management decisions in Essex County. The Plan is a culmination of a cooperative effort, pulling together the knowledge and skills of diverse residents, business leaders and government staff. This plan represents a vision of Essex County along with recommendations for bringing that vision to fruition. The ideas of the Plan are a distillation of the community's many desires, tempered by what is necessary, feasible, and reasonable to foster a good quality of life for Essex residents. This Plan is not intended to be a static document. It should be reviewed and updated periodically to reflect new development trends, shifts in the economy, or changes in the community goals and objectives.

Essex County is a special place with a unique character, culture and history that distinguishes the community from others in the region. This Comprehensive Plan, particularly the plan goals and objectives, addresses the preservation and enhancement of these special qualities and the distinctive personality felt by the residents. This sense of uniqueness and pride of place are the guiding forces and strongest motivation for those who have contributed to the realization of this document. The opportunities presented by a shifting economy, technological changes, and a strategic location present the County with the chance to shape a bright future.

MAP 1-1 (VICINITY OR LOCATION MAP)

## The Comprehensive Plan Defined

The overall goal of the Comprehensive Plan is to: "**Maintain and enhance the quality and character of the County by promoting the efficient use of the County's land and natural resources in order to effectively meet the social and economic needs of present and future residents providing for a more balanced and sustainable community.**"

The Comprehensive Plan is an official public document adopted by the County Planning Commission and Board of Supervisors. The Plan is a general, long-range, policy and implementation guide for decisions concerning the overall growth and development of the County. It brings together the elements of land use, economy, transportation, public infrastructure and environmental protections to implement the vision of a sustainable Essex County community.

The Plan is comprehensive in that the elements cover the entire range of development, preservation infrastructure and economic issues which can be influenced significantly by the County Board of Supervisors and other governing authorities. Consideration is given to these categories and issues arising over the next twenty years. Planning should be viewed as an opportunity for a community to control its own destiny. It is a process by which Essex County has:

- assessed its current state of development, needs, problems, and resources;
- determined its desirable future physical form and character;
- established public policies designed to help bring about the necessary changes and guide private actions to achieve community objectives

The purpose of such a process is to ensure rational allocation of finite resources to meet the community's priority needs and to mitigate whenever possible, future environmental, social, and economic issues. Planning is a means for expressing the will of the community; regulatory actions the means by which the community's will be implemented. In other words, regulations are not ends in themselves, but means of achieving the desired ends i.e. goals identified during the planning process.

The Comprehensive Plan has evolved as the primary vehicle through which this process is conducted. The Plan generally consists of:

- an analysis of existing conditions and an inventory of available resources;
- goals and objectives;
- future plans; and

- recommendations for implementation.

The Plan is most effective when it contains input from all segments of the community and must be continuously evaluated and updated as necessary. Public participation and outreach are essential to knowing and understanding the goals and objectives of the County.

The Comprehensive Plan update was conducted by a Steering Committee consisting of Essex County residents and members of the business community, Essex County staff and Planning Commission members and Middle Peninsula Planning District Commission.

Although adopted as an official public document, the Comprehensive Plan is not a development and preservation ordinance. This plan serves as a catalyst and guide to the establishment of, or revisions to, other ordinances or planning tools including the zoning and subdivision ordinances. The Land Use Plan Map, included in this plan, serves to illustrate how and where the Plan's policies and recommendations will be carried out. This mapped information is general in nature and not appropriate for determining the suitability of specific sites for any specific use.

### The Purpose of the Plan

This Plan provides the basic policy framework to manage and direct future development in Essex County. It is designed to address imminent issues as well as to provide a long term planning strategy for implementing future actions and policies. As such, the Plan is designed to address the County's needs through the year 2030 and thereby provide the County with a means to ensure orderly, managed growth and development throughout the planning period. Various projections, policies, and recommendations are prepared in the context of balancing the many objectives attendant to this Plan. This general theme when interpreted in terms of land use says that:

The County should adopt a "growth management " philosophy toward the use of the land over which it has zoning authority; and that development should be of a controlled nature, channeled into the most appropriate areas and discouraged in other areas. Moreover, the County has determined that such a philosophy is necessary to cost effectively sustain adequate levels of public services and facilities in the form of schools, transportation networks, sewer, water, police, fire and health care services which will be required to support present and future residents.

The goals and objectives framed in the elements of this Plan serve as a formally adopted growth management guide to Essex County's future. They provide guidance for public decisions concerning how development will be managed or regulated, where and how it should occur, and where capital improvements and public services should be provided or not provided to support it. In this context, the Plan serves to inform County residents, the development community, and State and Federal agencies of the County's intent regarding its future. It identifies controls, management measures, financial or human resource investments, and incentives necessary to achieve County objectives.

Finally, the Plan provides the basis for a number of County actions and management decisions and serves as a tool for evaluating the merits of proposals which will surface over time. Undoubtedly, County residents, the Planning Commission and the County Board of Supervisors will be faced with proposals which could affect many aspects of life in the County. This Plan in particular, its policies and objectives, provide guidance in decision-making and establish a basis for evaluating proposals of this kind.

Goals, objectives, and recommendations of the Comprehensive Plan are influenced by reports prepared as part of the process toward its completion. Likewise, it will, in turn, influence revisions in the construction of companion documents which serve to implement the Plan including the County Zoning Ordinance and Land Subdivision Regulations. Since the Plan concurrently influences and is influenced by these related Planning Program documents, a brief description of each follows.

#### Legal Basis for Comprehensive Planning

Essex County's first Comprehensive Plan was drafted in 1967. Preparation of the Comprehensive Plan is the legal responsibility of the County Planning Commission and is mandated by the Virginia Planning Enabling Legislation, Title 15.2, Article III, of the Code of Virginia, 1950, as amended. The Plan also serves to satisfy the requirements of VAC 10-20-10 et seq. Chesapeake Bay Preservation Area Designation and Management Regulations, which established standards for local Comprehensive Plan Elements designed to implement Chesapeake Bay Water Quality Improvement objectives. Any ordinance pertaining to the use of land or the growth and development of the County should conform to the goals, objectives, and policies as they are presented in this Plan.

#### Zoning Ordinance

The Essex County Zoning Ordinance was first adopted in 1976 and serves as a primary planning tool for implementing the Comprehensive Plan. Zoning is a means by which private properties are regulated in the public interest. The Zoning Ordinance and its official map delineate and describe conservation, agriculture, residential, business and industrial areas throughout the County. The permitted uses and development regulations for each of these areas are described within the ordinance and through a schedule of district regulations and an official zoning map.

The Zoning Ordinance sets out how property in the County may or may not be used. It prescribes a series of zoning districts and enumerates uses permitted and establishes performance standards for future development in each district. The standards are designed to ensure achievement of certain objectives established in the Plan including protection of sensitive environmental features and enhancement of future environmental qualities.

### Subdivision Regulations

Revised in 1998, Essex County has enforced subdivision regulations for as a part of the growth management process. Subdivision regulations assure adequate provision of services for residential communities. By use of this planning tool, unnecessary burden of public funds for streets, recreation and utilities is mitigated in the future.

These regulations provide guidance and controls for the configuration and layout of land subdivision in the County. They further establish standards for subdivision plat content and procedural submission requirements. Standards contained in these Regulations will also be designed to ensure implementation of certain Comprehensive Plan policies and objectives.

### Site Plan Regulations

Another tool to implement the Comprehensive Plan is the establishment of site plan requirements which provide for the review of proposed developments of a designated scale prior to their location within the County. In this way the provision of public services, impact on adjacent land uses and overall impact can be negotiated with the developer prior to approval by the County.

### Storm Water Management

Essex County implements a countywide storm water management plan based on guidelines from the Statewide Storm Water Management Programs. The plan includes provisions from the previous Erosion and Sedimentation Control Ordinance. Through the Storm Water Management Program, development requests are reviewed and monitored so as to assure that sedimentation is minimized and storm water erosion is prevented during land disturbance. This serves to control development to the extent that compliance with environmental protection factors must be met.

### Housing and Building Codes

Housing and building codes include the fire code, electrical code, housing code, building code and plumbing code. These are designed to protect the health, safety and general welfare of the residents of the County by providing minimum standards for all types of structures. Most of these codes have been incorporated into the Uniform Statewide Building Code and are in effect through the Office of the Building Inspector.

### Conservation Easements & Historic Districts

The provisions of Virginia law permit County ordinances to include protection against destruction of or encroachment upon historic areas. This can be included within the zoning ordinance or it can exist independently in the form of historic easements. The historic easement

is a means for private owners of historic properties to preserve these properties for public enjoyment without giving up their ownership. The easement includes a dedication of restrictions on future use and development of the property and places it in trust with a public or semi-public agency. The property owner, however, retains the right of continued ownership and usage as long as uses are consistent with the restrictions. There is also a provision for tax deductions. The County may wish to encourage owners of historic properties to consider their options in preserving identified historic sites and structures in the County. Similar State statutes permit a landowners voluntary formation of agricultural and forestry district. Encouraging landowners to create such districts further the comprehensive plan objectives for preserving farmland, forestland and rural character.

### Capital Improvements Program

Essex County is currently exploring creation of a Capital Improvements Program. A capital improvements program lists the local public improvements needed for a specified period. It identifies the estimated construction costs and the proposed funding source as well as the timetable under which such projects will be implemented. A capital improvements program serves to assist the County in carrying out the goals and objectives within the limits of the County's financial capabilities, and to assure adequate funding for capital improvements needed to facilitate delivery of services to County residents.

## SECTION TWO

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### POPULATION CHARACTERISTICS AND TRENDS

Study of the County population tells us more than just the number of people residing in Essex County. Historic accounts of population numbers and analysis of the change in numbers, by migration or natural increase, indicate population projections for future years. This enables the County to plan what types and amounts of various land uses and services will be required to accommodate and manage future growth. Age, education, and other demographic composition changes in the population indicate what types of services will be necessary in the future.

The 2010 Census shows the Essex Population to be 11,151, an increase of 1,162 people or 11.6% growth from the 2000 Census which reported the population at 9,989, Population is not rapidly growing in Essex County and the low to moderate trend in growth is expected to continue. Table 2-1 below shows moderate projections for Essex County over the next decade in comparison with the region and the Commonwealth.

**Table 2-1: Population Estimates and Projections**

	2000	2010	2020	2030
Essex County	9,989	11,151	11,884	12,477
Middle Peninsula	90,826	93,684	97,061	102,761
Virginia	NA	8,001,024	8,811,512	9,645,281

U.S Census Bureau, American Fact Finder 2007-2011

Table 2-2 shows a breakdown of the current population on Essex County by age groups. The table indicates that about 24% of the population is dependents. It also shows that 18% of the population is of retirement age. The median age of Essex County residents is 43.

**Table 2-2 Population Age Distribution**

Age	Number	Percentage	Age	Number	Percentage
<b>Under 19 years</b>	2,740	24.5%	<b>55 to 59 years</b>	831	7.5%
<b>20 to 24 years</b>	625	5.6%	<b>60 to 64 years</b>	821	7.4%
<b>25 to 34 years</b>	1,162	10.4%	<b>65 to 74 years</b>	1,078	9.6%
<b>35 to 44 years</b>	1,344	12%	<b>75 to 84 years</b>	621	5.6%
<b>45 to 54 years</b>	1,692	15.4%	<b>85 years and over</b>	237	2.1%

U.S Census Bureau, American Fact Finder 2007-2011

Table 2-3 shows population growth in relation to housing units.

**Table 2-3: Population and Housing**

	2010	2011	2012
Housing (units)	5761	5770	5778
Population	9,989	11,233	11,884

U.S Census Bureau, American Fact Finder 2007-2011

Table 2-4 gives projected age distribution of the Essex population and projections. The County population aged somewhat during the period. A corresponding modest reduction in the school age population was also evident through the same period. These trends suggest County programs may at some point require redirection in meeting the special needs (health care/transportation) of an older population.

The elderly (over 65 years of age) comprise 17 percent of the County's population and reflects the fact that people live longer and families retire or pre-retire to the Essex County waterfront. There is a significant decrease in the children under 5 due to the aging population as well. The 20-24 age group is significantly low due to out-migration as a result of migration education and job opportunities. The 45-54 age group decreases significantly due to migration and aging population.

**Table 2-4 Population Projections by Age**

	2011	2020	2030
Total	11,151	11,884	12,479
Under 5	649	602	646
5-19 years	2091	2,167	1,841
20-24 years	625	517	649
25-44 years	2506	2,766	2,911
45-54 years	1692	1495	1,443
55-64 years	1652	1778	1,581
65-74 years	1078	1576	1,702
75-84 years	621	740	670
85 and greater	237	243	186

U.S Census Bureau, American Fact Finder 2007-2011

Figure 2-1 shows the makeup of households in Essex County. The numbers indicate that 67% of households in Essex County are parents with dependents living at home. 46 % are married couples with dependents at home while 33% of households have no dependents living at home. More than 27% of

households have one member. Almost 21% of household have a single parent. 30% of households have children under 18, 30 %of households with individuals 65 and over.

**Figure 2-1 Distribution of Household and Families**

<b>Total households</b>	4,517	100.0
<b>Family households (families)</b>	3,028	67.0
<b>With children under 18 years</b>	1,130	25.0
<b>Husband-wife family</b>	2,093	46.3
<b>With children under 18 years</b>	641	14.2
<b>Single parent householder</b>	702	20.7
<b>With children under 18 years</b>	489	10.8
<b>Nonfamily households</b>	1,489	33.0
<b>Householder living alone</b>	1,235	27.3
<b>65 years and over</b>	168	3.7
<b>65 years and over</b>	326	7.2
<b>Households with individuals under 18 years</b>	1,370	30.3
<b>Households with individuals 65 years and over</b>	1,372	30.4
<b>Average household size</b>	2.43	( X )
<b>Average family size</b>	2.92	( X )

U.S Census Bureau, American Fact Finder 2007-2011

Table 2-5 shows that while 91% of the 25-34 population has obtained a high school education or equivalent, only 12 % have a college degree. This pattern is consistent throughout the age groups. This pattern shows that a low percentage of the population is college educated.

**Table 2-5 Population Educational Attainment**

Age	18 to 24	25 to 34	35 to 44	45 to 64	65 & over
<b>Total</b>	1,114	787	1,534	3,318	1,910
<b>High school or equivalent (GED)</b>	35.1	91.2	84.7	81.9	65.5
<b>Some College or Associates</b>	34.3				
<b>Bachelor's Degree</b>	7.6	12.1	13.1	19.4	14.8

Figure 2-2 shows that average household income in Essex County is \$44, 581 with more than 26% of families living below the median income. Nonfamily household median income is only \$25, 949 with 47% of nonfamily household living below the median income for their category. Nonfamily households compose 33% of the household population

**Figure 2- 2 Household Income Distributions**

	<b>Household</b>	<b>Families</b>	<b>Married-couple families</b>	<b>Nonfamily households</b>
	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>	<b>Estimate</b>
<b>Total</b>	4,420	2,899	2,057	1,489
<b>Less than \$10,000</b>	8.1%	4.3%	1.1%	16.6%
<b>\$10,000 to \$14,999</b>	4.4%	1.4%	0.9%	9.9%
<b>\$15,000 to \$24,999</b>	12.1%	9.0%	5.8%	20.6%
<b>\$25,000 to \$34,999</b>	14.8%	11.1%	10.4%	21.2%
<b>\$35,000 to \$49,999</b>	16.1%	19.9%	18.5%	11.8%
<b>\$50,000 to \$74,999</b>	18.5%	20.4%	22.7%	10.8%
<b>\$75,000 to \$99,999</b>	14.1%	17.5%	19.7%	5.7%
<b>\$100,000 to \$149,999</b>	8.2%	11.2%	14.5%	2.0%
<b>\$150,000 to \$199,999</b>	3.4%	4.6%	5.8%	1.2%
<b>\$200,000 or more</b>	0.3%	0.4%	0.6%	0.0%
<b>Median income (dollars)</b>	44,581	52,892	63,856	25,949
<b>Mean income (dollars)</b>	54,377	63,773	N	33,241

U. S. Census Bureau, 2007-2011 American Community Survey

## SECTION THREE

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# ENVIRONMENTAL CHARACTERISTICS AND NATURAL RESOURCES

### **Goal:**

Manage and enhance the natural resources and environmental quality of the County.

### **Objectives:**

- \* Protect and improve the water quality of the Chesapeake Bay and its tributaries through the implementation of federal state and local regulations, while at the same time encouraging economic growth.
- \* Protect and enhance the natural resources and environmental quality of the County through measures which safeguard the County's natural resources and environmentally sensitive lands and waters.
- \* Minimize adverse impacts of gas or oil drilling and development activities on public health, safety, welfare, the character of the County's communities, the environment and the Chesapeake Bay, thereby preserving the County's agricultural and rural character.
- \* Protect important tidal and non-tidal wetland resources within the county. Protect the important natural function of floodplains within the County by limiting disturbance caused by development activity.
- \* Protect and conserve the agricultural and forestry resources within the County, maintaining Essex's rural character, and supporting these important components of the County's economy.
- \* Preserve County shorelines by protecting against shoreline erosion.
- \* Protect and conserve areas that are important to plant and wildlife habitats within the County.
- \* Coordinate environmental quality protection efforts with future opportunities to establish public parks, natural recreation areas, and open spaces. Improve environmental quality on a site-by-site basis through the establishment of performance standards for environmentally sensitive development.

## Introduction

The impact of future growth and development on environmental quality in Essex County is an issue of concern and should be considered at both the planning and implementation phases. The effects of increased population and physical development manifest themselves on the natural environment in many ways, including: clearing of trees and natural vegetation, loss of plant and wildlife habitat, loss of valuable wetlands and aquatic habitat, lower groundwater levels, groundwater contamination and saltwater intrusion, degradation of surface water quality in streams and rivers, disruption of natural water drainage systems, air pollution, increased amounts of solid wastes, and loss of scenic natural views. Growth can manifest without unduly threatening the County's environmental quality by taking steps to ensure new development is designed and built in an environmentally sensitive manner.

Certain areas of Essex are more susceptible to environmental degradation than others due to the presence of sensitive natural features. Future development should be directed away from sensitive areas and guided to areas of the County where environmental impacts will be less severe. Proper management of the use of these will allow for conservation and enjoyment of the natural environment. All future development should meet minimum performance standards for environmental protection.

## Description of Natural Features & Environmental Quality Issues

Soil qualities, topography, and the presence of wetlands, floodplains, tidal shorefront and agricultural characteristics of Essex County influence development and are adversely affected by land disturbances brought on by development activity. An understanding of these natural resources and their limitations will assist in determining overall land use suitability as well as provide an indication of how and why such resources should be protected to maintain County environmental quality. The following sections identify those natural features that are considered significant in the County as a basis for determining how they influence and can in turn be influenced by development.

The Virginia Department of Environmental Quality administers state laws and regulations to improve and protect Virginia's streams, rivers, bays, wetlands and ground water for aquatic life, human health and other beneficial water uses. The State Water Control Board promulgates Virginia's water regulations, covering a variety of permits, permit fees, ground water management areas, ground water withdrawals and petroleum storage tanks. A report on specific regulations can be obtained from the following link to the Legislative Information System database, for each of the pertinent chapters listed in the [Virginia Administrative Code](#). As of July 1, 2013, the Chesapeake Bay Preservation Act, Erosion and Sediment Control Law and the Storm water Management Act are consolidated under the State Water Control Law and are under the jurisdiction of the State Water Control Board.

## Groundwater

The groundwater serving Essex County occurs in three major aquifer systems. Uppermost is the water table aquifer which is a reliable source of domestic water supply. This water source occurs 50 to 140 feet below surface and may be highly mineralized in some locations.

Occurring 150 to 200 feet below surface is the upper artisan aquifer system. It occurs consistently, making it a reliable source of individual domestic and subdivision groundwater supply. This system is currently providing water to light and moderate water users throughout Essex County for individual industrial and agricultural purposes and is of good quality.

Of great importance is the principal artisan aquifer system occurring 200 to 400 feet below surface in Essex County. Although deeper and more costly to access, this aquifer remains a future possibility for water supply.

Adequate groundwater supplies exist in Essex County for the present and foreseeable future. However, farming activities and the cumulative effect of attendant fertilizer, biosolids and pesticide application necessary for crop production over time can impair the quality of groundwater resources, particularly in areas where highly permeable soils permit these nutrients or pesticides to leak into water sources which also serve as drinking water supplies.

Likewise, improperly functioning on-site septic systems can degrade water quality as development of on lot systems grows over time. Finally, leaking underground storage tanks can also cause groundwater contamination. The County as well as state and federal agencies, has preventive measures in place through regulations to protect groundwater resources for future use

## Surface Water Quality

Water serves as a major attraction to tourists, residents and potential residents of Essex County. The entire eastern coast of the County is the Rappahannock River and several major inlets also attract development and are enjoyed for water sports. Swimming, boating, fishing, shell fishing and other water-oriented activities are dependent upon the maintenance of high standards of water quality.

Surface water quality is affected by run-off from agricultural and paved areas, wildlife, sewage treatment discharge, leaching of septic tank effluent and shoreline activity during construction. It is important to consider the impacts which various land uses will have upon waterways and identify potential environmental problems and solutions.

Several areas are presently condemned for commercial shellfishing by the Virginia Department of Health Bureau of Shellfish Sanitation. Commercial shellfishing is prohibited in these areas due to the quality of the water as tested periodically. As of March 2013, the boundaries of the

condemned area include all of the Upper Rappahannock River and its upstream tributaries and the Bowler's Wharf, Mark Haven Beach area. However the areas are tested frequently for water quality levels and condemnation statuses are subject to change.

The Rappahannock River has been over-enriched with biological nutrients such as phosphorous and nitrogen attributable to many of these causes. In tidal waters these nutrients are not flushed downstream as quickly as in nontidal waters. When these nutrients are oversupplied, algal blooms result which cause unpleasant tastes and odors in the water. Water turbidity reduces the availability of light to bottom growing submerged aquatic vegetation which is an important food source for wildlife and waterfowl. Public and private agencies such as Three Rivers Soil and Water Conservation District in cooperation with the Department of Conservation & Recreation have implemented Best Management Practices (BMPs) in Essex County to promote nutrient management deposited from land use activities such as manure, legumes, and residual nitrogen as well as commercial fertilizer. The conservation specialist consults with the farmer to develop a nutrient management plan, which includes soil analysis, manure or bio-solid analysis, and commercial fertilizer recommendations. In addition to the NM-1 (Nutrient Management) practice of plan writing by private planners, 20,446.5 acres were written for our district cooperators.

The Virginia Department of Environmental Quality recommends best management practices for agriculture such as maintaining vegetated buffers or filter strips along rivers and tributaries, using grass swales for drainage in agricultural fields, containing animal wastes, and limiting fertilizer applications. The County reinforces many of these measures through the Erosion and Sediment Control Laws, which are enforced by local ordinances.

#### Taylorsville Basin Shale Deposit

Since 2011, Texas-based Shore Exploration & Productions Corporation has leased mineral rights on the Middle Peninsula, including over 13,000 acres of land located on the north end of Essex County, north of Route 360 and predominantly west of Route 17. The leases are located within the Taylorsville Basin, a shale deposit that stretches from central Virginia to southern Maryland. Although no drilling has occurred to date in the County, it is important for Essex County to address the subject of energy production from hydrocarbon formations in the Taylorsville Basin.

#### Oil & Gas Exploration

Advances in non-conventional oil and gas drilling, known as hydraulic fracturing, have heightened interest in energy production from hydrocarbon formations in Virginia, including the Taylorville basin in Essex County. While energy development can bring jobs and economic development to the County, the industrial nature of oil and gas hydraulic fracturing can also bring unintended consequences that create conflicts with other important County goals and plans.

The term "oil and gas exploration and development" as used in the Comprehensive Plan is

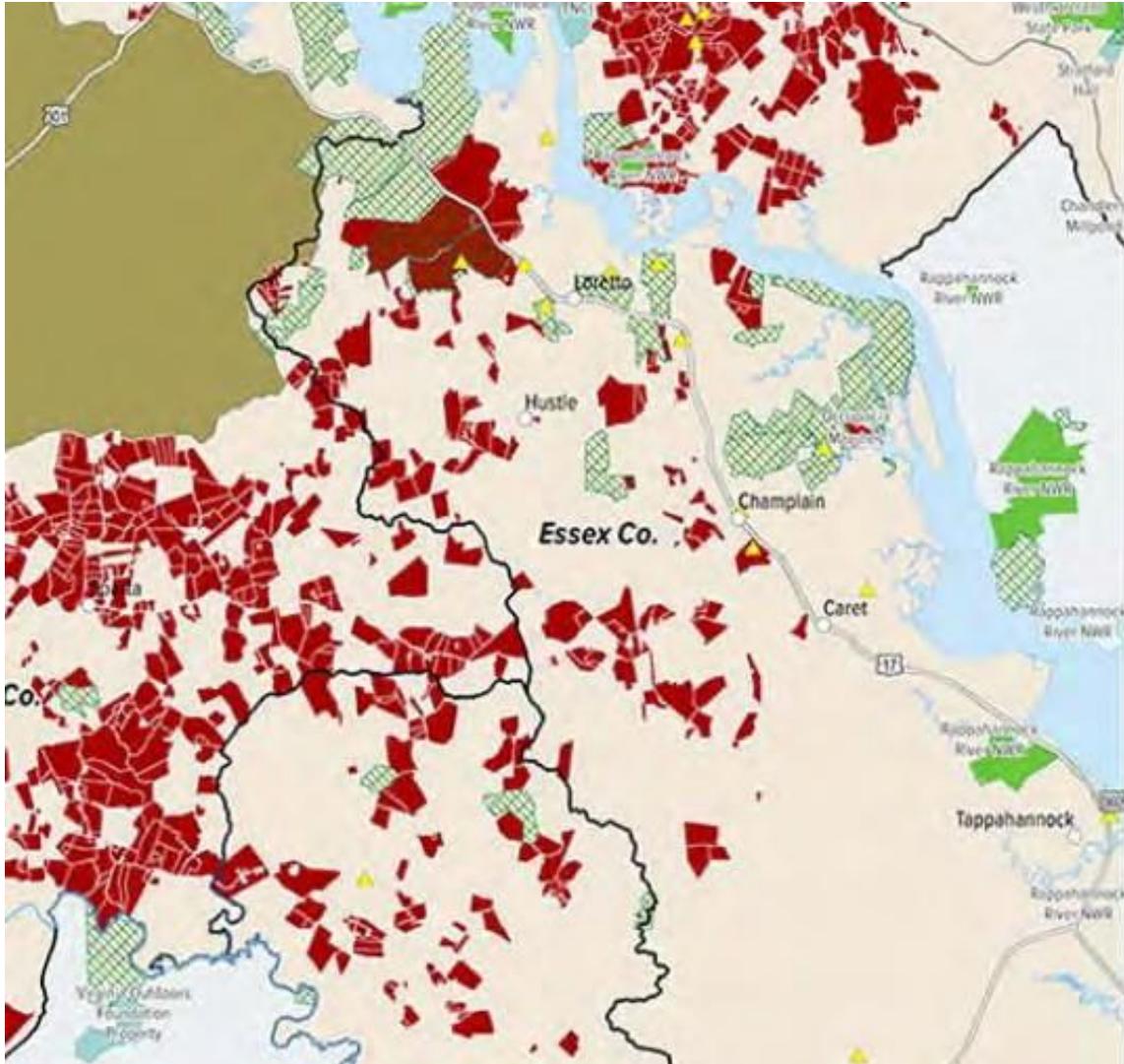
synonymous with and encompasses all on and off-site activities related to oil and gas exploration, extraction, development, infrastructure, site closure, completion, reclamation and transportation. The term "most effective performance technologies and practices" as used herein refers to the application of proven and emerging techniques, technologies or other Best Management Practices used in conducting oil and gas exploration and development which avoid, neutralize, exclude, eliminate, mitigate or minimize adverse on and off- site impacts to public health and the environment, landowners, and natural resources, and which may reduce conflicts between the goals and policies of the Essex County Comprehensive Plan, potentially affected landowners, and the oil and gas industry. These technologies and practices should be required if possible at every level and stage of oil and gas exploration and development.

Essex County recognizes that landowners with property in the Taylorsville Shale Basin or similar hydrocarbon resource areas identified in the future may choose to enter into leasing agreements to allow oil and gas exploration and drilling and related activities where hydrocarbon formations are productive and may become commercially viable. It is the County's objective to protect public health, safety, and welfare, the character of its communities, and the environment and its natural resources from adverse effects of industrial scale activities related to energy production from oil and gas exploration and drilling and to minimize potential long and short term land use conflicts between those activities and current or planned land uses. These include: compatibility with traditional rural economic sectors, such as agriculture, forestry, fisheries, recreation and tourism; increased costs in providing community services to address impacts to roads, emergency services, criminal justice, public health and affordable housing that could potentially result from oil and gas extraction; protection of air quality and water quality and supply; and conservation of natural resources and the Chesapeake Bay.

The County further intends to ensure that activities related to the conversion of hydrocarbon resources to energy will not jeopardize the County's long term commitments to its traditional rural economic sectors (e.g. agriculture, forestry, fisheries, recreation, tourism, etc.), or impact environmentally sensitive areas. Industrial activities related to energy production and oil and gas exploration should be located in non-agricultural areas where they are compatible with the character of the district and transportation infrastructure, and where utilities are sufficient to support such highly intensive land uses. County land use policies for oil and gas exploration are intended to augment Federal and State operational regulations governing energy development. Essex County seeks to provide guidelines for minimizing potential land use conflicts and to ensure that industrial uses related to energy production are sited with other comparable land uses and facilities.

### **Map 3-1**

**ESSEX COUNTY PROPERTIES WITH LEASES ALLOWING FOR OIL AND GAS EXPLORATION**



Commercial and Recreational Fisheries

The Rappahannock River adjacent to Essex County, serves as spawning ground to millions of shad, herring and striped bass, yellow perch during the months of April and May each year. Below the fall line at Fredericksburg, the Rappahannock broadens into a tidal estuary where fish, oysters, and crabs are abundant. Watermen make a living from the river and contribute the County's economy; the river primarily supports recreational fishing interests in tributaries along the Rappahannock, particularly larger creeks such as the Piscataway near Tappahannock.

Of the 2,848 square mile in the Rappahannock basin, 61% is forested and 35% is covered by cropland and pasture, while only 4% is developed. The Rappahannock is impacted very little by development growth in the County, however, oxygen concentrations in the waters have dropped to lower levels due to periodic algal blooms which decay and rob the water of oxygen. Stands of submerged aquatic vegetation throughout the river have adversely impacted the aquatic habitat. Catches of certain fish and shellfish species, such as shad, river herring, and oysters, have declined in recent years.

Since 35% of the land in the Rappahannock basin is used for agricultural purposes, much of its pollution is believed to come from agricultural runoff including soil, pesticides, and fertilizer. Fertilizers over enrich the water with nutrients, in turn depleting oxygen supplies.

The Rappahannock River, tidal waters, and flowing streams of the County are resources for recreation and commerce and are essential to the growth and diversification of the economic base for the area. With the subdivision of large tracts of waterfront property into numerous smaller lots, each under private ownership comes the competing interests of those owners seeking privacy and the upland residents and tourists seeking use of the waters. This concern leads to the need of greater management capability over waterfront access and uses.

The surface waters of Essex County hold various fish species for commercial fisheries as well as sport species. A disruption in the ecosystem can cause far-reaching effects, threatening the livelihood and health of those dependent upon these resources. Groundwater travels slowly through the unconsolidated soils of the region, making its way to the surface springs and wetlands. Along the way, contaminants from the land can be swept along the groundwater and find their way into the open water systems. Based on these observations, two things are evident. First, there are direct relationships and pathways between the uplands, wetlands, and water bodies as well as the inhabitants of each. A second fact is that a number of small, seemingly insignificant environmental degradations add and multiply in overall impact and damage.

Since an entire watershed or creek can impact shellfish growing water quality due to non-point pollutants, the entire land area should be subject to reserve drainfield and five-year pump-out requirements for on-site sewage disposal systems. Aquaculture projects, including shellfish depuration facilities, should be considered "Water Dependent Facilities" for purposes of compliance with local land use ordinances. Waters presently approved for the harvest of shellfish should be protected from degradation due to pollution from point and non-point sources

by including surrounding lands in Chesapeake Bay Preservation Areas.

The County Chesapeake Bay Preservation Program offers an opportunity to incorporate fisheries protection measures in local land use ordinances. The designation of Chesapeake Bay Preservation Areas will offer protection to wetlands and other shallow water habitat vital to fisheries. In addition, requiring reserve drainfield areas and five-year pump-outs for septic systems should reduce pollutants contributing to restrictions on shellfish harvest.

The Essex County Zoning Ordinance incorporates the performance criteria related to the CBPA, including those which aid in the protection of commercial and recreational fisheries. The studies of critical fisheries habitat related to expanding Preservation Areas or watershed planning should be pursued as part of assistance programs provided by the CBLAD.

There are two broad recreational uses of the waterfront. First, the use of the waterfront for boating access, whether at a marina, a boat dock, ramp and pier, or car-top boat landing. Second is the utilization of the shoreline and near-shore areas for recreational activities such as swimming, bank fishing, nature studying, and picnicking. Both activities can be accommodated by public or private facilities. Both boating and shore recreation are allowed exemption as "water dependent facilities" under the requirements of the CBPA, provided that non-water dependent components are located outside of the RPA.

Boating access to the tidal waters of Essex County is provided at several public docks and ramps, several private marinas, and by individual or community piers.

Commercial marinas in the County are limited to two locations. The June Parker Marina or Tappahannock Marina is located at the edge of the town along the Rappahannock shorefront just north of the Bridge. The facility provides slips for some 40 boats. Boat storage facilities are also provided. Garretts Marina provides facilities to accommodate some 60 water craft and is located downstream near the southern end of the County's riverfront at Bowler's Wharf.

Publicly owned lands which are County or Town owned provide limited boat launching or swimming/fishing beach facilities in Essex County. These facilities which are largely unimproved include:

- the Layton Launching Ramp located at the end of route 637 just south of Otterburn Marsh;
- Wares Wharf, located at the end of Route 611, located below Lowry's Point;
- the Bowlers Wharf boat ramp located at the end of Route 660;
- Boat Launching area at the foot of Prince Street in Tappahannock, and;
- Boat Launching facilities at Hoskins Creek in Tappahannock.

A public boat launching area adjacent to Route 17 along Piscataway Creek provides access to fresh water fishing opportunities in the County and is perhaps the most actively used boat

launching facility in the County.

Limited boating activity is also accommodated in 4 to 5 community subdivisions or developments along the County's riverfront below Tappahannock. These facilities generally consist of a shared pier facility and moorings for only a few boats owned and managed by Community Homeowner Associations. They include the Jones Point Community Association; the Point Breeze and Rappahannock Shores Community Association (both near Dunnsville), and the River Oaks Community Association located south of Garrett's Marina. The location of most of these facilities which provide boating access to the Rappahannock is shown on Map 15-1.

Due to the limited number of boating facilities and generally low level of boating activity in the County, no significant water quality problems are known to exist as a result of boating activity. The County will need to monitor such activities as growth occurs.

With the demand and subsequent subdivision of waterfront property comes the increase in piers and docks associated with waterfront housing construction. In some areas, individual private piers have proliferated. Some subdivision developments have provided a community docking facility to serve the needs of all residents including both waterfront and landlocked homeowners. This option eliminates the numerous private piers and consolidates all boating activity to one area and under a single management structure; however, there may need to be limits and controls on the size and operation of such a facility.

Waterfront recreation areas are also provided through public and private avenues. Public beaches and parks are options for recreation and nature study. Private recreation areas can also be found in some residential developments, usually in conjunction with a community boating facility. The management of waterfront access options and opportunities concerns the competing interests and costs of public facilities and private facilities and the protection of the environment. Public and private access to the water and shoreline areas is important to the economy and environment of Essex County.

Operation of boating facilities can induce activities which can also bring about impacts once facilities are constructed. Several factors indicate demand for additional boating facilities is low in Essex County at the present time. The location of the County is upstream from saltwater fishing opportunities and therefore access to these opportunities can be more readily provided from facilities located downstream outside the County. The population in the County does not significantly drive demand for waterfront boating facilities.

Potential for the location of additional marina facilities is also limited by the features or characteristics of the County shorefront. Tidal marshes front 84% of the County shorefront. Along many of these reaches boating facilities would require wetland disturbances to secure access and would likely have adverse impact on wetland habitat. Moreover, shallow water depths in near shore locations would require dredging to provide access for boating causing bottom disturbance to fish and other aquatic habitat.

Many areas of the County shorefront, particularly north of the Town of Tappahannock, are also distant from the Route 17 corridor and are served by narrow rural roads in areas dominated by agricultural uses and lack both the access and facilities necessary to support commercial marina facilities. In such locations, the introduction of boating facilities would be incompatible with the rural character of the shoreline and present land uses.

### Shoreline Condition

The flatland of Essex County ranges from low shore to high shore with bluff, with several areas of artificial fill. Although eighty-nine percent of the shoreline is low or moderately low shore (sometimes with bluffs), flooding is not usually a problem except in a few specific areas.

The Middle Peninsula Planning District Commission has done some modeling of sea level rise in order to assist local governments in future planning. The maps depict which waterfront areas will experience flooding and to what degree flooding will impact these areas, many of which are currently undeveloped.

Tidal marshes, including fringe, embayed and extensive marshes, comprise eighty-four percent of the County's shoreline. The Virginia Wetlands Act of 1972 controls any proposed alterations to these areas, as marshes, especially embayed and extensive marshes, serve vital ecological functions, serve to filter nutrients in runoff and have valuable flood and erosion protection qualities.

Fringe marshes occur intermittently along the Rappahannock shoreline, and frequently along the creek shores. Eighty-six percent of the shoreline has some marsh frontage. Though there are several nice beaches fronting private residences, most areas have thin, strip beaches, often with vegetation. No public beach areas presently exist. Only 16.62 miles of the total 120.68 miles does not have marsh present. In contrast, there are very few beaches; only 1.88 total miles were observed. Bulkheads, groins, and riprap are installed along the Rappahannock shoreline for shore protection. There are no surveyed protection structures along the creeks. Shore protection structures are difficult to detect using remote sensing techniques and imagery at this resolution. Therefore, the absence of shore protection structures in areas above the bridge is not verified. Private, recreational structures are noted throughout the area.

Majority of the Essex county shoreline is use for agricultural purposes, such as farming and forestry. Only a small percentage is developed for residential uses. The current status of the Essex County shoreline is best characterized in the Essex County and Town of Tappahannock Shoreline Situation Report, prepared by the Virginia Institute of Marine Sciences (VIMS) in June, 2001. Of the 317 miles of shoreline in Essex County the report noted that only 7.5% is developed for residential or commercial use. 92.5% remains in forest, agricultural or other open space use.

## Shoreline Erosion

Shoreline retreat in Essex County is dependent upon several factors, combinations of which control the rate of erosion or accretion in a given area at a given time. There are three basic causes of erosion which can affect a river system such as the Rappahannock River. A prevalent cause of shoreline retreat is downhill rain runoff. This is a basic weathering of the shoreline due to rain waters. Continued washing away of the soil causes the trees to eventually fall, carrying with them large amounts of soil suspended in the root systems.

Runoff erosion and the ensuing pollution from agricultural areas can and is increasingly being eliminated with better farming practices which have evolved as a result of concern for bay water quality and the efforts of the U.S. Natural Resource Conservation Service to develop Soil and Water Conservation Plans in conjunction with farm landowners.

Wave action is the primary cause of most erosion along the County's shoreline from Beverly Marsh east toward the river mouth. The longest fetches and usually the most powerful wind generated waves are from the southeast, north, and the northwest along this section of the County's shoreline. Those winds from the south are very powerful and thus can cause much erosion even without a large fetch.

The 100-year average erosion rate for much of this section of the shoreline is 1.5 to 2.5 feet per year, with several areas having rates of from 3 to 4 feet per year. Approximately 7.4 miles of the shoreline have been artificially stabilized, however, erosion is continuing in unprotected areas. Beaches and marshes are natural barriers against erosion of the flatland. Both absorb the incident wave energy and therefore inhibit the erosion of the flatland. However, the beaches are usually very thin along the shoreline of Essex County due to a limited supply of sand in the littoral drift. Many areas, especially around Tappahannock and east of the town, have been artificially stabilized. These structures have usually been constructed on an individual basis, as compared to a sectional or community basis.

The 2001 Shoreline Situation Report indicated that only 4.3% of the total shoreline is bordered by accorded structural protection from erosion in the form of bulkhead or rip-rap. Within the County there are a significant number of piers, boat houses, boat ramps and other accessory structures, most of which are located south of Tappahannock on the Rappahannock River shoreline.

MPPDC conducted a study to determine the efficacy of incentivizing the use of living shorelines in Virginia through the establishment of a revolving loan fund. The study gauged the extent to which access to low-interest loans might influence a homeowner's decision as to whether to install a living shoreline as opposed to a more conventional erosion control system, MPPDC partnered with VIMS, CCRM to survey property owners who had recently installed shoreline erosion control measures. The Center for Coastal Resources Management, Virginia Institute of

Marine Science gathered information on property owners' interest primarily through a questionnaire, in low-interest loans for living shorelines projects.

The conclusion drawn from the 155 questionnaires collected supported the option of a below-market loan to provide an incentive for use of living shorelines. Almost half (49%) of the respondents answered "yes" and "maybe" represented 23% to whether a low interest loan would influence their selection of a living shoreline approach to erosion control on their property.

### Soils

An important determinant of future development is the quality of the County's soils. Construction of roadways, building foundations, septic systems, forests, agriculture, and waste disposal depend upon soil conditions for their location. Therefore, type of land use, to a major degree, is dependent upon soils. The recent development and usage of alternative waste water systems has opened much of the land area that was previously considered undevelopable to potential future development.

A detailed soils survey was prepared for the County in April 1989. The survey outlined numerous types of soils found in the County. Each soil association area contains soils of major extent and others of minor extent, with the overall soil area being named for the dominant soils. For more detailed evaluation of soils on a particular site, the County Soil Survey should be consulted.

- **Emporia - Rumford - Slagle Association**
- **Emporia- Slagle – Atlee Association**
- **Tetotum - Tomotley - State Association**
- **Rappahannock - Molena - Pamunkey Association**
- **Rumford – Suffolk – Emporia Association**

More information on these various soil types of soil may be obtained through the

<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm> or by contacting the Virginia Department of Health.

### Highly Erodible Soils

Highly erodible soils are those soils which have a high potential for erosion and sedimentation. Both of these factors act to increase precipitation runoff velocity which in turn serves to loosen and remove certain soil particles. The extent to which soil particles are moved or the soils "erodibility factor" varies depending on soil texture, infiltration rate, permeability and other

factors. Soils which are highly erodible in Essex County are identified on Map 3-2. Over half of the County land area is characterized by the presence of highly erodible soils. These soils are less frequently present along the County's Rappahannock shorefront, but are often located near inland stream systems.

Highly erodible soils, if improperly disturbed or exposed, can contribute to water quality degradation through sedimentation and siltation of water bodies. In addition, nutrients and toxics may be attached to soil particles which can be transported and released to the aquatic environment through erosion.

When development occurs in highly erodible soil locations, plans required for sediment and erosion control should be carefully reviewed and Best Management Practices (BMPs) should be employed to minimize soil erosion. Such practices should include minimizing the land disturbance necessary and protecting indigenous vegetation on the site to the maximum extent feasible. Additional BMP's should also be considered as may be recommended by the Chesapeake Bay Local Assistance Department.

The County should also encourage the preparation and implementation of Soil Conservation and Water Quality Plans and Nutrient Management Plans on farms in the County, particularly on farms where the presence of highly erodible soils is indicated or where farming activities are concentrated in Resource Management Areas, that are adjacent to County stream systems.

#### Highly Permeable Soils

Highly Permeable soils transmit water at such a rate that there is a potential for surface pollutants such as nutrient and other chemicals and sewage wastes to infiltrate, undegraded, into nearby surface water and groundwater systems. Highly permeable soils are those which can be characterized as having permeability equal to or greater than six inches of water movement per hour in any part of the soil profile to a depth of 72 inches. Map 3-3 identifies the general location and extent of highly permeable soils in Essex County. These soils are present in widely scattered locations throughout the County.

Highly permeable soils transmit water at such a rate that there is a potential for surface pollutants such as nutrients and other chemicals and sewage wastes to infiltrate, undegraded, into the nearby surface water and groundwater systems. Highly permeable soils are highly susceptible to pollutant leaching, and thus have a greater potential for groundwater pollution as well as pollution of surface waters. Soil permeability is particularly important in relation to design of soil drainage systems and septic tank absorption fields. Excessive seepage or infiltration from septic tank absorption fields can cause health problems through pollution of underground sources of domestic drinking water. Shallow groundwater resources or surface aquifers are also a source of water for streams in the County which flow into the Rappahannock River and the Chesapeake Bay.

County policies should discourage development in areas characterized with highly permeable soils by limiting permitted residential development densities. The County should periodically review the County Land Use Plan and Zoning structure to limit the density of development permitted on highly permeable soils in these areas, particularly when no waste treatment facility alternatives to conventional septic systems are practical.

In rural County locations, where there are no plans for extension of wastewater treatment facilities, the areal extent of residential districts as shown on both the land use plan map or zoning map(s) should be limited in size and where possible removed from locations where highly permeable soils are concentrated.

Use of alternative waste treatment technologies should also be considered as an alternative to use of onsite waste disposal (OSWD) systems in those areas with sensitive soils (either highly erodible or highly permeable). However, until such time as alternative waste treatment technologies can be demonstrated to be both cost effective and protective of surface water and groundwater quality, the County should rely on measures to better manage the design, operation, and maintenance of septic systems while limiting their prospective location through density limits established in the Zoning Ordinance to the extent possible.

### Topography

The terrain of Essex County varies from flat to gently rolling. Land of less than 8% slope comprises the majority of the southern and eastern portion of the County, with greater slopes (over 8%) occurring intermittently along creeks and swamp areas. Steep slopes are generally not considered a major deterrent to development. Map 3-4 provides a general representation of the location of steep slopes (over 25%) in the County.

### Floodplains

Floodplains serve a number of resource protection functions including moderating the impact of floodwaters which in turn reduces erosion and sedimentation. Floodplains help maintain water quality, recharge groundwater supplies, protect fisheries, and provide habitat and natural corridors for wildlife movement.

Floodplains are nearly level land areas which border streams and rivers are occasionally flooded unless artificially protected. The actual boundary of a floodplain varies significantly depending on the designated frequency of flooding. The 100-year floodplain is the area which has a 100 percent probability of being flooded at least once during a 100 year time period; or a 1 percent change of flooding each year. Floodplains are areas which are subject to predictably recurring overflows from nearby bodies of water, including streams, rivers, bays, and oceans. A floodplain acts as a natural reservoir for such an overflow by storing excess water and thus reducing the volume and speed of the flood water's effects downstream. The removal of natural vegetation through land development within a floodplain diminishes the natural flood control

capacity of the area. The result can be an increase in non-point source pollution of the water body through severe soil erosion.

The floodplain is divided into two sections; the floodway and the floodway fringe. Federal Emergency Management Agency (FEMA) requirements address the direct aspect of potential damage that can occur if new development takes place in areas subject to flooding. To qualify for flood insurance, floodway development is prohibited, and floodway areas are, therefore, well protected. The floodway is the land areas which is directly adjacent to the water channel. Although FEMA does not prohibit construction in the floodway fringe, development is not encouraged. Floodplain development can result in a major loss in the storage capacity of flood waters, alter drainage patterns, and cause an increased velocity and volume of runoff. While development located on the filled floodplain is reasonably safe from flooding, areas downstream may experience increased flood heights and greater channel water velocity.

The Biggert Water Flood Insurance Reform Act of 2012 calls on the Federal Emergency Management Agency (FEMA), and other agencies, to make a number of changes to current flood maps and the way properties are categorized as it pertains to flood risks. The proposed changes will mean premium rate increases for some—but not all—policyholders over time.

FEMA offers Community Rating System (CRS), a voluntary program for National Flood Insurance Program (NFIP)-participating communities. The goals of the CRS are to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management. The CRS has been developed to provide incentives in the form of premium discounts for communities to go beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding. These discounts are passed on to the individual property owners through a reduction in their flood insurance premiums. A community must be in full compliance with the NFIP to be eligible.

While protection of life and property provided the initial basis for protection of floodplains, there has been a growing recognition in recent years that limiting disturbances within floodplains can serve a variety of additional functions with important public purposes and benefits.

The minimum requirements of the National Flood Insurance Program do not prohibit development within the 100-year floodplain. However, to adhere to the minimum federal requirement, the County requires development and new structures in the floodplain to meet certain flood protection measures, including elevating the first floor of structures a minimum of one foot above 100 year flood elevations and utilizing flood-proof construction techniques. Moreover, where alternative building sites on a parcel are available for construction outside the 100-year floodplain, construction outside of the floodplain is preferred.

Map 3-5 identifies the general location of floodplains in Essex County. These areas are generally located along the Rappahannock shoreline or are located adjacent to County stream

systems. More detailed maps of the County's 100-year floodplain are available for inspection in the office of the County Administrator. Therefore in most cases, extending protection measures recommended for streams to provide a 100 foot buffer will provide substantial protection to co-located or adjacent floodplain resources which are often located within the buffer.

The County should consider increasing the size or width of the 100 foot stream buffer where more extensive wetlands are located between streams and development disturbances.

### Groundwater Resources

Earlier sections of this plan indicate that groundwater supplies generally appear adequate to satisfy projected demand for water consumption in the foreseeable future in Essex County. Nevertheless, the County should make every effort to protect groundwater resources for future use. The chief sources of potential groundwater contamination in the County are from contamination by improperly functioning septic systems, long term agricultural use, and the isolated impacts of leaking underground storage tanks. The following Strategic Plan for managing water resources in Essex County has been developed:

Map 3-2

Highly Erodible Soils

Map 3-3

Highly Permeable Soils

Map 3-4  
Steep Slopes

Map 3-5  
Flood plains

## Wetlands

Wetlands are valuable for the many physical, hydrological, biological, and cultural functions which they provide. In Virginia, tidal wetlands are protected by the 1972 Wetlands Protection Act, as amended. This law requires a special permit prior to starting construction, dredging, or filling a tidal wetlands. The Act also empowers local jurisdictions to establish Wetlands Boards which may review and decide permit requests. Essex County has a Wetlands Board. The Virginia Marine Resources Commission has the ultimate authority to administer the Wetlands Protection Act and reviews all decisions issued by local boards.

Nontidal wetlands are currently federally regulated by Section 404 of the 1977 Clean Water Act, as amended, which prohibits disposal of dredged or fill material into "waters of the United States" and adjacent wetlands. This has been broadly interpreted by the Environmental Protection Agency (EPA) to include virtually all surface waters in the nation, regardless of size. The Virginia General Assembly is currently considering statewide nontidal wetlands protection legislation.

The Chesapeake Bay Preservation Act and Chesapeake Bay Preservation Area Designation and Management Regulations establish mandatory provisions for local Tidewater jurisdictions to protect wetlands and water quality. This legislation and its implications for Essex are discussed later in this chapter.

## Tidal Marshes

Tidal Marshes are located along 84% of the County's Rappahannock River shorefront and in many cases are extensive in the land areas they occupy. Noteworthy are Otterburn and Beverly Marshes as well as extensive marsh areas along Broad Creek, Taylors Creek, Hoskins Creek, Piscataway Creek and Dragon Run Swamp.

With decreases in salinity in the upper reaches of the creeks and rivers, vegetation becomes more diverse. The wildlife species present depend on salinity, marsh elevation, soils, and other factors. Those marshes have the greatest diversity of vegetation, such as those in brackish waters, have the highest wildlife values.

## Nontidal Wetlands

Nontidal wetlands typically include freshwater swamps, bogs and low lying areas where water stands on or close enough to the surface to create oxygen poor conditions in the soil. Special types of plants called hydrophytes are adapted to these conditions and usually indicate the presence of wetlands. Other nontidal wetland indicators are waterlogged soils and drainage patterns that show physical evidence of flooding.

The U.S. Fish and Wildlife Service has mapped all County nontidal wetlands of three acres or

more in size as part of the National Wetlands Inventory. Map 3-6 provides a general representation of the location of both Tidal and Nontidal Wetlands in the County.

### Forest Resources

The forest industry in Essex County is an important component of the County economy and County rural character. Roughly 64.5% of the total County land area is established in forest cover. The management of forest resources is important when considering forested areas as biological habitat or for their value in protecting water quality. Forested areas provide habitat for numerous plant and wildlife species and also are an excellent filter area for wetlands groundwater recharge. Forests also form an excellent windbreak in agricultural areas and serve to prevent windblown soil erosion. In addition, forested areas serve as an effective visual and noise buffer between land uses. Best management practices for the timber industry ensure the conservation of the County's extensive forest resources.

### Wildlife

The number and diversity of wildlife species present in an area is determined in part by the quantity and quality of wildlife habitat which is available, especially food availability and cover. The major threat to indigenous species in developing areas is the fracturing and fragmenting of habitat areas. When habitat is cleared for development or agriculture, not only is the cleared habitat area lost, but the habitat area is also degenerated at the development edge. This results in disturbance to interior habitat areas as well. Certain species of wildlife require large, unfragmented habitat areas in order to survive.

The Virginia Department of Conservation and Historic Resources' Natural Heritage Program and the Department of Game and Inland Fisheries' Fish and Wildlife Information System currently maintain inventories of wildlife resources and habitats for the County. Endangered and threatened plant species are protected by the Virginia Department of Agriculture and Consumer services, which uses information from the Natural Heritage Program inventory. The U.S Fish and Wildlife Service has acquired and developed two bald eagle refuge sites, each located north and south of Tappahannock on Piscataway Creek. The two sites, consisting of over 1000 acres of land, is home to black duck, mallards, Canada geese, a variety of fish that spend their life in the salt and migrate to fresh water to spawn (anadromous fish) as well as various plant life.

The Natural Heritage Program was established in 1986 in joint cooperation with the Nature Conservancy to identify elements of natural biological diversity which are of rare or special concern in Virginia. The program focuses on rare plants, animals, geological landmarks, natural ecological communities, and other natural features. The Natural Heritage Program also makes information on acquiring environmental easements available to property owners. The Department of Game and Inland Fisheries has a similar information base of wildlife for planning and management purposes.

Map 3-6  
Wetlands

Map 3-7  
Resource Protection Area Map

## The Chesapeake Bay Preservation Act

The Chesapeake Bay is an important natural resource in the Tidewater Region of Virginia. The State of Virginia adopted the Chesapeake Bay Preservation Act which mandates all Tidewater Virginia localities to establish programs, plans, and ordinances to protect and improve Bay water quality. These "local programs" must be in conformance with the Chesapeake Bay Preservation Area Designation and Management Regulations adopted by the Virginia Legislature in September 1989. In Essex County, the Rappahannock River watershed and all associated tributaries are affected by these regulations.

The purpose of the Act is to protect and improve the water quality of the Chesapeake Bay, its tributaries, and other state waters by minimizing the effects of human activity on the Bay and its tributaries. The Chesapeake Bay Preservation Act provides for the definition and protection of certain lands called Chesapeake Bay Preservation Areas (CPBA). The Act establishes the criteria for identifying properties to be identified as CBPA and regulations used by local governments in granting, denying, or modifying requests to rezone, subdivide, or to use and develop land in Chesapeake Bay Preservation Areas. The regulations identify the requirements for changes which local governments shall incorporate into their comprehensive plans, zoning ordinances, and subdivision regulations to protect the quality of state waters pursuant to the Chesapeake Bay Preservation Act. Essex County with the assistance of the Middle Peninsula Planning District Commission has identified and mapped Resource Protection Areas with all other County land area designated Resource Management Areas consistent with the Acts requirements. Effectively, both classifications render the entire County within the Chesapeake Bay Preservation area.

## Essex County Chesapeake Bay Preservation Program

The purpose of Essex County Chesapeake Bay Preservation Program Comprehensive Plan Element is to use the collection and analysis of water and land use data and characteristics to develop and implement policies and strategies to protect and improve the water quality of the Bay and its tributaries. The most current and accurate information sources available are utilized for the adoption of the program.

The goal of the inventory of natural and manmade features is to identify the areas within the County which require and should be considered for preservation under the Chesapeake Bay Preservation Act (CBPA) regulations. These areas include: tidal wetlands, nontidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams, tidal shores, floodplains, highly erodible soils, highly permeable soils, other nontidal wetlands, and other lands whose characteristics may have a significant impact on water quality protection.

MPPDC has published the Comprehensive Water Quality Management Plan for the Middle Peninsula which provides analysis, and policy review concerning water quality issues in the region. Specifically, the two elements of the Management Plan provide information relevant to Middle Peninsula localities' on-site wastewater treatment, potable water supply, boating

facilities, living resources, waterfront access, existing land use and water quality (including pollution sources), and a general description and economic analysis of the region.

Other documents referenced directly or through familiarity include the CBLAD's Local Assistance Manual; the Virginia Institute of Marine Science's (VIMS) Shoreline Situation Report for Essex County; and other federal, state, and local studies.

### Resource Protection Areas

Resource Protection Areas (RPAs) perform natural pollution control functions. Biological activities and physical characteristics in these areas are especially effective in controlling runoff, trapping sediment, and recycling nutrients and pollutants. Components of RPAs are certain wetlands, tidal shorelines, and buffer areas.

Tidal shore stability is generally governed by three main determinants; the amount of beach material, the intensity of natural and human forces, and the stability of sea level. The occurrence of tidal shore erosions is considered a natural process and becomes a serious problem when human structures and activities unnaturally intrude into this process. Vegetated buffer areas provide a wide variety of environmental benefits, including sediment control, nutrient assimilation, stream back stabilization, in-stream temperature maintenance, flood control and protection, groundwater recharge area protection, and runoff volume reduction.

The RPA's purpose is to protect environmentally sensitive land and water areas from the adverse effects of human activities, thus improving and protecting the quality of water both locally and regionally. The components of the RPA are prescribed by Virginia statute, with the local option to include other lands where RPA designation is necessary to provide a high level of protection to the quality of state waters. Essex County has designated an RPA which consists of all tidal wetlands and nontidal wetlands. The extent of the County RPA is shown on Map 3-4.

The implementation of the RPA goals is through an RPA overlay district of the Essex County Zoning Ordinance. The zoning ordinance includes a general designation RPA map in addition to the performance criteria to be included on specific site plans. The subdivision, erosion and sedimentation control, and floodplain ordinances include provisions related to preserving water quality as related to CBPA. To provide successful implementation, it is necessary to improve the capacity of both the county staff and general public through supporting educational opportunities related to Chesapeake Bay Program enforcement and management.

### Resource Management Areas

The Chesapeake Bay Preservation Act and Criteria Regulations establish the Resource Management Area (RMA) as the landward component of Chesapeake Bay Preservation Areas. RMAs are important in terms of water quality primarily because if improperly used or developed, they could release significant amount of non-point source pollutants into the surface

and ground water systems. The regulations do not limit the types of land use and development that may occur within the RMA. Instead, a variety of performance criteria will be applied to any use or development within RMAs to ensure that those land disturbances that do occur will minimize the adverse impact on water quality. The performance criteria apply to stormwater management, on-site sewage disposal, and land disturbance /stabilization.

Essex County has chosen to designate the entire County as a Resource Management Area (RMA). The extent and distribution of the land features considered as RMA components are such that few areas of the County are lacking in these features. In order to maintain the goal of high water quality within the County and region, the policy of the County is to include all lands as RMAs when those lands are not designated as RPAS.

The implementation of the RMA goals will be accomplished by specific provisions in the County zoning, subdivision, erosion and sedimentation control, and floodplain ordinances. Implementation will also rely on an effort to improve the capacity of staff and general public through supporting educational opportunities related to managing and enforcing the Chesapeake Bay Program.

#### Development Suitability

The land and water within Essex County varies in characteristics and natural function. Features such as topography, hydrology, soil type, vegetation, and geographic location all serve to influence land development. With the advances in construction methods and materials and sewage disposal technology together with the increase in population and property values, land which once may have been considered undevelopable is being engaged for development pursuits.

The Chesapeake Bay Preservation Act has highlighted the concern for land disturbing activities which cause water quality degradation through non-point source pollution. In addition, the use of methods of limiting or preventing non-point source pollution, such as Best Management Practices (BMP's), indicate that there are reasonable means to reasonable development. To further explore the compatibility of development to the land site, additional steps of analyzing the suitability and capacity of the site are needed.

A detailed, site-specific soils survey would provide the information necessary to match the suitability with the uses proposed for the site. The topography and hydrology of the site should be of a detail such that overland sheet flows of storm water can be predicted. Knowledge of the vegetation and wildlife habitat is important for a site as well as for the surrounding areas. The comprehensive analysis of all these features can lead to development sensitive to the natural resources.

When development activities are proposed, options to mitigate impacts and utilize BMPs must be considered. It is envisioned that the level of detail of the suitability analysis will provide the owner with the information to balance the management options presented by the site.

Essex County has determined a comprehensive development suitability analysis to be necessary to the optimum function, design, and environmental preservation of land development sites. The comprehensive development suitability analysis should include a detailed inventory of soils with the capacities for on-site sewage treatment, erosion potential, and vegetation growth documented. Discussion of wildlife habitat and other significant environment should be included. Mitigating factors, such as the use of BMP's should be included.

The requirement to conduct a comprehensive development suitability analysis will be implemented through the County's plan of development procedures, including zoning and subdivision ordinances.

### Protection of Potable Water Supply

The Coastal Plain aquifers of Virginia provide the groundwater for domestic and industrial uses. The upper aquifers are used primarily for domestic purposes because of lower yields. These are the Yorktown-Eastover and the Columbia aquifers. High yield can be found in the artesian aquifers known as the Chickahominy-Piney Point and Aquia aquifers. Sufficient groundwater quantities for subdivision, light industry, and agriculture uses can be tapped in these layers. The lower three aquifer layers, the Brightseat-Upper Potomac, Middle Potomac, and Lower Potomac, can supply large amount of water; however, the quality is impaired by high concentrations of minerals and chlorides. Based on the capacity of each of these aquifers, Essex shows a good potential for future development utilizing groundwater.

The types of land uses and the practices in an area can affect the quality of both surface and ground water supplies. Runoff from land adjacent to surface water reservoirs can contain chemical and biological contaminants. Groundwater can be contaminated by infiltration through the soil to the water table. One significant pollutant of groundwater is nitrate. Nitrate can come from a variety of sources including fertilizers, animal wastes, and septic systems. From the types and sources of contamination of drinking water supplies, it is evident that responsibility lies among all stakeholders.

A priority in the protection of groundwater is the understanding of the movement and recharge in the aquifer, the movement of pollutants, and the effect of high withdrawal rates. This can best be accomplished under the modeling studies conducted by the U.S. Geological Survey (U.S.G.S.). There should be attempts to secure adequate funds to cooperate with the U.S.G.S. in such a study effort in the Middle Peninsula region. Wellhead protection areas would be identified utilizing future studies by the U.S.G.S., an extensive mapping project, or the presence of highly permeable soils in the vicinity of water wells.

The Town of Tappahannock provides a large concentration of County residents which are dependent on municipal water supply facilities. Given the larger population currently served by these municipal water supply facilities and expected growth around the Town of Tappahannock,

the potential effect of pollution sources on the County's water supply should be investigated in cooperation with the Town. Such sources may include abandoned wells, former dump sites, and underground storage tanks and urban run-off as well as septic systems near the Town. The County and Town should request technical assistance from the Middle Peninsula Planning Commission to mutually define an appropriately sized well-head protection district for the Town.

### Existing Pollution Sources

Pollution discharges can be defined as either point or non-point in their origin. Point source inputs represent discharges from discrete and identifiable points, i.e., discharge pipes, and play a major role in determining the quality of surface waters. Such sources include both municipal and industrial dischargers which may contain an array of toxic and nutrient material which tend to vary in chemical and physical composition as well as fluctuate in their concentrations.

The other major category of physical, chemical, and biological factors impacting surface water quality is known as non-point sources. This category is by far the most significant in terms of its impact to surface water quality in the Middle Peninsula Planning District. Basically, non-point sources encompass all those inputs to surface water which cannot be identified as having originated from a discrete discharge point. Nationwide, non-point source pollutants are responsible for 73% of the oxygen demand, 84% of the nutrients, 98% of the bacteria counts, and 99% of suspended solids.

The Virginia Water Control Board (VWCB) regulates existing point source pollution dischargers. Essex County's role in the enforcement of, and compliance with, permit conditions is primarily tied to land use ordinance approvals. The Essex County Chesapeake Bay Preservation Program, Erosion and Sedimentation Control Ordinance, and participation in the activities of the local Soil and Water Conservation District are means of local management of non-point source pollution.

A periodic review of the effectiveness of local ordinances can determine where changes or amendments may be needed to achieve the goals of reducing non-point source pollution. To that end, the County should review all land use ordinances at least every five years to determine the best means to effective management of point and non-point source pollution sources. The County will also seek assistance from the Chesapeake Bay Local Assistance Board (CBLAD), VWCB, Division of Soil and Water Conservation, MPPDC, and other state and federal agencies to produce an inventory of land uses at such a degree of accuracy so as to provide management and modeling parameters necessary for effective control of pollution sources in the future.

### Local Program Development

The performance criteria for land use and development established in the County Chesapeake Bay Preservation areas district was reviewed by the State prior to County adoption and is referenced as part of Essex County's Comprehensive Plan. In addition to designation of County

Chesapeake Bay Preservation Areas, the County has incorporated resource protection criteria into its subdivision regulations, and erosion and sediment control ordinance. The County Plan establishes a development review and approval process for building permit issuance for development within designated Chesapeake Bay Preservation Areas. The County established administrative and enforcement procedures as part of its overall Local Program for Chesapeake Bay Preservation.

### Resource Protection Policies

#### *Streams and Stream Buffers*

Land in Essex County which are designated Resource Protection Area include those lands which are required to bear such designation under the terms of the Chesapeake Bay Preservation Act including tidal wetlands, nontidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams, tidal shores, and buffer areas.

The County has also designated all stream systems in the County as RPA's and set buffering requirements for a distance of 100 feet from the impacts associated with development activities. requiring protection of streamside (riparian) forest cover where it exists, through proper implementation of BMPs, and encouraging re-establishment of forest cover or reforestation where it does not presently exist along streams.

#### Air Quality

In 1990, Congress passed and the President signed into law amendments to the federal Clean Air Act. These amendments require cleanup of polluted areas in accordance with a specific schedule, tighten emissions standards and grant federal agencies greater powers to enforce the Act's requirements. Those portions of the Act having the most direct impact on Essex County and the Town are those relating to ozone pollution. Ozone is formed by chemical reactions in the atmosphere when hydrocarbons and nitrogen oxides are emitted. Ozone at ground level is particularly dangerous to human life. Ozone levels are continually monitored at various locations in the Richmond metropolitan area.

Land uses that increase ozone emissions a relatively low in the county and the town. Automobiles would contribute more to ozone emissions than industrial uses in and around the town. As of 2012, the Richmond area was attainment for all applicable national air quality standards including ozone.

### **Implementation**

The following is a list of specific measures the County should undertake to achieve its environmental quality goals and objectives set forth in Part III of this Plan:

- Requirements should specify minimum areas that must remain undisturbed and available for stormwater infiltration and site vegetation.
- Continue to promote Best Management Practice for storm water management and water runoff.
- The majority of future County development should be directed to designated Development Service Districts where public sewer services are in place or planned. The future use of on-site sewage treatment systems should be limited to those areas where public sewage systems are unavailable. Larger concentration of individual on-site sewage treatment facilities in rural and environmentally sensitive areas should be discouraged through density controls, particularly in areas with soil constraints for septic systems.
- Coordinate with state and federal agencies and non-profit conservancy organizations to protect environmentally sensitive lands through acquisition and/or protective easement programs.
- Explore best management practices for future high volume water users.
- Explore techniques to obtaining a Certified Rating System designation through the Federal Emergency Management Agency in an effort to assist Essex County residents with the expected increase in flood insurance premiums due to the Flood Insurance reform Act of 2012.
- Work with the Middle Peninsula Planning District Commission and Virginia Institute of Marine Science to identify resources for development of a comprehensive shoreline management plan. The plan should provide a coordinated strategy for managing the impacts of shore erosion and provide firm recommendations.
- Oil and gas development activities should be located in areas with the necessary transportation and utility infrastructure to support uses which are industrial in nature. Drilling operations should not be located in areas where they are likely to adversely impact the use and enjoyment of property rights of other property owners. In order to avoid conflict between the owner of property where a drilling site is proposed and other property owners or the public, criteria prescribing the standards applicable to the siting of drilling operations and production activities shall be developed and articulated in the land use ordinances of Essex County.
- Regulations should be designed to mitigate the impacts of oil and gas exploration, drilling and development activities and all related accessory and ancillary uses on public health, safety and welfare, and the environment and its natural resources to the extent permitted by State and Federal Law. All applicable standards for noise, dust, odor, vibration, and other

County code requirements intended to mitigate off site impacts of uses of an industrial nature shall also apply to oil and gas exploration, drilling and development uses.

- Advocate for the use of the most effective performance technologies and practices among oil and gas exploration, drilling and development operators. The County should require adherence to the most stringent guidelines and standards available for regulating all phases of gas and oil exploration, drilling and production for these types of industries, and seek commitments for voluntary restrictions that exceed minimum requirements.
- Preserve rural character and protect agricultural lands and sensitive ecological features by directing that the location of oil and gas operations, drilling and development activities are sited in areas appropriate for land uses of an industrial nature, and do not adversely impact planned agricultural areas or areas of significant agricultural activity, such as lands in the Agricultural Preservation District, which are zoned for agriculture under the County Land Use program. Such operations will also be prohibited in environmentally sensitive areas, tidal wetlands and marshes, and locations identified as Resource Protection Areas (Preservation Areas Map ) per the Chesapeake Bay Act and limited in Resource Management Areas as determined by the County.
- Reserve pits, ponds and waste water containment facilities used to collect drilling fluids resulting from oil and gas exploration or production shall be adequately buffered, lined, sealed, fenced and enclosed or covered by netting, to ensure that there is no runoff of the fluids and no access by, or exposure to, unauthorized persons, wildlife, birds, or livestock. No reserve ponds, pits or waste containment facilities shall be located in an area where a leak or overflow could be reasonably anticipated to flow into any stream, creek, river, other water body, drainage ditch, floodplain, wetlands, marshes or other environmentally sensitive areas.
- Encourage operators to share existing and proposed infrastructure and to co-locate facilities required for oil and gas exploration, drilling and development and to use existing utilities and transmission right of ways to minimize installation of new facilities and avoid additional land disturbance to the greatest extent possible in order to avoid introduction of potentially incompatible new land uses of an industrial nature into residential, rural and agricultural areas, and to minimize the impacts of such development on landowners, neighboring property owners, the environment, farm activities and environmental resources.
- Require that applicants for oil and gas exploration, drilling and development activities provide information about the proposed quantity and source for any water required in the production, processing and exploration of hydrocarbon based resources and for all related oil and gas development activities. All such activities should adhere to local and regional

water supply and protection plans and should not use public water supplies and should not make excessive use of groundwater resources. Require baseline testing and monitoring of surface, groundwater and well water quality within and adjacent to drilling and extraction sites prior to construction and during production.

- Require that applicants for oil and gas exploration, drilling and development activities directly engage with local communities, residents and other stakeholders at each phase of the development plan, starting prior to exploration, to provide sufficient notification of planned activities, including disclosure of chemicals, opportunity for comment on plans, operations, and performance, listen to concerns and respond appropriately and promptly.
- Oil and gas drilling, operations and development located in proximity to agricultural uses will be required to: i) avoid construction activity during growing seasons; ii) restore and reclaim all on and off-site agricultural lands impacted by any activity related to exploration, development, infrastructure installation, closure, and transportation to soil condition, pasture land, productivity, and/or drainage patterns that were in place prior to the initiation of oil and gas operations; iii) restore water resource systems disturbed by infrastructure to their former condition.
- To the extent permitted by State law, limit the impact of oil and gas exploration, drilling and development activities on residents and property owners of Essex County by regulating hours of use, related industrial traffic and access routes, so as to avoid hazardous use of County roadways and to minimize potential conflicts with school bus routes and schedules, school traffic and other local traffic patterns, and the exercise of other property rights. Access through residential streets will not be permitted.
- To the extent permitted by State law, require explicit commitments, including financial commitments such as posting of a bond when deemed appropriate, by applicants who wish to pursue oil and gas exploration, drilling and development activities in productive hydrocarbon formations such as the Taylorsville Basin, and their operators and contractors, to accept responsibility and liability for compensation and/or mitigation of directly and indirectly related costs, nuisances, damages and adverse impacts as a condition for issuance of permits dealing with oil and gas resource exploration, drilling and production. Such direct and indirect adverse impacts may be on-site or off-site and include, but not be limited to, damage to public and private roads, degradation of public or private water supplies or aquifers, degradation of environmentally sensitive areas, and loss of livestock, crops or damage to structures on-site or on surrounding properties.
- The discharge or disposal of wastewater by-products or other contaminated matter from oil and gas exploration, drilling and development activities in the County should not be permitted except where there exists waste treatment facilities that are certified by the State and Federal government to have the capability of safely treating such waste, in order to

protect and safeguard Essex's waters, environmentally sensitive areas, such as wetlands, public water supplies, groundwater recharge areas, future water supplies, and the waters of the Commonwealth.

The County will continue to monitor legal opinions, regulations, and legislative changes in Virginia that addresses local authority to restrict or prohibit oil and gas exploration or drilling activities within the jurisdiction of the County. It is the goal of the County to ensure that its Comprehensive Plan and its Zoning Ordinances are interpreted, administered, and amended when necessary, to protect, preserve, and safeguard, to the maximum extent possible, the County's agricultural, rural, scenic and environmentally sensitive lands and the lifestyles and welfare of its residents from the adverse impact of oil and gas development and related activities.

## SECTION FOUR LAND USE

### **Goal:**

Guide the course of future development to promote balance in the types of land uses that will serve the current and future needs of Essex County and contribute to a sustainable community.

### **Objectives:**

- \* Direct the majority of future County development to areas already served or proposed to be served with adequate public facilities such as sewer, water, roads, schools, etc.
- \* Conserve farmland, forested areas, open space, and rural character.
- \* Encourage development that is in keeping with the character of existing land uses
- \* Plan for adequate public facilities to be in place or proposed prior to development approval, regardless of where the development is located.
- \* Provide land areas for balanced future commercial and industrial development in locations which are compatible with existing and planned residential development.
- \* Develop a cost sharing process that requires the development community to contribute to the costs for meeting the demands of additional public facilities and services brought about as a result of new development.
- \* Improve the quality of future development and redevelopment through improved site planning and design standards.
- \* Encourage uses that will assist in strengthening the economy but are sensitive to the character and natural resources of the community.
- \* Offer employment locations and opportunities that promote the use of alternative modes of transportation.

The Essex County Land Use Plan will set the stage for guiding or managing the direction of future development in the County. As such, it establishes the skeletal framework for all plan elements. This element envisions a more efficient land use pattern for future development. The basic intent of the conceptual land use plan and map is that the County channel most of its population into and around the areas delineated as a development services district surrounding the Town of Tappahannock while development in other areas of the County be limited to a greater extent in order to minimize the impact of service delivery cost to remote areas. The land use element is also vital to ensuring a balance land is made available to accommodate a wide variety of uses in the County. While Essex is predominantly rural in

character, it is understood that providing for all land uses is paramount to a balanced, sustainable community.

The various County land use districts will serve as a basis for county structuring of zoning classifications with the intent and purpose for each district to be achieved or accomplished through land use controls and performance standards appropriately consistent with each district's purpose.

The County future land use concept plan is presented on the Land Use Plan Map (Map 12-1) and is shown in terms of general areas or districts. Each has been derived from the objectives and is in consonance with the general theme and philosophy of "contained growth". They have directly shaped the development of the recommended Land Use Concept Plan Map.

### **Community Assessment**

The regulation of land uses is the primary method of managing growth in communities. The Essex County zoning code, zoning map and development codes are tools used to manage potential growth in the county. Uniform application of land use regulations and policies are essential to creating balanced and harmonious communities by influencing the pattern and designating locations for growth. For planning purposes, the pattern of development is more significant than the total acreage in each category of land use. These patterns in Essex County have been a product of residential development preferences, economic forces, environmental factors, and social forces. The County also has had the benefit of zoning and subdivision regulations which have influenced the pattern and pace of residential, commercial and industrial development.

The primary land uses in Essex County consist of agricultural and rural residential. The most predominant use of land in Essex County is forestry. Forest land dominates approximately 64½% of the total County land area and is predominately privately owned.

### **Land Uses**

#### **Agricultural**

The primary goal of the agricultural district is to preserve and protect agricultural land uses from growth demands. Agricultural uses involve 31% of the total land area of Essex County and is dominates the County's economy. Forested and agricultural uses combined amount to 94% of the County. The remainder of 6.0% includes urban, industrial, residential, transportation, and wildlife land. Agricultural and natural environment is a key element in the preservation of Essex County's rural characters and its resident's rural lifestyle. Conservation of working and natural lands is key to protecting rural quality of life and long term economic vitality of farming, forestry, tourism and other natural environment based activities.

#### **Farming**

Farming is the principal occupation of Essex County. Although employment in agriculture tends to fluctuate, farming is still an important source of local employment and an important part of the local economy.

In 2012, agricultural, farming and fishing constituted approximately 1.8% of the employment sector of

Essex County accounting for 94 industry jobs. 2007 AgCensus data indicates that there are 102 active farms in Essex County providing international commodities such as grain, beans, poultry and livestock to state, national and international markets. These farms total over 53,346 acres throughout the county, a slight decrease since the 2000 census. While the number of farms has decreased, the average size of farms in Essex is increased by more than 60 acres since 2000. The market value of crop sales is \$9,233,000. In 2007, the average total income from farm related activity reached \$49,836 excluding taxes and expenses.

### Forestry

The forest resource plays an important role in the economic growth and quality of life that is enjoyed by the residents of Essex County. These forest resources also provide soil and water protection for the Chesapeake Bay and its tributaries, habitat for abundant wildlife, outdoor recreation and aesthetic beauty.

Forestry also contributes substantially to Virginia's economy. In 2011, the forestry industry of Essex County contributed 19.8 million dollars to Virginia's economy and 371 direct and indirect forestry related jobs to Virginia's forestry industry.

Essex County supports two sawmills and one planing mill that employ approximately 50 people. The wood that is harvested in this County helps to support 22 sawmills, 5 planing mills, 5 treatment plants, 4 pulpwood concentration yards, 2 pallet manufactures, and 5 pulpmills in and around the Middle Peninsula and Northern Neck area.

### Residential

Residential uses in Essex County are primarily designated for single family uses with variations in lot sizes. Seasonal housing is located in the lower half of the County, on or near the shoreline, however, numbers have decreased over the past decade, converting to permanent housing.

According to housing unit trends, residential development has decreased significantly since 2002 when issuance of residential development permits reached triple digits but has since decreased dramatically due to the economic downturn. Essex is gradually seeing an increase in residential permits over the past few years mostly due to manufactured homes sales. Mobile homes have become more numerous than conventional housing, although many are replacements for older mobile homes. Lack of affordable housing also contributes to the disproportionate number of mobile homes located in the County. The pace of residential development has remained slow.

### Commercial

Commercial development is almost non-existent within the County due to the presence of those activities in Tappahannock. Because Tappahannock serves as the regional commercial hub, most of the commercial development is planned in and adjacent to the Town. This is not unusual given the need for central sewer and water facilities associated with the use.

Rural service centers are planned along major intersections along the major highway corridors of Highway 17 and State Route 360. The location of these service centers will serve to reduce traffic on the major routes into town

### Industrial

Limited land area is designated for industrial use and can be found along sections of major routes. Essex County in corporation with the Economic Development Authority is looking at ways to expand and attract industrial jobs such as manufacturing to the county. The Town and County have agreed to a joint water and sewer agreement whereby water and sewer services can be extended into the County by the Town to serve future industrial and commercial users. The first area to be served is the industrial districts at Bray's Fork on Rt. 360 where recent commercial activity has begun. In the future, this service can be further extended along Rt. 360 where the County owns 700 acres of property.

Town

The Town of Tappahannock is the cornerstone for the County's Comprehensive Plan. The town serves to anchor County identity and to provide the central focus for activity in County life. As the major settlement in the County, it also represents the major investment in infrastructure to support growth. The fate of County and Town are mutually intertwined. The quality and character that development and time bring to one will clearly influence the other. Therefore, the County Comprehensive Plan acknowledges the Town of Tappahannock as the underpinning for the Land Use Plan framework. Guiding growth to near town areas where facilities can be most logically extended permits protection or rural character and reduced demand for County services in more outlying rural areas.

**Planning Districts**

The county's land area is broken down into eight planning districts which includes the Town of Tappahannock. Each district has distinct characteristics and guidelines for uses and development based on existing character and surrounding uses as well as the goals and objectives of the County's growth management plan.

**Estimated Land Area by Planning District**

DISTRICT	ACRES	% of TOTAL
Development Service District	3,200	2%
Deferred Development Service District	5,000	3%
Business & Employment	337	0.2%
Rural Service Centers	0	0
Rural Residential District	15,000	10%
Countryside District	90,000	54%
Agricultural Preservation	50,000	30%
Tappahannock Limits	1,760	1.1%
<b>Total</b>	<b>165,000</b>	<b>100%</b>

Business and Employment District

The Business and Employment District is noteworthy in that it reserves specific areas of land near the County's

airport and major industry settlement for future growth of the same kind. Roughly four hundred acres, of which some three hundred appear suitable for development, are identified for business and employment park development, including the airport complex.

Specific industry land area requirements and site suitability factors will need to be assessed when considering a location in this district. Therefore portions of the Development Service District, particularly along route 360 west of Bray's Fork may represent alternate sites for business and industry use. Business and industrial uses should be served with sewer and water facilities and situated with direct access to either arterial or major collector routes. Industrial development within the district or in the Bray's Fork area near Route 360 affords such access and both areas are generally removed from residential development. To encourage high development standards, "business park development form should be encouraged. This permits the collocation of businesses in an attractive campus-like setting while minimizing individual industry points of access to the highway system. The County should consider creating a conceptual master plan that includes development and design guidelines that should be implemented when development proposals are presented in fragments.

Regardless, in addition to the designated area on the Land Use Plan Map, the Business/Employment District can be located as a floating zone district within the Development District and areas adjacent to major routes if the criteria described above are met. A business park district which is approved as a floating zone should be developed in accordance with a comprehensive site plan. Implementation of the site plan assures compatibility of industrial operations with surrounding areas. A park-like atmosphere is created which provides an attractive buffer between industrial uses and other neighboring land uses.

#### Rural Service Centers

Several rural service centers including most of which are located along the Route 17 and 360 corridors provide opportunities for provision of services necessary to support rural development in some County areas. Designated as rural service centers, they are intended to accommodate limited commercial use and provide basic levels of support services to residents who may be located in a one to six mile area or radius.

These rural service centers or villages perform a number of functions in the growth management program. These include servicing as centers for rural residential development and providing for commercial services for rural areas of the County and the traveling public. The ability of these centers to accommodate some portion of the future growth of the County is a function of their location and the existing scale of development and range of services provided to surrounding rural areas. Characteristics common to most of these rural service centers are the existence of post offices and country stores, gas stations, or churches, providing each with its own sense of identity.

The concept of the rural service center is included in the land use plan in order to recognize and provide for the special needs of these County unincorporated centers. These centers are often very different in character.

These rural service centers serve a multitude of functions in Essex County. They range in scale from fork in the road where a general store and beauty parlor are located, to a rapidly expanding community that is beginning to emerge as a service center of larger scope. Their distribution throughout the County is shown on the Plan Land Use Map. Many have historic qualities or structures which suggest future development near them should be limited in scale or, if unchecked, could overwhelm or disrupt their more rural character.

All of the rural service centers do, however, share much in common, and collectively they play an important part in Essex County life. In general, these Centers tend to be somewhat residential in character, or offer some employment through limited commercial services as well as public or institutional uses. In general, they presently function as rural service centers and the County should preserve and enhance their present character in order that they may continue to act as rural service areas and to serve their traditional roles in the County life.

Generally, these areas shown as Rural Service Centers should:

- remain small in population size
- remain small in physical area
- be allowed to continue to provide limited, highly located commercial services (such as a gas station or general store, etc.)
- be allowed to serve as home for community facilities and services when needed
- be allowed to continue to provide limited employment opportunity
- have a population density of one dwelling unit per acre, which is greater than the surrounding more rural areas.

Areas directly adjacent to existing uses in each village could provide for their continued development consistent with the degree and scale of the individual village centers. To this end, architectural themes should be framed for each rural service center with development in its confines subject to architectural review for compatibility with the particular centers image.

The need for central water and sewer is not anticipated in the rural service centers villages. However, in centers where land application of waste water is a feasible treatment technology (i.e. soils are potentially suitable), these systems can allow greater clustering of residences and opportunities for commercial use.

The following settlements have been designated rural service centers in the Land Use Plan:

- Hustle
- Champlain
- Caret
- Dunnsville
- Center Cross
- Miller's Tavern

In the future it is possible that additional rural service center sites might be identified. However, their future designation should be a function of their need to serve as service centers in the context of their existing distribution in the County. These new centers would be limited to providing the most basic retail services for the convenience of the rural population.

#### Rural Residential District

The Rural Residential District identifies areas which have manifested rural residential development character or qualities as a result of past construction in the County. This district includes about 15,000 acres or 10% of the County's land area. The Rappahannock River fronts north of the Town as well as areas west of the Town near Kino are so designated, as well as an area near Howerton's, south of Tappahannock. These areas are intended to absorb between fifteen and twenty-five percent of County growth over the twenty year planning period at a low density, rural residential scale. Densities for residential use in this district will be approximately 1 dwelling unit per acre depending on existing settlement patterns and past zoning treatment for lands in the district. Commercial services and employment opportunities in the town or the adjacent Development Service District are intended to provide the shopping and employment opportunities that residents in the Rural Residential district will require.

#### Planned Residential or Planned Unit Developments

Planned Residential or Planned Unit Developments, although not shown on the Land Use Concept Plan Map, are established to provide for areas within the Development Service District where higher density or more intense development can be accommodated. Planned Unit and Planned Residential Developments will be established as floating zone districts, which can be "brought to land" only in those areas which meet the standards framed in County ordinance consistent with the concept outlined herein.

Rather than mapping each of their future locations in advance, Planned Residential or Planned Unit Developments will be designated in accordance with performance standards to be structured in the County Zoning Ordinance. These developments will be limited to locations within the Development Service District where public benefits, in the form of highway improvements, provision of affordable housing, provision of parks, provision for sites appropriate for construction of needed community facilities, are provided as part of the development approval process in exchange for higher densities. Threshold size and location requirements for their designation would also be framed in County ordinances to guide decisions concerning their location.

While used as a tool to permit higher density residential development in portion of the development district, this concept does not encourage densities that are higher than would be consistent with the surrounding, established neighborhoods or adjacent town developed lands. Moreover, development approval and designation of the district should not proceed absent substantial public benefits and demonstrated consistency with Plan objectives.

Furthermore, Planned Residential or Planned Unit Development densities for new sites adjacent or near to established neighborhoods would be required to buffer the edges to minimize impact to established neighborhoods. This approach acknowledges existing development patterns and recognizes historic development conditions. In short, higher residential densities or mixed use will be permitted only in such areas of the development district where infrastructure in the form of sewer, water and transportation systems would not be adversely impacted or could be accommodated within a defined geographic cell.

#### Countryside District

The Countryside District is the largest in physical land area (about 90,000 acres or 55% of County land area) and is intended to limit development to a level which should never be expected to require substantial support services from the County. One acre lots will be permitted in the Countryside District in the zoning ordinance, but the number of lots will be limited to one per each 5 acres owned to assure the maximum level of development is somewhat limited but equitably distributed among land owners in the district.

#### Agricultural Preservation District

The Agricultural Preservation District is established at the northern end of the County straddling both sides of the Route 17 Corridor and essentially serves as a gateway to the County from the north. The district currently is dominated by agricultural use and is remote in its location from existing County services. To minimize future impacts on the County for costs of services, and to maintain the agricultural land base necessary to support a continued viable agricultural economy this district substantially limits residential development.

Within the district for the first twenty acres owned and for all parcels under twenty acres in size, a property owner would be permitted one house for each five acres owned. Beyond the first twenty acres owned the property owner would be entitled to an additional one house for each twenty acres in the parcel. By way of example, a property owner with one hundred acres would be permitted eight lots. Four homes for the first twenty acres (1 per 5) and four homes for the additional eighty acres owned (1 per 20). The district includes about 50,000 acres (30% of County land area).

When comparing the Rural Residential, Countryside, and Agricultural Preservation Districts, one should note that the minimum lot size permitted for homes in any of the three districts is the same, one acre. However, the number of lots permitted declines somewhat in the Countryside District to one house per 5 acres and somewhat more in the Agricultural Preservation District at 1 house per 20. In effect, the property owner in any of the three districts can develop the same product, a one acre lot.

The only distinction between the districts is the number of lots permitted within each. Such an approach presumes to be reasonably equitable in that it permits any land owner the opportunity to sell a few one acre lots, yet protects

the County from large scale development in areas where it is not prepared to provide services to support it. Moreover the results provide opportunity for clustering development particularly in the Countryside and Agricultural Preservation Districts and virtually assure large masses of open space are maintained over time. These open spaces will serve to maintain farmland in farm use or preserve sensitive lands and wooded areas to yield natural resource protection benefits over time.

### Development Service District

The Development Service District generally corresponds to locations where growth can be most cost effectively supported within the planning period. The Development Service District contains roughly 3200 acres and surrounds the existing principal center of population, services and employment within Essex County. How development is managed in this district will be dependent on both the County and Town's relationship as they will guide growth in the area based on mutual decisions. It will be important for the County and Town to mutually determine how growth objectives may best be accommodated while protecting the qualities of rural character both currently enjoy.

The Development Service District comprises the most suitable areas for new population growth. Growth in these areas will prevent the outward sprawl of residential development into rural County areas, and keep the new population close to the existing centers where residents can be economically provided with utilities, services, and employment. In addition, the impact upon the County road system will be minimized due to the opportunity for location in close proximity to jobs and services.

These services include an existing or planned transportation system that can accommodate the movement of people and goods and sewer and water facilities that can service development at greater residential densities or can service industrial and commercial uses. The major advantage of the development district concept is to map in advance those areas where the County and Town will plan to provide infrastructure and will work with the development interests of the County to ensure provisions are met. In providing opportunities for development in these areas, the County can better achieve its resource protection and its agricultural preservation objectives by reducing pressures for development in areas dominated by farming activity or natural resources.

Current population and growth trends show no indication of significant growth for the Town or the County over the next decade, therefore current services are adequate to provide capacity for residents. In addition, the Town of Tappahannock in cooperation with the Middle Peninsula Planning District Commission has developed the 2005 Tappahannock Buildout Plan for residential development. Being that the Town has not reach the capacity outlined in the Buildout Plan and growth is moderate, expansion of higher density residential into the County is not necessary.

To improve the visual and functional qualities of development within the Development Service District, the County has revised its land use ordinances to establish performance standards for landscaping, control of access, lot coverage, and buffering from adjacent transportation corridors. Future commercial and industrial forms of development within this district on sites not presently zoned for such uses should be carefully evaluated to assure site characteristics permit these objectives to be achieved. The past linear form of commercial development, particularly along the Route 17/360 corridor, has not always enhanced the visual quality of development and has reduced the ability of major roads to serve through-traffic.

Future areas within the

Development Service District which may be designated for commercial or industrial development should be large in size (e.g. 10 to 15 acres) and should be located at intersections providing site frontage on at least two streets with adequate depth to provide space for service roads. Such sites can use the access provided by these streets and are adequate in size to house several uses with shared access, thereby minimizing outlets to the major road system. Their larger size permits sufficient land to accommodate landscaping between use and highways to enhance development visual qualities. Clustering of residential development should be encouraged within the development district to maintain open space. Such development, even when exclusively residential in nature, should be buffered

and separated by landscaping from major routes or adjacent incompatible land uses.

All portions of the Development Service District (DSD) are immediately adjacent to Tappahannock's corporate limits and include areas at Bray's Fork, areas east of Bray's Fork, toward the Rappahannock River and areas west of Bray's Fork along the 360 corridor.

#### Deferred Development Service District

The Deferred Development Service District is basically intended to facilitate future development beyond a 10 year time horizon. It is designated in the plan to protect its qualities so that it will be ready for a planned pattern of "town-scale" development in serviceable form. Designated rural residential or prematurely developed at non sewer and water densities, the Deferred Development District would essentially freeze future opportunities for growth in "serviceable" form as the Town Core expands. Some 5000 acres are designated as Deferred Development Service District.

Since the purpose of this district is the same as the Development Service District (DSD), much of the description of the DSD is equally applicable to this district. The chief distinctions between the two districts are their location relative to the town and anticipated time frames for development.

The County owned landfill property, about 700 acres, is included in the Deferred Development Service District. Development of this property is not planned for the near future; however, the availability of this large area of publicly owned property and the ability to provide water and sewer in the next two years could provide a site for an industrial area which requires a large area not available elsewhere.

#### Chesapeake Bay Preservation Areas

The objectives indicate that special emphasis should be placed on the preservation of sensitive resources. These resources are often located at or near waterfront areas of Essex County. Without a firm commitment to preserve the natural beauty and environment resources in these areas, the County could find this natural asset spoiled by intensive residential development. Such a commitment is further prompted by the shared objectives of the County and State of Virginia Chesapeake Bay Preservation Act in improved water quality of County tributaries to the Bay.

In keeping with these objectives:

- A high degree of restriction should be placed upon the use of all waterfront land that lies outside the Development Services Districts and Town and Rural Service Centers.
- These restrictions should take the form of low residential densities, and high levels of protection of sensitive resources and in keeping with the Chesapeake Bay Preservation Acts requirements.
- Strict Resource Protection Performance Standards for development in the areas designated should be established in Zoning, and Land Subdivision and Resource Protection Areas and Resource Management Areas (Both subparts of the Chesapeake Bay Preservation Areas of the County) and Site Plan requirements and regulations.
- Strong emphasis should be given to the provision of public assets to the waterfront including the establishment of Natural Parks.

#### Resource Protection Areas

Essex County has designated a RPA which consists of all tidal wetlands; nontidal wetlands, including impounded lakes and ponds connected by surface flow and contiguous to tidal wetlands or tributary streams; tidal shores; and an additional buffer area of 100 feet in width, except where reductions are

allowed within its jurisdictional boundaries. The RPA serves the purpose of protecting environmentally sensitive land and water areas from the adverse effects of human activities to thus improve and protect the quality of water both locally and regionally.

The intent of RPA designation is to limit land disturbance and development to only those activities classified as "water dependent" or otherwise exempted in the County Chesapeake Bay Preservation Area Overlay Zoning District. The integrity of the RPA and associated mechanisms with the CBPA Program will serve the goal of preserving those features most associated with the high standard in quality of life in Essex County, namely clean water and attractive landscapes for the beneficial use by both society and the natural ecosystem.

The implementation of the RPA goals will be through an overlay district of the Essex County Zoning Ordinance. The zoning ordinance will include a general designation RPA map in addition to the performance criteria to be included on specific site plans. The subdivision, erosion and sedimentation control, and floodplain ordinances will also include provisions related to preserving water quality as related to CBPA. To truly provide for successful implementation, it is necessary to improve the capacity of both the county staff and general public through supporting educational opportunities related to Chesapeake Bay Program enforcement and management.

Resource Protection Areas (RPAs) perform natural pollution control functions. Biological activities and physical characteristics in these areas are especially effective in controlling runoff, trapping sediment, and recycling nutrients and pollutants. Components of RPAs are certain wetlands, tidal shorelines, and buffer areas.

Buffer areas are zones of undeveloped vegetated land that are managed to reduce the impact on water quality of land disturbing operations in adjacent areas. Vegetated buffer areas provide a wide variety of environmental benefits, including sediment control, nutrient assimilation, stream bank stabilization, in-stream temperature maintenance, flood control and protection, groundwater recharge area protection, and runoff volume reduction.

The components of the RPA are prescribed by Virginia statute, with the local option to include other lands which RPA designation is necessary to provide a high level of protection to the quality of state waters.

#### Resource Management Areas-Forest Management Program

The Chesapeake Bay Preservation Act and Criteria Regulations establish the Resource Management Area (RMA) as the landward component of Chesapeake Bay Preservation Areas. Lands to be considered for designation as RMA include the following: nontidal wetlands, floodplains, highly erodible soils, highly permeable soils, and other lands at local discretion. RMAs are important in terms of water quality primarily because if improperly used or developed, they could release significant amount of non-point source pollutants into the surface and ground water systems. The regulations do not limit the types of land use and development that may occur within the RMA. Instead, a variety of performance criteria will be applied to any use or development within RMAs to ensure that those land disturbances that do occur will minimize the adverse impact on water quality. The performance criteria apply to stormwater management, on-site sewage disposal, and land disturbance /stabilization.

The designation of RMAs in Essex County has been based on the consideration of the sensitive land types

listed above and described below. County designation of other lands to be included in the RMA classification is based on several factors, including the distribution of the other land types listed above, the hydrology of the locality, and the general characteristics of the landforms in the locality. The regulations of the CBPA also require the RMA to be contiguous to the RPA.

Essex County has chosen to designate the entire County as a Resource Management Area (RMA). The extent and distribution of the land features considered as RMA components are such that few areas of the County are lacking in these features. It is also recognized that all lands within the County are contained within the Chesapeake Bay watershed and activities upon these lands can act to impact the water quality of the Bay. In order to maintain the goal of high water quality within the County and region, the policy of the County is to include all lands as RMAs when those lands are not designated as RPAS.

Essex County has an active forest management program and reforestation program through the Virginia Department of Forestry, industry sponsored forest management programs, and private consulting foresters. Because of the intensive forest management efforts, the forest resource in Essex County is healthy and productive.

#### Highway Corridor Enhancement District

The purpose of the Highway Corridor Enhancement District is to protect and improve the quality of visual appearances along these linear corridors and to provide guidelines to ensure that buffering, landscaping, lighting, signage, and proposed structures are internally consistent and of a quality which contributes to County character. The Highway Corridor District when implemented through zoning will provide for special access and buffering, and setback requirements along the County's major highways.

The Highway Corridor Enhancement District is an area within which certain specific public policies relating to development review would be administered by the County through overlay zone regulations in the Zoning Ordinance. Views afforded to drivers and passengers, whether residents, workers or visitors, traversing the major transportation routes of Essex County provide a lasting visual and, therefore mental, impression of the County's character. Although the visual experience probably forms only a small part of a person's overall experience in the County, it, nevertheless, is of special public concern and requires public attention if the County's image is to be a positive one now and in the future.

Not all development in Essex County requires the same level of public scrutiny. The most critical visual areas lie along the major transportation routes since they are shared by all residents and tourists. Hence, corridors of 500 feet from either side of the right-of-way of the major transportation route rights-of-way are identified for specific regulatory implications.

The visual character today along these corridors is diverse, ranging from areas primarily rural, natural, and scenic to areas with disorganized and cluttered roadside development. The intent of the policies for the Highway Corridor Enhancement District is not to preclude the diversity that already exists; but, rather to encourage and better articulate the variety of visual experiences along the current highways as well as along the corridor of the proposed future routes for the County's major roads (e.g. Tappahannock Bypass/Parkway).

Future development of lands within the Corridor shall be subject to the particular zoning district in which they occur, as well as the following policies that are specific to the overlay corridor. These policies are not intended to restrict or prevent the construction of buildings within each Corridor, nor to require the

removal of existing structures. The Corridor Enhancement policies are not simply setback requirements, although certain minimum setbacks will be required to protect highway rights-of-way and maintain sight clearances for traffic safety.

The Route 17, 17/360, and Route 360 corridors and lands within 500 feet from their respective rights-of-way are designated as Corridor Enhancement Districts on the Land Use Plan Map. Other routes may be established in the future as determined appropriate.

Policies specific to the Highway Corridors include:

- Increased buffering requirements to screen unattractive buildings from view which provide for a mix of canopy, understory tree and shrub level plantings.
- Special standards for signage height, design, size, materials, and lights to maintain and enhance visual qualities.
- Landscaping to be used to soften lighting and signage impacts and to be located in groupings to identify entrances to sites.
- Special consideration of new development within this district including assessment of visual impact of development, assessing pre-development visual conditions and how the proposed development will affect them.
- The review of projects in the Highway Corridor will acknowledge the existing rural service centers as integral to the unique visual character of the corridor.
- Require service roads, when appropriate, as a tool to achieve access control within the Highway Corridor Enhancement District.

### Historic Districts

Essex County has a rich cultural and historical heritage that is reflected in sites, structures and landmarks throughout the county and town. This heritage lends to the quality of life of County residents as well as the unique identity the county strives to preserve. This preservation can be achieved through policies and guidelines for development in around historic areas.

These districts are described in terms of their respective roles in directing County growth in the remaining sections of this Plan element. Demonstrated on the Land Use Plan Map are districts derived from a combination of a number of determinants including: existing land use patterns; projected growth and development trends; the natural capacity and suitability of the land to support development; the availability or proposed availability and adequacy of development infrastructure (roads, sewer and water); and the Goals and Objectives established in Part III of this document. Each district description outlines the general type, intensity and character of development that should be encouraged within the district. The Land Use Plan Map shows the general location of different districts throughout the County. The Land Use Plan also establishes the framework and basis for a further refined classification of land into districts for zoning purposes pursuant to adoption of the Comprehensive Plan.

Map 4-1  
Land Use Plan Map

In addition to serving as a general guide for implementing land use policy, the Land Use Plan also should serve as a guide to County decision makers regarding community facilities (primarily water and sewer) and transportation (roads) planning.

Although not shown on the Land Use Plan Map, both Resource Protection Areas and Resource Management Areas are considered Land Use Districts. Their location and extent are generally represented on Map 4-1, based on mapping efforts conducted by the Middle Peninsula Planning District Commission in 1990/91. Larger scale maps which identify their location with greater precision are available for review through the office of the County Administrator. Greater discussion of the Chesapeake Bay Preservation Act and its implications for future County planning efforts is located in the Chesapeake Bay Preservation Program Plan element. Protection standards for resources in these areas will be implemented through overlay district provisions in the County Zoning Ordinance, and through County subdivision and Erosion and Sediment Control Ordinances.

### Land Use Plan Summary

The County is not expected to witness substantial growth in the next ten to twenty year period. Therefore the Plan does not seek to dramatically limit any one particular property owner's development options, but instead at the downside permits virtually any property owner to develop one acre lots. However, at the simplest level it recognizes that the number of those lots and the scattered format that they take can prompt service delivery costs that will not be desired by the County. Therefore it seeks to locate development in "serviceable form" in the Development Service Districts over the near term five to ten and long term ten to twenty year planning period. Furthermore, the plan seeks to limit the degree of development that occurs in other districts consistent with objectives to protect natural resources, rural character, and minimize service delivery costs.

### Implementation

- Adopt and implement a land use plan and land use map which reflects the goals of growth management. Update the current land use map to be consistent with the goals and objectives of the Comprehensive Land Use Plan. Create and implement policy that will reflect said goals and objectives. Consistently use these tools as an effective guide to development and meeting the need of a balanced community.
- Draft policies and incentive programs to encourage quality development that support economic growth.
- Coordinate County growth management plans with plans and policies of the incorporated Town of Tappahannock, and adjacent Counties.
- Consider flexible standards that seek to encourage and accommodate innovative and

varied approaches to development and redevelopment

- Coordinate the use of the land use plan map, the zoning map, the capital improvements plan, and the master water and sewer plan implementation in terms of districts, locations, and planned expansions to assure growth management efforts are cohesive.
- Revise the County's zoning structure to provide for distinct and varied development options including cluster development provision in rural and agricultural districts which will also achieve preservation goals.
- Use land use controls and ordinances to implement standards for development which improve its quality of development.
- Foster partnerships and working relationships with the development community to encourage cooperation in meeting development needs for all stakeholders.
- Create and administer an Agricultural and Forestry Strategic Plan that will preserve and expand farming and forestry uses in Essex County
  - Amend zoning ordinance to create a Historic District in the County that allows for designation of properties with historic significance, regulations for development and an approval process for architectural alterations or improvements to designated structures. The Ordinance should also be amended to adopt preservation guidelines and development standards in the Planning Districts outlined in the Comprehensive Plan.
  - improve the capacity of staff and general public through supporting educational opportunities related to managing and enforcing the Chesapeake Bay Program

## SECTION FIVE TRANSPORTATION

The Transportation Plan identifies both needs and planned improvements in order to create a transportation network that is consistent with the objectives and implementation of the Land Use Plan. This element of the Comprehensive Plan sets the framework for addressing transportation needs and considerations. The transportation plan and the land use plan are the essential tools needed to effective growth management as they work in tandem to achieve the goals of the Comprehensive Plan.

Another key consideration in managing future growth in the County will be the location of public facilities to the County highway system. Planning and/or providing infrastructure such as water and sewer services along highways serves as a map to developers when considering developing projects in Essex County.

Highway travel is the primary mode of transport of both people and goods. The framework for Essex County's transportation system includes primary and secondary roadways constructed and maintained by the Virginia Department of Transportation. Alternative modes of transportations such as airport facilities, waterways are available in the County.

Most of the highways in the county and the Town Tappahannock are operating at acceptable levels of service. Future growth will undoubtedly require ongoing investment in highway improvements to maintain safe and adequate levels of service delivery.

### **Goals:**

**Provide for the safe and efficient movement of people and freight throughout the County.**

**Ensure adequate maintenance and improvements to the County's transportation system to achieve operation at acceptable levels**

### Objectives:

Plan roadway development to support and enhance the Comprehensive Plan and Future Land Use Plan.

Cooperate with and actively provide input to the State Department of Transportation in developing highway maintenance and improvement plans for the County. Actively assist in improving transportation facilities to efficiently meet increased demand in the County.

Develop a circulation system that provides alternate routes for vehicular traffic along local streets.

Provide pedestrian connectivity between developments

Encourage limited access management along principal corridors; discourage strip development on secondary roads.

Preserve and enhance opportunities for greater industrial use of the County's airport complex to support economic development objectives.

Minimize transportation impacts to historic, cultural, and environmental resources and local communities.

Include public awareness and outreach in planning and development of projects

## **Highway Transportation System**

Though the Virginia Department of Transportation (VDOT) has primary responsibility for the highway system, Essex County is a strong partner in transportation planning. This occurs because of its role in identifying highway improvement needs and its policies and regulations which guide land use and development in the County.

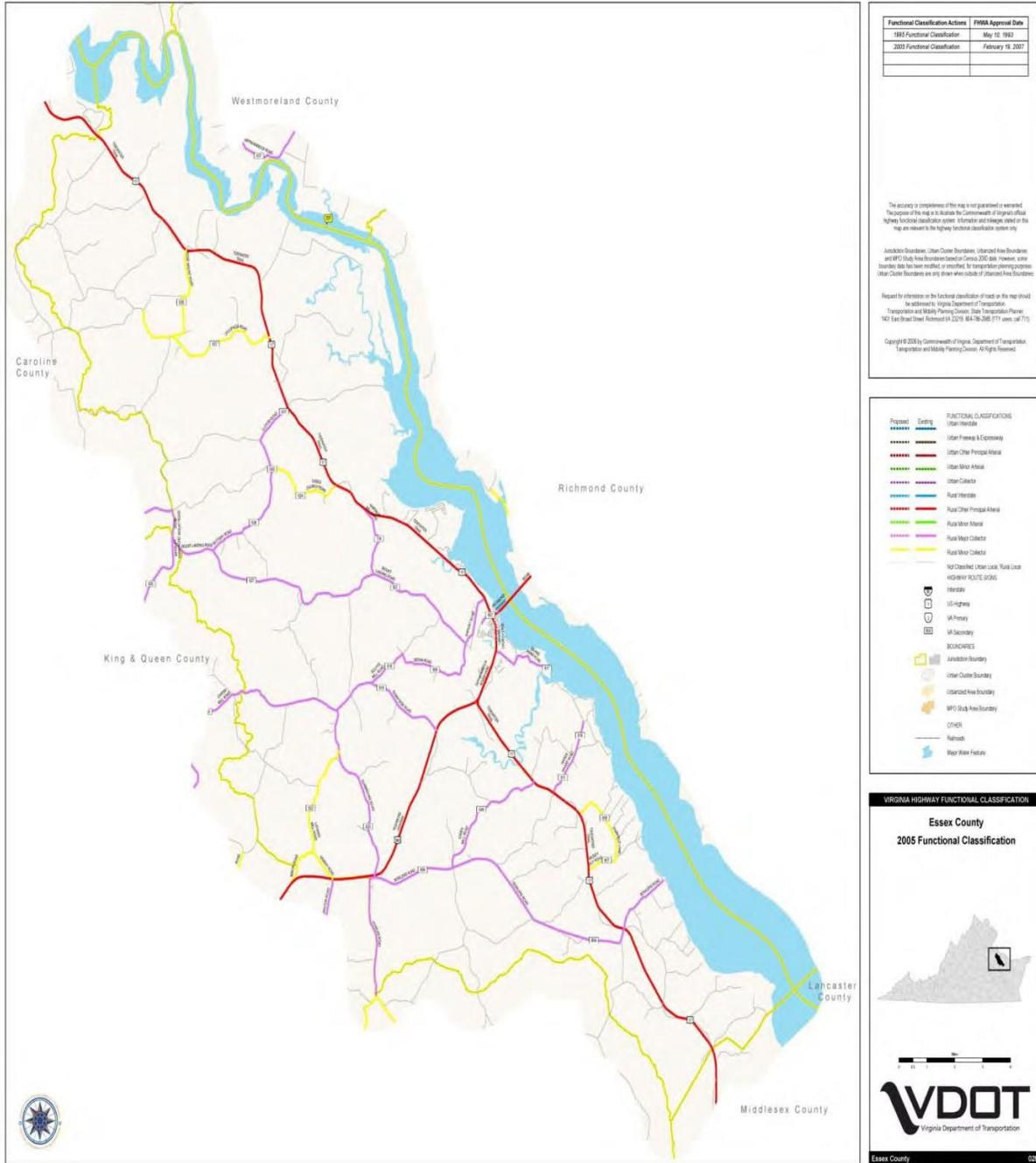
### Highways

The skeletal framework of the County's highway system is the arterial and collector highways shown on Map 5-1. The map also reveals that the majority of the highway system is composed of local roads and secondary highways primarily functioning to provide service to local properties. A significant amount of the land in Essex County is dedicated for agricultural uses, therefore, the collector and local routes are heavily used by farm and logging equipment. Based on the Functional Classification of Highways described above, the following characterizes the basic highway network in the County.

**Principal Arterial:** Carries a high volume of traffic for intrastate, inter-county and inter-city travel. Traffic on this type of road normally has the right-of-way except in areas of high hazard, then controls are used. US 17 and US 360 are the two principal arterial that serves motorists traveling through Essex County. US 17 connects travelers to major employment centers as far north as Fredericksburg and south to Hampton Roads and is identified as a VTran Corridor of Statewide Significance by Virginia Department of Transportation. US 360 provides access to Richmond. These two arterials also provide links to the I-95 and I-64 interstate system.

**Major Collector.** Serves intra-county and inter-community travel, but at a lower volume, and usually connects to an arterial to provide access to the surrounding land. Access is not directly from this road but from a sub-road connected to the collector. Major collectors may also serve community shopping areas, schools, parks and cluster developments. Those routes in Essex County include:

# Map 5-1 2005 Functional Roadway Classification



## Secondary Roadways

Utilized mostly for intra-county travel, secondary roadways are of a major importance for rural areas in transporting farm products and equipment, timber to mills, residents to work and services and tourists to waterfront areas. Several of the roads in the County secondary system serve a great deal of inter-county travel to Tappahannock for employment and services.

The condition of secondary roadways in Essex County is reasonably sound with on-going programs of expansion, improvements and maintenance being carried out by the Virginia Department of Transportation. The County has adequate opportunity for recommendations for highway improvements in the Highway Plan for the secondary roadway system developed and revised by the State Highway Department annually. Recent traffic counts indicate the airport road which serves both the County and Town is at capacity and should be planned for upgrade in the near term depending on how its traffic volumes may be influenced by a Town bypass.

## Waterways & Bridges

As a part of the 2035 Rural Long Range Transportation Plan, bridge infrastructure throughout the Middle Peninsula was evaluated and rated for functionality and structural integrity. The plan identified four bridges in Essex County as functionally obsolete and four other bridges structurally obsolete. The Virginia Department of Transportation's Six Year Improvement Plan lists a 2016 improvement project for the bridge at Route 691 (Gordon's Mill Road) and Piscataway Creek.

Travel on the Rappahannock River is limited to private pleasure craft and some commercial grain transport. A public wharf was rebuilt in the early 80's and is maintained in Tappahannock by the Virginia Department of Transportation. Navigable waters do have potential for expanded shipping and transportation in the future which would have potential to relieve traffic through the County. Additional access points would allow for increase in both recreational and commercial use of the water. Essex County is an active member of the Middle Peninsula Chesapeake Public Access Authority (PAA). The PAA will be instrumental in assisting the County in obtaining additional waterfront access.

## Railways

No railroad passes through Essex County. West Point, Richmond, Ashland and Bowling Green are the nearest available freight stations. Richmond, Ashland and Fredericksburg have the only complete rail services, including commuter rail services (Virginia Railway Express) to Washington D.C. and Amtrak which provides commuter services nationwide.

## Airways

The airport facilities are located five miles west of Tappahannock. The airport opened to the

public in 2007 and consists of approximately 421 acres and is developed with public infrastructure such as water and sewer services and broadband services are available. The airport is approved for planes up to 30,000 lbs and currently does not charge landing fees. The airport facilities are equipped with partial parallel taxiways, fuel services, maintenance services, hangars and tie-downs, pilot supplies, courtesy car service and wireless internet.

The airport supports agricultural and forestry services including fertilizing, seeding and insect and disease control.

Traffic Volumes, Trends and Recommended Improvements

Average daily traffic volumes (ADT) on primary roadway segments, available from VDOT are identified in Table 5-1, Average Daily Traffic Volume on Primary Routes. Due to socioeconomic changes, traffic volumes experienced a significant increase from 2003 to 2010 before declining in 2012. While volume is expected to increase over the next twenty years, the rate will largely depend on economic growth both locally and regionally.

**TABLE 5-1  
Average Daily Traffic Volume on Primary Routes**

Route #	To		2003	2010	2012	% Trailer Traffic
17S	Caret	Tappahannock	5600	6000	5300	4%
17N	Bray's Fork	Center Cross	4900	5600	5300	1%
360	Bray's Fork	Miller's Tavern	8300	8700	8600	4%

Traffic projections made by the Virginia Department of Transportation (VDOT) indicate that the average daily traffic on Rt. 17 through Town will increase from its current level of 27,000 vehicles per day to 30,500 vehicles per day by 2010, assuming no other alternative route is built. Volumes of this degree indicate a need for additional lane capacity on the Town's major transportation artery and/or underscore the need for a town by-pass or alternate parkway within the planning period.

**Level of Service Descriptions**

Highway traffic congestion is expressed in terms of Level of Service (LOS) as defined by the Virginia Department of Transportation Manual and the Highway Capacity Manual LOS is a letter code ranging from "A" for excellent conditions to "F" for failure conditions. The conditions defining the LOS for roadways are summarized as follows:

LOS A- Free-flow (FF) operation

LOS B- Reasonably free-flow, Ability to maneuver is only slightly restricted, Effects of minor incidents still easily absorbed

LOS C- Speeds at or near FF, Freedom to Maneuver is noticeably restricted, Queues may form

LOS D- Speeds decline slightly with increasing flows, Density increases more quickly, Freedom to maneuver is more noticeable limited, Minor incidents Create queuing

LOS E- Operation near or at capacity, any disruption causes queuing, no usable gaps in traffic stream

LOS F- Breakdown in flow, demand is greater than capacity.

The LOS for a roadway should reflect the projected demands of the Land Use Map. Circulation systems are generally adopted within the Transportation Element, and traffic volumes and flows generated from the aggregate of the land uses and densities of the Land Use Map must be supported within that LOS. The current LOS for major collectors in Essex County is at or above level B. These being the case, all major collectors currently have available capacity.

Highways outside of the Town of Tappahannock are currently operating at acceptable levels. The County's Future Land Use Map proposes no substantial change in land uses in the near future that would have a major impact on level of service. High density, commercial and industrial land use designations are minimal in the County and County highways have adequate capacity for an increase in volume. Proposed major collector road improvements continue to provide the County with a reasonably sound secondary road system. Continued coordination of improvements with the Virginia Department of Transportation will be required on an annual basis to continually assess needs and priorities as they shift, based on future development patterns.

Table 5-2 outlines the deficiencies in the Essex County transportation system as identified in the 2035 Rural Long Range Transportation Plan.

**Table 5-2 Essex County Roadway System Deficiencies and Recommendation**

<b>ID #</b>	<b>Location Information</b>	<b>Deficiencies</b>	<b>Recommendation</b>
1	VA 659 (Desha Road) from VA 618 to South City Limit of Tappahannock	Safety: Segment has series of short horizontal curves that limit sight distance. Congestion: Turn lanes that could improve operations are missing along segment.	Long-Term: Safety/Congestion: Upgrade to current design standards and install turn lanes where appropriate.
2	US 17 at VA 631	Safety: Crashes at this location exceed the planning threshold (nine crashes over three-year period).	Long-Term: Safety: Deficiency with low priority. Continue to monitor for potential improvements.
3	US 360 (Richmond Road) from Begin Downing Bridge to End Downing Bridge / Richmond County Line	Congestion: Segment will operate at LOS E in 2035.	Long-Term: Congestion: Urban - 4 Lane With Median.
4	VA 606 (Fairfield Lane) from VA 607 to US 17	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.

5	VA 607 (Muddy Gut Road) from US 17 to VA 606	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
6	VA 609 (Essex Mill Road) from US 17 to VA 684	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
7	VA 617 (Island Farm Road) from End of Road to VA 697	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 20 Feet
8	VA 617 (Island Farm Road) from VA 697 to Eastern City Limit of Tappahannock	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
9	VA 618 (Scotts Mill Road) from VA 619 to VA 659	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 24 Feet.
10	VA 619 (Sunnyside Road) from VA 620 East to King And Queen County Line	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 24 Feet.
11	VA 620 (Dunbrooke Road) from US 360 to VA 619 East	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
12	VA 621 (Midway Road) from US 360 to VA 622	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 24 Feet.
13	VA 624 (Essex Church Road) from VA 630 / VA 629 to US 17 North	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
14	VA 624 (Essex Church Road) from VA 631 to VA 630 / VA 629	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
15	VA 627 (Mount Landing Road) from Caroline County Line to VA 665 West	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
16	VA 629 (Battery Road) from VA 627 to VA 624	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
17	VA 635 (Occupacia Road) from VA 639 East to VA 635 East	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.
18	VA 637 (Occupacia Road) from VA 635 East to US 17	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet
19	VA 716 (Warings Mill Road) from VA 627 to US 17	Safety: Geometric Deficiency	Long-Term: Safety: Rural - 2 Lane 22 Feet.

From the analysis and the discussion of growth management three important transportation planning directions seem apparent:

- The capacity of the major arterials is key to growth management of the County and should be carefully conserved. This implies strict access control and residential and nonresidential design standards that emphasize internalization of circulation systems.
- Within the designated growth areas, pre-planned expansion of the highway system is required to ensure that the function and viability of the growth centers do not impact negatively on the quality of life, supporting the need for a Tappahannock by-pass.

- Increasingly, the private sector will have to be a part of the solution of transportation issues, including providing incentives to encourage alternative modes of transportation and developments that reduce vehicular dependency.

Beyond a strict capacity-based approach to highway systems evaluation, consideration of the impact of roads and traffic on community character also needs to be considered. This is particularly true in the rural areas where development historically has been heavily highway oriented. Stripping the rural roads of the County with residential and nonresidential development will undoubtedly result in a loss of the rural character that the County wants to retain.

## **Transportation Demand Management**

### Mass Transit

Essex County has a transportation system typical of rural counties. This system depends heavily on automobile use and has significant morning and afternoon traffic peaks. Car pooling, van pooling and transit use are less than the national averages for rural areas.

Essex County partners with Bay Transit to provide a “call for service” bus transit system in the County. This system is funded by Federal and State grants along with local support. Ridership is over 14,000 people per year. Most users utilize the system for work or healthcare. No other form of mass transportation exists. The rural spatial character of the County and the region makes providing fixed route service significantly costly.

The Middle Peninsula Planning District Commission administers the Middle Peninsula Rideshare Program that is available to Middle Peninsula residents including Essex County. The Rideshare Program is a transportation demand management tool that provides an alternative to the drive alone commute for those traveling to throughout the region. The Rideshare Program provides ridesharing services to assist persons seeking transportation options within the Middle Peninsula region to destinations inside and outside the region. Ridesharing through vanpool and carpool serves residents in the counties of Essex, Gloucester, King and Queen, King William, Mathews and Middlesex and the towns of Tappahannock, Urbanna and West Point.

### **Park & Rides**

There are two VDOT maintained park and ride lots in Essex County:

#### **Loretto, #266**

Address / Nearest Intersection:

US 17 (Tidewater Trail) & Rte 654 (Rectory Road)

**Parking spaces:** 18  
**Handicapped spaces:** 1  
**Paved:** Yes  
**Lights:** Yes  
**Bike accommodations:** None  
**Signed as P&R lot:** Yes



**Transit service:** Unknown  
**Comments:** N/A

### **Watts Supermarket / Miller's Tavern, #306**

Address / Nearest Intersection:  
US 360 (Richmond Highway) & Route 620  
(Howerton Road)



**Parking spaces:** 40  
**Handicapped spaces:** 0  
**Paved:** No  
**Lights:** Yes  
**Bike accommodations:** None  
**Signed as P&R lot:** No

**Transit service:** No  
**Comments:** Commuter parking is in lot on right side of super market. Lot is gravel.

### Pedestrian and Bicycle Facilities

Essex County's rural character provides natural scenery easily accessible by pedestrians and cyclist due to low traffic volume on county roads. Currently there are no existing bicycle route plan or bicycle facilities with the exception of a few "Share the Road" signs.

### Implementation

The transportation plan cannot succeed without proper support and leadership from County government. The following implementation strategies establish the policy framework from which the County will create and maintain a functioning transportation system within the context of planned growth in the County.

**Capital Improvement Programming** - Capital programming has been recognized as a proactive way of avoiding transportation capacity problems. The County will need to monitor changing growth and development trends and to advise the Department of Transportation accordingly. The annual process involving the County and VDOT will evaluate the relationship between the State's available resources and the demands upon the County's primary and secondary road systems created by proposed land uses and land use trends.

The County should continue to plat rights-of-ways for new roads and streets when the land use patterns allow. This will permit the coordinated completion of road improvements if undertaken by different entities such as private developers.

**Maintain Coordination of the Land Use/Transportation Planning Process** - Continuing emphasis should be placed on coordination between the Town, County, VDOT, and MPPDC staff on matters related to planning and programming improvements and transportation systems management. There are several steps that can be taken to improve the current transportation planning process: the State and County should work very closely together to evaluate the transportation system implications of the County's new growth plans; elected officials should be major participants in this process; and coordinated State and County transportation management policy should evaluate the need to expand upon the current level of commuter ridesharing in order to reduce single-occupant vehicles. Plan for and coordinate right of way acquisitions for future improvements at the development review and permitting phase whenever possible.

**Traffic Impact Analysis** - As part of the Zoning process and development process, the County in conjunction with the state requires a traffic impact analysis of all new major projects. This analysis is used to determine if post-development traffic levels and patterns will be consistent with the County's Transportation Plan and highway policies and will minimize potential safety and congestion problems. Where the County has short-term planned improvements scheduled, it may permit the development to include such improvements in the traffic impact analysis. The County standards should be reviewed periodically to ensure.

**Access Management** - An access management program should be created, initiated, and supported by appropriate ordinances to ensure that access is not unnecessarily violated along key road links or near major intersections, particularly along the proposed Highway Corridor Districts.

- Remove turning volumes or queues from sections of the through lanes by pavement marking alterations, geometric design modifications, right-of-way acquisition (including acquisition for such techniques as constructing a service road or bypass road), or requiring adequate internal site circulation.

Zoning and Subdivision provisions should require that development projects adhere to all VDOT standards.

**Commercial and Industrial Parks** - Interior uses should be encouraged when developing planned parks where access control. Local roads, rather than arterial or collector roads should provide access to the site. When between two to five commercial uses can use a single access, substantial improvement to the flow of traffic can result.

**Highway Corridor Overlay Zoning** – Draft language in the zoning ordinance to implement a Highway Corridor Overlay Zoning District. Overlay zoning brings to the area additional requirements and standards above those of the underlying zone. Special transportation related improvements in the Highway Corridor District shown on the Land Use Concept Plan should include access controls and transportation impact analysis for high-volume uses.

**Transportation Management Strategies** - The County should encourage innovative mechanisms, including private cooperation, and financial support by developers and the business community which could be incorporated into financing policies. Transportation Management Activities (TMA's) have traditionally been a coalition of employers who engage in a wide range of activities including the promotion of ridesharing, the purchasing of vans for vanpools, the financing of areawide street improvements such as signal upgrades, and even the planning for long-range transportation projects. Diversify options for transporting of freight by boosting use of waterways and providing necessary infrastructure to promote alternative modes of transportation.

**Alternative Modes of Transportation-** the County will seek to promote a more pedestrian friendly environment by providing a variety of transportation options for its residents. The County will explore techniques and programs that will provide safe, accessible bicycle and pedestrian facilities in an effort to decrease vehicle dependency and encourage quiet enjoyment of the County natural environment.

The County will work with the PAA and state agencies to adopt methods of obtaining increased access to its waterways.

## SECTION SIX

# COMMUNITY FACILITIES AND PUBLIC SERVICES

### **Goal:**

To provide a system of community facilities, public services, and infrastructure that is consistent with existing and future needs and resident well-being and that encourages a form of development consistent with the Land Use Plan.

### **Objectives:**

Maintain and improve existing facilities to serve future demand.

Encourage the development of Parks and Recreation facilities to serve the needs of County residents. Explore opportunities to provide greater public access to the river and creeks.

Ensure that the economic burden of providing public service is equally borne and distributed by all those who benefit.

Reduce cost of providing facilities by effective planning and prioritization of projects

Provide, maintain and improve public services and facilities to meet the needs of residents of the County and foster economic development. Review the performance and effectiveness of existing services and public facilities and proceed with necessary changes.

Ensure that the costs of additional public facilities and services required by new development are equitably borne by those benefitting.

Develop a Capital Improvement Program and annual Capital Budget to satisfy projected facilities and service needs and to permit acquisition of sites of proper size and location for facilities in advance of development.

Promote and foster an environment that stimulates economic development and presents an attractive environment for businesses and entrepreneurs.

### **Introduction:**

Ensuring the provisions of community service and facilities are phased with the needs of residents is important to management of future County financial resources. Community facilities and public services are those minimum facilities and services the County provides for the common good. The quality of public facilities contributes to the quality of life in the County. Some facilities, such as clean drinking water and adequate sewerage disposal are necessities; others, such as parks, are highly desirable for quality of life enrichment. The quality of public facilities contributes to the quality of life in the County. Some facilities, such as clean drinking

water and adequate sewerage disposal are necessities; others, such as parks, are highly desirable for quality of life enrichment.

Although the majority of the public facilities and services enjoyed by Essex County residents are centrally located within the Town of Tappahannock, and in many cases shared with Town residents, their future depend upon adequate planning by the County and are therefore vital to the Essex County Comprehensive Plan.

Community facilities planning efforts will need to be continually re-evaluated during the planning period within the dynamic real estate market financial conditions, and regulatory climate with which Essex County will be faced. With this context in mind, however, several community facility improvement needs can be anticipated during the 20 year planning period. This section of the plan will focus on identifying the issues and needs for selected services in the context of expected growth.

Public facilities and services include land, buildings, equipment, and whole systems of activities provided by the County on behalf of the public and are costly to provide and operate in a rural county. The problems are more pronounced due not only to a lower population and revenue, but also the lack of concentrated development pattern. This means the people must travel further to services or the services must be extended further to be accessible by residents. This is expensive and often results in decreased services.

Land use regulations can promote community development and discourage scattered stripping of commercial uses. In this way, services can be localized; fewer centers serving more people are more efficient. The future land use plan, in coordination with public services and facilities planning, must address needs with respect to location of development and the provision of services at least cost.

Citizen tax dollars support a variety of public services provided to Essex County residents. Conveniently, almost all are located in and around the Town of Tappahannock. Services attract population and commerce increasing the need for community facilities and public infrastructure. When growth and development exceed the capacity of services, public officials are faced with difficult choices on funding sources and how to meet the demand for services and facilities.

Analyzing growth projections and creating a strategy of how to address the issues beforehand is key to smart growth management and eliminates the concern for overtaxing existing facilities and resources. It also helps to control where and how future growth takes place; a primary function of the Comprehensive Plan. Analysis of existing services and facilities and projection of need based upon population and economic data can assist in anticipating what additional services and facilities will be required in the future. In this way, necessary appropriations from the budget can be anticipated in advance.

## Health and Welfare

Essex County has a variety of medical services available to its residents. Riverside Tappahannock Hospital located in Tappahannock is a one hundred bed facility offering X-Ray, Nuclear Medicine, Laboratory, Physical Therapy and Respiratory Therapy services. The surgical suite can handle major surgery and complicated orthopaedic surgery. Physician specialties utilized in the hospital include Family Practice, Internal Medicine, Emergency Medicine, General Surgery, Cardiology, and Orthopaedic Surgery. The Emergency Department is well equipped to treat all types of injuries and is staffed 24 hours each day by an Emergency Room Physician. Urgent Care services are also provided through Riverside Hospital.

In addition to private medical services, the County Health Department, located in Tappahannock, provides cost efficient medical services to Essex residents which include regular family planning, child health, obstetrics, Medicaid and immunization clinics. The Health Department also provides expertise in planning and approving individual sewage systems (septic), testing private water supplies, inspecting food selling establishments as well as assisting with rabies control. State and locally funded, the Health Department operates on an ability-to-pay basis serving those County residents unable to afford private care. The Tappahannock Free Clinic is also available and currently provides various free screening and medical services for indigent residents in the county.

Social Services are provided by the Essex County Department of Social Services located also in Tappahannock. Staffing includes a director, two social workers, three eligibility workers and three clerks. The department administers the Supplemental Nutrition Assistance Program (SNAP), auxiliary grants for the aged and disabled, general relief funds, Aid to Families of Dependent Children, child protective services, foster care and numerous services through Title XX Funds.

There are several adult nursing home/convalescence facilities in Essex County and the surrounding region, with additional facilities being planned.

A significant percentage of Essex residents are retirement age or older which is why Carrington Manor, a private long term care facility, is a vital service available to Essex County residents. This 128 bed senior care facility provides assisted living and nursing services to its residents in a live in environment.

## Safety and Emergency Services

It is the responsibility of the elected officials to ensure that necessary resources are readily available to law enforcement and emergency service response teams who protect and serve Essex County residents.

The Sheriff's Department, located in Tappahannock, is staffed by the Sheriff and eleven officers.

The department cooperates with other counties in the Middle Peninsula in minimum classroom and on-the-job training and in emergency services operations. In addition to the original building houses six offices. The Town employs an additional 5 officers through its police department and five state police are assigned to the Town/County area. Essex County also participates in service sharing with other localities in the region. Essex County uses the regional detention facilities in Middlesex County to hold adult and juvenile offenders.

A single volunteer organization, the Tappahannock-Essex County Volunteer Fire Department serves Essex County from a new facility located in Tappahannock. The Department consists of over more than fifty members is equipped with a three Class A pumpers, two large capacity water tankers, three brush trucks and one mini pumpers and two staff vehicles. There are three fire stations located throughout the county with the newest addition located in the Occupacia District.

Essex County formed a hybrid EMS system consisting of paid employees and volunteers. Essex County EMS was formed in Sept 2011 and employs full time personnel. Tappahannock Rescue Squad, INC. consists of volunteers who work closely with Essex County EMS to meet the service needs of both Essex County and the Town of Tappahannock. The county-town rescue squad is composed of about forty members operating four (4) rescue vehicles. The units are dispatched county-wide from the County Sheriff's Department. Both EMS agencies are funded by the county, Tappahannock Rescue Squad, INC. still receives private donations and local contributions.

Standards for law enforcement personnel requirements for Counties with a population of 10,000 indicate the number of personnel typically ranges from 1.5 to 3 employees per 1,000 population. The combined personnel of the Sheriff's department, town police department, together with four State Police assigned to the area indicate a total of approximately 25 personnel suggesting law enforcement resources are presently adequate.

#### Essex County Red Cross

Since 2006, River Counties Chapter of the American Red Cross has been supporting Essex County with volunteers residing in the county. The chapter provides limited services of assisting with small disasters such as house fires, blood drives and Armed Forces Emergency Services.

In the event of a disaster, residents receive immediate assistance with food, clothing and lodging. River Counties Chapter supports Essex, Lancaster, Middlesex, Richmond and Westmoreland from local donations.

#### Other Services

Rappahannock Legal Services is a non-profit corporation that provides free, high-quality, civil legal assistance to low income individuals and families. We are funded by a wide range of local

individuals, churches, banks, agencies, governments and organizations, including the Rappahannock United Way and Piedmont United Way.

The Haven Shelter & Services, Inc. provides assistance to domestic violence and sexual assault victims in the Essex County and the Northern Neck region. Their mission is to provide advocacy and shelter for identified victims of partner abuse and sexual assault as well as to provide support services to victims and their families.

Education

The Essex County School Board operates a consolidated public school system at three sites in Tappahannock. A 78.9 percent graduation rate was report for Essex County high schools in 2012. This number is consistent with trends dating back to 2007. 79.9 percent of Essex residents are high school graduates, however, only 16.2 percent of the population 25 of over hold a bachelor’s degree or higher. The following table (Figure 6-1) shows the population of students enrolled in school in 2012.

**Figure 6-1 Population School Age Children Enrolled in a Learning Institution**

	<b>Public</b>	<b>Private</b>
<b>Population 3 years and over enrolled in school</b>	2,348	86.6% 13.4%
<b>Nursery school, preschool</b>	129	29.5% 70.5%
<b>Kindergarten to 12th grade</b>	1,803	91.2% 8.8%
<b>Kindergarten</b>	112	75.9% 24.1%
<b>Elementary: grade 1 to grade 4</b>	473	83.9% 16.1%
<b>Elementary: grade 5 to grade 8</b>	629	93.3% 6.7%
<b>High school: grade 9 to grade 12</b>	589	97.8% 2.2%
<b>College, undergraduate</b>	401	85.0% 15.0%

**Table 6-1 Essex County Enrollment History and Projections**

School	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Essex High										
# pupils	515	497	472	490	472	474	459	429	447	421
Essex Int.										
# pupils	453	469	488	465	460	432	428	413	386	384
Essex Elem.										
# pupils	641	636	616	592	568	562	547	539	533	513
Total Students	1609	1602	1576	1547	1500	1468	1434	1381	1366	1318

Source: 2014 Essex County Public Schools Comprehensive Plan

Several private schools options are available to Essex County residents. The institutions and their range in grades are as follows:

Aylett Country Day School - Early Childhood 3 yr. olds - Grade 8

Saint Margaret's School - Grades 8 – 12 (girls only)

\*Tappahannock Junior Academy – Pre K – 8

\*offers high school distant learning

School populations are expected to remain stable or slightly decline due to fewer children in the

lower age groups entering the school system. Table 6-2 below shows projections in growth for school age residents in Essex County through 2030. The projections show slight changes in the 9 years and under age group while the 10 to 14 year old age group experiences significant growth. This change is consistent with the number of younger parent households migrating into and out of the County while middle age residents settle in the county long term.

**Table 6-2 Population projection of Essex County school age resident**

Population Projections by Age	2010	2020	2030
Under 5 yrs	649	602	646
5 yrs to 9 yrs	649	659	741
10 yrs to 14 yrs	668	833	777
15 yrs to 19 yrs	774	675	690

In 2002, an addition to the elementary and other renovations was completed. A construction project to renovate and expand Essex County High is currently underway. The renovations include an auditorium with seating capacity for 600 people. Recent unexpected enrollment increases place the school over capacity.

Essex County is in close proximity to numerous institutions of higher education, several within an hour commute time. These colleges and universities support the labor market of Essex County and are vital to its overall competitiveness in the labor market. The programs of study range from business professional to doctoral programs. The convenience of obtaining higher education is offered through distant learning and online courses at several of these higher learning institutions.

Institution	Location	Distance
*Rappahannock Community College	Glenns Warsaw	21 miles 8 miles
College of William & Mary	Williamsburg	46 miles
Virginia Commonwealth	Richmond	39 miles
University of Richmond	Richmond	39 miles
University of Mary Washington	Fredericksburg	44 miles

\*Two year college with guaranteed admissions with most state schools. Offers lifelong learning programs and a transfer incentive that is recognized through most public higher education institutions.

### Broadband Facilities

Public transportation provides access to job, education, and medical care. By providing

broadband facilities, the demand on transportation infrastructure would lessen, allowing for redirection of funding toward other transportation projects. Broadband services are essential to the economic vitality of Essex County. While broadband services are more readily available in the Town of Tappahannock, providing efficient service to rural parts of the county has proven to be a challenge.

Essex County is an active participant and works closely with the Middle Peninsula Broadband Authority. The Broadband authority is a committee of representatives from localities in the Middle Peninsula who are tasked with identifying the most practical and economically feasible approach to overcoming the challenges that rural counties face in providing broadband services. The Broadband Authority is exploring various models that were recommended as a part of CIT broadband study.

The broadband study shows that 81% of Essex County is serviced by DSL internet service. Essex County ranks 105 out of the 131 counties in broadband speed. The County's population density, 42.1 persons per square mile, contributes significantly to the difficulties and high cost of providing broadband services. Service providers to Essex County resident include Metrocast, Hughes Net and Virginia Broadband.

#### Waste Disposal

Waste collection and disposal operations in Essex County are carried out by a regional solid waste authority. Waste is collected and transported to commercial landfills outside of the County. Recycling services are available as a part of the collection service. Solid waste collection services to Essex County residents are available through a private waste management entity.

#### Water & Sewer Services

Due to the higher residential density and a concentration of the commercial uses, public water and sewer facilities in Essex County are located in the Town of Tappahannock. These services may be extended into the county to accommodate residential subdivisions in close proximity to the Town of Tappahannock. Many of the private subdivisions have privately owned and operated central water supplies. The largest of these include: Gwynnfield, Maryfield, Coleman Island Beach, Point Breeze, Markhaven Beach, Essex Acres, Laurel Park, Wilson Acres and South Hill Banks.

A \$1,300,000 grant from the U.S. Department of Commerce was used to expand and upgrade the town of Tappahannock Waste water treatment plant giving the County 200,000 gallons per day capacity and to extend water and sewer lines into the County to serve present and future industrial and commercial uses

### Storm Water Management

In an effort to protect water sources from contaminant and manage erosion and sediment runoff into the water supply, Essex County is participating in the Virginia Storm Water Management Program. The County's storm water management program, administered through the county Building Department, will require a review process for future development that seeks to manage erosion and sediment control from the development site. The program also involves site inspection and ongoing maintenance of water control mechanisms. The County will provide storm water management oversight for proposed developments in the Town of Tappahannock.

### Water Supply Planning

In 2010, Essex County and Town of Tappahannock adopted a water supply plan that identifies current and future water demands and the localities' approach to meeting future demands.

The Town of Tappahannock currently provides the only public water system in Essex County. Water supplies appear suitable to support individual domestic wells in rural portions of the County given the low rate of household growth projected for these areas.

Public water supply system will be required, however, to support higher densities and non-residential. The Town system can provide a foundation to build on and expand service into other districts.

### Parks & Recreation

The County operates a Department of Parks and Recreation utilizing the swimming pool, gym and two lighted ball fields for organized sports and recreation activities. Their programs include volleyball, flag football, basketball, after-school primary level activities, weekend youth activities, parades and open gym activities.

Marsh Street Pool and Park, located in the Tappahannock, is a public park with pool amenities and are operated by Essex County Parks & Recreation. The facility is less than 2 acres and provides County residents with a swimming pool and other activities. Activities organized on site through the County include: Fun Day, splash parties, swimming lessons, water aerobics, Special Olympics, and special events. The County also organizes volleyball, little league basketball, aerobics, soccer, kite flying, and tennis. Rappahannock Recreational Association, a private, nonprofit agency also provides similar recreational services to Essex County residents. In spite of the success of these programs, existing facilities appear to be limited when judged against state standards for parkland.

Outdoor recreational activities, such as hunting, fishing and boating, are a part of everyday life for most Essex County residents. Its proximity to Rappahannock River along with the vast open space provides residents and tourist alike with a unique closeness to nature that can only be

experienced in a rural environment. The immense amount of waterfront has built enthusiasm from Essex County residents and tourists for water sports and activities. A small park in Tappahannock provides picnic facilities located on north Route 17 maintained by the Town of Tappahannock.

The Virginia Department of Conservation Recreation (VDCR) established local recreation and park site standards call for at least 10 acres of recreation land per 1,000 persons in a community for all park needs at the neighborhood, community and district park scale. It is also recommended that of the total acreage, at least one quarter of the area is developed as active open space. Utilizing these standards, the County should have available some 130 acres of open space for residents use over the 10 year planning period, of which approximately 33 acres should be active recreational open space

**Table 6-3 VDCR Park area Standards by Service Radius**

Class	Acres/1000	Rural (Service Area)	Minimum Size (acres)
Neighborhood Park	3	1-1/2 miles	5
Community Park	3	3-7 miles	20
District Park	4	10-15 miles	50

Only 32 acres of the County landfill site is actively used for solid waste disposal leaving substantial land area (650 acres +) available for Park use. Its central location and size suggest its use might be suitable for a district or regional park providing for both passive (nature trails, bicycle or trail or picnic facilities) and active (ball fields, tennis courts) facility improvements.

There is also a 16 acres site adjacent to the middle/intermediate school available for development and use for recreation. VDCR encourages local governments to provide access to outdoor resources as well as education residents on using outdoor resources in a way that preserves the natural environment. DCR also provides education and grant funding opportunities to localities in providing outdoor recreational activities. The County should consider a park facility at this location.

U S Fish and Wildlife-Rappahannock River Valley was established in 1986 for protection and conservation of Wildlife Resources. Rappahannock River Valley manages a refuge in Essex that is equipped with trails and other outdoor amenities for viewing of local wildlife habitat.

In an effort to provide recreational opportunities that are easily accessible to all residents, the County encourages the development of active open space in all communities. The recreational sites should range from playgrounds to large scale community parks depending on the area the park is created to serve and would be consistent with the recommended guidelines of Virginia Department of Conservation and Recreation’s 2007 Outdoor Recreations Plan.

## Boating Facilities

Essex County has determined that boating facilities should be located only where: there is sufficient water depth, without frequent dredging; there are not public or private shell fishing grounds which would be impacted; there is adequate tidal flushing; there are suitable soils for sanitary facilities or connection to a municipal sewer system; there is limited harm to fish and wildlife habitat; and there are compatible existing land and water uses nearby.

Existing marinas and boat repair facilities should adopt operational procedures consistent with BMPs. For proposed boating facilities, BMPs should be required as a condition of development.

There are boat slips available at June Parker Marina in Tappahannock and Garrett's Marina at Bowler's Wharf for private use. There are several public landings located along the Rappahannock for launching boats. Table 6-4 list the public landings currently operated and maintained operated by the State.

**Table 6-4 Public Boat Ramps in Essex County**

Property	Ownership	Infrastructure on Site
<b>Dock Street</b>	Virginia Dept. of Transportation	Landing
<b>Piscataway Creek</b>	Dept. Fish and Wildlife	Landing
<b>Wares Wharf</b>	County	No Infrastructure
<b>Mount Landing</b>	National Fish and Wildlife	Dock
<b>Hoskins Creek</b>	County	
<b>Prince Street Road Ending</b>	VDOT transfer to Town of Tappahannock	Pier
<b>Browns Tract</b>	Middle Peninsula Public Access Authority	Pier

Essex County is an active member and works closely with the MPPAA. The MPAA oversees public recreational property throughout the Middle Peninsula. The County should study the needs for waterfront public access in conjunction with state, federal, regional, and private agencies. The Middle Peninsula Planning District Commission should be encouraged to assist local efforts in planning and providing water access infrastructure and park facilities which will benefit use of the natural environment thereby protecting water quality.

## Library

The Essex Public Library, located on Route 17 north of Tappahannock and operated by the County, is an 8000 square foot facility that was completed in July 2001. Construction was funded entirely by grants and donations.

The library contains 18,000 volumes and is funded primarily by the County. Some additional funding comes from the Town of Tappahannock, the state, federal grant-in-aid monies and private donations.

### Essex County Museum

Founded in 1966, the Essex County museum is operated by the Historical Society. The museum provides historical information on Essex County, the Town of Tappahannock and their residents. The museum operates as a 501(c)(3) organization and funding is provided through membership dues and donations.

### Government Services and Facilities

In addition to the services already mentioned, the Essex County Government includes a building inspection program with a full-time building official-zoning administrator and an administrative staff. All offices are currently located in or adjacent to the County Courthouse. The addition of local programs and services is not expected at this time and total space is presently adequate to allow administration.

In 2001, a new 8000 square foot library was completed. The former library location currently houses Virginia Tech Extension Services.

The County's Justice system is located in an 11,400 square foot building designed to house the District Courts and Sheriff's Office. The County Administrator's Office is 1650 square feet and is located in former Sheriff's Office. The Commonwealth's Attorney's Office has relocated into the old County Administrator's Office from its rental space off the County/Town Square. In addition, the County has 2000 square feet of unused space formerly occupied by the District Courts. The County encourages the use of the vacant space by another government service agency.

### Historic and Cultural Resources

Preservation of historic and cultural resources through land use and zoning regulations is an area currently under future planning consideration by Essex County government and partnering agencies. Although there are many homes and sites of historic significance, for purpose of this Comprehensive Plan, only those registered with the Virginia Historic Landmarks Commission are recognized. These historic sites are located on Map 14-1. They include: Brooks Bank located east of Loretto; Vauters Church and Elmwood at Iraville; Glencairn near Chance; Glebe House of St. Anne's Parish located east of Champlain; Blandfield, east of Caret; and Woodlawn on Route 360 between Paul's Crossroads and Millers Tavern.

## Implementation

Include plans for expansion of facilities and infrastructure into the county, specifically to the Airport Complex, as well as ongoing maintenance of services and facilities. Identify revenue generators and funding sources for carrying out the CIP. Coordinate efforts with the Town of Tappahannock to meet the Sewer and Water facility development and improvement needs of the Town and surrounding County areas

Explore funding resources and revenue generating options, such as user fees for public facilities and grants offered through state and federal agencies to the Economic Development Authority and other agencies that will assist in implementing broadband initiatives. Update current Plans, codes and maps to show desired development in areas where existing facilities are located and maximum use can be achieved. Amend codes and ordinances to discourage use of those areas that create an unfair hardship on public infrastructure without providing for proper expansion or improvements

Encourage and provide ongoing education and training of all public safety personnel. Funding for resources necessary to protect and serve Essex County residents should be prioritized accordingly in the County budget. Consult and cooperate with the Department of Emergency Management in providing current training, workshops and other available resources to assist with maintaining and advancing the county's public safety.

Provide broadband options, ideally a competitive broadband environment that will support local businesses connectivity needs as well as Essex County residents. Provide and improve opportunities that support teleworking, education for K-12 and continuing education for adults, and quality healthcare including telehealth support

Create policies and/or amend zoning polices to be more broadband zoning friendly. The county should form partnerships with existing community organizations to provide digital literacy training options for broadband adoption and utilization

Encourage and foster an environment of public participation and community outreach that will allow residents and other stakeholders to be active in the public facilities planning process. An evaluation is needed to determine if available facilities and programs are meeting the communities' interests.

Encourage and invest in providing higher education and job skill training that allows resident to find opportunities in Essex County. Form partnerships and explore opportunities that will allow for access to funding promoting job skills training, placement and retention. Work closely with the Middle Peninsula Planning District Commission on implementation of the recommendations from the Comprehensive Economic Development Strategies Plan to provide services and infrastructure necessary for economic growth and development.

Encourage developers to utilize alternate density zoning. Encourage development of Parks and Recreation multiuse facilities as a part of development requests which provide a range of activities to County residents.

Work closely with the Middle Peninsula Public Access Authority and other agencies to explore opportunities to provide greater public access to the river and creeks.

Work closely with other agencies to explore service sharing opportunities to reduce cost and increase efficiency. Ensuring that the provisions of community services and facilities are phased with the demand or County needs is important to management of future County financial resources. Although the majority of the public facilities and services enjoyed by Essex County citizens are centrally located within the Town of Tappahannock, and in many cases shared with Town citizens, their future depend upon adequate planning by the County and are therefore vital to the Essex County Comprehensive Plan

Establish and enforce policies and regulations that require contributions by the development community to offset or fund cost of increased service demands that come as result to their new development. These policies should include funds for public infrastructure and facilities as well as dedication of open space in residential developments for active recreational use and other applicable proffers

Explore options that will allow the County to regulate development of historic sites in an effort to preserve the historic and cultural integrity of the support should be given to efforts by the individual owners to preserve and enhance these sites as they are to the benefit of the County as a whole

Encourage recycling and reuse of effuse to maximize and make more efficient use of public service facilities

## SECTION SEVEN THE ECONOMY

### **Goal:**

**Create a balanced sustainable community through moderate economic growth within the County's existing growth management plan.**

### Objectives:

- \* Strengthen local business/industry retention efforts by assisting businesses and industries to expand within Essex County.
- \* Attract new and relocating businesses and industries to Essex County to support and its economic base and provide high quality jobs for residents.
- \* Preserve the tradition of agricultural, forestry, fishing and shellfish industries as important components of County rural character and the local economy. Promote additional tourism/travel industry or Eco-tourism related development which complements the rural, scenic, and historic qualities of the County.
- \* Continue encouraging efficient and attractive commercial development to strengthen the County's economic base, and provide both jobs and services for County residents.
- \* Provide an ample supply of appropriately zoned land areas suitable for future industrial and commercial growth.
- \* Work closely with and continue to support the Town of Tappahannock in attracting quality commercial and industrial businesses that will help strengthen the local economic base.
- \* Assign priority to the adequate provision of infrastructure to areas designated for future industrial and commercial development (i.e. roads, water, and sewer systems).

### **Introduction**

Town of Tappahannock's commercial core is the backbone of Essex County's economy. The general trade area is delineated as served by retail establishments centered at Tappahannock. Although the County has designated several areas throughout the county for smaller neighborhood commercial uses, commercial and service uses are centralized in the Town. This allows the County to promote industries such as agriculture and recreation and tourism which contribute greatly to its economy while helping to preserve its rural character and natural

resources. Public water and sewer services do not extend throughout the county which helps to manage the types of development and uses of land in the County.

This chapter of the Comprehensive Plan focuses on the economic indicators of community growth and direction of resulting change in Essex County and the Town of Tappahannock, and ways in which these directions both influence and may be influenced by public policy. The chapter also highlights some of the challenges with Essex County’s economy and demographic issues that help to fuel these challenges.

## **Essex County’s Economy**

### Revenue

An important feature of the local economy is its proximity to about 3.5 million people living in the "urban corridors" of Fredericksburg, Richmond and the Hampton Roads. The Town of Tappahannock is a natural regional center because of its strategic location at the junction of Routes 17 and 360. Its Rappahannock bridge location centers the Town to serve substantial areas of the Northern Neck and Middle Peninsula regions. The greater trade area served by the town includes all or part of eight counties. A substantial percentage of the local tax revenue is generated from travelers passing through or visiting the town.

In 2012, the County’s population of 11,151 residents represents less than 10% of the eight county and regional populations. The 1 percent local sales tax revenue increased significantly from 2004 to 2007, however, declined steeply from 2006 to 2010 with a gradual increase from 2011 to 2013. The fluctuations depicted in Table 7-1 are a result of various socioeconomic events occurring over the ten year period.

**Table 7-1 Local Option Sales Tax**

<b>Year</b>	<b>Essex County Revenue</b>
<b>2004</b>	\$1,543,924
<b>2005</b>	\$1,700,716
<b>2006</b>	\$2,088,394
<b>2007</b>	\$2,054,070
<b>2008</b>	\$1,912,636
<b>2009</b>	\$1,732,222
<b>2010</b>	\$1,713,418
<b>2011</b>	\$1,731,516
<b>2012</b>	\$1,785,918
<b>2013</b>	\$1,842,607

The information above is tabulated from the revenue collected sales tax. Sales taxes are paid by consumers on all purchases made. Another mechanism which taxes the business owner doing business in a locality is the business license. The business license is established at the local level

and is collected exclusively by the locality. This revenue generally goes into the general fund or is used to fund specific improvements. The revenue from business license could offset the cost of improvement necessary for growing and attracting businesses to the County. Essex County currently does not have a business license requirement in place, therefore business in Essex County do not pay such tax. This loss of revenue could be substantial in terms of the proposed economic growth and how other businesses view the Town. It is proven that while infrastructure and other characteristics make locating to Essex County impossible, the use of an Essex County address to avoid licensing in other localities causes a discrepancy in the actual economic make up of the County. Essex County could require a business license for businesses located in the county limits and use it as a tool for attracting economic growth.

Employment

Essex County's centralized location provides advantages in various ways. In addition to contributing to the Town's regional commercial hub designation, it also provides residents with access to employment in major employment areas. Over 70 percent of Essex County residents commute to areas outside of the County for work. Majority of out commuters travel as far as Richmond, Northern Virginia and Hampton Roads for employment. Although a significant number of County residents travel to points outside Essex County for employment, the percentage of commuters is much lower than those of neighboring counties.

Changes in the socioeconomic make up of the County have caused employment rates to fluctuate over the past several years. Table 7-2 illustrates the change in the employment rate compared to that of the state.

**Table 7-2 Essex County's Unemployment Rates**

<b>Year</b>	<b>Essex</b>	<b>Virginia</b>
<b>2008</b>	<b>5.2%</b>	<b>4%</b>
<b>2009</b>	<b>8.9%</b>	<b>7%</b>
<b>2010</b>	<b>9.1%</b>	<b>7.1%</b>
<b>2011</b>	<b>8.2%</b>	<b>6.4%</b>
<b>2012</b>	<b>7.3%</b>	<b>5.9%</b>
<b>2013</b>	<b>6.8%</b>	<b>5.5%</b>
<b>2014</b>	<b>6.7%</b>	<b>5.2%</b>

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages 3<sup>rd</sup> Quarter 2013.

The unemployment rate increased almost 4 percent from 2008 to 2010; however, it has been on a gradual decline since 2011. Notice that the County's unemployment rate is consistently at least 1 percent higher than that of the state.

As mentioned earlier, the retail industry makes up the majority of Essex County's economic base. More than 35 percent of the county's employment industry is retail, not including the food service industry such as McDonald's, Applebee's, etc. More importantly, the retail employees are among the lowest wage earners compared with employees in other industries.

Healthcare is the second major industry in the County due to the presence of Riverside Regional Medical Center in Tappahannock. The healthcare industry employs more than 600 employees

and experienced the highest net gain in employees. Wages in the healthcare industry are among the highest in the town and county averaging over \$871 weekly. Table 7-3 provides a list of the various industries comprising the County's economic base.

**Table 7-3 Essex County's Top Employment Industries**

<b>Retail</b>	<b>795</b>
<b>Healthcare and Social Assistance</b>	<b>612</b>
<b>Government</b>	<b>525</b>
<b>Manufacturing</b>	<b>523</b>
<b>Accommodation and Food Service</b>	<b>422</b>
<b>Finance and Insurance</b>	<b>176</b>
<b>Wholesale Trade</b>	<b>151</b>
<b>Administrative Support &amp; Waste Management</b>	<b>80</b>
<b>Construction</b>	<b>79</b>
<b>Real Estate</b>	<b>77</b>
<b>Agriculture, Forestry, Fishing and Hunting</b>	<b>64</b>
<b>Professional, Scientific and Technical Services</b>	<b>63</b>

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages 3<sup>rd</sup> Quarter 2013.

With more than 70 percent of the labor force commuting to higher wage markets, the economic profile of the county is distorted. The median income and salaries of the county are driven by those who are commuting outside Essex County for employment, giving the illusion of a high wage labor market in the county. The median household income and the real estate market are driven by wages earned outside of the county leaving those who live and work locally at a disadvantage. Table 7-4 provides the average weekly wage for industries in Essex County. This information is essential to understanding the strengths and weaknesses in the local economy and where attention in the future should focus.

**Table 7-4 Average Weekly Salary by Industry**

<b>Retail</b>	\$453
<b>Health Care and Social Assistance</b>	\$871
<b>Manufacturing</b>	\$493
<b>Government</b>	\$659 (local)    \$898 (federal)
<b>Accommodations and Food Service</b>	\$275
<b>Finance and Insurance</b>	\$969
<b>Agriculture and Forestry</b>	\$732
<b>Wholesale Trade</b>	\$876
<b>Construction</b>	\$556
<b>Professional and Technical Services</b>	\$657
<b>Transportation</b>	\$344

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages, 3<sup>rd</sup> Quarter 2013.

Local employment has shown a steady increase in comparison to the population and this trend is expected to continue. Continued retail and services job growth should be expected given these characteristics. The County efforts, however, may be required to establish and maintain a balanced job base. Continued efforts to attract industry to support the objective of maintaining diversity in the job base will likely be required and the construction of water and sewer and line extension into the County will help with their goal.

### Agriculture and Forestry

The Census of Agriculture 2012 indicates that 37 percent of Essex County is made up of farm land with approximately 98 farms with an average size of 579 acres. This number is slightly lower than the 2007 Census which shows 102 farms with an average 523 acres. The market value of products sold from these crops, including livestock, totaled over \$22,770,000 in 2012 and close to \$10,000,000 in 2007. Total income from farming averaged \$49,836 in 2007. According to a study by the Weldon Cooper Center, Essex's County agricultural industry direct economic impact to the Virginia's economy in 2011 was over \$23.4 million and total impact was \$30.9 million. The forestry industry contributed \$44.8 million in direct and \$58.3 million in total impacts the same year. The study also indicates that more than 470 jobs in Essex County are agriculture related and over 370 are forestry related.

The tables above indicate that Agricultural, Forestry, Fishing and Farming industry wages are significantly higher than the average weekly wage; however the industry employs the least number of workers. According to the Virginia Economic Commission, the industry is also projected to decline slightly by year 2020.

It is conducive to the county's present and future economic endeavors to take measures to maintain and where possible, expand agricultural and forestry use of land in the County. The use is one of the few ways of achieving the County's two most important goals of growing and diversifying its economy while preserving and protecting its natural environment. **Two programs administered by Virginia Department of Conservation and Recreation are orchestrated to help conserve farmland in Essex County and throughout the Commonwealth.**

To qualify, farmland must: be privately owned; have a pending offer from a state, tribe or local farmland protection program; and contain significant amounts of prime farmland, historic or archaeological resources, or land that furthers a systematic state or local farmland protection program consistent with FRPP.

### Maritime Economy

Essex County's naturally built environment works well with promoting recreation and tourism as one of the more dominant industries in the County while protecting and preserving its natural resources.

The travel industry provides employment and tax benefits with substantial dollars spent by travelers circulating through the local economy. Tourism plays a small role in the County economy; however, its role can be maximized through enhancement of recreational facilities.

From the historical and cultural aspects of Tappahannock to the Rappahannock River waterfront and natural environment and wildlife refuge, Essex County has many assets to assist with the promotion of tourism. The County should focus on building on these assets to make them more attractive to the thousands of travelers that intersect the communities in route to urban areas. Essex County has the potential to be a weekend destination location with enhancements such as bike and walking trails, strategically located recreational facilities, more public access to water and emphasis to community's culture and history centered on Downtown Tappahannock. In addition, the establishment of the local Farmer's Market in downtown Tappahannock has provided an opportunity for local farmers and merchants to sell products made and grown in the County. This includes produce from farms and catches by watermen and aquaculture businesses. Enhancements are necessary to establishing a tourism and recreation as a more solid economic base and helping to diversify a vulnerable economy.

The National Oceanic and Atmospheric Administration (NOAA) collects and analyzes data on the maritime industry economy on the local, state and federal level. This information is used to help understand the importance of maritime industry to the economy and where opportunities to strengthen the industry may lie. This is especially important in the Middle Peninsula region being a coastal region and in Essex County which has the highest number of jobs in the maritime industry in the Middle Peninsula region. In 2011, NOAA's research showed that Maritime-related businesses provided 12% of the total jobs in Essex County, all in recreation and tourism industries. This represents a 10 percent increase in maritime jobs since 2005. Nationwide, Maritime jobs represent double the number of jobs supported by agriculture, the primary industry in Essex County. This indicates a window of opportunity for Essex County to strengthen its maritime economy by boosting recreation and tourism activities as well as promoting aquaculture and working waterfront businesses.

*Figure 7-1 provides a look at the distribution the maritime economy for Essex County.*

## Maritime Jobs Snapshot Essex County, Virginia

### Maritime Jobs = A Healthy Economy

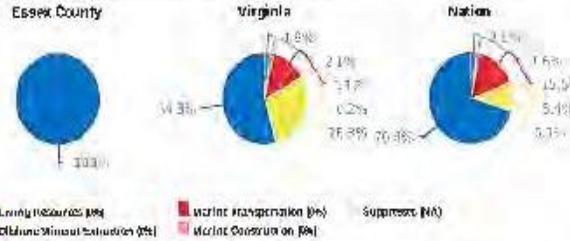
In 2011, Maritime related businesses provided 12% of the total jobs in Essex County. This represents a 10% increase in Maritime jobs since 2005. Nationwide, Maritime jobs represent double the number of jobs supported by agriculture.

Essex County Maritime jobs account for



### Maritime Jobs by Sector

Comparing Essex County's Maritime sectors to the state and nation shows how local concerns may or may not align with state and national priorities.



### Job Trends

When making coastal management decisions, it is important to understand how the six sectors have changed over time.

### Essex County Percent Changes

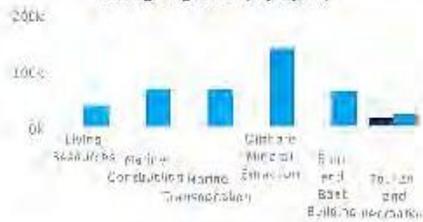
Legend for Essex County Percent Changes:  
 Tourism and Recreation (60%), Living Resources (10%), Ship and Boat Building (20%), Offshore Mineral Extraction (0%), Marine Transportation (0%), Marine Construction (0%).



### County and National Wages

Higher local wages can be attractive to employees but a deterrent to new or expanding businesses. Managers should consider cost of living rates when making this comparison.

### Average Wage Per Employee (2011)



### Impact of Part-time Workers

Average minimum wages can be smaller due to the high percentage of part-time workers, but total hourly wages are often among the highest because of the large number of people employed.

Snapshot (BIA source)—Economic & Annual Census Data  
Date Printed: April, 2012

Figure 7-1

## Influential Factors on the Economic Growth

Economic growth in a community is dependent on a number of factors. Many of those factors are a direct correlation to market demands. Local government can help to influence market demand by providing those resources that are attractive and necessary to facilitate the needs of industries. Local policies can increase demand for location in their area by creating incentives and providing assistance to businesses looking to grow and expand. Local governments can also appear attractive by making available the necessary infrastructure needed for businesses to grow and thrive. The regional location of the county and town, abundance of natural resources along with the relatively low real estate tax provides the attractiveness that many industries look for. However, the lack of essential infrastructure and a skilled labor force makes the county less marketable and competing with other localities more difficult.

### Infrastructure

Public water and sewer infrastructure extends to the outer edges of the Town in some areas. Cost, among other factors, makes expansion of these services farther into the county unreasonable. The County's Land Use Map does not provide a designate of any county lands for major development that would require the infrastructure. Majority of the existing commercial and industrial developments are supported by private systems and do not generate enough tax revenue to make expansion of services plausible. If the goal is to attract industrial development for higher wage industries, both land designated for the use and infrastructure is necessary.

Transportation services and facilities are essential to economic growth and development. Providing adequate roads as well as alternative modes of transportation is a primary resource in attracting a marketable labor force and high wage industries. Studies have shown that relocation trends and practices have changed between the time period of Generations X and Y. Generation Y also known as the millennial generation, is that age group born between 1980s and the early 2000s. While the labor force prior to Generation Y determined where they lived based on where they found employment, trends show that the current generation which identifies more with the technological age, determine where they want to live based on amenities, relocate to the area, then pursue employment. Public transportation and infrastructure is a major factor in this group's decision making process when determining where to live. The objectives of localities looking to strengthen its labor force by attracting educated and or skilled workers should include provisions such as alternative modes of transportation when considering economic development practices. Pedestrian and bicycle facilities as well as broadband services will be essential to attracting laborers from this era.

The Essex County Airport provides transportation infrastructure complex has substantial property available to accommodate commercial and industrial development; however, public infrastructure is unavailable on site. The airport is a vital resource in attracting small to medium scale industries to the area.

## Education

To be competitive and attract interest from higher wage paying industries such as information technology, construction and wholesale trade, Essex County has to be equipped with a skilled and educated labor market. Essex County's present labor force could prove to be a disincentive in attracting industries which demand workers with a higher education and/or skill level. Table 7-5 illustrates that less than 22 percent of Essex County adults have a degree and only 15 percent have a Bachelor's degree or higher.

**Table 7-5 Essex County Residents Educational Attainment by Age**

<b>Age</b>	<b>18-24</b>	<b>25-34</b>	<b>35-44</b>	<b>45-64</b>	<b>65+</b>	<b>Total</b>
<b>8<sup>th</sup> Grade or Less</b>	33	19	15	154	392	613
<b>Some High School</b>	223	50	220	445	267	1205
<b>High School Grad/GED</b>	391	360	718	1191	602	3262
<b>Some College</b>	325	208	274	692	264	1763
<b>Associates Degree</b>	57	55	106	193	102	513
<b>Bachelor's Degree</b>	48	83	166	466	189	952
<b>Graduate Degree</b>	37	12	35	177	94	355

Vocational/technical training is offered through the Northern Neck Vocational Training Center and is available to Essex County High School residents. Essex County residents have the benefit of being in close proximity to numerous institutions of higher education. Many of these colleges and universities offer certification and training programs necessary for advancement in industries such as healthcare, business and technology, communications and professional and technical fields.

Rappahannock Community College offers courses in areas such as civil engineering, drafting, computer science, and mechanical engineering. The Middle Peninsula Comprehensive Economic Development Strategy identifies the need for a technical training facility at the Rappahannock Community College. The proposed building would provide state of the art training and preparation of students for the current demands of the labor market.

## Broadband Services

Broadband services are available to Town of Tappahannock businesses and residents, however majority of the customers have digital subscriber loop (DSL) service which transmits through phone lines. Essex County and the Town of Tappahannock are active participants on the Middle Peninsula Broadband Authority and are currently looking for options to provide broadband facilities throughout the Middle Peninsula. Broadband is considered a better option because it

can help to diversify the local economy by allowing for various types of businesses that rely heavily on internet services that cannot be supported by DSL. Broadband facilities would make the Essex County more competitive in attracting jobs in industries such as customer care call centers and information technology.

Broadband would also allow for more home based startup businesses and internet based businesses. Home based businesses also provide an alternative base, strengthening the County's economy without impacting the County's natural environment with development.

Broadband would also provide more opportunities for higher education. Tappahannock's current skilled labor force is lacking the essential components to attract various industries. As illustrated earlier, majority of the labor force possess educations below a two year degree. Broadband would provide an alternative for those residents who find it difficult or are unable to commute to academic institutions.

### Implementation

- Create and implement policies establishing the requirement of a business license for businesses operating in Essex County. The business license is a mechanism for collecting revenue associated with the economic growth associated with the proposed provisions of the Comprehensive Plan.
- Develop a Tourism and Recreation Plan that will outline Essex County's strategy in promoting the County and its assets as a tourist community. The Plan should include the use of outdoor recreation enhancements such as Trails, Bike and Pedestrian activities as well as walking tours of the historic and cultural landmarks. The Plan should also exploit of the County's waterfront access and seek to enhance water recreation opportunities.
- Explore resources such as partnerships, funding and mechanisms to promote and increase the maritime economy in the county.
- Provide trails, bicycle and pedestrian infrastructure as well as waterfront access and amenities to promote tourism and economic development in the county. Coordinate with the Town of Tappahannock and other agencies to create and implement a county tourism plan.
- Coordinate with the Town and state agencies to explore the option of creating enterprise zone incentives in an effort to attract higher wage job industries to the County. The County should continue to pursue the enterprise zone designation at the state level to maximize incentives available to potential businesses and developers.
- Designate potential small pockets of land for light commercial uses along various intersections to provide for and encourage a more balanced community.

- Continue to be active in the Middle Peninsula Broadband Authority's efforts to bring broadband facilities to the region. Promoting broadband will allow for broader economic and education opportunities while sustaining the natural environment.
- Coordinate with Rappahannock Community College, Essex County High School, Economic Development Authority, local businesses and other agencies to explore incentives to provide job training and certification to Essex County residents
- Develop and maintain partnerships with stakeholders with an interest in agricultural and forest land conservation to promote and implement the County's conservation plan. Explore and encourage the use of resource options available through federal and state agencies such as those available through the Department of Conservation and Recreation that will assist in implementing farmland and forest conservation tools and techniques.
- Partner with the Middle Peninsula Planning District Commission to push forward implementation of recommendation of the Comprehensive Economic Development Strategies agencies such as the Economic Development Authority by supporting and coordinating with these agencies on economic development goals and projects in the County

## SPECIAL RECOGNITION

This Comprehensive Plan was updated through months of work and dedication of local citizens, business leaders and government staff forming the Essex Tappahannock Comprehensive Plan Steering Committee. Contributors to the Comprehensive Plan update include:

- Stan Balderson
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  - Bob Crowder
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- John MacGruder
- Robert McKinley
  - Jimmy Sydnor
- Trent Taliaferro
  - Hill Wellford
- Richard Moncure, Friends of the Rappahannock





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# REGIONAL ALL HAZARDS MITIGATION PLAN 2021

*Participating Middle Peninsula localities include Essex, Middlesex, Mathews, Gloucester, King & Queen, and King William, and the Towns of West Point, Urbanna, and Tappahannock. The federally recognized tribes within the region also participated in this plan update.*



Amended on September 31, 2022

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## Abbreviations

AHMP	All Hazard Mitigation Plan	MPPDC	Middle Peninsula Planning District Commission
AQI	Air Quality Index	MPRWSP	Middle Peninsula Regional Water Supply Plan
BFE	Base Flood Elevation	NCDC	National Climatic Data Center
CDT	Central Daylight Time	NESIS	Northeast Snowfall Impact Scale
COA	Chief Administrative Officer	NFIP	National Flood Insurance Plan
CO	Carbon monoxide	NO <sub>2</sub>	Nitrogen Dioxide
CO <sub>2</sub>	Carbon Dioxide	NOAA	National Oceanic and Atmospheric Administration
CRS	Community Rating System	NWS	Nation Weather Service
DCR	Department of Conservation and Recreation	O <sub>3</sub>	Ozone
DEQ	Department of Environmental Quality	OSDS	Onsite Sewage Disposal Systems
EAP	Emergency Action Plan	PA	Peak acceleration
EM	Emergency Manager	PM	Particulate Matter
EOC	Emergency Operations Center	PDM	Pre-Disaster Mitigation
EOP	Emergency Operations Plan	RL	Repetitive Loss
EPA	Environmental Protection Agency	RP	Regional Planner
EPRI	Electric Power Research Institute	RSL	Relative Sea Level
ESC	Emergency Services Coordinator	SLOSH	Sea, Lake, and Overland Surges from Hurricane
DMA 2K	Disaster Mitigation Act of 2000	SO <sub>2</sub>	Sulfur Dioxide
FEMA	Federal Emergency Management Agency	TSDA	Tribal Statistical Designated Area
FIRM	Flood Insurance Rate Maps	USGS	United States Geological Survey
GIS	Geographic Information System	VAC	Virginia Administrative Code
HIRA	Hazard Identification Risk Assessment	VDEM	Virginia Department of Emergency Management
HMA	Hazard Mitigation Assistance	VDGIF	Virginia Department of Game and Inland Fisheries
HMGP	Hazard Mitigation Grant Program	VDH	Virginia Department of Health
HOI	Health Opportunity Index	VDOF	Virginia Department of Forestry
HRSD	Hampton Roads Sanitary District	VDOT	Virginia Department of Transportation
LPT	Local Planning Team	VFD	Volunteer Fire Departments
LiMWA	Limit and Moderate Wave Action	VRS	Volunteer Rescue Squads
MCS	Mesoscale Convective System	VWP	Virginia Water Protection
MOU	Memorandum of Understanding	WMO	World Meteorological Organization
MPNHMP	Middle Peninsula Natural Hazards Mitigation Plan		

## **Executive Summary**

Hazard mitigation describes actions taken to help reduce or eliminate long-term risks caused by hazards or disasters. Therefore, with funding from Virginia Department of Emergency Management (VDEM) and the Federal Emergency Management Agency (FEMA), the Middle Peninsula Regional All Hazards Mitigation Plan (AHMP) was updated.

The area covered by this plan includes Essex, Gloucester, King William, King & Queen, Mathews, and Middlesex Counties and the Towns of West Point, Urbanna, and Tappahannock and the three federally recognized Tribe, including the Pamunkey Tribe, Rappahannock Tribe, and the Upper Mattaponi Indian Tribe of the Middle Peninsula. As part of a mitigation planning requirement of the Disaster Mitigation Act of 2000 (DMA 2000), localities and tribes worked to identify, assess, and mitigate risks within their communities to ensure that critical services would continue to function if a disaster were to occur.

The following is an overview of what to expect in the subsequent sections of this Regional AHMP.

Section 1, Introduction, describes reason why the region updated the plan. In part the associated regulations are summarized.

Section 2, Planning Process, provides a narrative description of the process used to prepare the AHMP update. This includes the identification of the Local Planning Team (LPT), and how the public and other stakeholders were involved. It also includes a detailed summary for each of the LPT meetings and any associated outcomes.

Section 3, Community Profiles, describes the planning area of this plan and the general makeup of each locality and tribe.

The Hazard Identification and Risk Assessment (HIRA) is presented in Section 4. This section serves to identify, analyze, and assess the Middle Peninsula region's overall risk to hazards. The risk assessment also attempts to define any hazard risks. In part, Section 5, is the HAZUS. FEMA's HAZUSMH loss estimation methodology was used in evaluating known hazard risks by their relative long-term cost in expected damages. In essence, the information generated through the risk assessment serves a critical function as communities seek to determine the most appropriate mitigation actions to pursue and implement — enabling communities to prioritize and focus their efforts on those hazards of greatest concern and those structures or planning areas facing the greatest risk(s). The hazards analyzed in this plan include hurricane wind, flooding, and sea level rise.

Section 6, Capability Assessment, is a review of the capabilities and tools that each locality and tribe have or have access to in order to achieve mitigation actions.

A review of the 2016 mitigation strategies is in Section 7 of the plan. Each locality provided status updates to the mitigation strategies in the 2016 AHMP. This section also reviewed other mitigation actions taken by the localities within the past 5 years.

Section 8, New Mitigation Goals, Objectives, and Strategies, list the goals, objectives and strategies that aim to reduce or prevent injury from hazards to residents, communities, state facilities, and critical facilities. Each locality and tribe reviewed the list of mitigation strategies and selected strategies to participate in over the next 5-years. Within this section goals, objectives and strategies clearly identify the mitigation intent and then there is a list of localities that will work to achieve the strategy. This section also includes strategies that have been canceled and/or completed by a locality.

Section 9, Implementation Plan, reviews how each locality and tribe plan to implement and complete the hazard mitigation goals, objectives and strategies.

Section 10, Plan Adoption, lists the dates that the AHMP update was adopted by each locality and tribe.

Finally, Section 11, Plan Maintenance, include the measures that the MPPDC and participating jurisdictions will take to ensure the Plan's continuous long-term implementation. The procedures also include the manner in which the Plan will be regularly evaluated and updated to remain a current and meaningful planning document.

## Section I: Introduction

The Disaster Mitigation Act of 2000 (DMA 2K) is a key component of the Federal government's commitment to reduce damages to private and public property through mitigation actions. The DMA 2K amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) and is designed to improve planning for, response to, and recovery from disasters by requiring state and local entities to implement pre-disaster mitigation planning and develop hazard mitigation plans. This legislation specifically established the Pre-Disaster Mitigation (PDM) Program and created requirements for the Post-Disaster Hazard Mitigation Grant Program (HMGP). This key piece of federal legislation is known as Public Law 106-390.

DMA 2K requires local governments to develop and submit mitigation plans to qualify for Hazard Mitigation Assistance (HMA) funds. The Act requires the plan to demonstrate "a jurisdiction's commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards." The final mitigation plan update is reviewed by the Virginia Department of Emergency Management (VDEM), approved by Federal Emergency Management Agency (FEMA), and then adopted by each participating jurisdiction.

To meet such requirements, Middle Peninsula Planning District Commission (MPPDC) staff guided the development and update of the Regional All Hazards Mitigation Plan (AHMP) in accordance with DMA 2K. All nine (9) Middle Peninsula localities, including Essex, Gloucester, King & Queen, King William, Mathews, and Middlesex Counties and the Towns of Tappahannock, Urbanna, and West Point, participated in the plan. In addition to the nine regional localities, the three federally recognized Indian Tribes in the region, including the Pamunkey Tribe, Upper Mattaponi Indian Tribe, and the Rappahannock Tribe, were invited to participate in the 2021 AHMP update.

As this plan follows DMA 2K planning requirements and associated guidance documents for developing Hazards Mitigation Plans, a four-step mitigation planning process was utilized (FEMA, 2015):



The planning process helps prepare citizens and government agencies to better respond when disasters occur. Also, mitigation planning allows participating localities and tribes, to remain eligible for mitigation grant funding for projects that reduce the impact of future disaster events. Eligible projects may include property acquisition and structure demolition, structure elevation, localized flood risk reduction projects, infrastructure retrofits, soil stabilization, wildfire mitigation, post-disaster code enforcement, wind retrofits for one- and two-family residences, and planning related activities. The long-term benefits of mitigation planning include the following:

- An increased understanding of hazards faced by the Middle Peninsula region.
- Building more sustainable and disaster-resistant communities.
- Increasing education and awareness of hazards and their risks.
- Developing implementable and achievable actions for risk reduction.

- Financial savings through partnerships that support planning and mitigation efforts.
- Reduced long-term impacts and damages to human health and structures.

This AHMP also utilizes the elements outlined in FEMA's Local Mitigation Plan Review Tool and Local Mitigation Planning Handbook, published in 2020 and March 2013, respectively.

## **Section 2: The Planning Process – Public Involvement and Community Partners**

The Middle Peninsula Planning District Commission's (MPPDC) Senior Planning Project Manager led and facilitated the 2021 update of the Regional All-Hazards Mitigation Plan (AHMP). All nine Middle Peninsula localities participated and contributed substantial staff time to the development and update of this plan. In addition to time spent, each locality financially contributed to this effort in order to meet FEMA funding match requirements. To begin this project and to realize local commitments, MPPDC staff drafted a Memorandum of Understanding (MOU) for each locality to sign. The MOU outlined the terms of agreement between the MPPDC and the locality concerning financial obligations of the local adoption of the 2021 Regional AHMP. In response, each locality reviewed and signed the MOU (Appendix A).

As per the MOU, localities appointed two local representatives to service on the Local Planning Team (LPT). The LPT helped determine the plan's outcomes and substantive content. The LPT consisted of locality staff with varying backgrounds and experience. Please see Appendix B for a list of LPT participants and positions. Also in an effort to utilize the expertise of professionals with knowledge of natural hazard mitigation efforts and/or actively involved in one or more of the 4 phases of emergency management – preparedness, response, prevention/mitigation, or recovery - MPPDC staff invited representatives from Virginia Department of Conservation and Recreation (DCR) – Floodplain Division, Virginia Department of Emergency Management (VDEM), Virginia Department of Transportation (VDOT) – Saluda Residency, the National Weather Service, U.S. Corps of Engineers, Virginia Department of Health (VDH), Virginia Department of Forestry (VOF), Virginia Coastal Policy Clinic (VCPC), Old Dominion University, and the assistant to the Governor for Coastal Adaptation and Protection. Finally, to round out the LPT, MPPDC staff invited representatives from the three federally recognized tribes within the region, including the Pamunkey Tribe, Upper Mattaponi Indian Tribe (UMIT), and the Rappahannock Tribe.

This Plan also includes brief profiles of the three federally recognized Native American tribes that share land within the Middle Peninsula. The MPPDC's effort and those of the tribal governments are separate and autonomous efforts. While the tribes are independent, sovereign nations, they did consult on the LPT in this effort. Tribes are important stakeholders in the region, and the MPPDC recognizes that tribal level plans can support or enhance hazard mitigation in the planning area and provide an opportunity to partner and share information that may help leverage resources.

The UMIT, along with many other Native communities across the region, have a complex history, undergoing many challenges and events that have threatened their traditional ways of life, culture, land, and ultimately, their survival. The centuries-long struggle of Native nations to maintain cultural identity and sovereignty has greatly contributed to the historical legacy of these communities. Nevertheless, Tribal communities, including the UMIT, have persisted, their knowledge and traditions living on through the generations.

Due to the rural nature of the Middle Peninsula area, there were no private not-for profit environmental organizations based in the region that were identified by LPT members at the onset of the planning phase of this project that could provide meaningful input. In conjunction with the LPT, Middle Peninsula Planning District Commissioners, consisting of elected officials and citizen representatives were kept abreast of the progress made throughout the plan update process through written staff reports at monthly committee meetings.

A list of the Planning Team members can be found in Appendix B. [LPT meeting minutes, agenda, and presentations](#) have been posted and are available on the MPPDC website.

### **SECTION 2: THE PLANNING PROCESS – PUBLIC INVOLVEMENT AND COMMUNITY PARTNERS**

## 2.1. Project Timeline for Update

Financial support for the AHMP update was provided by FEMA and VDEM, and matching funds contributed by the nine localities of the MPPDC. Table 1 provides a timeline of the project and associated tasks of this 2-year project.

<b>Table 1: Project timeline and associated tasks</b>				
<b>Task</b>	<b>Starting Point</b>	<b>Unit of Time</b>	<b>Duration</b>	<b>Work Completed By</b>
Grant Implementation and kickoff	1-60	Days	60 days	Regional Planner (RP)
Organize Resources: <ol style="list-style-type: none"> <li>1. Form a Mitigation Advisory and Planning Committee</li> <li>2. Award HAZUS Contract</li> <li>3. Inventory available resources/collect data</li> <li>4. Begin Public Outreach Efforts</li> </ol>	61-151	Days	90 days	RP and LPT
Revise Hazard Identification and Risk Assessment <ol style="list-style-type: none"> <li>1. Compile and analyze data for HIRA analysis</li> <li>2. Vulnerability assessment/ loss identification</li> <li>3. Provide HIRA, vulnerability &amp; loss estimation analysis to public</li> <li>4. VDEM review of HIRA, vulnerability &amp; loss estimation analysis</li> </ol>	152-362	Days	210 days	RP, LPT VDEM, and FEMA
Community Assessment/Profile <ol style="list-style-type: none"> <li>1. Review current community profiles with each locality</li> </ol>	363-483	Days	120 days	RP and LPT
Coordination with Tribes	484-574	Days	90 days	RP
Revise Mitigation Plan <ol style="list-style-type: none"> <li>1. Update mitigation goals, strategies and actions</li> <li>2. Solicit/incorporate public comments</li> <li>3. Prepare implementation strategy</li> <li>4. Compile/ review draft plan</li> <li>5. Solicit / incorporate public comment on final draft</li> <li>6. VDEM/FEMA review and final plan</li> </ol>	575-740	Days	165 days	RP, LPT, VDEM, and FEMA
Adoption and Implementation <ol style="list-style-type: none"> <li>1. Final VDEM/FEMA review and plan approval</li> <li>2. Publish VDEM/FEMA approved HMP for public distribution</li> <li>3. Each Locality adopts the plan</li> </ol>	741-831	Days	90 days	RP/VDEM/FEMA
Project Closeout with VDEM	832-922	Days	90 days	RP/VDEM

Beginning in January 2021, MPPDC staff hosted regular meetings of the AHMP LPT. The LPT guided the development of the plan, including hazard identification, capability assessment, mitigation strategy reporting, strategy development, and plan adoption. While locality and tribal representatives provided information specific to their communities, state and federal agency representatives offered their expertise and experience about hazards, mitigation, and funding opportunities. The LPT completed the following tasks within the timeframes noted below:

### **Task 1 - Hazard Identification/Capability Assessment**

The AHMP LPT completed a series of 5 tasks using the hazard worksheets provided by VDEM staff to:

1. Identify all natural hazards.
2. Compile a history detailing the nature of each identified hazard.
3. Develop an inventory of assets that are at risk from each identified natural hazard.
4. Write a narrative describing the vulnerability of the community's assets to these natural hazards.
5. Assess their localities or Tribe's capability to use the local regulatory tools and the jurisdiction's technical staff to implement hazard mitigation activities.

To gather the appropriate information, LPT were asked to complete hazard worksheets by March 19, 2021, in order to provide the Regional Planner time to compile community assessments by the March 29<sup>th</sup> LPT meeting.

Next a Hazards Identification and Risk Assessment (HIRA) was conducted using the HAZUS version 4.2 software from FEMA. MPPDC staff contracted with Dewberry to have this assessment completed. Results anticipated damages from hurricane winds, flooding, and sea level rise.

In conjunction with HAZUS, the Natural Hazards ranking, developed by the Kaiser Permanente Model, from the 2016 AHMP was made available to the LPT for reference and to update the plan. Upon review one new hazard was added to the list and the other regional hazards were re-ranked.

### **Task 2 - Review of the Strategies from the 2016 AHMP**

At the March 29, 2021, meeting of LPT, the Regional Planner reviewed each strategy within the 2016 AHMP. Each locality was able to review the strategies they committed to in 2016 and had an opportunity to make changes as a reflection of their local mitigation progress and local priority changes. Additionally, jurisdictions were provided with a spreadsheet to report the status - completed, deleted, not started, cancelled or in progress - of the mitigation strategies since 2016. Tribes also had the opportunity to review the mitigation strategies, commit to those that they felt were appropriate for their Tribe, or develop new mitigation strategies.

The LPT was asked to update this information on April 6, 2021, and return the updated spreadsheets by April 30, 2021, for inclusion into the plan.

### **Task 3 - Inform the Public – Hazard Identification/Assessment Phase**

Once the natural hazards were identified and assessed, the LPT solicited comments from Middle Peninsula citizens. Through a public survey launched on a March 1st, the survey requested feedback on local hazards and thoughts on mitigation actions. Mitigation actions can be defined as any action taken to reduce or eliminate the long-term risk to human life and property from hazards. The survey closed on March 15<sup>th</sup> and data was analyze. For all survey response see Appendix C.

To advertise this survey, the link was posted on the MPPDC website and was advertised on the MPPDC Facebook page.

#### **Task 4 - Develop Goals and Objectives**

At the March 29, 2021, LPT meeting, the group reviewed mitigation goals from the 2016 AHMP and decided no changes would be needed to the regional goals and objectives for the AHMP update. The LPT reviewed the criteria used to develop their mitigation strategies and again decided to make no changes.

The evaluation criteria used to develop the mitigation strategies included the following:

##### **Social Considerations**

1. Will the proposed strategy be considered acceptable to the residents?
2. Will the proposed strategy treat all residents of the locality equally?
3. Will the proposed strategy cause any social disruption in the community?

##### **Technical Considerations**

1. Will the proposed strategy work?
2. Will the proposed strategy create more problems than it solves?
3. Will the proposed strategy solve the problem or just mask a symptom?
4. Is the proposed action in line with other locality goals?

##### **Administrative Factors**

1. Does the locality have the capacity to implement the proposed strategy?
2. Who in the locality will spearhead the strategy?
3. Is there sufficient funding, staff, and technical support to undertake this effort?

##### **Political Considerations**

1. Will members of the governing body accept and support the proposed strategy?
2. Is there support to implement and maintain the proposed strategy by members of the governing body?

##### **Legal Issues**

1. Is the locality legally authorized to undertake this proposed strategy?
2. Will the proposed strategy constitute a legal taking?
3. Is the proposed activity in compliance with the jurisdiction's comprehensive plan?
4. Will the locality face legal liability if the proposed strategy is not implemented or conversely, legally challenged if the strategy is implemented?

##### **Economic Concerns**

1. What are the costs and the benefits of implementing the proposed strategy?
2. Do the benefits outweigh the costs? Construction projects seeking FEMA financial assistance to mitigate the adverse effects of natural hazards will utilize FEMA's Benefit/Cost Formula to ensure that the proposed project benefits exceed the anticipated project costs.
3. Are the capital, maintenance and administrative costs accounted for with the proposed strategy?
4. Has the funding been secured for this project?
5. What burden will this strategy place on the locality's tax base or local economy?
6. Does the proposed strategy contribute to other jurisdictional goals?

### **Environmental Factors**

1. What affect will the action have on the environment?
2. Will this action need environmental regulatory approvals?
3. Approvals from whom and does this create any concerns about the feasibility of the proposed action?

### **Task 5 - Strategy Development**

At the March 29, 2021, LPT meeting, the members developed and updated mitigation strategies to address the hazards that were determined to adversely affect their communities. The Rappahannock Tribe assessed the mitigation strategies within the plan and committed to 10 strategies.

### **Task 6 - Inform the Public – Strategy Development Phase**

The LPT updated and developed mitigation strategies. This task was completed at the September 10, 2021, LPT meeting. These mitigation strategies were included in the Plan and were available to the public comment during from October 17, 2021, to November 1, 2021. This public comment period was advertised on the MPPDC website and on the MPPDC Facebook page.

### **Task 7 - Draft Plan**

The draft plan was completed by October 29, 2021 and posted for public comment from October 17<sup>th</sup> to November 1<sup>st</sup>. The plan was posted on the MPPDC website and on the Facebook page. According to Facebook analytics the post reach (i.e., the number of people who saw a specific post in their news feed) was 1,422, the post impressions (i.e., the total number of times a post was visible in user timelines or feeds) was 1,623, and post engagements (i.e., the total number of actions that people take involving your content on Facebook) was 37. Even with this extensive reach no comments were made.

MPPDC staff also sent invitations to neighboring communities (ie. Louisa County, Richmond County, Westmoreland County, Lancaster County, New Kent County, Hanover County, and the Northern Neck Planning District Commission), local and regional agencies involved in hazard mitigation (Virginia Department of Health, Virginia Department of Emergency Management, Virginia Department of Conservation and Recreation, Virginia Department of Forestry, and the National Weather Service) and agencies that have the authority to regulate development (ie. County and town planners). Appendix D includes the invitations to review the draft AHMP and provide feedback or insight to improve the plan. No substantive comments were made.

With no comments or feedback, the plan was packaged and submitted to VDEM/FEMA for their review and approval.

### **Task 8 - Adoption**

Once VDEM/FEMA staff gave conditional approval of the draft plan, jurisdictional staff presented the updated plan to their Board of Supervisors, Town Council, or Tribal Council and requested the plan's adoption.

Once adopted, locality and tribal staff began with the implementation phase of the strategies based on the schedule outlined in Section 9 of the update.

### **Task 9 - Public Input during Plan Development**

A three-part public outreach strategy was implemented to keep the public informed of AHMP updates and to request their assistance in plan develop:

1. **OUTREACH METHOD:** Public Information Website (including Social Media Integration)  
**AVAILABILITY:** Throughout the plan update.  
**BRIEF DESCRIPTION:** A project information website was hosted by the MPPDC and was available to the general public, neighboring local governments, schools, local, state and federal partners, participating jurisdictions and tribes, and the LPT for the duration of the project at the following web address: <https://mppdc.com/index.php/service-centers/mandates/hazards>. On the website the Regional Planner contact information was listed, therefore was an opportunity of all parties to reach out to provide input and/or ask questions. Additionally, Consociate Media posted news releases about the plan on the MPPDC Social Media pages (i.e. Facebook and Twitter) on March 1, 2021, and October 18, 2021. Copies of the press releases and the corresponding Facebook statistics are included in Appendix E.  
**DETAILS:** Specific resources included on the site were:
  - Project information fact sheet
  - Drafts of the Regional AHMP
  - List of LPT participants
  - List of project tasks and general timeline
  - PowerPoint files from LPT meetings and minutes
  - PDF of existing local hazard mitigation plans for reference during the plan update process
  - Links to planning resources, including recently published FEMA hazard mitigation planning guidance
    - FEMA mitigation planning guidance
      - Local Mitigation Planning Handbook
      - Mitigation Ideas
      - Integrating Hazard Mitigation into Local Planning
  - Social media integration including MPPDC Facebook
  
2. **OUTREACH METHOD:** Project Information Fact Sheet  
**AVAILABILITY:** Throughout the plan update and on the public information website.  
**BRIEF DESCRIPTION:** A one-page (double-sided) project information fact sheet was available on the MPPDC website in PDF format for the duration of the project. The primary purpose of this document was to provide information on the regional planning process and to provide project contact information and links for interested parties to engage in the planning effort. Printed copies were also made available on an as-needed basis.  
**DETAILS:** Specific information provided on this fact sheet included:
  - Project overview (who, what, where, when, how)
  - Overview of the regional hazard mitigation planning process, including:
    - Public outreach
    - Risk assessment
    - Capability assessment
    - Mitigation strategy development
    - Plan maintenance
    - Plan adoption
  - Explanation of project leadership, including the LPT and project manager.
  - Project schedule
  - Contact information and links to project information website
  - Project graphics/illustrations

3. **OUTREACH METHOD:** Public Participation Survey  
**AVAILABILITY:** During the hazard identification and mitigation strategy review  
**BRIEF DESCRIPTION:** An online public participation survey hosted by MPPDC using the SurveyMonkey and was opened to the public on March 1<sup>st</sup> and closed March 15<sup>th</sup>. The primary purpose of the survey was to solicit input about local hazard concerns and mitigation actions of interest, and feedback on the plan update. The survey was accessible through hyperlinks posted on the project information website, locality websites, and circulated via email and Facebook. The feedback received was to be evaluated and incorporated into the LPT's decision-making process and the final plan.  
**DETAILS:** Types of questions asked on the survey, included, but were not limited to:
  - Personal history with natural hazards
  - Natural hazard concerns
  - Perception of vulnerable community assets
  - Importance of community assets
  - Priorities concerning natural hazard preparedness
  - Steps local government can take to reduce natural hazard risk
  - Types of mitigation activities deemed important
  - Personal interest in natural hazard mitigation
  - Effective ways to communicate with residents
  - Location in the floodplain
  - Questions regarding flood insurance
  - Personal actions to mitigate property
  - Mitigation activities planned for the respondent's household
  - Location within the planning area
  - Age (optional)\*
  - Gender (optional)\*
  - Highest level of education (optional)\*
  - Length of time living in the planning area
  - Ownership of property versus rental status
  - Type of dwelling
  - Open comments\*\*
  
4. **OUTREACH METHOD:** Public Comment  
**AVAILABILITY:** 2-week comment period  
**BRIEF DESCRIPTION:** Upon completion of the draft plan, MPPDC staff posted the draft on the MPPDC website page and advertised on Facebook that the plan was available for public comment. The draft plan was also advertised on community websites and social media pages to encourage public input. The public comment period was open on October 18<sup>th</sup> and closed on November 1<sup>st</sup>.

### **Upper Mattaponi Tribe**

The Upper Mattaponi Indian Tribe (UMIT) began the planning process with the Middle Peninsula Planning District in the spring of 2021 and in conjunction with the available resources from the Commonwealth of Virginia and the Virginia Department of Emergency Management.

However, due to limited capacity, the majority of the planning process began upon the hire of the Emergency Management Coordinator in December 2021. The UMIT planning team consisted of the Emergency Management Coordinator, Environmental and Cultural Protection Director, and the Tribal Administrator. Once the plan was completed, the final draft was submitted to the Tribal Council, including the Chief, to review and approve. Due to the condensed timeline, the planning

team did not include any tribal citizens; however, for future reviews and plans, tribal citizens will be asked for input.

The UMIT defines the public in regards to emergency management as any tribal citizen or anyone on tribal land that may be impacted by an emergency event. This encompasses tribal government employees, Aylett Family Wellness employees and patients, and any visitors, including tribal citizens.

The current plan has not been submitted for review by tribal citizens. Due to limited capability and time constraints, a small planning team was created to complete the project. For future iterations, a larger planning team will be assembled, comprised of additional tribal staff and tribal citizens. The UMIT holds a monthly meeting for all staff and tribal citizens, which includes tribal government updates. At a monthly meeting, the Emergency Management Coordinator will explain what the Hazard Mitigation Plan is and what the ask is for tribal citizens to review the plan. Based on the response, the Emergency Management Coordinator will partner with tribal citizens to further review the current plan and make changes based on tribal citizen concern, questions, and priorities. The Tribe will continue to use all communication methods, including a quarterly newsletter and website to engage the community in emergency management opportunities. Much of the tribal community resides in the ancestral land of Tsneacomacah, however, there are UMIT citizens in over thirty states. While the services of emergency management will differ based on location, the Department of Emergency Management intends to include all tribal citizens, regardless of location, in as many aspects as possible.

### **Rappahannock Tribe**

The Rappahannock Indian Tribe fully participated in the develop of the Middle Peninsula AHMP. The Rappahannock Tribe planning team consisted of Chief G. Anne Richardson, Grant Writer and Strategic Planning Assistant Pat Morris, Director of Emergency Management Steven Nelson, and the Housing Department Jerry Fortune. The Rappahannock Tribal Citizens and other planning district area residents were able to access the public information on the MPPDC website and social media platforms to gain plan awareness and provide feedback direct to the planning team as well to the Rappahannock Tribe. The Rappahannock Tribal Citizens and other planning district area residents were also able to access the public survey advertised by the MPPDC to provide input and feedback on plan development. The public participation survey forwarded by the MPDDC was used to solicit input from Elder Tribal Citizens. It was also made available to key staff and long-time area residents as a tool to gain their input on the items addressed. Other than a few direct inquires of area residents for feedback on the survey, no additional public comment was solicited beyond that undertaken by the MPPDC.

During future iterations of the plan, Tribal Citizen involvement and participation in the plan development, revisions and adoption will be increased. The Tribe is planning additional communications to Tribal Citizens via email and social media, website about meeting opportunities, draft review, surveys, feedback opportunities, and the adoption process. Tribal communications tools are currently being developed to improve our ability to accomplish this goal.

The Rappahannock Indian Tribe defines a Tribal Citizen is a citizen of a sovereign tribal nation. Sovereignty is a legal word for an ordinary concept—the authority to self-govern. Hundreds of treaties, along with the Supreme Court, the President, and Congress, have repeatedly affirmed that tribal nations retain their inherent powers of self-government. Currently, 573 sovereign tribal nations (variously called tribes, nations, bands, pueblos, communities, and Native villages) have a formal nation-to-nation relationship with the US government. These tribal governments are legally defined as “federally recognized tribes.” Two-hundred-and-twenty-nine of these tribal nations are located in Alaska; the remaining tribes are located in 35 other states. In total, tribal governments

exercise jurisdiction over lands that would make Indian Country the fourth largest state in the nation. Finally, the Rappahannock Tribe defines public as the general population in the area (non-Tribal Citizens).

### Summary of Local Planning Team Actions

During the update process, the LPT was instrumental in reviewing and updating the AHMP. The following table is a record of LPT participation in the AHMP updates, including meeting attendance, information requests, and section reviews.

This table provides record of meeting attendance for all Local Planning Team participants. The green squares represent participation in the meeting, the red squares represent no attendance at the meeting, light green squares represent no participation in the meeting, but the regional planner touched base with the entity after the meeting.								
Name	Locality	Meeting 1 (012521)	Meeting 2 (020821)	Meeting 3 (022221)	Meeting 4 (032921)	Meeting 5 (042621)	Meeting 6 (062621)	Meeting 7 (072621)
<b>Local Planning Team Appointed by Middle Peninsula Localities</b>								
Jimmy Brann	Essex County	✓	✓	✓	✓			✓
Trent Funkhouser	Essex County					✓		✓
Willie Love	Mathews County	✓	✓	✓	✓		✓	
James Knighton	Mathews County	✓	✓	✓	✓		✓	✓
David Kretz	Middlesex County		✓	✓	✓		✓	✓
David Laymen	Middlesex County		✓	✓	✓		✓	✓
Steve Hudgins	King William County	✓	✓	✓		✓	✓	✓
Sherry Graham	King William County	✓	✓	✓		✓		✓
Donna Sprouse	King & Queen County	✓				✓	✓	✓
Greg Hunter	King & Queen County							
Kevin Harris	King & Queen County		✓		✓	✓		
Brent Payne	Gloucester County	✓		✓	✓	✓	✓	✓
Brett Major	Gloucester County	✓	✓	✓	✓			✓
Holly McGowan	Town of West Point	✓	✓	✓		✓	✓	✓
John Edwards	Town of West Point	✓	✓	✓	✓	✓	✓	✓
Barbara Hartley	Town of Urbanna							
Garth Wheeler	Town of Urbanna				✓			✓
Eric Pollitt	Town of Tappahannock							
Frank Sanders	Town of Tappahannock			✓				
<b>Partnering Organizations</b> invited to Participate on the Planning Team as they are resources and/or experts with regards to hazards and mitigation responses.								
Angela Davis	DCR		✓	✓	✓			✓

## SECTION 2: THE PLANNING PROCESS – PUBLIC INVOLVEMENT AND COMMUNITY PARTNERS

Brandy Buford	DCR-Floodplain Management	✓	✓	✓	✓	✓		✓
Michael Barber	DCR-Floodplain Management	✓	✓	✓	✓			✓
Joyce McGowan	VDOT	✓	✓		✓			
Ronald Peaks	VDOT	✓						
Matt Carpentier	VDH							
Eric Seymour	National Weather Service	✓		✓	✓	✓		✓
Harrison Bresee	VDEM	✓		✓	✓	✓	✓	✓
Amanda Weaver	VDEM					✓	✓	✓
Alexander Krupp	VDEM	✓						
Ken Sterner	VDOF			✓	✓	✓	✓	✓
Heather Tuck	VDOF	✓	✓	✓				
Robert Gray	Pamunkey Tribe	✓						
G. Anne Richardson	Rappahannock Tribe							
Patricia Morris	Rappahannock Tribe	✓	✓					
W. Frank Adams	Upper Mattaponi	✓	✓					
Leigh Mitchell	Upper Mattaponi	✓	✓	✓	✓			
Ann Phillips	State							
<b>Other Attendees</b>								
Elizabeth Andrews	VCPC	✓						
Wie Yusif	Old Dominion	✓						
Steven Nelson	Rappahannock Tribe Rep			✓	✓	✓		✓
Chief Stacy Reaves	King William				✓			
Liz Bartol	King William				✓			
Denise Nelson	Berkley Group						✓	
Luke Rogers	Berkley Group						✓	
Lewis Lawrence	MPPDC						✓	

SECTION 2: THE PLANNING PROCESS – PUBLIC INVOLVEMENT AND COMMUNITY PARTNERS

This table lists the participating localities and tribes as well as the task and the date that information was due back to the regional planner. The regional planner would take the information provided by the locality and tribe and update the plan. The check marks show the localities and tribes that provided feedback for each task.

Locality/Tribe	Task Check List									
	1 - Community Profile Review (due: 2/5/21)	2- Hazards Survey (due: 2/17/21)	3 - Community Assessment Survey (due: 2/19/21)	4 - NFIP Survey (due: 2/19/21)	5 - Hazards Assessment (due: 3/19/21)	6 - Mitigation Strategy Status Updates (due: 4/30/21)	7 - Implementation Plan (due: 4/30/21)	8 - Review of 2016 Mitigation Strategies (due: 8/13/21)	9 - Local Plan Coordination and Integration (due 9/15/21)	10 - Recovery/ Mitigation Projects (due: 9/15/21)
Town of West Point	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
King William County	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gloucester County	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
King & Queen County	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mathews County	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Essex County	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Town of Tappahannock	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Town of Urbanna	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Middlesex County	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Upper Mattaponi Tribe		✓						NA		
Rappahannock Tribe	✓	✓	✓	✓	✓	✓	✓	NA	✓	✓
Pamunkey Tribe					✓			NA		

SECTION 2: THE PLANNING PROCESS – PUBLIC INVOLVEMENT AND COMMUNITY PARTNERS

A brief summation of LPT contributions include:

1. Meetings: Throughout the course of this project the LPT meet on 7 separate occasions to discuss the plan update. Meeting dates were:
  - January 25, 2021
  - February 8, 2021
  - February 22, 2021
  - March 29, 2021
  - April 26, 2021
  - June 28, 2021
  - July 26, 2021

For meeting minutes visit the [MPPDC website](#).

2. January 25, 2021
  - Introduced the AHMP
  - Reviewed project timeline
  - Reviewed HAZUS options for contracting with Dewberry
  - Reviewed Community Profiles and requested edits
3. February 8, 2021
  - Reviewed hazard ranking from the 2016 AHMP and the Kaiser Permanente Hazard Vulnerability Tool.
  - Finalize public outreach process for this the AHMP Update
4. February 22, 2021
  - Completed hazard assessment
  - Reviewed the public survey to be published
  - Reviewed the Hazards assessment
  - Reviewed the 2016 Mitigation Strategies
5. March 29, 2021
  - Reviewed the results from the public survey
  - Finalized the review of the 2016 Mitigation Strategies
6. April 26, 2021
  - Provided the LPT with an overview of the Middle Peninsula Fight the Flood program
7. June 28, 2021
  - Contracted with Dewberry to complete a regional HAZUS analysis (ie. flooding, hurricane winds, and sea level rise).
  - Reviewed 2010 Mitigation Strategies.
8. July 26, 2021
  - Reviewed HAZUS results provided by Dewberry

### **Summary of Primary Revisions of the 2021 AHMP**

The below will list the sections of the plan and updates that the AHMP LPT made to keep this plan current.

## ***SECTION 2: THE PLANNING PROCESS – PUBLIC INVOLVEMENT AND COMMUNITY PARTNERS***

**Executive Summary** – This section was added to the beginning of the AHMP to provide an introduction and summary of findings with the AHMP update.

### **Section 1 – Introduction**

- Included the participation of three Federally recognized tribes within the Middle Peninsula, including the Pamunkey, Upper Mattaponi, and the Rappahannock Tribes.

### **Section 2 – Planning Process**

- Updated the planning process to reflect the activities that took place during the plan update, including meetings and locality and tribal participation.

### **Section 3 – Community Profiles**

- Updated community profiles and included a community profile for the Rappahannock Tribe.
- Updated community profiles and included a community profile for the Upper Mattaponi Indian Tribe.
- Updated the Economic Resiliency within the Middle Peninsula and removed the Health Opportunity Index from Virginia Department of Health (VDH) since this was not directly used in the assessment of hazards within the region.

### **Section 4 – Hazard Assessment**

- Added communicable diseases to the list of hazards impacting the Middle Peninsula region.
- Removed Tsunamis, Landslides and Volcanoes from the Hazards List as the LPT found these hazards to be of little to no risk to the region.
- Consolidated hazards, including:
  - Winter Storm (ice) and Winter Storm (snow) to WINTER WEATHER
  - Coastal, Riverine, and ditch flooding hazards to FLOODING
  - Extreme cold and extreme heat to EXTREME TEMPERATURES
- Updated the prioritization worksheet for hazards impacting to include the new hazard listed above and the LPT reassessed and re-prioritized hazards. In 2016 the critical hazards included Winter Storms (Ice), Coastal Flooding, Lightning, Hurricanes, and Summer Storms, whereas in the 2021 updated plan the most critical hazards included: Summer Storms, Winter Weather (ice & snow), Hurricanes, Communicable Disease, and Flooding.
- Updated the Repetitive Loss and Severe Repetitive Loss data.
- Updated the flood plain maps
- Updated wildfire data for 2015-2020 events
- Updated storm event data within the Region
- Updated Virginia Earthquakes map from the 2018 Commonwealth of Virginia Hazard Mitigation Plan.
- Added Point Source Emissions Inventory and air quality index to describe air quality in the region
- Utilized the Emergency Action Plans (EAP) for the high hazard dams, including Cow Creek Mill Pond Dam and Beaverdam Reservoir Dam, in Gloucester County to update the Dam Failure information.

### **Section 5 – Hazus Assessment**

- The flood, hurricane wind, and sea level rise analysis for the HIRA was completed using the FEMA Hazus – MH Version 4.2 software. In part it included updated data including:
  - All GIS grid products are in Universal Transverse Mercator (UTM) Projection with X,Y (North American Datum of 1983), and Z units (North American Vertical

Datum of 1988) in Feet. All GIS grid products were created or converted to a 10-ft grid cell size for analysis.

- Digital Elevation Model (DEM) – National Elevation Dataset (NED) One-Arc Second (~30 meter resolution)
- Frequencies (Both Riverine & Coastal hazards) - 0.2%, 1%, 2%, 4%, and 10%. No grid is created representing an annualized depth of flooding. Annualized results are derived from the loss estimation.
- FEMA’s Riverine and Coastal analysis is completed by Hydrologic Unit Code (HUC) and data from two HUCs were available to be incorporated as a Level 2 update for flood hazard analysis. These HUCs provided updated data for portions of Essex, King & Queen, Middlesex, Gloucester, and Mathews Counties. FEMA does not have updated data for King William County.
- Level 2 assessment was conducted for Coastal flooding:
  - FEMA’s detailed engineering analysis provided an update to the one percent-annual chance return period for coastal hazards that combines both surge and wave run-up analysis for a limited spatial area.
  - “Starting Stillwater Elevations” as published in the Flood Insurance Study’s (FIS) Table 2 – Transect Data (see each FEMA FIS document for the table details) from each respective FEMA Flood Insurance Study (FIS) to develop depth grids for return periods other than the one-percent-annual chance:
    - ESSEX COUNTY – Revised May 4, 2015
    - GLOUCESTER COUNTY – Revised November 19, 2014
    - KING AND QUEEN COUNTY – Preliminary October 3, 2013
    - KING WILLIAM COUNTY – Preliminary October 3, 2013
    - MIDDLESEX COUNTY – Revised May 18, 2015
    - MATHEWS COUNTY – Revised December 9, 2014
  - Hazus default shoreline data was modified to extend up the York River so that Level 1 coastal modeling could be completed for King William County, King and Queen County, and portions of Gloucester County upstream of the George Washington Memorial Highway Bridge (US 17).
- Methodology of Hazus analysis has been added to the Appendices (Appendix G).

### **Section 6 – Capability Assessment**

- Updated capability assessment tables that focus on the planning and regulatory, administrative, and technical, education and outreach, and financial capabilities of each Middle Peninsula locality and for the Rappahannock Tribe.
- Added National Flood Insurance Program compliance tables to the report (Appendix H)
- Added capabilities of the Upper Mattaponi Indian Tribe and the Rappahannock Tribe.

### **Section 7 – Review of Strategies from the 2016 Regional AHMP**

- Updated the status of mitigation strategies for localities.
- Added information about the Rappahannock Tribe and their efforts in mitigation.

### **Section 8 - New Mitigation Goals, Objectives, and Strategies**

- In sections that mentioned flood proofing, nature-based solutions were added as a mitigation action.
- Included information about the Middle Peninsula Fight the Flood Program to assist with educational endeavors and flood proofing efforts.
- Updated repetitive loss and severe repetitive loss properties in the Middle Peninsula.

## **SECTION 2: THE PLANNING PROCESS – PUBLIC INVOLVEMENT AND COMMUNITY PARTNERS**

- Updated flood prone roads in Strategy 1.1.6
- Updated strategies with localities interested in participating:

<b>Strategy</b>	<b>Localities and Tribes added to the Strategy</b>
1.1.1	Upper Mattaponi Indian Tribe
1.1.3	Town of Urbanna and Upper Mattaponi Indian Tribe
1.1.4	Rappahannock Tribe and Upper Mattaponi Indian Tribe
1.1.5	King & Queen County
1.1.7	Town of Urbanna
1.1.8	Upper Mattaponi Indian Tribe
1.1.9	Upper Mattaponi Indian Tribe
1.1.10	Gloucester County
1.1.11	King & Queen County and Upper Mattaponi Indian Tribe
1.1.12	Upper Mattaponi Indian Tribe
1.1.13	Upper Mattaponi Indian Tribe
1.1.15	Upper Mattaponi Indian Tribe
1.1.18	King & Queen County and Upper Mattaponi Indian Tribe
1.1.19	Upper Mattaponi Indian Tribe
1.3.1	Rappahannock Tribe and Upper Mattaponi Indian Tribe
2.2.1	Rappahannock Tribe and Upper Mattaponi Indian Tribe
3.1.2	Rappahannock Tribe and Upper Mattaponi Indian Tribe
3.1.4	Rappahannock Tribe and Upper Mattaponi Indian Tribe
3.1.5	King & Queen County
3.1.6	Rappahannock Tribe and Upper Mattaponi Indian Tribe
3.1.7	King & Queen County and Upper Mattaponi Indian Tribe
3.1.8	Rappahannock Tribe
4.1.1	King & Queen County and Upper Mattaponi Indian Tribe

- Added a mitigation strategy that focuses on high hazards dams in Gloucester County.
- Added mitigation projects completed by the Rappahannock Tribe and the Upper Mattaponi Indian Tribe.

### **Section 9 – Implementation Plan**

- Included how this plan will be integrated into locality plans, policies, codes and programs across disciplines and departments.
- Removed information on the Chesapeake Bay Nation Estuarine Research Reserve since this program was discontinued.
- Included information about how the Middle Peninsula Fight the Flood program to support educational efforts and flood proofing in the region.

### **Section 10 – Plan Adoption**

- The dates that Board of Supervisors and Town Councils adopt the 2021 All Hazards Mitigation Plan will be updated.

### **Section 11 – Plan Maintenance**

- Added information about how the region will handle annual updates and track progress on meeting mitigation strategies.

### **Section 3: Community Profile of Middle Peninsula Localities**

The Middle Peninsula region encompasses six (6) counties and three (3) towns including Essex, Gloucester, King and Queen, King William, Mathews, and Middlesex Counties as well as the Towns of Tappahannock, Urbanna, and West Point (Figure 1). Additionally, the region also includes three federally recognized tribes, including the Pamunkey, Upper Mattaponi, and Rappahannock Tribes. According to the 2020 Census, the total population of the Middle Peninsula is 90,826.

The Middle Peninsula is located on the western shore of the Chesapeake Bay, bound to the north by the Rappahannock River and to the south by the York River. As the region is located in the Virginia coastal plain, it has a relatively flat topography. The southeastern-most portions of the region are at sea level, while elevation rises to approximately 200 feet above sea level moving in a northwesterly direction.

Based on the region's low topography, 1200+ miles of coastline, and its proximity to waterways-broad rivers, meandering creeks, wide bays and tidal marshes, the Middle Peninsula is highly susceptible to floods and coastal storms. Additionally, with a high-water table in lower elevations of the Middle Peninsula, water cannot easily drain from land and thus exacerbates flooding from summer thunderstorms, hurricanes, nor'easters, as well as rising seas. Tidal surges associated with these severe storms often compound the flooding within this region.

While the Middle Peninsula region remains largely rural, it lies in close proximity to the metropolitan areas of Hampton Roads, Richmond and the Fredericksburg-Northern Virginia Metropolitan Areas. Suburban growth from these urban areas is spreading into the Middle Peninsula, affecting the region's natural resource-based industries and traditional rural lifestyle. For instance, the region's traditional land use patterns can best be described as having:

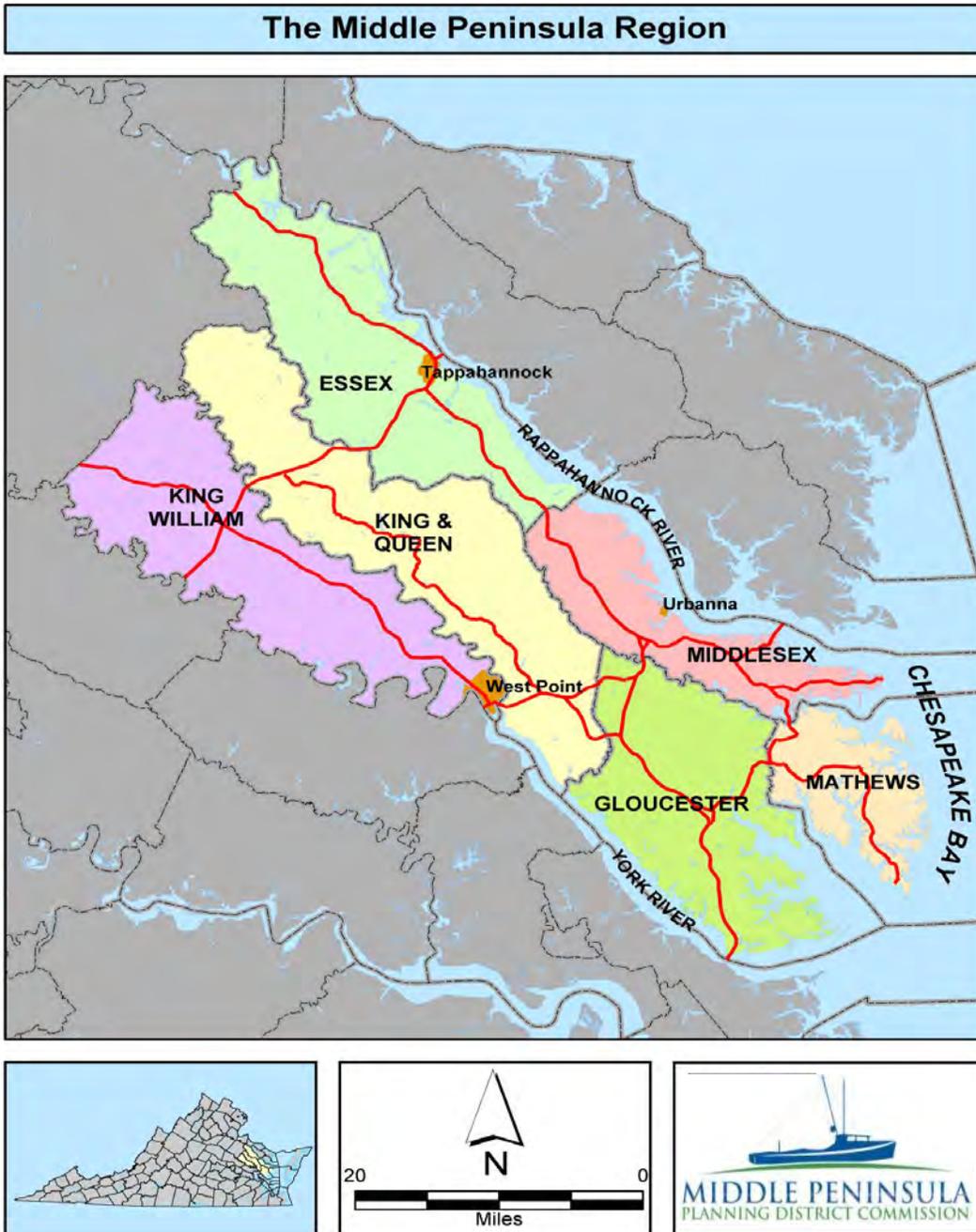
- A predominantly rural character with large, scattered farms and forested tracts;
- A number of closely-knit, small communities surrounded by working farms and forests;
- Small scale commercial fishing communities along the lower reaches of the watersheds;
- Three small towns that provide a focal point for commercial, industrial, and residential development at a modest scale; and
- Government operation centers that provide another focal point of local activity in the region.

However, the last 20 to 30 years, the region has seen a slight shift to:

- Growing sectors in tourism, retiree housing and related retiree services;
- Large, forested tracts are converting from woodlands to residential development;
- Waterfront communities transitioning from commercial fisheries with a reduced level of fisheries to an increasing number of marinas and residential developments; and
- Commercial development being located along Route 33 in Middlesex, Route 360 in King William, and Route 17 in southern Gloucester County between the Court House and the Coleman Bridge.

In summary, changes in land uses that concentrate development along the region's waterfront poses the greatest risk for hazard prevention and mitigation activities – particularly in the low-lying southeastern areas of Gloucester, Mathews, and Middlesex Counties.

Figure 1:



### Essex County

Essex County is predominantly a rural county located at the northern end of the Middle Peninsula. It is bound on the north and east by the Rappahannock River, on the south by Middlesex County and on the west by Caroline and King and Queen Counties. The County comprises of approximately 286 square miles (Essex County Comprehensive Plan, 2015). Residential developments exist as small rural communities along the Rappahannock River or along the primary and many secondary roads. With a

history of slow/gradual growth and strong land use control regulations, the County has remained mostly rural.

According to the 2010 Census figures, the population in Essex consists of 11,151 people, an increase of 1,162 (11.63%) from the 2000 Census. The population has 5,274 men and 5,877 women and is comprised of 6,370 whites, 4,247 African Americans, and 534 people of other races. The population aged somewhat during the period from 2000 to 2010 with a modest reduction in school age population. These trends suggest that County programs may require redirection to meet the specific needs (i.e. health care, transportation, etc.) of an older population. A low to moderate trend in growth in the County's population is expected into the future.

### **Town of Tappahannock**

Tappahannock is an incorporated town located along the shores of the Rappahannock River in the east-central portion of Essex County. The Town of Tappahannock is both the employment and population center of the County. Occupying less than three square miles of land, Tappahannock features an active waterfront, a historic downtown, residential subdivisions, schools, public buildings, an old airport and industrial center, a business corridor, and extensive wetland areas. Tappahannock serves as the county seat for Essex County.

According to the 2010 Census, the population in Tappahannock consists of 2,375 people, an increase of 307 (14.8%) from the 2000 Census. The population has 975 men and 1,400 women and is comprised of 1,076 whites, 1,128 African Americans, and 171 people of other races.

### **Gloucester County**

Gloucester County's proximity to urban centers to the south, and the northwestward migration of suburban development from the greater Hampton Roads/Newport News area has transformed portions of the County into a suburban landscape. This is most pronounced at the southern reaches of the County from the Historic Court House Village and Gloucester Point. Residents from the Hampton Roads area and other areas of the urban crescent are lured to the County by the promise of lower taxes, lower housing costs, rural character, and relative freedom from the congestion evident in metropolitan areas. This has created increased traffic volumes on the limited collector roads not designed for such heavy use within the county. Commuters, travelers and trucks from the Middle Peninsula and points north use Route 17 as an alternative to interstate 64 to get to the Peninsula, Southside and the Outer Banks. Route 17 is the primary route through Gloucester and is also the heart of Gloucester's Development District where public water and sewer are available and where the county has expressed a desire to see continued economic development along this corridor. The need for alternative routes and connection to take local traffic off of Route 17 to reduce congestion is one of the goals expressed in the adopted Comprehensive Plan and the proposed update to the plan.

Despite the urban/suburban character of the County's Development District, the majority of the County remains relatively rural with low density development and active farm and timberlands. Much of the eastern portion of the County, east of Route 17 and South of Route 3/14 is characterized by low lying lands, low to moderate density housing and waterfront homes and communities. North of the Court House is very similar to other localities on the Middle Peninsula with a mixture of low and moderate density residential development and large tracts of farms and forests. Route 33, which runs along the northern portion of the County, provides convenient access from the interstate to upper Gloucester and Mathews County.

According to the 2010 Census, the population in Gloucester County consists of 36,858 people, an increase of 2,078 (5.97%) from the 2000 Census. The population has 18,239 men and 18,619 women, comprised of 32,149 whites, 3,197 African Americans, and 1,512 people of other races. A moderate trend in growth is expected into the future (Virginia Employment Commission, 2013).

### **King and Queen County**

King and Queen County is located in the north-central portion of the Middle Peninsula and is bounded on the west by the York and Mattaponi Rivers which separate King and Queen from King William and New Kent Counties. The Dragon Swamp separates King and Queen County from Essex, Middlesex, and Gloucester Counties on the east. Often called the "shoestring county", King and Queen County is about 65 miles long and less than 10 miles wide. Farming and logging continue to be the mainstays to the local economy.

King and Queen County is the least populous county of the Middle Peninsula and one of the most rural counties in Virginia today. In 1990, the population density was only 20 people per square mile. Nearly three-fourths of the County's 318.1 square miles of land area is timberland. Over the past four decades, King and Queen County has experienced slow, but steady population growth. In 2010 the population density was 22 people per square mile.

According to 2010 Census figures, the population in King and Queen County consist of 6,945 people, an increase of 315 (4.8%) from the 2000 Census. The population has 3,454 men and 3,491 women and is comprised of 4,663 whites, 1,975 African Americans, and 307 people of other races. A moderate trend in population growth is expected into the future and the overall population distribution appears to be experiencing a gradual shift to the upper and lower ends of the County where transportation routes to jobs and retail markets are most favorable.

### **King William County**

Located approximately 20 miles northeast of the City of Richmond, King William County is rapidly growing into a bedroom community of the metro-Richmond area. Much of the county's 286 square miles are made up of gently rolling farmland and scenic timberland located between the Pamunkey and Mattaponi Rivers. Farming and logging continue to be the mainstays of the local economy. King William is home to the only Native American Indian Reservations in the Commonwealth and to the oldest courthouse in continuous use in the United States. The Mattaponi and Pamunkey Tribes operate fish hatcheries on the rivers. Residents and visitors enjoy the numerous recreational opportunities that the rivers provide.

According to 2010 Census figures, the population in King William County consists of 15,935 people, an increase of 2,789 (21.2%) from the 2000 Census. The population has 7,759 men and 8,176 women and is comprised of 12,297 whites, 2,819 African Americans, and 819 people of other races. Projections indicate that King William County will continue to experience moderate to accelerated population growth. By the year 2020, it is estimated that the County's population will grow at a rate of 8.62%, increasing the population by 1,373 persons. Growth management will become more important as competing uses vie for space and facilities.

### **Town of West Point**

The Town of West Point lies at the extreme southern end of King William County where the Mattaponi and Pamunkey Rivers join to form the York River. The town is relatively flat, with large sections comprised of tidal marshes, particularly along the Mattaponi River. The highest elevations occur at the northern end of town at a height of 30+ feet above sea level. Most of the Pamunkey River waterfront is

on a bluff averaging 20 feet in height. Union forces destroyed the town and the railroad, completed in 1859, during the Civil War. Only four houses survived the torching and remain intact today. West Point became an incorporated town in 1870. During the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, West Point was a popular tourist destination. After the decline of tourism, a shipyard, built in 1917, and a pulp mill, built in 1918, revitalized the town.

The river areas surrounding the town are primarily used for recreation and barge access to the WestRock, a Meadwestvaco and Rock Tenn Corporation, where pulping operations convert wood chips, sawdust and recyclable paper products into pulp for use in producing various types of paperboard. The Old Dominion Grain Corporation also benefits from barge access.

According to 2010 Census figures, the population in Town of West Point consists of 3,306 people, an increase of 400 (15.4%) from the 2000 Census. The population has 1543 men and 1763 women and is comprised of 2618 whites, 509 African Americans, and 179 people of other races.

### **Mathews County**

Mathews County is located at the eastern tip of the Middle Peninsula. The County is bordered mostly by water, with the Chesapeake Bay to the east, the Mobjack Bay to the south, the North River to the west, and the Piankatank River to the north. Except for approximately five miles that border Gloucester County, the County's perimeter is formed by its 217-mile shoreline. Mathews is predominantly a rural community that has attracted an increasing number of retirees and vacationers. More than half of the working residents earn their living outside the County. The mainstays of the local economy are agriculture, trade, seafood, and tourism.

Much of the housing in Mathews is traditional single-family dwellings, but the County also has a growing number of manufactured homes and vacant seasonal housing (built typically for summer occupancy). Seasonal housing, in the form of cottages, recreational vehicles, rental mobile homes, and a few condominium units increased in number from 448 in 1970, to 583 in 1980, to 783 in 1990. Residents of seasonal housing are often not accounted for in the census counts because the units were not occupied during the census survey. It is estimated that only about 75% of the housing units in Mathews County are occupied year-round, adding significantly to the summer population of Mathews County.

According to 2010 Census figures, the population in Mathews County consists of 8,978 people, a decrease of 229 (-2.5%) from the 2000 census. The population has 4,363 men and 4,615 women and is comprised of 7,898 whites, 823 African Americans, and 257 people of other races. Projections indicate that Mathews County will continue to experience low population growth. By the year 2020, it is estimated that the County's population will grow at a rate of 3.41%, increasing the population by 9,284 persons. Mathews County's population changed little between 1840 and 1900. The population peaked in 1910 with 8,922 residents, but gradually declined over the next five decades to a low point of 7,121 in 1960. This was in keeping with a national trend of population shifts from rural to urban areas because of the increased job opportunities in the cities. The population began to grow in the 1970's and it took until the mid-1990's before the population reached the peak reported in 1910.

### **Middlesex County**

Middlesex County, located at the eastern end of the Middle Peninsula, is comprised of 131 square miles of land and 135 linear miles of shoreline. The County is surrounded by three significant waterways; the Rappahannock River to the northeast, the Piankatank River to the southwest, the Chesapeake Bay to the east. The County is also bordered by Gloucester County to the southeast, King and Queen County to the West, and Essex County to the north. The geographic location of Middlesex County, particularly

with the close proximity to two significant rivers, the Chesapeake Bay and the Atlantic Ocean, make Middlesex County communities much more vulnerable to tropical weather events, affecting the eastern seaboard of the United States. The county government operations are managed by a County Administrator, who is appointed by a five-person elected Board of Supervisors. The Government Seat, Board of Supervisors Meeting Room, and Courts Complex, are located in the area known as Saluda, Virginia. The Middlesex County School System is comprised of an elementary, middle and high school, with the School Board Administration Offices located in the Cooks Corner Office Building, just east of Saluda.

Middlesex has remained largely rural over the years, with farming, forestry, and fin and shell fishing providing the principal elements of the economic base. The County's relatively remote geographical location adds to the community's rural character. The 2013 Census reports the county population to be 10,762 full-time residents, a decrease of 197 (2%), from the 2010 census of 10,959. The population is made up by 5,413 females, and 5,349 males, comprised of 8,545 Whites, 1,937 African Americans, and 280 people of other races. A total of 3,056 residents, or 28.4% of the population of Middlesex, are over 65 years-of-age. With the population dropping 2% in the past three years, it is estimated that the county's population will not see any drastic fluctuations, up or down, throughout the next decade.

The county population lives in 7,184 dwellings, with only 3.5% of the occupancies being comprised of multi-family dwelling units, a figure significantly lower than the Commonwealth's average of 21.7%. County officials estimate that 30% of the housing units in the community are seasonal, increasing the population between May and October with an additional 20,000 residents. Middlesex, Virginia, is home to one of the top boating populations in the Commonwealth of Virginia, another factor which adds to the seasonal population of the county.

Public Safety Services in Middlesex County are provided by the Office of the Sheriff, four individual volunteer fire companies, Deltaville, Hartfield, Urbanna, and Waterview; two volunteer rescue squads, Deltaville and Urbanna. The collective departments work together responding to law enforcement situations, fires, medical emergencies, and all-hazards incidents throughout the community. All Emergency Management activities, including operations of the Emergency Operations Center as well as maintenance and oversight of the Emergency Operations Plan, are managed by a county appointed Emergency Services Coordinator. This individual works in conjunction with the Middlesex Emergency Management Director, who is an appointed member, from the Board of Supervisors. The Emergency Services Coordinator also works in conjunction with the leadership and members of the volunteer fire departments and volunteer rescue squads.

### **Town of Urbanna**

The Town of Urbanna is located in Middlesex County on the Rappahannock River on a finger of land bounded by Perkins Creek and Urbanna Creek. The Town is one of America's original harbor towns and is located approximately five miles from Saluda, VA. Incorporated in 1902, the present town boundary comprises an area of about one-half square mile. The town operates an active boat harbor which is a major gateway for the fishing and recreational boating industries serving the area.

According to 2010 Census figures, the population in the Town of Urbanna consists of 476 people, a decrease of 67 (-12.3%) from the 2000 Census. The population has 204 men and 272 women and is comprised of 431 whites, 35 African Americans, and 10 people of other races. The Town of Urbanna experiences a seasonal swelling of the population to well above 2,000 people within the town and at the nearby Bethpage Campground due to seasonal use of vacation homes and campsites. This influx of tourists brings in much needed revenue and helps support the service industry and the tax base for the county. Also, the Town is the location of an annual Urbanna Oyster Festival. Since 1958, this event

features oyster specialties and other Chesapeake Bay seafood, a parade, a fine arts exhibit and visiting tall ships. Crowds for the two-day event reach approximately 75,000 people.

### **Rappahannock Tribe**

The Rappahannock Tribe, located on the river of the same name, is one of seven Federally recognized tribes in Virginia. Their ancestors were among those greeting the first English colonists to Virginia in the early 17th century. It was not long, however, before the English settlers dispossessed and displaced the Rappahannock River groups from the rich lands along the river. Acknowledging their treaty obligations to the Rappahannock, in 1682, colonial authorities assigned approximately 3,500 acres to the Rappahannock Indians in the vicinity of Indian Neck, interior land miles from their ancestral home. Rappahannock families nonetheless persisted in this vicinity through the 18th and 19th centuries and many tribal members remain in Indian Neck today, where the Rappahannock Indian Tribal Center is located and where the Tribal Government operates.

The Rappahannock's are organized in four components of community:

- Children (birth to 10 years) are the first link in the chain of tribal growth and are taught dance, drum, history, language, political structure, and traditions; elders spend much time educating and preparing children for the next stage of life.
- Youth (ages 11 to 18) are taught more complicated concepts of indigenous construction, creative arts, tool making, gathering skills, farming techniques, and hunting skills. Producers spend time training and mentoring youth in preparation for their next stage of life.
- Producers (ages 19 to 59) are the managers of programs, committees, and projects. They usually hold positions as official or unofficial leaders and are mentored by Elders. Classroom education programs train them in project planning, design, and implementation, as well as leadership for council and committee members.
- Elders (60+) have lived through all the previous stages of life and are well endowed with spiritual wisdom and cultural knowledge. They are the Keepers of the Knowledge and hold closely to oral tradition and intimate history of previous generations. They are responsible for sharing their knowledge with children and youth and act as guides to the producers, collaborating jointly in the decision-making process.

Health and wellness in tribal culture is closely tied to spiritual, cultural, and social traditions. Through the generations, tribal traditions have incorporated all the dimensions of wellness (spiritual, social, emotional, physical, occupational, environmental, financial, and intellectual). It is this holistic view that continues to guide the work of Rappahannock leaders today.

The Rappahannock Tribe gained State Recognition in 1983 and Federal Recognition in 2018. Tribal members total more than 350 and reside primarily on rural properties located on the Middle Peninsula in Virginia. The Rappahannock Tribe's Service Area (RTSA) includes King & Queen, King William, Essex and Caroline Counties in Virginia. The Tribe is led by Chief Anne Richardson and its offices are located at 5036 Indian Neck Road, Virginia 23148.

### **Upper Mattaponi Tribe**

The Upper Mattaponi Indian Tribe (UMIT) is a federally recognized Indian tribe centered in King William County, Virginia. The Tribe was officially recognized by the Commonwealth of Virginia on March 25, 1985, and received federal recognition on January 29, 2018.

As part of the Powhatan Chiefdom, the Tribe's ancestral lands of Tsenacomacah encompassed the Tidewater and Eastern Shore regions of Virginia. The Tribe were signatories to the Middle Plantation Treaty of 1677 as a tributary tribe, subject to the Queen of the Pamunkey.

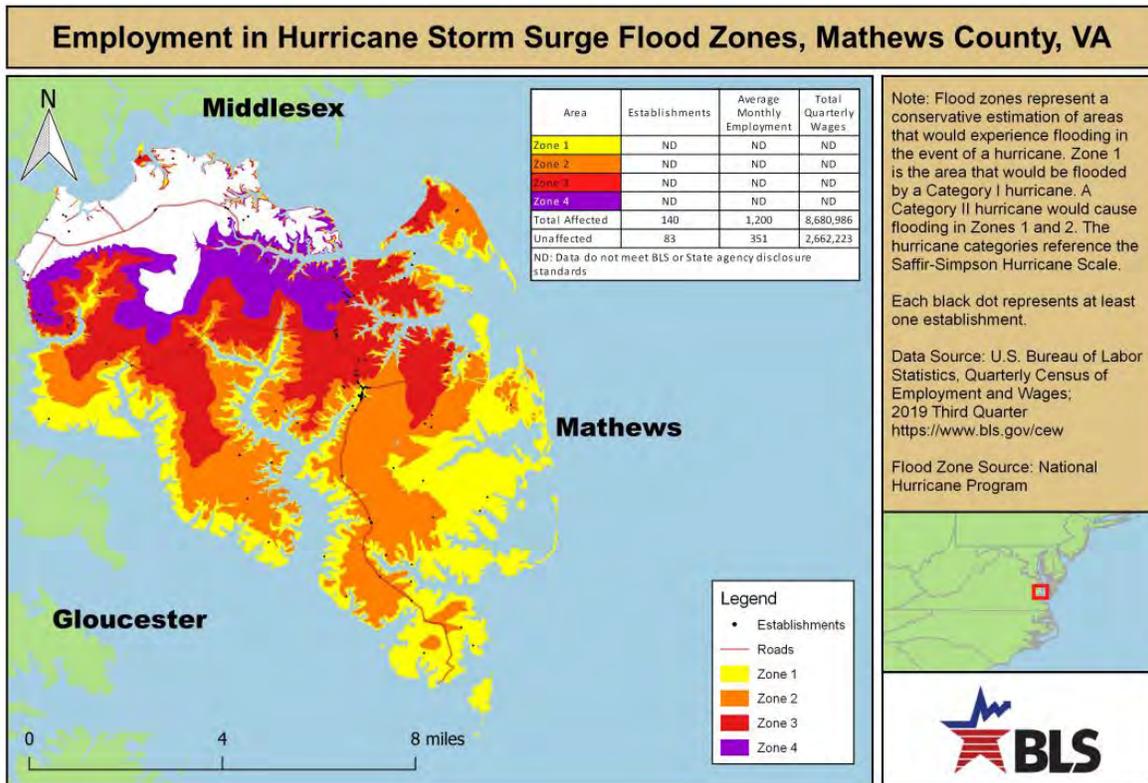
The inland waterways of the York River watershed, surround the Tribe's current tribal center, with the Tribal Government operating in King William County. The governing body of the Tribe consists of the Chief, Assistant Chief, and five (5) Council Members. Under the Tribe's Constitution, the Upper Mattaponi Indian Tribal Council has the power and authority to represent and speak for the Upper Mattaponi Indian Tribe in all matters for the welfare of the Tribe. The Tribal Council also has the power and authority to negotiate with federal, state, and local governments, as well as the councils or governments of other tribes. The Tribe has over 650 tribal citizens that reside primarily in the York, James, and Rappahannock River watershed.

### **Economic Resiliency**

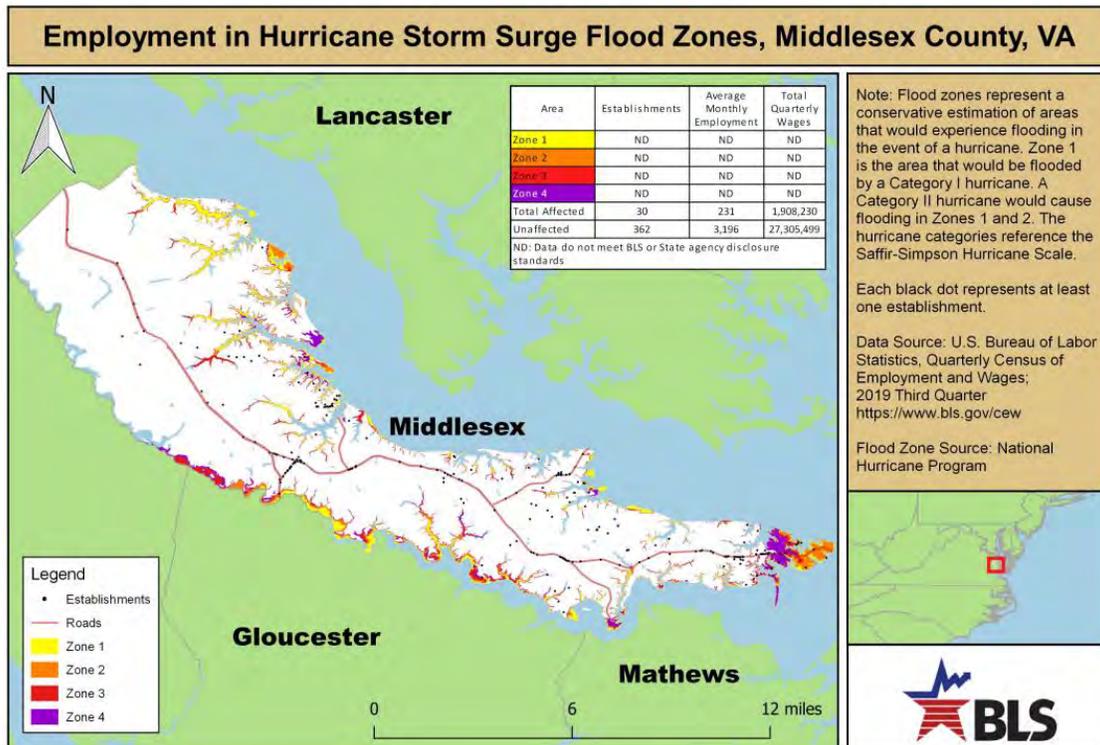
In 2020, the MPPDC updated and approved the Middle Peninsula Comprehensive Economic Development Strategy (CEDS) that sets forth goals and objects necessary to improve the regional economy. In part, a chapter was added to this document titled, "Coastal Economic Resiliency" to focus on emerging challenges posed by climate change and rising sea levels. The MPPDC intends to expand this chapter to include specific economic challenges associated with managing coastal resiliency as well as new program and services instructions to address coastal risk, such as the MPPDC Fight the Flood Program (<https://fightthefloodva.com/>) which provides citizens access to loans, grants, and insurance to protect private investments (i.e. homes and land). As hazards pose threats to the local and regional economy, economic resiliency of the region is critical to the regions long term success. The three primary attributes of economic resiliency include: the ability to recover quickly from a shock, the ability to withstand a shock, and the ability to avoid the shock altogether.

Based on mapping efforts by the U.S. Bureau of Labor Statistics (BLS) in 2019, maps of Employment in Hurricane Storm Surge Flood Zones were developed that provide an example of impacts to employment in hurricane storm surge flood zones in Gloucester, Mathews, and Middlesex Counties (Figures 2-4). These maps show that in Mathew County 62.8% of all business establishments would be impacted by hurricane storm surge and reduced quarterly revenues in the third quarter of 2019 by 76.5%. In Middlesex County 7.6% of all business establishments would be impacted by hurricane storm surge and reduced quarterly revenues in the third quarter of 2019 by 6.5%. In Gloucester County 15.2% of all business establishments would be impacted by hurricane storm surge and reduced quarterly revenues in the third quarter of 2019 by 8.9%. Consequently, this will have economic consequences to the overall region.

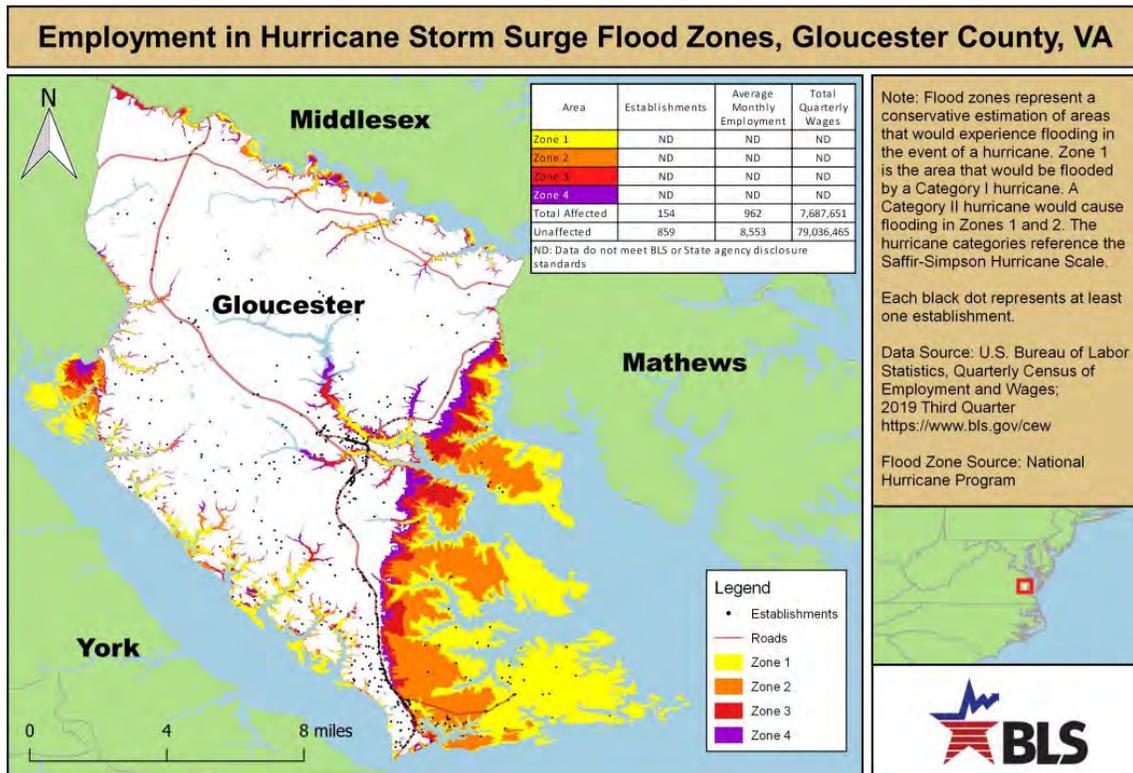
**Figure 2: Employment in Hurricane Storm Surge Flood Zones in Mathews County (BLS, 2019).**



**Figure 3: Employment in Hurricane Storm Surge Flood Zones in Middlesex County (BLS, 2019).**



**Figure 4:** Employment in Hurricane Storm Surge Flood Zones in Gloucester County (BLS, 2019).



Therefore, to minimize impacts, not only from hurricane storm surge, but from all other hazards identified in this plan, local business leaders should anticipate, prepare, and plan for impacts and consider how to recover if such events occur.

## Section 4 – Hazard Identification and Risk Assessment

MPPDC staff engaged community partners and the general public concerning the nature of hazards that threaten the Middle Peninsula region. A Local Planning Team (LPT) was created to provide local insight and expertise. The LPT identified hazards of the Middle Peninsula, how they should be prioritized as critical, moderately-critical and non-critical hazards, and they also decided that an in-depth analysis was needed for critical hazards. Non- Critical and moderately hazards were not re-analyzed with the exception of recent occurrences due to their minimal impact.

Based on the Federal Guidelines [Disaster Mitigation Act of 2000, §201.1(b)], the Hazards Identification and Risk Assessment (HIRA) is only focused on natural hazards and their impacts. It measures potential loss of life, personal injury, economic impairment, and property damage resulting from natural hazards that threaten the Middle Peninsula. The Middle Peninsula HIRA involved:

1. Hazard Identification,
2. Risk Assessment Analysis, and
3. Financial Loss Estimations (See Section 5).

### 4.1 Hazard Identification

The LPT first reviewed and evaluated the 2016 list of hazards impacting the Middle Peninsula. MPPDC staff developed a hazards survey for localities and tribes’ representatives on the LPT to assess the hazards risk the highest and lowest risk to Middle Peninsula communities. Based on survey results the LPT decided to remove tsunamis, landslides, and volcanoes from the hazards list. These were deemed to have little to no risk to the region. Next, the LPT decided to combine similar hazards under general heading including:

- Consolidated Winter Storm (ice) and Winter Storm (snow) to WINTER WEATHER
- Consolidated Coastal, Riverine, and ditch flooding hazards to FLOODING
- Consolidated Extreme cold and extreme heat to EXTREME TEMPERATURES

Additionally, instead of just focusing on natural hazards the LPT decided to be inclusive of all hazards that may threaten the Middle Peninsula region.

<b>Table 2: List of Hazards. The LPT identified the following as hazards that may impact the region.</b>	
<ul style="list-style-type: none"> <li>• Hurricanes</li> <li>• Winter Weather (Ice &amp; Snow)</li> <li>• Tornadoes</li> <li>• Flooding (Coastal Flooding/Nor-easters, riverine flooding, and ditch flooding)</li> <li>• Coastal/Shoreline Erosion</li> <li>• Sea Level Rise (added in 2010)</li> <li>• Wildfires</li> <li>• High Winds/Windstorms</li> <li>• Dam Failure</li> </ul>	<ul style="list-style-type: none"> <li>• Droughts</li> <li>• Lightning</li> <li>• Earthquakes</li> <li>• Shrink-swell Soils</li> <li>• Extreme Temperatures (Cold &amp; Heat)</li> <li>• Land Subsidence/Karst</li> <li>• Air Quality</li> <li>• HAZMAT</li> <li>• Summer Storms</li> <li>• <b>Communicable Diseases (added in 2021)</b></li> </ul>

Based on discussions held by the LPT, one new hazard was added to the list that caused new concern to the region.

**Communicable Diseases** - According to the Commonwealth of Virginia Hazards Mitigation Plan (2018), *A communicable disease is an illness caused by an infectious agent or its toxic products that develops*

when the agent or its product is transmitted from an infected person, animal, or arthropod to a susceptible host. Infectious agents include viruses, bacteria, fungi, parasites, or aberrant proteins called prions. The infectious agent might spread by one of several mechanisms, including contact with the infected individual or his or her body fluids, contact with contaminated items or a vector, or contact with droplets or aerosols. An infection, which is the actual spread of the infectious agent or its toxic product, is not synonymous with disease because an infection may not lead to the development of clinical signs or symptoms.

In conjunction with the list of hazards, the LPT reviewed the 2016 prioritization (Table 3) of hazards as a result of utilizing the Hazards Vulnerability Tool worksheet provided by VDEM staff (originally designed to estimate medical center hazard and vulnerability by Kaiser Permanente).

**Table 3:** Prioritization Worksheet for Hazards on the Middle Peninsula in 2016 AHMP.

**MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET  
Priority Worksheet for Hazards**

EVENT	PROBABILITY	HUMAN IMPACT	PROPERTY AND FACILITY IMPACT	BUSINESS IMPACT	Mitigation Options	UNMITIGATED	
	Likelihood this will occur	Possibility of death or injury to public and responders	Physical losses and damages	COOP and Interruption of services	Pre-Planning	RISK	RANKING
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	Based only on probability and threat
Winter Storms (Ice)	3	3	2	2	2	75%	1
Coastal Flooding	3	2	3	2	2	75%	1
Lightning	3	2	2	2	1	58%	2
Hurricanes	2	2	3	2	2	50%	3
Summer Storms	3	2	2	1	1	50%	3
Tornados	2	2	2	2	2	44%	4
Winter Storm (Snow)	2	2	2	2	2	44%	4
Coastal/Shoreline Erosion	2	2	2	1	2	39%	5
Wildfire	2	2	2	1	2	39%	5
Riverine Flooding	2	2	2	1	2	39%	5
Sea Level Rise	2	1	2	1	2	33%	6
High Wind/Windstorms	2	2	2	1	1	33%	6
HAZMAT	2	2	2	1	1	33%	6
Ditch Flooding	2	1	2	1	2	33%	6
Drought	2	1	2	1	1	28%	7
Extreme Cold	2	2	1	1	1	28%	7
Extreme Heat	2	2	1	1	1	28%	7
Dam Failure	1	1	1	1	1	11%	8
Earthquake	1	1	1	1	1	11%	8
Air Quality	1	1	1	1	1	11%	8
Shrink-Swell Soils	1	0	1	0	1	6%	9
Landslides	1	1	1	0	0	6%	9
Land Subsidence/Karst	1	0	0	0	0	0%	10
Tsunami	0	0	0	0	0	0%	10
Volcano	0	0	0	0	0	0%	10
<b>AVERAGE</b>	<b>1.64</b>	<b>1.32</b>	<b>1.48</b>	<b>0.96</b>	<b>1.16</b>	<b>28%</b>	

\*Threat increases with percentage.

<b>UNMITIGATED RISK=</b>	<b>PROBABILITY * IMPACT</b>
0.28	0.65      0.43

Spreadsheet developed by:



Like the 2006, 2010, and 2016 updates, the LPT agreed to continue using the Kaiser Permanente Hazard Vulnerability Assessment Tool for this AHMP update. In doing so, this provided a measure of continuity and consistency between the mitigation plans. Therefore, each county, town, and Tribe LPT representative were asked to complete the vulnerability worksheet and turn it into the MPPDC Planner. The LPT representative for each community evaluated each hazard based on five criteria to rank the hazards from highest to lowest priorities. The five categories included the probability based on past events, the potential impacts to structures, primary impacts (percentage of damage to a typical structure or industry in the

community), secondary impacts (based on impacts to the community at large), and potential mitigation options. The definitions given in Table 4 were used as a standard for evaluation of all the hazards.

<b>Table 4: Prioritization Criteria for Hazards on the Middle Peninsula.</b>	
<b>Probability</b> - <i>Frequency of occurrence based on historical data of all potential hazards</i>	
<u>Level</u>	
0	Not Applicable
1	Unlikely (less than 1% occurrence: no events in the last 100 years)
2	Likely (between 1% and 10% occurrence: 1-10 events in last 100 years)
3	Highly Likely (over 10% occurrence: 11 events or more in last 100 years)
<b>Affected Structures</b> - <i>Number of Structures affected</i>	
<u>Level</u>	
0	Not Applicable
1	Small (limited to 1 building)
2	Medium (limited to 2-10 buildings)
3	Large (over 10 buildings)
<b>Primary Impacts</b> - <i>Based on percentage of damage to a typical structure or industry in the community</i>	
<u>Level</u>	
0	Not Applicable
1	Negligible (less than 3% damage)
2	Limited (between 3% and 49% damage)
3	Critical (more than 49% damage)
<b>Secondary Impacts</b> - <i>Based on impacts to the community at large</i>	
<u>Level</u>	
0	Not Applicable
1	Negligible (no loss of function, no displacement time, no evacuations)
2	Limited (some loss of function, displacement time, some evacuations)
3	Critical (major loss of loss of function, displacement time, major evacuations)
<b>Mitigation Options</b> - <i>Number of cost-effective mitigation options</i>	
<u>Level</u>	
0	Not Applicable
1	Many (over 3 cost effective mitigation options)
2	Several (2-3 cost effective mitigation options)
3	Few (1 cost effective mitigation option)

After much consideration of the criteria, and consideration of readily available data, local knowledge, and observations the LPT re-ranked the hazards for this update. Table 5 provides the new regional ranking of the hazards. This ranking was the average ranking from each of the localities and tribes. Please see Appendix F for the individual hazard rankings.

**Table 5:** Prioritization worksheet for Hazards in the Middle Peninsula for the 2021 update.

MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

EVENT	PROBABILITY	HUMAN IMPACT	PROPERTY AND	BUSINESS IMPACT	Mitigation Options	UNMITIGATED		
	<i>Likelihood this will occur</i>	<i>Possibility of death or injury to public and responders</i>	<i>Physical losses and damages</i>	<i>COOP and Interruption of services</i>	<i>Pre-Planning</i>	RISK	RANKING	
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	<i>Based only on probability and threat</i>
Winter Storms (Ice & Snow)	2	2	2	2	2	46.08%	2	
Flooding (ie. coastal, riverine, ditch & stormwater)	2	2	2	2	1	40.45%	5	
Lightning	2	1	1	1	1	34.57%	7	
Hurricanes	2	2	2	2	2	45.54%	3	
Summer Storms	3	2	2	1	2	51.32%	1	
Tornados	2	2	2	2	2	37.92%	6	
Coastal/Shoreline Erosion	2	1	1	1	1	26.20%	9	
Wildfire	2	1	1	1	1	20.67%	10	
Sea Level Rise	1	1	1	1	1	18.20%	13	
High Wind/Windstorms	2	2	2	1	1	28.34%	8	
HAZMAT	1	2	1	1	1	20.44%	11	
Drought	2	1	1	1	1	17.54%	14	
Dam Failure	1	1	1	0	1	6.02%	18	
Extreme Temperatures (Cold & Heat)	2	1	1	1	1	20.19%	12	
Earthquake	1	1	1	1	1	10.81%	16	
Air Quality	1	1	1	1	1	7.71%	17	
Shrink-Swell Soils (soils with high levels of clay)	1	1	1	1	1	12.34%	15	
Land Subsidence/Karst	1	1	1	0	1	3.95%	19	
Communicable Diseases	2	2	1	2	2	44.90%	4	
<b>AVERAGE</b>	1.65	1.32	1.38	1.25	1.27			

\*Threat increases with percentage.

UNMITIGATED RISK=	PROBABILITY * IMPACT
0.04	0.08

As an outcome of the reassessment and re-ranking of hazards, there were five hazards ranked as having the highest relative risk and thus considered “**Critical Hazards**”. The Critical hazards include:

1. Summer Storms,
2. Winter Weather (ice & snow),
3. Hurricanes,
4. Communicable Disease, and
5. Flooding (riverine, coastal, stormwater, and ditch).

The hazards considered “**Moderately Critical**” have historically occurred in the Middle Peninsula yet ranked lower than the Critical Hazards in terms of risk during the hazard prioritization exercise. The Moderately-Critical hazards include:

6. Tornadoes,
7. Lightning,
8. High Wind/Windstorms
9. Coastal/shoreline Erosion,
10. Wildfires,
11. HAZMAT, and
12. Extreme Temperatures.

Hazards considered “**Non-Critical**” have occurred very infrequently or have not occurred at all – based on the available historical records. These hazards are not considered a widespread threat that would result in significant loss of property and life in the Middle Peninsula. The Non-Critical hazards include:

13. Sea Level Rise,
14. Drought,
15. Shrink- Swell Soils,
16. Earthquake,
17. Air Quality,
18. Dam Failure, and
19. Land Subsidence/Karst.

## Public Survey

As part of the All-Hazards Mitigation Plan update, public outreach and input was gathered through a public survey. A survey was released on March 1, 2021, to request information on local hazards and risks and thoughts on mitigation actions. Mitigation actions were defined as any action taken to reduce or eliminate the long-term risk to human life and property from hazards. The survey was open for 2 weeks and closed on March 15, 2021. This is a summary of the public survey responses.

Over the course of a 2-week period there were 106 respondents to the survey. Forty-one (38.68%) of respondents were from Gloucester County, eighteen (16.98%) from King & Queen County, fourteen (13.21%) from Middlesex County, twelve (11.32%) from Mathews County, ten (9.43%) from the Town of West Point, eight (7.55%) from King William County, three (2.83%) from Essex County, and zero participants from Town of Urbanna and the Town of Tappahannock. Of the 106 respondents zero respondents were affiliated with a federally recognized tribe (i.e. Upper Mattaponi, Rappahannock, and Pamunkey Tribe) within the region.

When asked how concerned they were about the hazards affecting their community over the next 20 years respondents were most concerned about FLOODING, HURRICANES, TORNADOES, and COMMUNICABLE DISEASE. The hazards they were least concerned about DAM FAILURE, EARTHQUAKES, SHRINK-SWELL SOILS, and WILDFIRES. The top three hazards that threaten the region include HURRICANES, FLOODING, and WINTER STORMS.

Middle Peninsula localities and its citizens can be impacted by hazards. While living in the Middle Peninsula region of 76.42% of respondents have experienced or have been impacted by a hazard listed within the AHMP and 23.58% have not been impacted. During rain events 32.08% of respondents mentioned that their road floods. Of the respondents 21 (19.81%) have homes within a floodplain, 70 (66.04%) are not located in a floodplain, and 15 (14.15%) did not know. Additionally, when asked if they had flood insurance, 24 (22.64%) said yes, 75 (70.75%) said no, and 6 (6.60%) did not know.

The LPT considered this information when ranking their hazards within their jurisdiction. Also based off the survey the hazards of most concern were listed as critical hazards for the region.

## 4.2. Hazards Considered “Non-Critical” Hazards to the Middle Peninsula

The following section describes hazards that were deemed “Non-Critical” hazards to the Middle Peninsula region by the LPT.

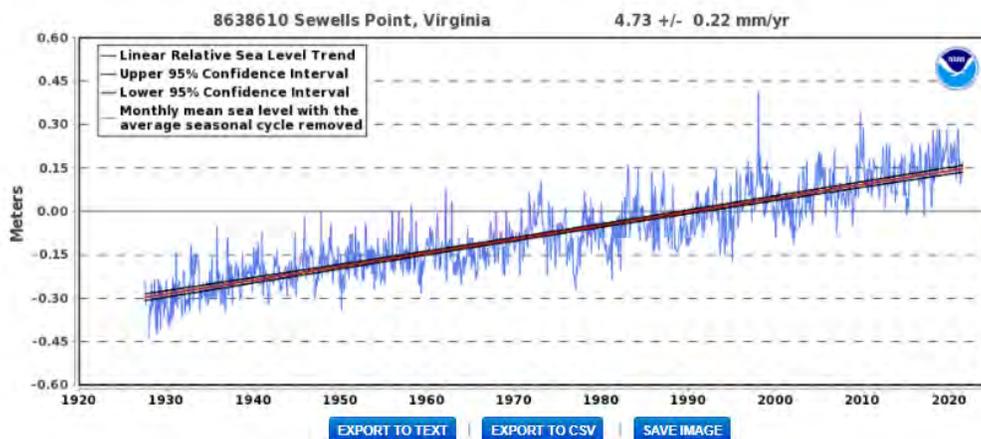
### 4.2.1. Sea Level Rise

A look at the geologic record of Chesapeake Bay shows a long and dynamic history - from the bolide (asteroid or comet) impact about 35 million years ago which formed the Chesapeake Bay impact crater, to the melting of glaciers beginning about 18,000 years ago, resulting in a continued rise of sea level, and drowning of the Susquehanna River valley. Given that the rise in sea level has been occurring for thousands of years and is fundamental to the present formation of the Chesapeake Bay and the region’s local tidal waters, there has been a heightened level of concern in recent years about sea level rise. Concern is justified given that current and projected rates of sea level rise and what has been experienced during the last century. There is consensus that rise in sea level will continue for centuries to come, and that human and natural communities within the Middle Peninsula will be vulnerable.

#### Causes and Current Rates of Local Sea Level Rise

Processes responsible for rising sea levels are complex. To help simplify the matter, it is useful to make a distinction between the concepts of eustatic and relative sea level (RSL) change. Eustatic change, which can vary over large spatial scales, describes sea level changes at the oceanic to global scale that result from changes in the volume of seawater or the ocean basins themselves. The two major processes responsible for eustatic change are the thermal expansion of seawater due to warming and the melting and discharge of continental ice (i.e., glaciers and ice sheets) into the oceans. The global average for current (2006-2015) eustatic sea level change is 0.14 in/yr (3.6 mm/yr) (NOAA Laboratory for Satellite Altimetry, 2021) with estimates for the Chesapeake Bay region on the order of 0.07 in/yr (1.8 mm/yr; Boon et al. 2010) for the approximate same time period. According to the NOAA tide gauge at Sewell’s Point, Virginia there is relative sea level rise trend of 4.73 millimeters/year. Figure 5 shows trend data from 1927 to 2020.

**Figure 5:**  
Relative Sea Level Trend  
8638610 Sewells Point, Virginia



The relative sea level trend is 4.73 millimeters/year with a 95% confidence interval of +/- 0.22 mm/yr based on monthly mean sea level data from 1927 to 2020 which is equivalent to a change of 1.55 feet in 100 years.

The plot shows the monthly mean sea level without the regular seasonal fluctuations due to coastal ocean temperatures, salinities, winds, atmospheric pressures, and ocean currents. The long-term linear trend is also shown, including its 95% confidence interval. The plotted values are relative to the most recent [Mean Sea Level datum established by CO-OPS](#). The calculated trends for all stations are available as a [table in millimeters/year and in feet/century](#) (0.3 meters = 1 foot). If present, solid vertical lines indicate times of any major earthquakes in the vicinity of the station and dashed vertical lines bracket any periods of questionable data or datum shift.

RSL change describes the observed change in water level at a particular location and represents the sum of eustatic sea level change and local vertical land movement (subsidence or uplift) at that location. Within the Chesapeake Bay region, land subsidence represents a significant component of RSL change. Factors contributing to land subsidence include tectonic (movement of the earth’s crust) and man-induced impacts (e.g., groundwater withdrawal, hydrocarbon removal). Such land subsidence at rates of **1.1 to 4.8 millimeters per year** exacerbate sea level rise within the region (USGS, 2013).

It is important to note that the lower lying counties like Gloucester and Mathews County will most likely see the largest impact from sea level rise due to their proximity to water and their low-lying geography. Please Section 5 for the Hazus assessment on sea level rise and estimated losses.

### Sea Level Rise Vulnerability

Coastal habitat and activity may be impacted by sea level rise. As the water reaches further inland it will influence humans, the environment, and the economy. Table 6 shows the potential impacts to sea level rise.

<b>Table 6: Impacts of sea level rise on humans, the environment, and the economy.</b>	
Sector	Effect
<b>IMPACTS TO HUMANS</b>	
Recreation	-Public access point throughout the region may be inundated
Transportation	-Roads may be inundated -Travel disruptions
Infrastructure	-Property loss and increased need to mitigate -Increased demands on stormwater management systems -Inundation of public and private infrastructure
Health	-Sanitation concerns will increase as rising groundwater levels and sea waters may inundate onsite wastewater disposal systems and drain fields.
Emergency Response	-The ability to provide emergency services to all inundated areas may be reduced. There may be difficulty reaching these locations due to high waters.
<b>IMPACTS TO THE ENVIRONMENT</b>	
Hydrology and Water resources	-Water quality could be impacted as rising groundwater levels and sea waters may inundate onsite wastewater disposal systems and drain fields. -Changes in hydrology could impact local natural resources.
Agricultural crops	-Increased inundation of crop fields. This could drown the crops. -Salt water intrusion could destroy crops.
Forests	-Salt water intrusion could destroy forests creating “ghost forests”.
<b>IMPACT TO THE ECONOMY</b>	
Transportation	-Inundated roads may cause travel and commerce disruptions -Increase road maintenance and cost
Business	-Reduced interest in the region to locate business -Higher insurance rates -Impacts to business infrastructure
Agriculture	-As the region’s economy is based on natural resources, saltwater intrusion could damage silviculture stands and crops that will have a negative impact on the local and regional economy.

### Sea Level Rise Extent (Impact)

RSL rise rates at the local level are derived from accurate time series of water level measurements spanning several decades or more. A recent analysis of tide gauge data by the Virginia Institute of Marine Science reported relative sea level rise 0.19 in/yr (4.73 mm/yr). Although there are no additional adequate tidal

records available for the Middle Peninsula's bordering rivers (i.e. York and Rappahannock Rivers), one would expect RSL rise rates to increase as one approached areas of elevated land subsidence such as West Point, VA. Based on land subsidence and eustatic sea level information, the RSL rise rate would be expected to be on the order of 0.22 in/yr (5.6 mm/yr) at or near West Point, VA. There is growing concern that RSL rise rates will accelerate in the future with projections of sea level increases in the Bay region.

#### 4.2.2. Drought

Empirical studies conducted over the past century have shown that drought is never the result of a single cause. It is the result of many causes, often synergistic in nature, and therefore often difficult to predict more than a month or more in advance. In fact, an area may already be in a drought before drought is even recognized. The immediate cause of drought is the predominant sinking motion of air (subsidence) that results in compressional warming or high pressure, which inhibits cloud formation and results in lower relative humidity and less precipitation. Most climatic regions experience varying degrees of dominance by high pressure, often depending on the season. Prolonged droughts occur when large-scale anomalies in atmospheric circulation patterns persist for months or seasons (or longer). The extreme drought that affected the United States and Canada during 1988 resulted from the persistence of a large-scale atmospheric circulation anomaly (National Drought Mitigation Center, 2004).

There have been four major statewide droughts since the early 1900's (USGS, 2002). The drought of 1930-32 was one of the most severe recorded in the Commonwealth while the droughts of 1938-42 and 1962-71 were less severe; however, the cumulative stream flow deficit for the 1962-71 drought was the greatest of the droughts because of its duration. The drought of 1980-82 was the least severe and had the shortest duration. Tidewater Virginia experienced "Severe Drought" conditions during the drought of 2001-2002 when stream flow into Chesapeake Bay was only half the average annual flow into the Bay (Virginia State Climatology Office, 2002).

In 2007, seventeen counties fell into severe drought status as over \$10 million in crop damages occurred in Southwest Virginia. Virginia is one of 44 states that have implemented a Drought Plan. The goals of these plans are to reduce water shortage impacts, personal hardships, and conflicts between water and other natural resource users. These plans promote self-reliance by systematically addressing issues of principal concern. The National Drought Policy Commission's report to Congress and the president, "[Preparing for Drought in the 21st Century](#)", emphasizes the need for drought planning at the state, local, federal, and tribal levels of government. While some state plans focus on mitigation strategies, Virginia's Plan emphasizes response strategies.

In a parallel effort, Middle Peninsula localities with the exception of Gloucester County, participated in the development of the Middle Peninsula Regional Water Supply Plan (MPRWSP) in 2011 and the update in 2021. Gloucester County participated in the development of the Hampton Roads Regional Water Supply Plan. Overall, the water supply plans contain proposed strategies and policies that localities can undertake to mitigate adverse effects of periodic droughts. As both the Regional Water Supply Plan and Drought Response plans focus on responding to drought, both plans should identify the role the jurisdiction's Emergency Services Coordinator/Manager will have with the locality's County Administrator/Town Manager during the implementation of both plans.

#### Drought Vulnerability

Drought is a phenomenon that, affects the Commonwealth on nearly an annual basis. Drought has several definitions, depending upon the impact. **Agricultural drought** is the most common form of drought and is characterized by unusually dry conditions during the growing season. **Meteorological drought** is defined as an extended period (generally 6 months or more) when precipitation is less than 75 percent of

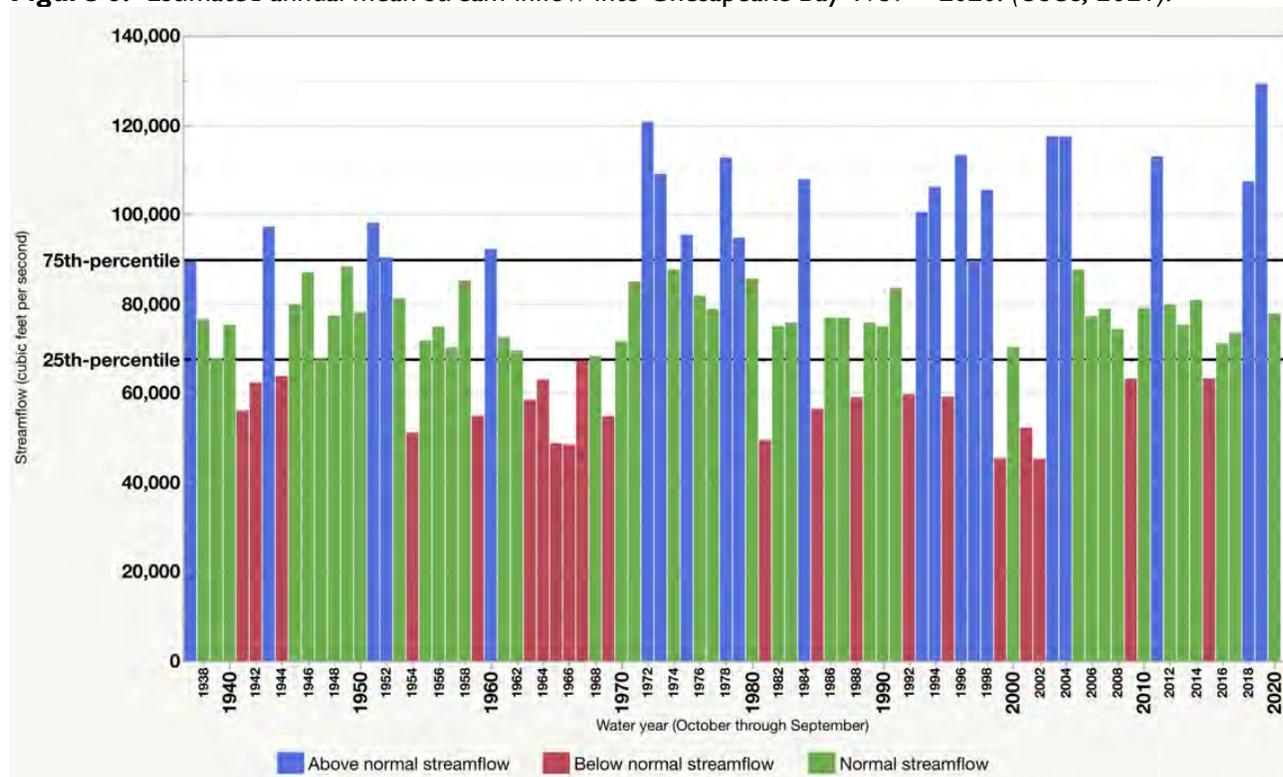
normal during that period. If coincident with the growing season, agricultural and meteorological drought can occur simultaneously. In general, hydrologic drought is the most serious, and has the most wide-reaching consequences. **Hydrologic drought** occurs due to a protracted period of meteorological drought, which reduces stream flows to extremely low levels (“Dry years” in Figure 6) and creates major problems for public (reservoir/river) and private (well) water supplies.

Extended periods of drought can impact crop and hay yields, and significant crop losses can result. The impact of meteorological drought can vary significantly depending upon dry years. In Figure 6 the red bars indicate the length of the dry period, the time of year the dry period occurs, the antecedent moisture conditions prior to the onset of the dry period, and the relative dryness (in percent of normal precipitation) of the period in question. Drought duration is highly variable by region. The duration also depends on when the precipitation is needed for such activities as planting and irrigation.

In addition to the primary impacts of drought, there are also secondary impacts that can increase the potential for other hazards to occur. Extended periods of drought can increase the risk of wildfire occurrences.

Specific impacts of drought to Middle Peninsula localities may be experienced differently; however economic losses may occur due to crop loss and water shortages.

**Figure 6:** Estimated annual mean stream inflow into Chesapeake Bay 1937 – 2020. (USGS, 2021).



### Drought Extent (Impact)

To assist in identifying the severity of a drought event a classification system is utilized and will dictate public water restriction (Table 7). Notice that water restrictions start as voluntary and then become required as the severity of the drought increases.

<b>Category</b>	<b>Description</b>	<b>Possible Impacts</b>
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.
D1	Moderate Drought	Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing, or imminent, voluntary water use restrictions requested
D2	Severe Drought	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed
D3	Extreme Drought	Major crop/pasture losses; extreme fire danger; 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

The [US Drought Monitor](#) provides a history of drought events within Middle Peninsula localities.

#### **4.2.3. Shrink-swell Soils**

Various areas of the Middle Peninsula have expandable soils that have the potential to shrink and /or swell with changes in moisture content. The sensitivity of a soil to shrink or swell is related to the amount of clay minerals in the soil. These soils are very affected by changes in moisture content. They have a high tendency to expand (swell) when receiving a lot of moisture and contract (shrink) during times of little or no precipitation. Soils that have a high shrink-swell rating may cause damage to buildings, roads, or other structures if not compensated for by engineering. Special designs are often needed for construction on such soils.

House Joint Resolution No. 243 (passed by the Virginia House of Delegates and Senate in March 1996) requires mandatory education for Virginia building code officials on the issue of expansive soils. Where expansive or other problem soils are identified, various methods for responding to them are permitted, including removal and replacement of soils, stabilization by dewatering or other means, or the construction of special footings, foundations, or slabs on how to deal with such soil conditions. This mandatory education is intended to provide guidance on the type of construction techniques to be employed where problem soils are present. While not preventing a site from being used, a high shrink-swell capability places a potential restriction on the size and weight of the building that may be built upon it.

Shrink-swell soils are not specifically addressed in the Essex County Comprehensive Plan (1998 & 2015), however soils associations are generally described. The Rappahannock-Molena-Pamunkey soil association is located on tidal marshes along the Rappahannock River and along floodplain of major creeks that feed into the river. The soil association is predominately Rappahannock soils, which are not suitable for any type of development because of flooding, high water table, and high organic content. These soils are very poorly drained with a surface layer of loam and subsurface of loam, fine sandy loam, and clay loam. About half of the land within this soil association is farmed; the rest is tidal and freshwater marshes. Some areas are used for waterfront development, but seasonal wetness, flooding, and unsuitability for septic systems limits the uses of this land. The suitability of the soil for septic systems and for agriculture is a prime consideration in making general land use policy decisions in Essex County.

Parts of the Town of Tappahannock consist of soils of the Rappahannock-Molena-Pamunkey soil association, primarily along Hoskin's Creek and Tickner's Creek (Town of Tappahannock Comprehensive Plan, 2014). These areas are not suitable for development, therefore eliminating potential problems associated with structures built on shrink-swell soils.

Shrink-swell soils are not specifically addressed in the Gloucester County Comprehensive Plan (amended 2016). However, in an analysis of soil suitability for development, clayey soils account for roughly 6,600 acres, or approximately 5% of the area of the county. Because these conditions are often coincident with shrink-swell soils, this is an approximate estimation of shrink-swell soil conditions within the county. These clayey soils are also listed as being unsuited for housing septic systems. The Gloucester County Land Use Plan generally coordinates the Bayside Conservation District and Resource Conservation District with large areas of soils unsuitable for septic tank use or otherwise unsuitable for high density or commercial development due to physical constraints.

The King & Queen County Comprehensive Plan (2019) includes a map of Shrink Soils in the County that shows high levels near the Dragon Run area of the County. The Comprehensive Plan also includes a detailed soil survey of the County.

Only one area in King William County (Bohicket) is rated high for shrink-swell soils (King William Comprehensive Plan, 2003). According to the Comprehensive Plan, the County uses the Soil Survey results in formulating future land use policies. Goals and implementation strategies within the County's Comprehensive Plan include increasing public awareness of potential problems resulting from building on soils with moderate to high shrink-swell characteristics, discouraging development in areas that are unsuited for development because of soil conditions, continue policies that require soil feasibility studies prior to approval of residential rezoning, include in the plan review process a requirement for evaluating shrink-swell soil qualities, and provide builders and developers with advice and information on shrink-swell qualities of soils and the need to evaluate these conditions before committing to construction. Shrink-Swell soils are not addressed in the Town of West Point's Comprehensive Plan (2000).

High shrink-swell soils are present in the northeastern tip of Mathews County and along the waterfront of the rivers and streams. Most of the wetlands in the County and most of the areas within the Chesapeake Bay Resource Protection Areas (protected from development by the Chesapeake Bay Preservation Act, adopted by the Virginia General Assembly in 1988) are shrink-swell soils. These soils account for just a little more than 7,000 acres of Mathews County.

According to the Middlesex County Comprehensive Plan (2009), shrink-swell soils within Middlesex County limit community development in the Ackwater, Craven, and Slagle soil series. Together, the lands comprised of these soils make up approximately 12,350 acres, or roughly 15% of the area of the county. Community development in these areas is restricted because the limitations caused by these soils cannot normally be overcome without exceptional, complex, or costly measures.

Only low to moderate shrink-swell soil potential exists in the Town of Urbanna, leaving the soils of the Town generally moderately suited for development (Town of Urbanna Comprehensive Plan, 2012). The Town's Comprehensive Plan states that individual sites should be examined in detail prior to any development.

Therefore, it's important to note that there are varying degrees of vulnerability amongst Middle Peninsula localities.

### **Shrink-swell Soil Vulnerability**

As shrink-swell soils expand and shrink this may cause pressure and stress on house foundations. If foundations are not properly designed to handle this, then the foundation may crack, ultimately causing harm to residents.

### Shrink-swell Soil Extent (Impact)

Shrink–swell is the volume change that occurs as a result of changes in the moisture content of clay-rich soils. Swelling pressures can cause heave, or lifting of structures, while shrinkage can cause settlement or subsidence. [subsidence](#). Fine-grained, clay-rich soils can absorb large quantities of water after rainfall, becoming sticky and heavy. Conversely, they can also become very hard when dry, resulting in shrinking and cracking of the ground. This hardening and softening is known as ‘shrink–swell’ behavior. Damage to buildings may occur when the volume change of the soil, due to shrinking or swelling, is unevenly distributed beneath the foundations. For example, if there is a difference in water content in the ground beneath a building, swelling pressures can cause the wall to lift; this is often called ‘heave’. This can happen at the corners or towards the center of a building. Subsidence on the other hand is a lowering or collapse of the ground.

According to the US Department of Agriculture, Natural Resources Conservation Service, shrink-swell classes are based on the change in length of an unconfined clod (lump of earth and clay) as moisture content is decreased from a moist to a dry state. If this change is expressed as a percent, the value used is Linear extensibility percent (LEP). LEP is the linear expression of the volume difference of natural soil fabric at 1/3-bar or 1/10-bar water content and oven dryness. The volume change is reported as percent change for the whole soil. If it is expressed as a fraction, the value used is COLE, coefficient of linear extensibility. The shrink-swell classes are defined as follows:

Shrink-Swell Class	LEP	COLE
Low	<3	<0.03
Moderate	3 - 6	0.03 - 0.06
High	6 - 9	0.06 - 0.09
Very High	≥9	≥0.09

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can damage buildings, roads, and other structures. The high degree of shrinkage associated with high and very high shrink-swell potentials can damage plant roots.

### 4.2.4. Earthquakes

An earthquake is a sudden movement or trembling of the Earth, caused by the abrupt release of strain that has accumulated over a long time. For hundreds of millions of years, the forces of plate tectonics have shaped the Earth as the huge plates that form the Earth's surface slowly move over, under, and past each other. Sometimes the movement is gradual; at other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free and result in an earthquake (Shedlock and Pakister, 1997). If the earthquake occurs in a populated area, it may cause deaths, injuries, and extensive property damage.

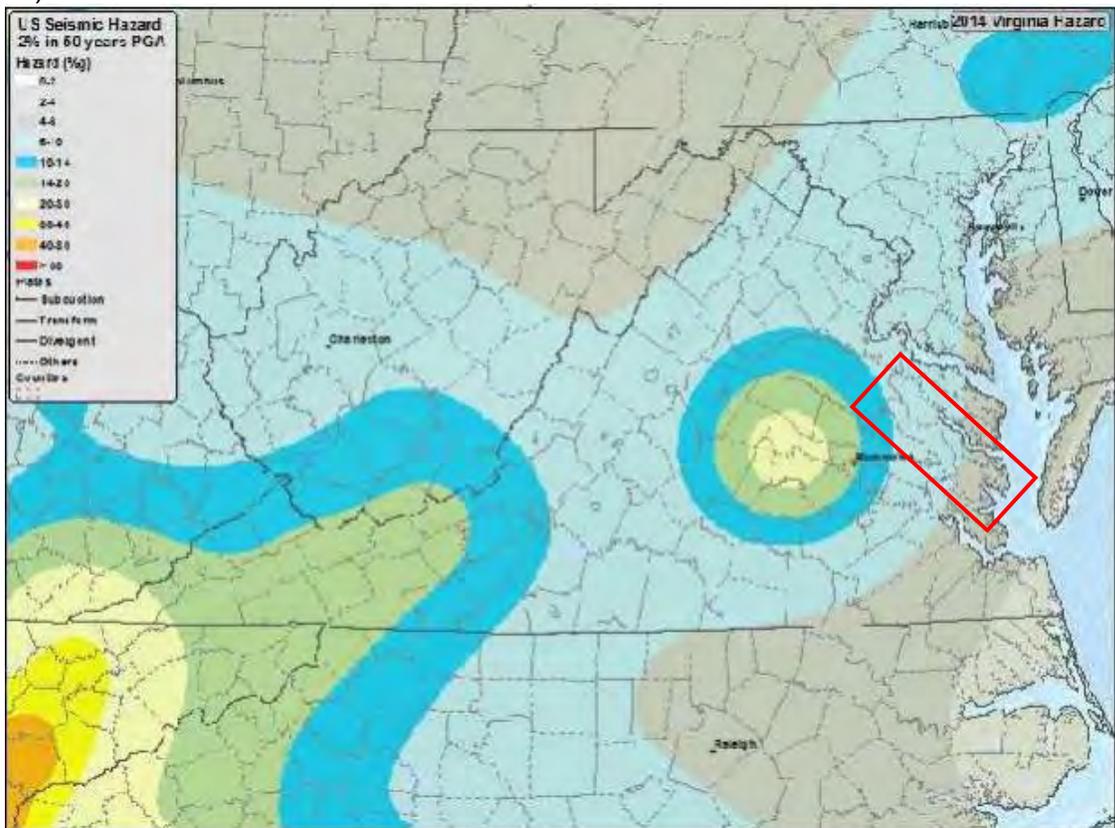
#### Earthquake Vulnerability

During an earthquake when the ground is shaking, it experiences acceleration. The peak acceleration (PA) is the largest acceleration recorded by a particular station during an earthquake (expressed as %g). When acceleration acts on a physical body, the body experiences the acceleration as a force. The force most experienced is the force of gravity, which causes one to have weight. Units of acceleration are measured in terms of g, the acceleration due to gravity. For example, an acceleration of 11 feet per second per second

is  $11 \times 12 \times 2.54 = 335$  cm/sec/sec. The acceleration due to gravity is 980 cm/sec/sec, so an acceleration of 11 feet/sec/sec is about  $335/980 = 0.34$  g. Expressed as a percent; 0.34 g is 34 %.

The United States Geological Survey (USGS) rates the susceptibility of areas of the United States to earthquakes and has published risk maps, which give the probability of various levels of ground motion being exceeded in 5 years. An approximate threshold for shaking that causes building damage (for pre-1965 dwellings or dwellings not designed to resist earthquakes) is 10 %g. According to USGS predictions, the Middle Peninsula is located within the 1-2%g, 2-3%g and 3-4%g contour lines (Figure 7).

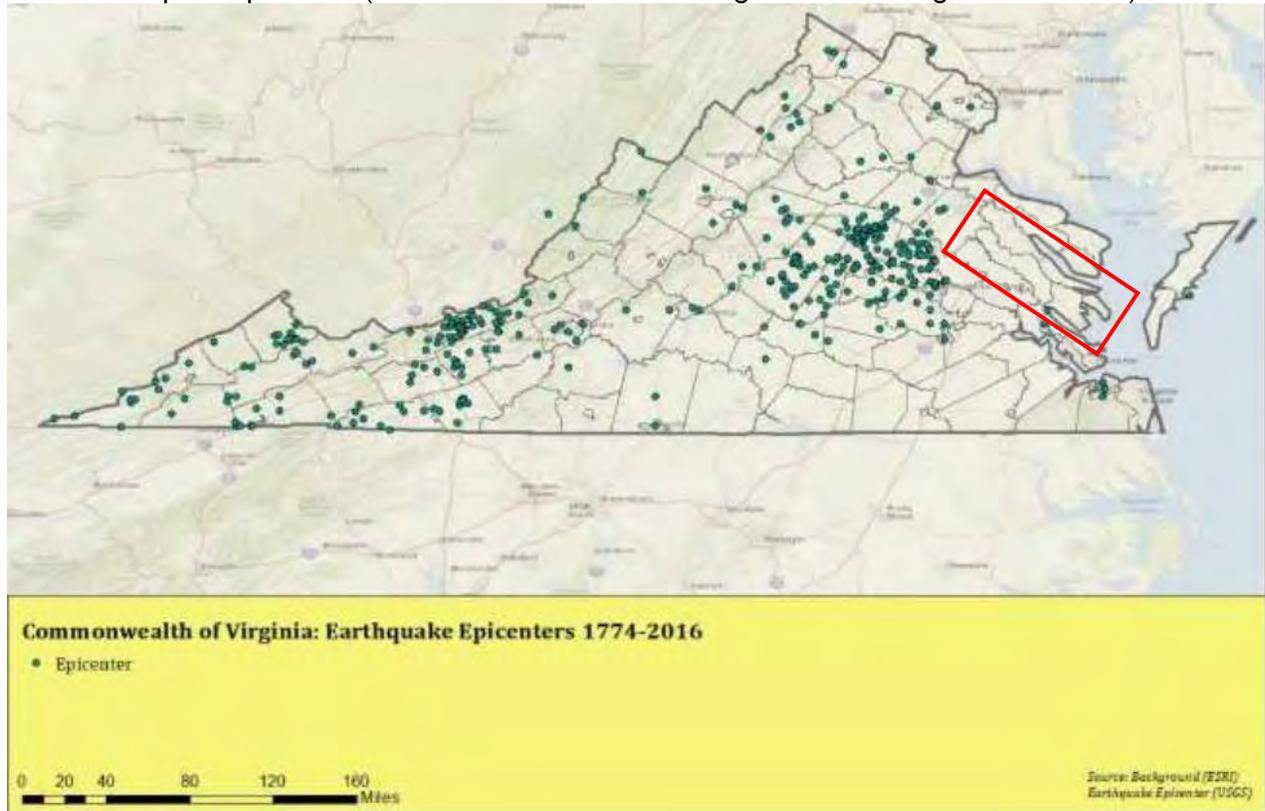
**Figure 7:** Seismic- Hazard Map of Virginia. Earthquake hazard map showing peak ground accelerations having a 2 percent probability of being exceeded in 60 years. The Middle Peninsula of Virginia (hi-lighted by the red square on the map) falls within the blue, light blue, and green polygons. Image courtesy USGS (2018).



Historical data is supportive of this low risk assessment. Virginia has experienced over 498 documented earthquakes from 1774 and 2016. Figure 8 depicts the historical earthquake epicenters in and near Virginia from 1774 and 2016. The largest earthquake in Virginia was a magnitude 5.8 earthquake in Giles County in 1897. This earthquake was the third largest in the eastern US in the last 200 years was felt in twelve states. Based on the map there were no earthquake epicenters recorded within the area of the Middle Peninsula. However, in 2011 a 5.8 earthquake in Mineral, Virginia was felt in the Middle Peninsula region and caused damages according to VDEM.

Depending on the epicenter of the earthquake Middle Peninsula localities may experience varying impacts. According to the USGS (2018) the eastern most portions of Mathews and Gloucester County have a lower chance of being impacted by earthquakes.

**Figure 8:** Virginia Earthquakes 1774 – 2016 - Historical earthquake epicenters in and near Virginia from 1774 through 2016. The Middle Peninsula of Virginia (highlighted by the red square on the map) is void of any historic earthquake epicenters (Source: Commonwealth of Virginia Hazard Mitigation Plan 2018).



### **Earthquake Extent (Impact)**

The severity of an earthquake can be expressed in terms of both intensity and magnitude. However, the two terms are quite different, and are often confused. Intensity is based on the observed effects of ground shaking on people, buildings, and natural features. It varies from place to place within the disturbed region depending on the location of the observer with respect to the earthquake epicenter. Magnitude is related to the amount of seismic energy released at the hypocenter of the earthquake. It is based on the amplitude of the earthquake waves recorded on instruments which have a common calibration. The magnitude of an earthquake is thus represented by a single, instrumentally determined value.

Earthquake severity is commonly measured on two different scales: the Modified Mercalli Intensity scale and the Richter Magnitude scale. The following provides ranking and classification definitions for the two scales (Table 8).

**Table 8: Ranking and classification definitions for two scales that measure earthquake severity.**

<b>Richter Magnitude Scale</b>	<b>Modified Mercalli Intensity Scale</b>
1.0 to 3.0	I
3.0 to 3.9	II to III
4.0 to 4.9	IV to V
5.0 to 5.9	VI to VII
6.0 to 6.9	VII to IX
7.0 and Higher	VIII or Higher
<b>Defined Modified Mercalli Intensity Scale Rating</b>	
<b>I</b>	Not felt except by a very few under especially favorable conditions.
<b>II</b>	Felt only by a few persons at rest, especially on upper floors of buildings.
<b>III</b>	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.
<b>IV</b>	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.
<b>V</b>	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
<b>VI</b>	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
<b>VII</b>	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.
<b>VIII</b>	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.
<b>IX</b>	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.
<b>X</b>	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
<b>XI</b>	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
<b>XII</b>	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

#### 4.2.5. Air Quality

Good air quality is taken for granted by most of the citizens of the Middle Peninsula of Virginia. However, there are natural and human-caused factors that may influence the air quality within the region.

First emissions from human activity can influence overall air quality within the region. From vehicle emissions to local businesses (ie. industry), Virginia Department of Environmental Quality (DEQ) Air Division’s monitors and regulates emissions. DEQ is responsible for carrying out the mandates of the Virginia Air Pollution Control Law and the Federal obligations under the Clean Air Act on behalf of the State Air Pollution Control Board. For local industry, DEQ issues air quality permits to regulate emitted pollutants to ensure that emissions do not cause harm to the public or to the environment. Each year DEQ compiles an inventory of criteria pollutant air emissions from point, area, mobile, and biogenic sources (Table 9).

**Table 9:** 2019 Point Source Emissions Inventory. DEQ periodically compiles an inventory of criteria pollutant air emissions from point, area, mobile, and biogenic sources in the state. Point source emissions are inventoried annually (DEQ, 2021) for each Middle Peninsula Locality.

County	Site Name	Emissions (tons)							Facility Total
		CO	NH3	NOX	PM 10	PM 2.5	SO2	VOC	
Essex	Tidewater Lumber	0.00	0.00	0.00	13.00	13.00	0.00	0.00	26.00
Essex	FDP Brakes of Virginia	0.43	0.00	0.75	1.25	1.25	0.00	1.33	5.01
Essex	Perdue AgriBusiness LLC - Tappahannock/Essex	0.33	0.00	0.58	7.24	5.52	0.00	0.04	13.70
Essex	Essex Concrete Corporation - Tappahannock	0.00	0.00	0.00	0.41	0.41	0.00	0.00	0.82
Essex	O'Malley Timber Products, Inc.	5.55	0.00	2.04	4.81	3.00	0.23	9.84	25.47
Essex	Blue Ridge Lumber Co LLC - Millers Tavern	6.25	0.00	5.11	2.79	2.33	0.26	0.18	16.92
Gloucester	Vulcan - Gloucester	0.01	0.00	0.02	0.75	0.75	0.04	0.00	1.58
Gloucester	Philips Energy Inc	0.00	0.00	0.00	0.00	0.00	0.00	8.48	8.48
Gloucester	Vulcan - Saluda	0.00	0.00	0.00	0.26	0.26	0.00	0.00	0.51
Gloucester	Canon Environmental Technologies Incorporated	0.00	0.00	0.00	22.68	22.68	0.00	0.00	45.35
Gloucester	Middle Peninsula Landfill	237.50	0.00	125.26	22.56	21.69	7.77	27.88	442.67
Gloucester	C. W. Davis Asphalt Division	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.15
Gloucester	Hogg Funeral Home	0.02	0.00	0.00	0.02	0.02	0.00	0.00	0.05
Gloucester	Bardon, Inc. d/b/a Aggregate Industries - Mid Atlantic Region (MAR)	0.00	0.00	0.00	2.09	0.37	0.00	0.00	2.46
Gloucester	Shadow Farms Animal Cremation Services Inc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gloucester	Courthouse Cremation Services Limited Liability Co	0.00	0.00	0.06	0.02	0.02	0.01	0.00	0.11
Gloucester	Contract Crushing/Construction Inc	0.03	0.00	0.06	0.00	0.00	0.00	0.01	0.09
King and Queen	Ball Lumber Company Incorporated	48.28	0.00	17.70	33.06	17.38	2.01	62.71	181.15
King and Queen	Bennett Mineral Company Inc	21.19	0.00	7.82	2.68	0.90	0.92	0.60	34.12
King and Queen	Essex Concrete Corporation - Aylett	0.00	0.00	0.00	6.26	6.26	0.00	0.00	12.51
King and Queen	BFI King and Queen Sanitary Landfill	22.70	0.00	4.60	58.20	7.40	3.50	11.75	108.15
King and Queen	INGENCO - King and Queen	170.26	0.00	122.25	15.99	14.39	19.49	64.00	406.39
King and Queen	Helena Agri-Enterprises LLC - Portable 52353	0.00	0.00	0.00	0.06	0.05	0.00	0.00	0.11
King and Queen	Virginia Sand & Stone LLC	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.11
King and Queen	Premier Tech Horticulture	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.04
King and Queen	Virginia Sand & Stone LLC - Portable 52674	0.00	0.00	0.00	0.06	0.02	0.00	0.00	0.08
King William	Coldwater Veneer Incorporated	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
King William	Tribble-Perry Oil Co/PAPCO Oil Co.	0.00	0.00	0.00	0.00	0.00	0.00	1.84	1.84
King William	WestRock CP LLC - West Point	1,362.21	0.00	1,516.17	263.81	226.30	607.58	500.32	4,476.38
King William	Old Dominion Grain	0.21	0.00	0.25	8.96	1.54	0.00	0.01	10.98

King William	Augusta Wood Products LC - Sawmill	1.08	0.00	0.15	4.13	4.13	0.03	18.91	28.44
King William	NPPC King William	45.72	0.00	61.33	37.26	19.69	0.29	2.62	166.91
King William	West Point Chips Incorporated	0.00	0.00	0.00	33.68	33.68	0.00	0.00	67.37
King William	Aggregate Industries MAR - Mattaponi Plant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
King William	US Mining Incorporated	0.00	0.00	0.00	0.47	0.47	0.00	0.00	0.94
King William	Vincent Funeral Home - West Point	0.03	0.00	0.02	0.00	0.00	0.01	0.02	0.08
King William	King William Sand and Gravel - Queenfield Mine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
King William	Caring Pet Cremation Services LLC	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.04
Mathews	Wrotten Oil Company	0.00	0.00	0.00	0.00	0.00	0.00	2.34	2.34
Middlesex	J T and C A Thrift Incorporated	0.00	0.00	0.00	0.00	0.00	0.00	1.76	1.76
Middlesex	Middle Peninsula Cremation Service LLC	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03
Total Regional Admissions		1,921.82	0.00	1,864.19	542.73	403.61	642.16	714.63	6,089.14
<p><b>**Note:</b> Blank squares within the table indicate that there are no emissions to be measured.  <b>NH<sub>3</sub></b> – Ammonia; <b>NOx</b>- Nitrogen oxides; <b>PM 10</b> –particulate matter 10 micrometers or less in diameter; <b>PM 2.5</b> – particulate matter 2.5 micrometers or less in diameter, generally described as fine particles; <b>SO<sub>2</sub></b>- Sulfur dioxide; <b>VOC</b>- Volatile organic compound</p>									

With the passing of the Clean Air Act in 1970 and then amendments in 1990, US Congress required DEQ to enhance the vehicle emissions inspection program to improve air quality and to reduce emission further. In response Virginia requires the inspection of vehicles operating in the counties of Arlington, Fairfax, Loudoun, Prince William, Stafford and the Cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park. Vehicle emissions contain pollutants that contribute to the formation of ozone, the main component of smog. Smog builds up at ground level on hot sunny days and may even impact water quality in the Chesapeake Bay and its tributaries through atmospheric deposition.

In conjunction with emissions caused by humans there are natural emissions, such as forest fires and controlled burns, that have the potential to cause air quality to deteriorate and become unsafe, especially for those who suffer from medical conditions that make them sensitive to poor air quality. As a rural region of Virginia, the Middle Peninsula landscape is dominated by fields and forests. To properly manage these resources, property owners may carry out prescribed burning, a deliberate use of fire under specified and controlled conditions to achieve a resource management goal. Benefits including:

- site preparation for reforestation,
- hardwood control in pine stands,
- wildfire hazard reduction,
- improved wildlife habitat, and
- threatened and endangered species management.

According to the VDOF: *Products from the combustion of forest fuels are mainly carbon-containing compounds. The most important pollutants being particulate matter and carbon monoxide (CO).*

*Two products of complete combustion are carbon dioxide (CO<sub>2</sub>) and water, these make up over 90% of the total emissions. Under ideal conditions it takes 3.5 tons of air to completely burn 1 ton of fuel. The combustion of 1 ton of fuel will produce the following:*

Carbon dioxide (CO <sub>2</sub> )	2,000 to 3,500 lbs
Water Vapor	500 to 1,500 lbs
Particulate Matter	10 to 2000 lbs
Carbon Monoxide (CO)	20 to 500 lbs
Hydrocarbons	4 to 40 lbs
Nitrogen Oxides	1 to 9 lbs
Sulfur Oxide	Negligible amounts

To assist with the management of the smoke generated from prescribed burning, the VDOF has developed [voluntary smoke management guidelines](#) to lessen impacts to public health and welfare. In addition to prescribed burns there are also unplanned forest fires that may impact the region's air quality. For instance, on August 4, 2011, a lightning strike caused a fire in the Great Dismal Swamp that kept smoldering for 111 days. This impacted air quality in Southern Virginia, Middle Peninsula Localities, and northward across Virginia and as far as Annapolis, Maryland. Wind currents over the Chesapeake Bay provided a channel for the ash-heavy smoke to travel north and caused a CODE ORANGE (See Table 10 below) for most of coastal Virginia.

Each locality within the Middle Peninsula will have varying vulnerability to air quality impacts. Localize events (i.e. wildfires, emissions for business, etc.) and wind currents may influence air quality within a given area at a given time.

### Air Quality Extent

To monitor and assess daily air quality, the Environmental Protection Agency (EPA) has established the Air Quality Index (AQI). This scale determines how clean or polluted the air is and its impacts on human health. Based on a 0-500 scale, the higher the AQI value the greater the level of air pollution and the greater the health concern. Table 10 identifies the AQI levels of health concern, the associated numerical value, and the meaning:

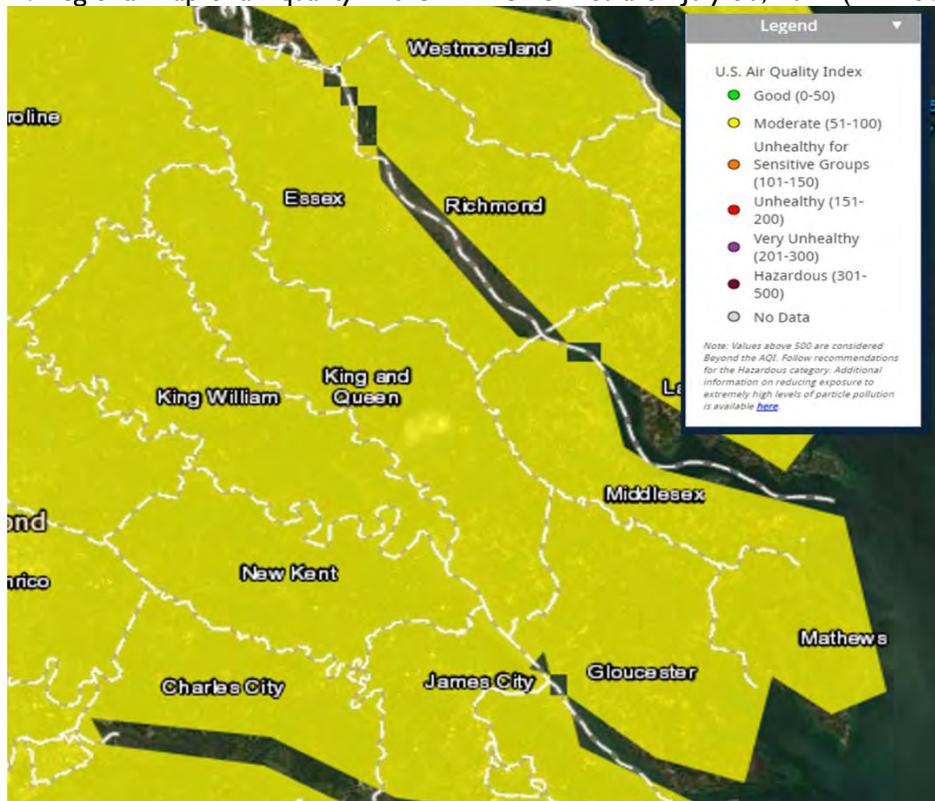
<b>Air Quality Index Levels of Health Concern</b>	<b>Numerical Value</b>	<b>Meaning</b>
Good	0 to 50	Air Quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, there may be a risk for some people particularly those who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Hazardous	301 to 500	Health warning of emergency conditions: everyone is more likely to be affected.

Based on this scale the EPA will calculate daily AQI number for each of the five major air pollutants regulated by the Clean Air Act, including ground ozone, particle pollution, carbon dioxide, sulfur dioxide, and nitrogen dioxide (Table 11).

<b>Table 11: Description of regulated pollutants (AirNow, 2015).</b>	
<b>Pollutant</b>	<b>Description</b>
<b>Ozone (O<sub>3</sub>)</b>	<p>Ozone is a form of oxygen with three atoms instead of the usual two atoms. It is a photochemical oxidant and, at ground level, is the main component of smog. Unlike other gaseous pollutants, ozone is not emitted directly into the atmosphere. Instead, it is created in the atmosphere by the action of sunlight on volatile organic compounds and nitrogen oxides.</p> <p>Higher levels of ozone usually occur on sunny days with light winds, primarily from March through October. An ozone exceedance day is counted if the measured eight-hour average ozone concentration exceeds the standards.</p>
<b>Carbon Monoxide (CO)</b>	<p>Carbon Monoxide (CO) is a colorless, odorless, very toxic gas produced by the incomplete combustion of carbon-containing fuels, most notably by gasoline powered engines, power plants, and wood fires. CO can cause harmful health effects by reducing oxygen delivery to the body's organs (like the heart and brain) and tissues. At extremely high levels, CO can cause death.</p>
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>	<p>Sulfur dioxide (SO<sub>2</sub>) is one of a group of highly reactive gasses known as "oxides of sulfur." The largest sources of SO<sub>2</sub> emissions are from fossil fuel combustion at power plants (73%) and other industrial facilities (20%). Smaller sources of SO<sub>2</sub> emissions include industrial processes such as extracting metal from ore, and the burning of high sulfur containing fuels by locomotives, large ships, and non-road equipment. SO<sub>2</sub> is linked with a number of adverse effects on the respiratory system.</p>
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>	<p>Nitrogen dioxide (NO<sub>2</sub>) is one of a group of highly reactive gasses known as "oxides of nitrogen", or "nitrogen oxides (NO<sub>x</sub>)". Other nitrogen oxides include nitrous acid and nitric acid. While EPA's National Ambient Air Quality Standard covers this entire group of NO<sub>x</sub>, NO<sub>2</sub> is the component of greatest interest and the indicator for the larger group of nitrogen oxides. NO<sub>2</sub> forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. In addition to contributing to the formation of ground-level ozone and fine particle pollution, NO<sub>2</sub> is linked with a number of adverse effects on the respiratory system.</p>
<b>Particulate Matter (PM-2.5 PM-10)</b>	<p>Particle pollution (also called particulate matter or PM) is the term for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small, they can only be detected using an electron microscope. Particle pollution includes <i>inhalable coarse particles</i>, with diameters larger than 2.5 micrometers and smaller than 10 micrometers and <i>fine particles</i>, with diameters that are 2.5 micrometers and smaller. How small is 2.5 micrometers? Think about a single hair from your head. The average human hair is about 70 micrometers in diameter -- making it 30 times larger than the largest fine particle. These particles come in many sizes and shapes and can be made up of hundreds of different chemicals. Some particles, known as <i>primary particles</i>, are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks, or fires. Others form in complicated reactions in the atmosphere of chemicals such as sulfur dioxides and nitrogen oxides that are emitted from power plants, industries, and automobiles. These particles, known as <i>secondary particles</i>, make up most of the fine particle pollution in the country.</p> <p>Coarse particulates (PM-10) come from sources such as windblown dust from the desert or agricultural fields (sandstorms) and dust kicked up on unpaved roads by vehicle traffic. PM-10 data is the near real-time measurement of particulate matter 10 microns or less in size from the surrounding air. This measurement is made at standard conditions, meaning it is corrected for local temperature and pressure.</p> <p>Fine particulates (PM-2.5) are generally emitted from activities such as industrial and residential combustion and from vehicle exhaust. Fine particles are also formed in the atmosphere when gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds, emitted by combustion activities, are transformed by chemical reactions in the air. Large-scale agricultural burning or sandstorms can produce huge volumes of fine particulates. PM-2.5 data is the near real-time measurement of particulate matter 2.5 microns or less in size from the surrounding air. This measurement is made at local conditions and is not corrected for temperature or pressure.</p>

AirNow.com provides a daily air quality forecast for select regions of Virginia including Hampton Roads, Northern Virginia, Richmond, Roanoke, Shenandoah National Park and Winchester. This site also provides calendars of air quality nationally and at the state level (Figure 9).

**Figure 9:** Regional map of air quality in the Middle Peninsula on July 30, 2021 (AirNow, 2021).



### Air Quality Vulnerability

Poor air quality can impact a variety of factors including human health, the local economy, and the environment.

Human health impacts of air pollution can range from minor breathing problems to premature death. The more common effects include changes in breathing and lung function, lung inflammation, and irritation and aggravation of existing heart and lung conditions (e.g., asthma, emphysema, and heart disease). For instance,  $PM_{2.5}$  and ground-level  $O_3$  can affect human respiratory and cardiovascular systems.  $PM_{2.5}$  and ground-level  $O_3$  has also been associated with eye, nose and throat irritation, shortness of breath, exacerbation of respiratory conditions, chronic obstructive pulmonary disease and asthma, exacerbation of allergies, increased risk of cardiovascular diseases and premature death. Another example is as CO enters the lungs it forms a compound known as carboxyhemoglobin that inhibits the blood's capacity to carry oxygen to organs and tissues. Therefore, heart disease patients may be sensitive to CO pollution. Finally, infants, elderly, and individuals with respiratory diseases may be sensitive to air pollution. Such negative health effects increase as the concentrations of pollutants in the air increase.

Economic impacts of air pollution can result from the health effects air pollution. Air pollution may not only reduce work attendance and overall participation in the labor force, but it can also increase health care costs, missed days of work, and reduce work productivity. Ultimately this impacts a local and regional economy and revenue. While the impacts to human health can be detrimental to the economy, increased  $O_3$  levels may reduce the growth of crops, plants, and trees, leading to economic losses in agriculture and

forestry. Finally, smog can lower tourism since it reduces and impair visibility and enjoyability of surroundings and scenic views.

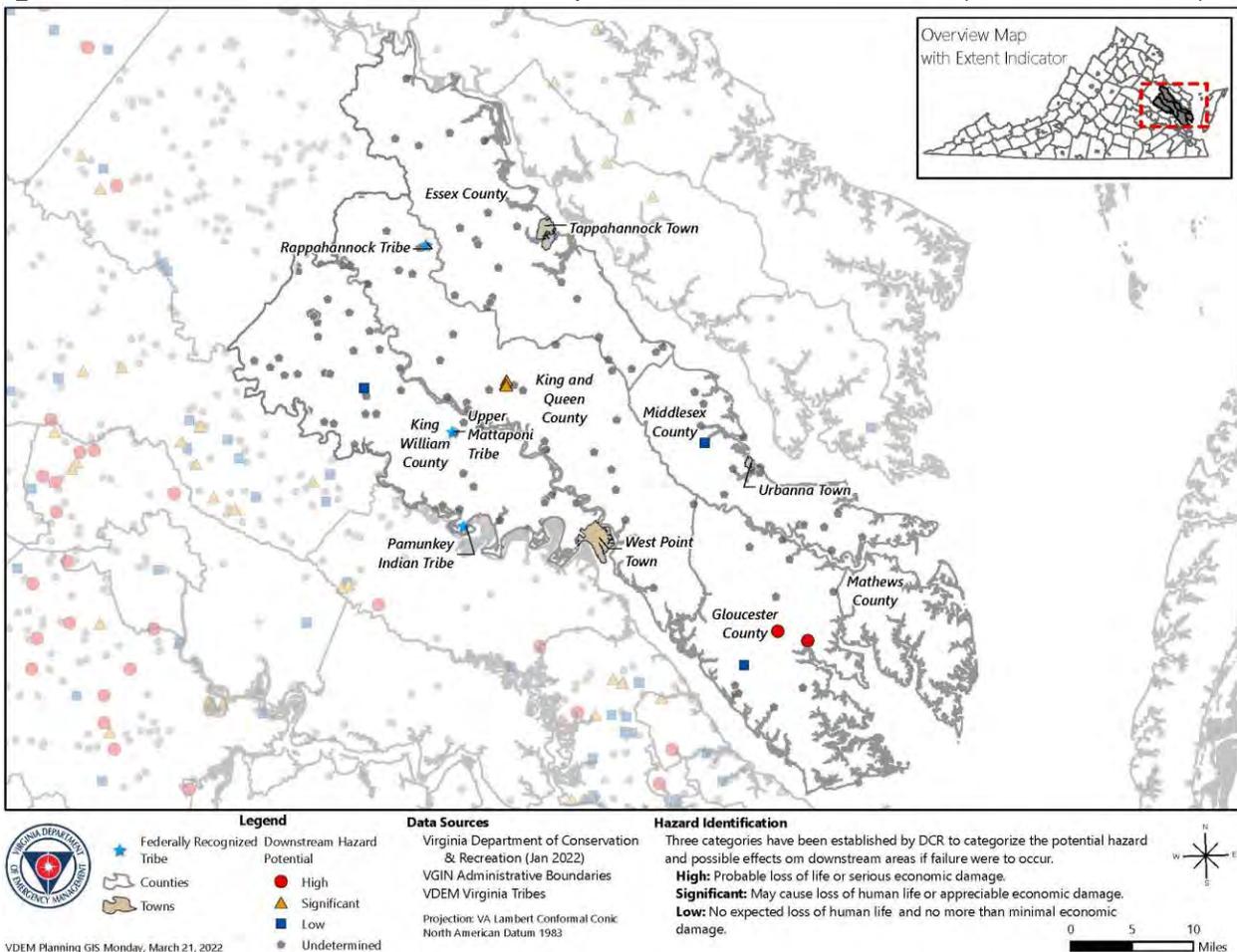
Environmental impacts of air pollution consist of:

- Ground-level O<sub>3</sub> can significantly impact vegetation and reduce the productivity of some crops. It can injure flowers and shrubs and may contribute to forest decline. Ecosystem changes can also occur, as plant species that are more resistant to O<sub>3</sub> can become more dominant than those that are less resistant.
- Plant response to PM is largely due to the resultant changes in soil chemistry rather than direct deposition on the plant. Various PM constituents taken up by the plant from the soil can reduce plant growth and productivity. PM can also cause physical damage to plant surfaces via abrasion.
- NO<sub>x</sub> and SO<sub>2</sub> can become acidic gases or particulates, and cause or accelerate the corrosion and soiling of materials. Together with NH<sub>3</sub>, they are the main precursors of acid rain. Acid rain affects soils and water bodies, and stresses both vegetation and animals.

#### 4.2.6. Dam Failure & Risk

Based on 2021 data from the US Army Corps of Engineers (USACE's) National Inventory of Dams (NID), there are approximately 2,760 dams in the Commonwealth (Figure 10) and 107 in the Middle Peninsula (Table 12).

**Figure 10:** Dam locations and associated hazard potential in the Commonwealth (Source: DCR, 2022).



### Dam Failure Extent (Impacts)

As failure of dams may result in a localized major impact, including loss of human life, economic loss, lifeline disruption, and environmental impact such as destruction of habitat, there are also secondary impacts including flooding to the surrounding areas. Thus, a scale has been developed to classify the hazard potentials of dams due to their overall impact to a given area:

- **High** – dams that upon failure would cause probable loss of life or serious economic damage.
- **Significant** – dams that upon failure might cause loss of life or appreciable economic damage.
- **Low** – dams that upon failure would lead to no expected loss of life or significant economic damage. This classification includes dams that upon failure would cause damage only to property of the dam owner. **Special criteria** – includes dams that upon failure would cause damage only to property of the dam owner.

According to Virginia Department of Conservation and Recreation, the Middle Peninsula region has 130 dams. Table 12 shows the number of dams in each risk classification in each County in the region. Please see Appendix I for a list of all dams within the Middle Peninsula Region.

**Table 12: Inventory of dams within the Middle Peninsula and their risk classification (DCR, 2022).**

County	High	Significant	Low	Low, Special	Undetermined	Total # of Dams
Essex	0	0	0	0	23	23
Gloucester	2	0	1	0	10	13
King and Queen	0	3	0	0	25	28
King William	0	0	1	0	48	49
Mathews	0	0	0	0	0	0
Middlesex	0	0	1	0	16	17
<b>TOTAL</b>	2	3	3	0	122	130

### Dam Failure Vulnerability

Dams are classified with a hazard potential depending on the downstream losses estimated in event of failure. The recent regulatory revisions bring Virginia’s classification system into alignment with the system already used in the National Inventory of Dams maintained by the U.S. Army Corps of Engineers. Hazard potential is not related to the structural integrity of a dam but strictly to the potential for adverse downstream effects if the dam were to fail. Regulatory requirements, such as the frequency of dam inspection, the standards for spillway design, and the extent of emergency operations plans, are dependent upon the dam classification. The owner of each regulated Class I, II, and III dam is required to apply to the Soil and Water Conservation Board for an operation and maintenance certificate.

The Virginia DCR Division of Dam Safety’s mission is to conserve, protect, enhance, and advocate the wise use of the Commonwealth’s unique natural, historical, recreational, scenic, and cultural resources. The program’s purpose is to provide for safe design, construction, operation, and maintenance of dams to protect public safety. Disaster recovery programs include assistance to dam owners and local officials in assessing the condition of dams following a flood disaster and assuring the repairs and reconstruction of damaged structures are compliant with the National Flood Insurance Program (NFIP) regulations.

For those dam failures that pose a risk when there are large potential areas with large populations surrounding dams. On-going dam inspections and Virginia’s participation in the National Dam Safety Program maintained by FEMA and the U.S. Army Corps of Engineers serve as preventative measures against dam failures.

Most dam failures occur due to lack of maintenance of dam facilities in combination with excess precipitation events, such as hurricanes and thunderstorms. During Hurricane Floyd in 1999, floods broke open at least 12 unregulated dams in eastern Virginia. One of those failures, at the Cow Creek Dam near Gloucester Courthouse, temporarily closed state Route 14; No one was hurt. Rebuilding the dam cost about \$160,000 (U.S. Water News Online, 2002). During Tropical Storm Gaston in late summer of 2004, a dam was overtopped in King William County and caused a washout of Route 610 between Rt. 608 and Rt. 609. The road was closed to traffic for several weeks (VDOT, 2004).

Each Middle Peninsula locality has a dam and therefore vulnerable to dam failure. However, the degree of vulnerability and impact will vary between the localities if a dam failure occurs. For instance, Gloucester County may experience the most impact from a failure at Beaver Dam as it is the largest in the region and has a high-risk classification. The 39-foot dam structure covers approximately 635 acres of land and is in close proximity to the Gloucester County Courthouse area which is a main residential and business corridor for the County. This increases the potential of economic loss.

### **Dam Impoundments**

In 2001, Virginia's legislature broadened the definitions of "impounding structure" to bring more dams under regulatory oversight. On February 1, 2008, the Virginia Soil and Water Conservation Board approved major revisions to the Impounding Structure Regulations in the Virginia Administrative Code, changing the dam hazard potential classification system, modifying spillway requirements, requiring dam break inundation zone modeling, expanding emergency action plan requirements, and making a variety of other regulatory changes.

All dams in Virginia are subject to the Virginia Dam Safety Act and Dam Safety Regulations (updated in 2016) if:

1. the impounding structure is 25 feet or greater in height and creates a maximum impounding capacity of 15 acre-feet or greater.
2. the impounding structure is six feet or greater in height and creates a maximum impounding capacity of 50 acre-feet or greater

A dam is excluded from these regulations if it meets one or more of the following criteria:

1. Licensed by the State Corporation Commission that are subject to a safety inspection program.
2. Owned or licensed by the United States government.
3. Operated primarily for agricultural purposes that are less than 25 feet in height or that create a maximum impoundment capacity smaller than 100 acre-feet.
4. Water or silt-retaining dams approved pursuant to 45.1-222 or 45.1-225.1 of the Code of Virginia.
5. Obstructions in a canal used to raise or lower water levels.

The height of the dam is defined as *the hydraulic height of an impounding structure. If the impounding structure spans a stream or watercourse, height means the vertical distance from the natural bed of the stream or watercourse measured at the downstream toe of the impounding structure to the top of the impounding structure. If the impounding structure does not span a stream or watercourse, height means the vertical distance from the lowest elevation of the downstream limit of the barrier to the top of the impounding structure.* The maximum impounding capacity means *the volume of water or other materials in acre-feet that is capable of being impounded at the top of the impounding structure.*

The DCR – Division of Dam Safety is the state agency responsible for enforcing the Virginia Dam Safety Act and overseeing the issuance of Operation and Maintenance Certificates for regulated dams.

## High Risk Dams

### Beaverdam Reservoir Dam– Gloucester, County

The Beaverdam Reservoir is classified as high risk, located to the north of the Gloucester Courthouse area, is contained by a 39-foot dam structure, and covers approximately 635 acres of land. According to the Emergency Action Plan, *The Watershed area draining to Beaverdam Reservoir is 17.2 square miles consisting of woods, open space, roadways and residences. This area has experience very little development since the construction of the dam. The impounding structure for Beaverdam Reservoir, Beaverdam Reservoir Dam, is classified as a “High” hazard dam with a spillway design flood (SDF) equal to the probable maximum flood event (PMF). The dam is an earthfill, grass lined embankment with a regulatory height of about 40 feet and a length of about 2,030 feet. The embankment cross section generally consists of 3:1 (horizontal: vertical) upstream and downstream slopes, with a 14 foot wide rest at elevation 55, and a downstream toe at elevation 15. The spillway consists of a 30 foot by 30-foot square concrete tower structure, with all four sides receiving flow from a 26-foot weir.*

Failure mechanisms evaluated in the EAP include a sunny day dam failure and a spillway design flood am failure. The property is owned by Gloucester County, and it is an actively used local recreational site known as Beaverdam Park as well as a drinking water source for Gloucester County residents.

Figure 11 shows areas shaded in yellow and blue that would be inundated if the reservoir dam were to fail. According to Gloucester County officials, the shaded areas represent 405 homes just north of the Gloucester Courthouse Complex and the downtown business district that would be inundated if the dam failed. An emergency action plan was prepared and last revised on 12/22/2014. Beyond the information within the EAP there is no detailed risk assessment for this dam, including detailed maps of inundated areas, impacted structures, and loss estimates. A risk assessment for this high hazard dam has been added as a mitigation action, if funding becomes available.

**Figure 11: Beaverdam Reservoir Dam and Cow Creek Mill Pond. Flood Inundation Map (Source: Gloucester County Comprehensive Plan, 2016).**



Data Source: Gloucester County GIS Department, Virginia Department of Emergency Management

**Cow Creek Mill Pond Dam– Gloucester, County**

The Cow Creek Mill Pond is classified as high risk, located east of the Gloucester Courthouse area. It is contained by a 16-foot earth dam structure and has a maximum storage capacity of 937 acres-feet. The dam is owned privately by the Cow Creek Mill Pond Association and is used for recreation. According to the EAP, *If the dam were to fail, Routes 14 and 3 are in danger due to the flood wave overtopping the roadway. There are further threats of danger along the roadway to nearby businesses and buildings. Under normal conditions, flow passes under Routhes 14 and 3, the dam’s concrete emergency spillway is capable of safely passing up to 5.7*

feet depth of water in the spillway before the dam overtops. An emergency action plan was prepared and last revised on 4/15/2021.

Figure 11 shows areas shaded in yellow and blue that would be inundated due to dam failures. According to DCR's Quick Reference Summary of Cow Creek Dam, if this dam failed Route 14 and Route 3 would be impacted by inundation and 1 business has the potential of being impacted. Beyond the information there is no detailed risk assessment for this dam, including detailed maps of inundated areas, impacted structures, and loss estimates. A risk assessment for this high hazard dam has been added as a mitigation action if funding becomes available.

### **Lake Anna Dam**

The Lake Anna Dam, located near Mineral in Louisa County, Virginia, creates an impoundment with a surface area of approximately 13,000 acres. Periodic major water releases from Lake Anna flow into the Pamunkey River can have adverse effects on river levels.

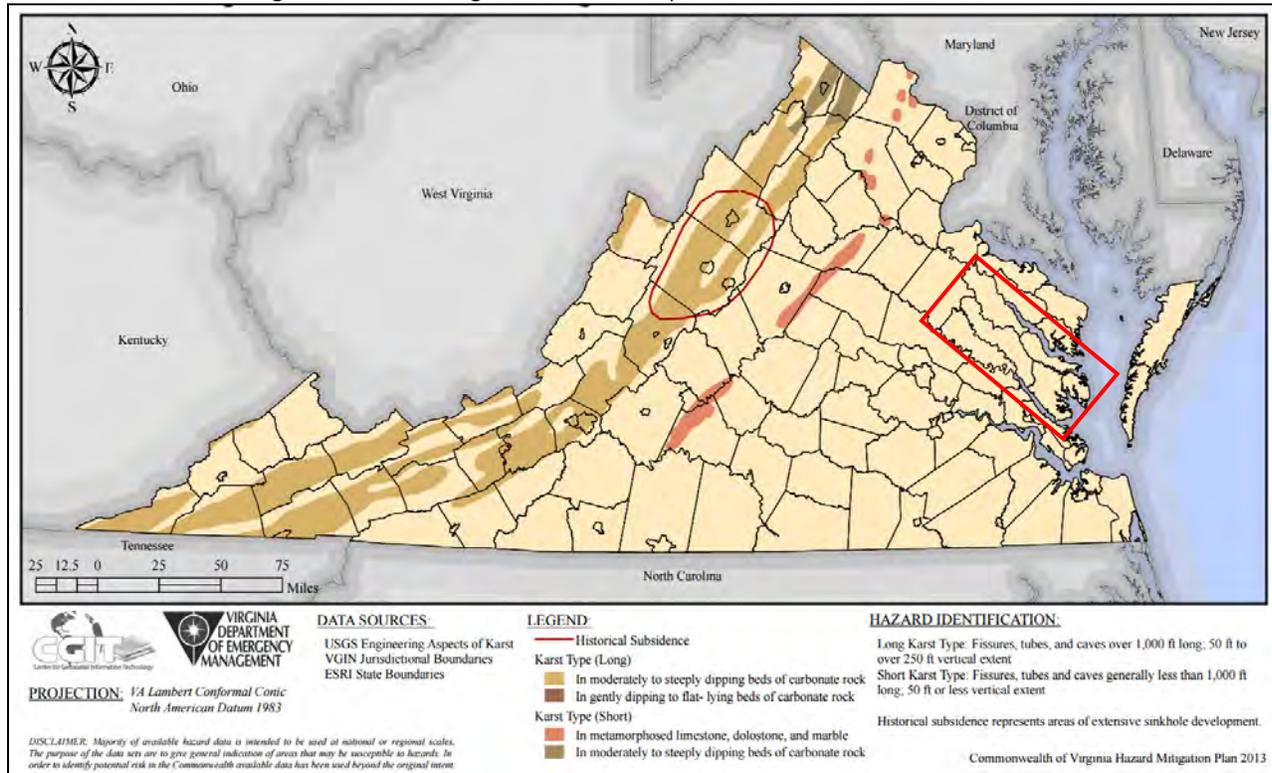
Depending on the amount of water released by the dam owner, Dominion Energy, a potential flooding hazard exists for King William County residents, which would include flooding of low-lying agricultural land, some roads, three (3) bridges, a scattering of residences and some agricultural structures.

### **4.2.7. Land Subsidence due to Karst**

According to the United State Geological Survey, land subsidence is the gradual settling or sudden sinking of the Earth's surfaces. Principal causes of land subsidence may include aquifer system compaction, drainage of organic soils, underground mining, hydro-compaction, natural compaction, sinkholes, and thawing permafrost. In particular, human activity such as withdrawing water, oil, or gas from underground reservoirs may cause land subsidence.

Land subsidence often occurs in regions with mildly acidic groundwater and where the geology is dominated by limestone, dolostone, marble or gypsum. In western parts of the Commonwealth the geology consists of karst which is limestone and similar soluble rocks. Therefore, as karst is easily dissolved by acidic groundwater sinkholes are created. Sinkholes are classified as natural depressions of the land surface. Areas with large amounts of karst are characterized by the presence of sinkholes, sinking streams, springs, caves, and solution valleys. As karst is not part of the Middle Peninsula geology, land subsidence due to karst does not occur within the region (Figure 12).

**Figure 12:** Karst regions and Historical Subsidence are primarily limited to the mountainous regions of the state. The area encompassing the Middle Peninsula is highlighted on the map with a red square. (Source: Commonwealth of Virginia Hazard Mitigation Plan, 2013)



While the Middle Peninsula may not be impacted by land subsidence due to karst it's important to note that the region is impacted by land subsidence due to water withdraws and rebounding land from the last glacial period. Land subsidence rates on the order of 0.05-0.06 in/yr (1.2-1.4 mm/yr) are attributed to the postglacial forebulge collapse within the Bay region (Douglas 1991). It can take many thousands of years for impacted regions to reach isostatic equilibrium.

#### Land Subsidence due to Karst Extent

The USGS recognizes four major impacts caused by land subsidence: (1) Changes in elevation and slope of streams, canals, and drains; (2) Damage to bridges, roads, railroads, storm drains, sanitary sewers, canals, and levees; (3) Damage to private and public buildings; and (4) Failure of well casings from forces generated by compaction of fine-grained materials in aquifer systems.

#### Land Subsidence due to Karst Extent

Since the Middle Peninsula region does not have karst, the region is not susceptible to land subsidence due to karst.

### 4.3. Hazards considered “Moderately-Critical” Hazards to the Middle Peninsula

The following sections describe hazards that have historically occurred in the Middle Peninsula yet ranked lower than the Critical Hazards in terms of risk during hazard prioritization. These hazards were deemed “Moderately-Critical Hazards” to the Middle Peninsula region by the LPT.

### 4.3.1 Tornadoes

The National Weather Service (NWS) defines a tornado as a violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. A condensation funnel does not need to reach to the ground for a tornado to be present; however, a debris cloud beneath a thunderstorm is all that is needed to confirm the presence of a tornado, even without a condensation funnel. Tornadoes are distinguishable from waterspouts, which are small, relatively weak rotating columns of air over water beneath a cumulonimbus or towering cumulus cloud. Waterspouts are most common over tropical or subtropical waters. The exact definition of waterspout is debatable. In most cases the term is reserved for small vortices over water that are not associated with storm-scale rotation (i.e., they are the water-based equivalent of landspouts). Yet there is sufficient justification for calling virtually any rotating column of air a waterspout if it is in contact with a water surface.

Tornadoes often appear as a funnel shaped cloud or a spiraling column of debris extending from storm clouds to the ground. They are created during severe weather events like thunderstorms and hurricanes when cold air overrides a layer of warm air, causing the warm air to rise rapidly. Tornadoes may be only several yards across, or in rare cases, over a mile wide. Winds within a tornado can reach speeds over 250 mph, but most tornado winds are 100 mph or less. Weak tornadoes (categorized as F0 and F1 on the Fujita scale, Table 13 & 14) are most common in the Middle Peninsula and often last only a minute before dissipating. From 1951 through the year 2016, 848 tornadoes were documented in Virginia (Commonwealth of Virginia Hazard Mitigation Plan, 2018). Within Middle Peninsula localities 51 tornadoes that touched down between 1950 to 2021 (See Appendix J). While most tornadoes touched down in the Middle Peninsula during April, July is considered the most active month for tornadoes in Virginia. The hot, humid days common to July are often accompanied by a late afternoon or evening thunderstorm.

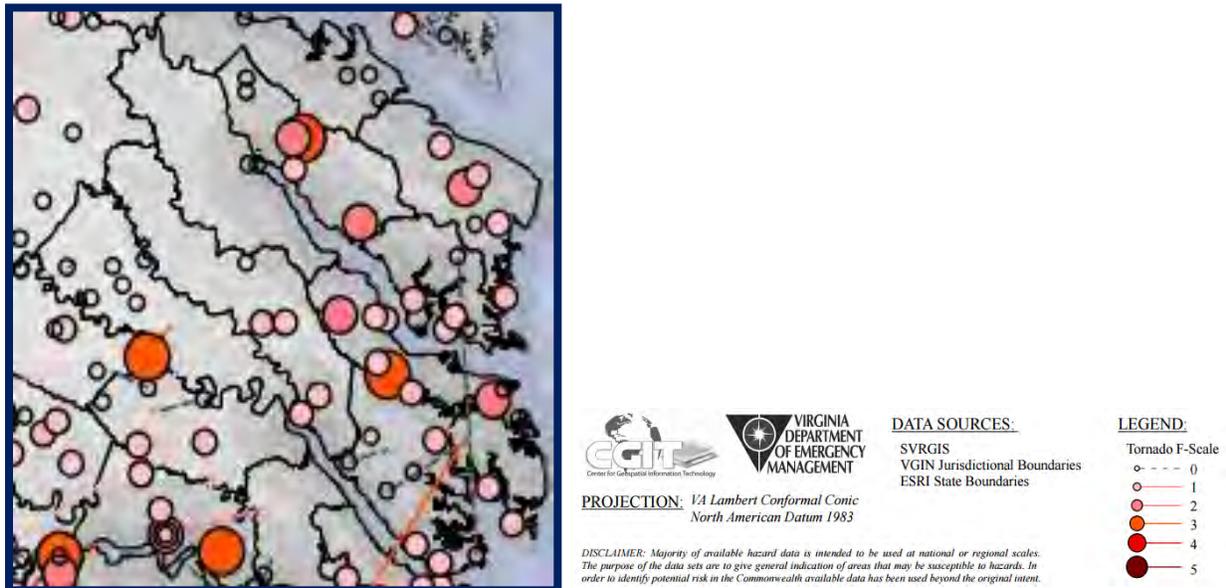
**Table 13: Fujita Scale to measure tornados.**

F #	Est. Wind (mph)	Typical Damage
F0	< 73	Light: chimneys damaged, shallow-rooted trees pushed over
F1	73-112	Moderate: mobile homes pushed off foundations, cars blown
F2	113-157	Considerable: mobile homes demolished, trees uprooted, roofs torn off frame houses
F3	158-206	Severe: roof and walls torn down, trains overturned, cars thrown
F4	207-260	Devastating: well-constructed walls leveled, large objects thrown
F5	261-318	Incredible: homes lifted and carried, cars thrown 300 ft, trees debarked

**Table 14: Fujita Scale, Derived Enhanced Fujita (EF) Scale and Operated EF Scale.**

Fujita Scale			Derived EF Scale		Operational EF Scale	
F #	Fastest ¼ mile (mph)	3 Second Gust (mph)	EF #	3 Second Gust (mph)	EF #	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

**Figure 13:** Historic Tornado Touchdowns and Tracks 1950-2011. HAZARD IDENTIFICATION: Historic tornado touchdowns and tracks are symbolized for visual effect and are not drawn to scale. Actual tornado swath widths vary considerably, although more intense tornadoes are generally wider.



The hot temperatures and humidity of the late afternoon fuel the thunderstorm's growth. If certain conditions are right, a tornado may develop. Hurricane-induced tornadic activity can also occur close to the coastline as a hurricane makes landfall (Watson, 2002). Virginia's tidewater counties see a fair number of tornadoes for two reasons, both of which are related to the region's proximity to Chesapeake Bay and the coast. For instance, as waterspouts are common, they will occasionally come onshore and have minimal damage. Once the waterspout comes onshore, it is considered a tornado and is generally classified as a F0. The second instance this area sees an increase in tornadoes is that often during the warm months there is a bay breeze or sea breeze front (bay or sea cooled air on one side of the front and land heated air on the other). When a large rotating thunderstorm moves over a boundary/front such as this, there is an increased chance that conditions will be right for the development of a tornado (Watson, 2002). Between 1950 and 2021, sixteen tornadoes were reported in Gloucester County, ten in Middlesex, seven in Mathews, seven in King and Queen County, three in Essex County, and eight in King William County (NCDC Storm Event Database, 2021). The Commonwealth of Virginia Hazard Mitigation Plan's illustration above shows historic tornado touchdowns within the Middle Peninsula (Figure 13). While the historic data appears to show that the Middle Peninsula has a low annual probability of being struck by a tornado, it is important to note that because tornadoes can result from severe thunderstorms and hurricanes, the susceptibility of this region to these storms carries the threat of tornadoes along with it. However, it's important to mention that the vulnerability will vary from locality to locality. This is clear when looking at Figure 15. Those localities within the closest proximity to the water seem to be more vulnerable whereas the upper localities (i.e. King William, King & Queen and Essex) are less vulnerable.

On April 16, 2011, three separate tornadoes touched down in the Middle Peninsula. The first tornado came from the southwest. The tornado took a 46-mile path that hit Surry, James City, York, Gloucester, and Mathews Counties. This tornado registered as a F3 tornado on the Fujita Scale which means that winds were 158-206 miles per hour (mph). Such winds severely damaged roofs and walls and threw cars. In Gloucester County alone this tornado tore the roof off Page Middle School and crumpled fences and buses on the property (Figure 14). Overall, this tornado caused approximately \$8,020,000 in damages, caused 2

fatalities and 60 injuries. The second and third tornadoes touched down in Middlesex County. The second tornado registered as a F1 tornado on the Fujita Scale. This path was 1.06 miles and caused approximately \$100,000 in damages. The third tornado registered as a F2 tornado on the Fujita Scale. This path was 2.8 miles and caused approximately \$6,000,000 in damages.



**Figure 14:** Photo of the damage at Page Middle School in Gloucester County (Gloucester-Mathews Gazette Journal, 2011).

### **Tornado Vulnerability**

Weak tornadoes may break branches or damage signs. Damage to buildings (ie. mobile homes or weak structures) primarily affects roofs and windows and may include loss of the entire roof or just part of the roof covering and sheathing. Windows are usually broken from windborne debris.

In a strong tornado, some buildings may be destroyed but most suffer damage like loss of exterior walls or roof or both; interior walls usually survive.

Violent tornadoes cause severe to incredible damage, including heavy cars lifted off the ground and thrown and strong frame houses leveled off foundations and swept away; trees are uprooted, debarked, and splintered.

Weak tornadoes make up 74% of all tornadoes, and 67% of all tornado deaths come from violent tornadoes.

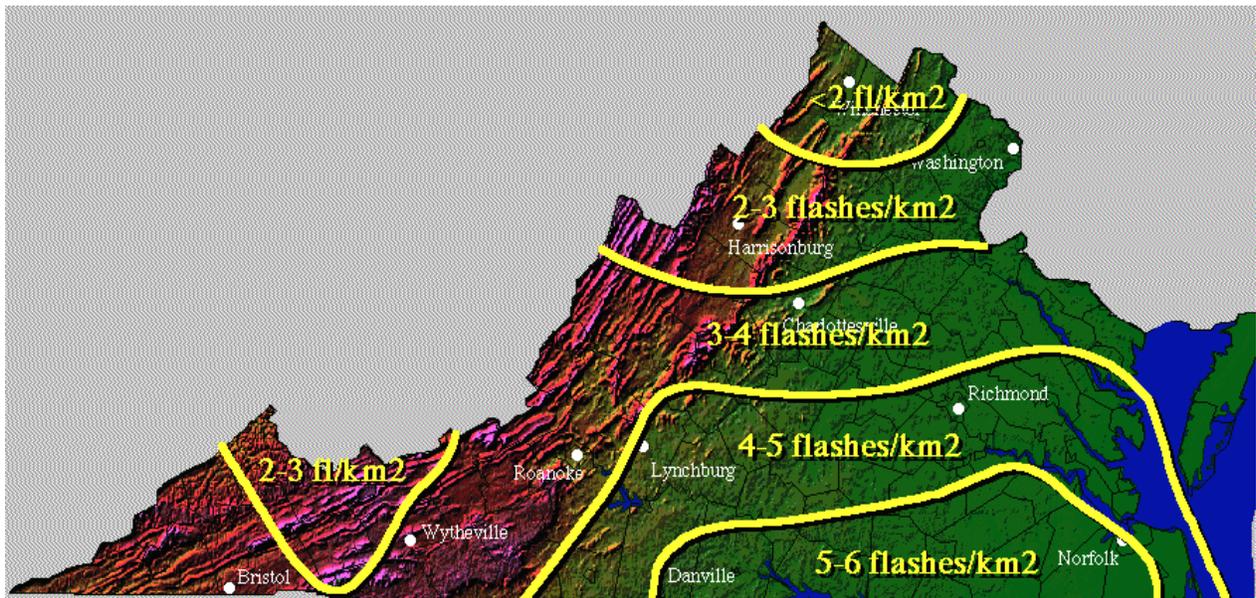
### **Tornado Extent (Impact)**

In Virginia, tornadoes primarily occur from April through September, although tornadoes have been observed in every month. Low-intensity tornadoes occur most frequently; tornadoes rated F2 or higher

are very rare in Virginia, although F2, F3, and a few F4 storms have been observed. In comparison to other states, Virginia ranks 28<sup>th</sup> in terms of the number of tornado touchdowns reported between 1950 and 2006; Midwestern and Southern states ranked significantly higher.

### 4.3.2. Lightning

Virginia averages 35 to 45 thunderstorm days per year statewide (Watson, 2001). Thunderstorms are generally beneficial because they provide needed rain for crops, plants, and reservoirs. Thunderstorms can occur any day of the year and at any time of the day but are most common in the late afternoon and evening during the summer months. About five percent of thunderstorms become severe and can produce tornadoes, large hail, damaging downburst winds, and heavy rains causing flash floods. Thunderstorm can develop in less than 30 minutes, allowing little time for warning. All thunderstorms produce lightning, which can be deadly. The NWS does not issue warnings for ordinary thunderstorms nor for lightning. The NWS does highlight the potential for thunderstorms in the daily forecasts and statements. The VDEM suggests that the public be alert to the signs of changing weather, such as darkening skies, a sudden wind shift, and drop in temperature, and having a warning device such as NOAA Weather Radio.



**Figure 15:** Lightning Flash Density Map computed for 1989 (Electric Power Institute) (University of Virginia Climatology Office, 1989).

Lightning can strike up to 10 to 15 miles from the rain portion of the storm. The lightning bolt originates from the upper part of the thunderstorm cloud known as the anvil. A thunderstorm can grow up to 8 miles into the atmosphere where the strong winds aloft spread the top of the thunderstorm cloud out into an anvil. The anvil can spread many miles from the rain portion of the storm, but it is still a part of that storm. Lightning, from the anvil, may strike several miles in advance of the rain. Lightning bolts may also come from the side or back of the storm, striking after the rain and storm have seemed to pass, or hitting areas that were totally missed by the rain.

#### Lightning Vulnerability

Between 1959 and 2017, lightning killed 67 people in Virginia. Many additional injuries from lightning go unreported or are not captured by NWS data collection techniques. Nationally, from 1959 through 2017, there have been 4136 deaths due to lightning. Most deaths were males between the ages of 20 and 40

years old who were caught outdoors on fishing, camping, boating, or farming /ranching. A national network of 114 lightning ground stroke detectors was put in place by the Electric Power Research Institute (EPRI), a private organization, that serves the needs of power companies and other subscribers interested in lightning across the country (Virginia Climate Advisory, 1992). These detectors sense the characteristic electromagnetic impulses of cloud-to-ground lightning strikes that occur up to several hundred kilometers away. Then, by using triangulation techniques, the network is able to describe the location of every ground strike that it detects in the continental U.S. (Figure 15). It's important to realize that the contours on the map are very general and because accurate, long-term records of lightning strikes do not exist, the illustration may not be representative of long-term patterns. Historic data shows that the Middle Peninsula region is at a low risk of suffering damages from lightning and thunderstorms, yet it is important to note that thunderstorms and lightning can be very dangerous and can accompany hurricanes and other severe weather events.

The entire planning area is equally at risk to lightning and can be dangerous and/or life threatening. It is hard to generate specific mitigation strategies for this potential natural hazard other than a general public awareness/education campaign associated with thunderstorm/lightning activity.

#### **4.3.3. High Wind / Windstorms (excluding tornados and hurricanes)**

High winds and windstorms, when not a result of hurricanes or tornadoes, are often associated with thunderstorms. The NWS defines a severe thunderstorm as having winds 50 kts (58 mph) or hail greater than 3/4" in diameter (about dime-sized). A thunderstorm is considered severe if it produces hail larger than 3/4 of an inch (2 cm), winds greater than 58 mph (93 kph), or tornadoes. This strong frontal system could produce violent damaging effects to the community, such as hail, lightning, high winds (sometimes including tornadoes), and flash floods. Numerous thunderstorms occur in Middle Peninsula every year and vary amongst localities.

##### **High Wind/Windstorms Vulnerability**

The threat that any particular thunderstorm presents varies depending on its intensity, structure, and the ground below it. Many thunderstorms simply require people and their belongings to seek shelter inside a sturdy building. However, severe thunderstorms can be very dangerous and require seeking shelter underground because of the damage, they can cause to buildings. Historically the most severe occur during the spring and summer. In the U.S., only about 10% of all thunderstorms are classified as severe. Seeking shelter before a thunderstorm has arrived is best because high wind and lightning can form well in advance of any precipitation. Hail-resistant roofs can reduce property damage, as can properly attached roofs. As always, learning about what safety measures to take during a thunderstorm is the first and most important step in coping with thunderstorms.

In the U.S., the NWS issues severe thunderstorm watches and warnings. A watch is issued when atmospheric conditions are favorable for the development of a severe thunderstorm. A warning is issued when severe thunderstorms have developed. Similar to tornado watches and warnings, severe thunderstorm warnings are broadcast via media (ie. radio and television), Internet, and NOAA weather radios. Particularly of note for coastal communities, such as the Middle Peninsula, are wind advisories associated with water bodies. A Small Craft Advisory is issued for sustained winds 25-33 knots and/or Seas > 7 feet within 12 hours; There is no legal definition of "small craft" but the Coast Guard generally recommends boats smaller than 33 feet should avoid being on the water, but it depends on the experience of the crew. A Gale Warning is issued for 1-minute sustained surface winds in the range 34 kt (39 mph or 63 kph) to 47 kt (54 mph or 87 kph) inclusive, either predicted or occurring not directly associated with tropical cyclones. Reliable forecasting is essential to providing communities with adequate warnings about incoming thunderstorms and the specific threats that each storm possesses.

Damage from strong winds associated with thunderstorms can result in scattered, but severe damage to buildings and vegetation. Although these severe weather events usually occur during the spring and summer months, the emergency management staff should be prepared for them to occur at any time throughout the year.

Utilizing VDEM-generated information available on the state website and/or other information sources, community preparedness mitigation strategies should be developed by the localities for quick dissemination to their residents. Dissemination outlets should include jurisdictional websites, local radio, and TV stations as well as social media sites such as Facebook and twitter.

### **Derecho**

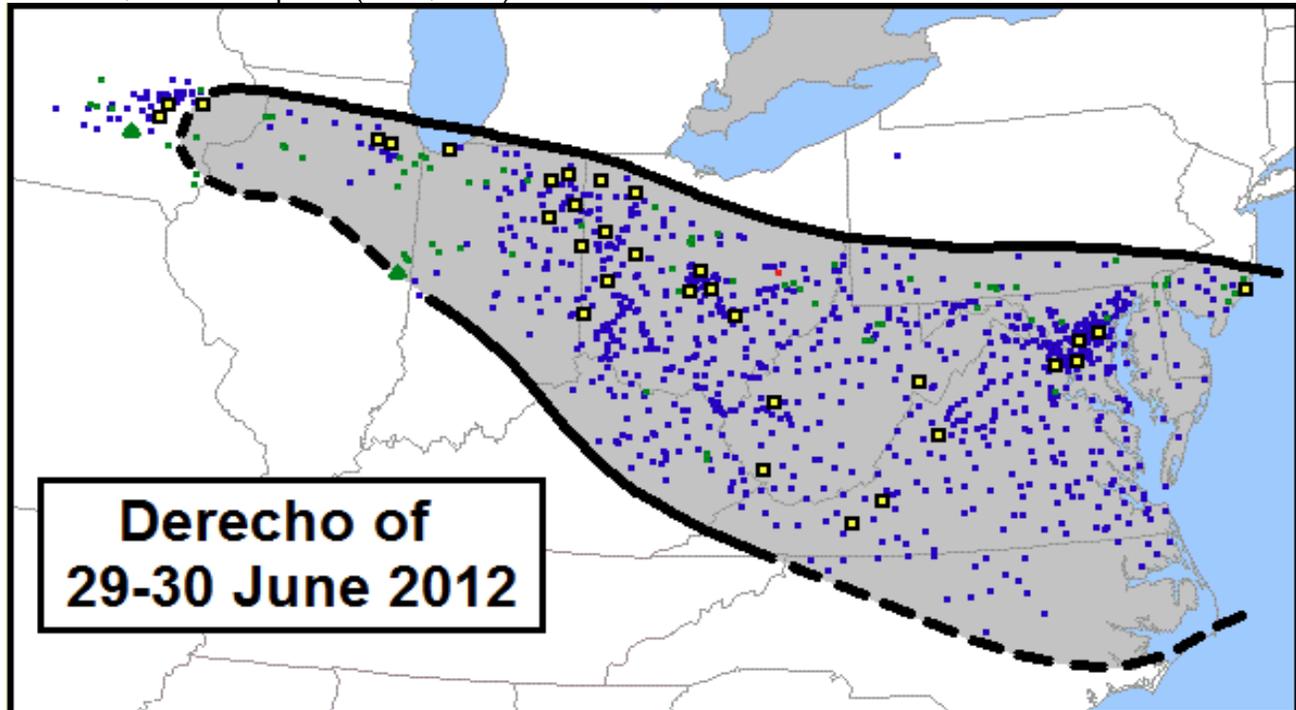
According to the NWS, a derecho is a complex of thunderstorms or a mesoscale convective system (MCS) that produce large swaths of severe, straight-line wind damage at Earth's surface. To be classified as a derecho, the following conditions must be met:

- There must be a concentrated area of convectively induced wind damage or gust greater than or equal to 58 mph occurring over a path length of at least 250 miles.
- Wind reports must show a pattern of chronological progression in either a singular swath (progressive; this event was a classic example) or a series of swaths (serial).
- There must be at least three reports separated by 64 kilometers (km) or more of Enhanced Fujita (EF1) damage/or measured convective wind gusts of 74 mph or greater.
- No more than 3 hours can elapse between successive wind damage/gust events.

Derechos can occur year-round but are most common from May to August (Coniglio et al., 2004)

On June 29, 2012, a derecho struck the Ohio Valley and Mid-Atlantic states. The derecho traveled 700 miles, impacting 10 states and Washington, D.C. (Figure 16). The hardest hit states were Ohio, West Virginia, Virginia, and Maryland, and Washington, D.C. The winds generated by this system were intense, with several measured gusts exceeding 80 mph and causing the death of thirteen people due to falling trees. An estimated 4 million customers lost power for up to a week. The region impacted by the derecho was also in the midst of a heat wave. The heat, coupled with the loss of power, led to a life-threatening situation. Heat claimed 34 lives in areas without power. The Middle Peninsula experienced wind gusts  $\geq 65$  kts (74 mph).

**Figure 16:** Area affected (black contours) and storm reports (colored symbols) associated with the June, 29, 2012 derecho. Reports are for the 24-hour period from 7:00 a.m. (Central Daylight Time (CDT)) Friday, June 29 to 7:00 a.m. CDT Saturday, June 30. Areal outline based in Iowa and Illinois to reflect the derecho's origin from convection in the region that did not immediately produce continuous derecho-like conditions. In addition, some of the report in those states occurred not with the system here discussed, but rather with a subsequent storm complex that formed on the evening of June 29. The areal outline also is dashed in North Carolina to reflect that many of the damaging wind gusts in the state occurred south of the thunderstorms that produced them. Storm reports depicted as follows. Wind damage or wind gust  $\geq$  50 kts (59 mph), small blue squares, estimated or measured with gusts  $\geq$ 65 kts (74 mph), large black squares with yellow centers, hail  $\geq$ 0.75 inches, small green squares, hail  $\geq$ 2.0 inches, large green triangles, tornadoes, small red squares (NWS, 2012).



#### High Wind / Windstorms Extent (Impact)

Wind risk can be determined by measuring the speed of the winds. The categories used to determine risk and ranking hazards include the following:

Hurricane Risk	Wind Speed (mph)	Category
Low	$\leq 59.9$	High Wind
Medium – Low	60.0-73.9	Tropical Storm
Medium – High	74.0-94.9	Category 1 Hurricane
High	$\geq 95.0$	Category 2 +

#### 4.3.4. Coastal/Shoreline Erosion

As flooding is the most frequent and costly natural hazard in the United States - besides fire, nearly 90% of Presidential Disaster Declarations result from natural events where flooding is a major component. Excess water from snowmelt, rainfall, or storm surge accumulates and overflows onto adjacent floodplains and other low-lying land adjacent to rivers, lakes, ponds, and the Chesapeake Bay.

Coastal flooding is typically a result of storm surge, wind-driven waves, and heavy rainfall. These conditions are produced by hurricanes during the summer and fall, and nor'easters and other large coastal storms during the winter and spring. Storm surges may overrun barrier islands and push sea water up coastal rivers and inlets, blocking the downstream flow of inland runoff.

### **Soil Erosion**

Hurricanes and nor'easters produce severe winds and storm surges that create significant soil erosion along rivers and streams in the Middle Peninsula. In addition to the loss of soil along these water bodies, there is damage to man-made shoreline hardening structures such as bulkheads and rap-rap as well as to piers, docks, boat houses and boats due to significant storm surges.

These damages are more severe along the broad open bodies of water on major rivers located closer to the Chesapeake Bay. In general terms, the damage is less intense as you move up the watershed from the southeastern area of the region towards the northwestern end of the Middle Peninsula. Therefore, the soil erosion is most severe in Mathews, Gloucester, and Middlesex Counties and to a lesser degree in the 3 remaining Middle Peninsula Counties of King and Queen, King William, and Essex Counties.

The location and the angle at which these hurricanes/nor'easters come ashore region can significantly affect the amount of soil erosion during a particular storm. It can generally be said that hurricane generated soil erosion is uneven in occurrence and that the storm surge affords 2 opportunities for erosion – once as water inundates low-lying amount coast lands and again as floodwaters ebb.

For example, with Hurricane Isabel in 2003, its enormous wind field tracked in a north-northwest direction to the west of the Chesapeake Bay with the right front quadrant blowing from the south-southeast. This pushed the storm surge up the Bay and piling it into the western shore – causing serious soil erosion to the eastern land masses in Mathews, Gloucester, and Middlesex Counties.

Destructive as it was, Hurricane Isabel might have been worse. If it had been stronger at landfill, the storm surge generated in the Chesapeake Bay may have been higher. Had it stalled along its path and lingered through several tide cycles, prolonged surge conditions, exacerbated by high winds, might have cause more severe erosion. If rainfall has been higher, bank erosion due to slope failure might have been more common, particularly given the wetter than normal months that preceded Hurricane Isabel.

### **Coastal/Shoreline Erosion Vulnerability**

Thousands of acres of crops and forest lands may be inundated by both saltwater and freshwater. Escape routes, particularly from barrier islands, may be cut off quickly, stranding residents in flooded areas and hampering rescue efforts. Coastal flooding is very dangerous and causes the most severe damage where large waves are driven inland by the wind. Wind driven waves destroy houses, wash away protective dunes, and erode the soil so that the ground level can be lowered by several feet. Because of the coastal nature of the Middle Peninsula, the region is very susceptible to this type of flooding and resulting damage.

### **Coastal/Shoreline Erosion Extent (Impacts)**

According to the US Geological Survey there are six physical variables that influence the coastal and its vulnerability to sea-level rise and inundation. Shoreline erosion is one of the variables considered in the following table. Shoreline erosion and accretion rates for the U.S. have been compiled by May and others (1983) and Dolan and others (1985) into the Coastal Erosion Information System (CEIS) (May and others, 1982). CEIS includes shoreline change data for the Atlantic, Gulf of Mexico, Pacific and Great Lakes coasts, as well as major bays and estuaries. The data in CEIS are drawn from a wide variety of sources, including published reports, historical shoreline change maps, field surveys and aerial photo analyses. However, the

lack of a standard method among coastal scientists for analyzing shoreline changes has resulted in the inclusion of data utilizing a variety of reference features, measurement techniques, and rate-of-change calculations. Thus, while CEIS represents the best available data for the U.S. as a whole, much work is needed to accurately document regional and local erosion rates.

VARIABLE	Ranking of coastal vulnerability index				
	Very low	Low	Moderate	High	Very high
	1	2	3	4	5
Geomorphology	Rocky, cliffed coasts Fjords Fiards	Medium cliffs Indented coasts	Low cliffs Glacial drift Alluvial plains	Cobble beaches Estuary Lagoon	Barrier beaches Sand Beaches Salt marsh Mud flats Deltas Mangrove Coral reefs
Coastal Slope (%)	> .2	.2 – .07	.07 – .04	.04 – .025	< .025
Relative sea-level change (mm/yr)	< 1.8	1.8 – 2.5	2.5 – 2.95	2.95 – 3.16	> 3.16
Shoreline erosion/ accretion (m/yr)	>2.0 Accretion	1.0 – 2.0	-1.0 – +1.0 Stable	-1.1 – -2.0	< - 2.0 Erosion
Mean tide range (m)	> 6.0	4.1 – 6.0	2.0 – 4.0	1.0 – 1.9	< 1.0
Mean wave height (m)	<.55	.55 – .85	.85 – 1.05	1.05 – 1.25	>1.25

#### 4.3.5. Wildfire

A wildfire is an uncontrolled burning of grasslands, brush, or woodlands. The potential for wildfire depends upon surface fuel characteristics, recent climate conditions, current meteorological conditions, and fire behavior. Hot, dry summers, and dry vegetation increase susceptibility to fire in the fall, a particularly dangerous time of year for wildfire.

The three leading causes of wildfires in Virginia are escaped debris fires, arson, and machine use. Wildfires can also result from natural occurrences, such as lightning strikes. Wildfire danger can vary greatly season to season and is often exacerbated by dry weather conditions.

The VDOF indicates that there are three principal factors that can lead to the formation of wildfire hazards: topography, fuel, and weather. The environmental conditions that exist during spring (March and April) and fall (October and November) exacerbate the hazard. When relative humidity is low and high winds are coupled with a dry forest floor (brush, grasses, leaf litter), wildfires may easily ignite. Years of drought can lead to environmental conditions that promote wildfires. In Virginia, accidental or intentional setting of fires by humans is the largest contributor to wildfires. Residential areas that expand into wild land areas also increase the risk of wildfire threats.

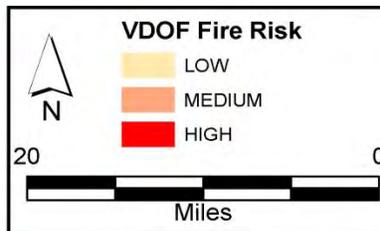
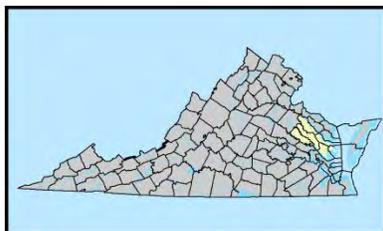
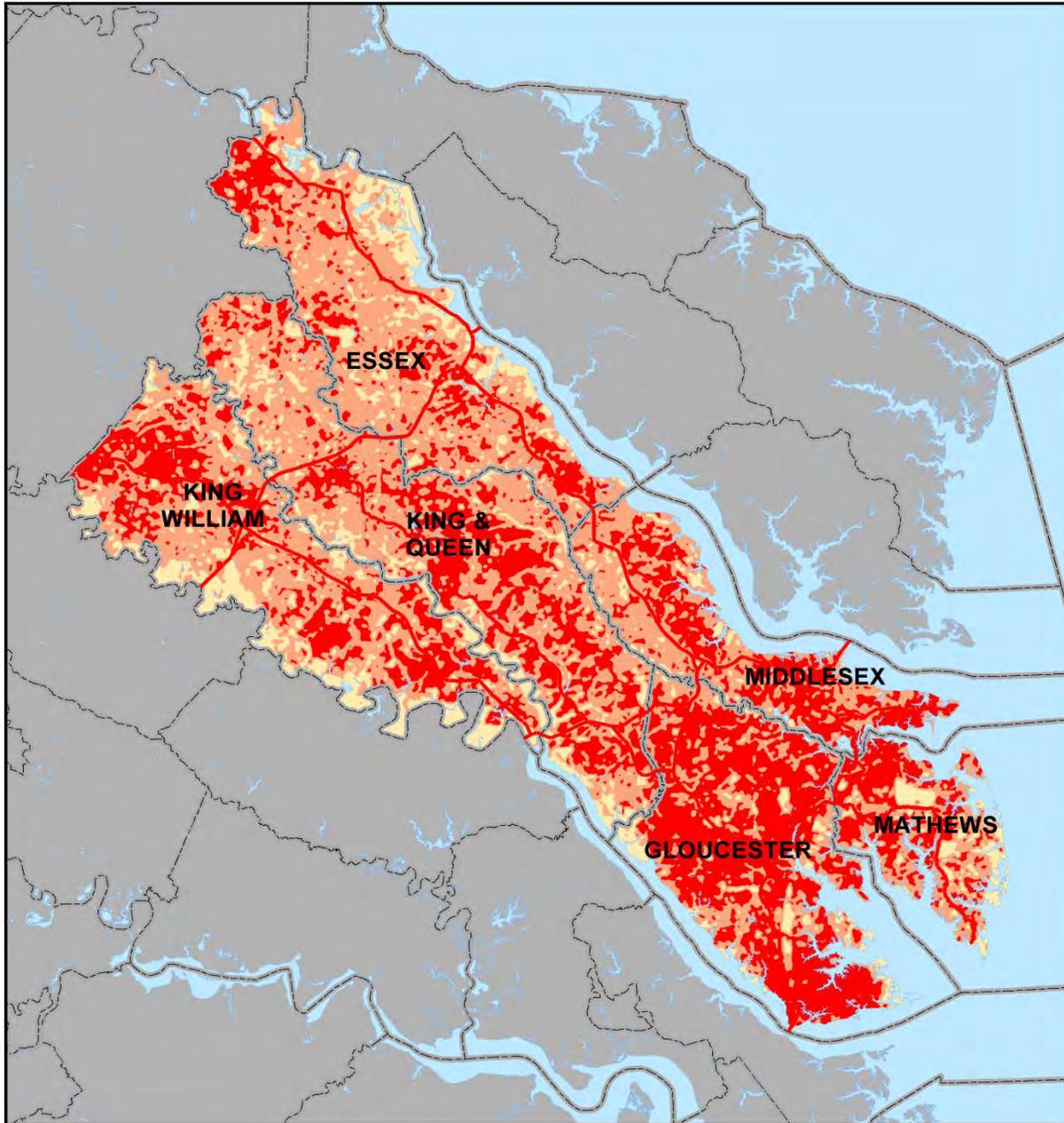
#### Wildfire Vulnerability

As development has spread into areas which were previously rural, new residents have been relatively unaware of the hazards posed by wildfires and have used highly flammable material for constructing buildings. This has not only increased the threat of loss of life and property but has also resulted in a greater population of people less prepared to cope with wildfire hazards.

The impacts of wildfires can be widespread leading to many secondary hazards. During a wildfire, the removal of groundcover that serves to stabilize soil can lead to hazards such as landslides, mudslides, and flooding. In addition, the leftover scorched, and barren land may take years to recover, and the resulting erosion can be problematic.

Because of wildfire risk, the Virginia Department of Forestry (VDOF) has provided new information on identifying high-risk fire areas. Their Fire Risk Assessment Mapping Database was designed to help communities determine areas with the greatest vulnerability to wildfire. Since wildfire occurrence is based on multiple factors, the VDOF developed a fire ranking map to assist to wildfire prevention efforts, as shown in Figure 22. In 2002 and 2003, VDOF examined which factors influence the occurrence and advancement of wildfires and how these factors could be represented in a Geographic Information System (GIS) model. VDOF determined that historical fire incidents, land cover (fuels surrogate), topographic characteristics, population density, and distance to roads were critical variables in a wildfire risk analysis. The resulting high, medium, and low risk category reflect the results of these analyses. Figure 17 and Table 15 show the varying degree of risk amongst Middle Peninsula localities.

**Figure 17: Middle Peninsula Wildfire Risk.** Throughout the region risk to wildlife varies due to historic fire incidents, land cover, topographic characteristics, population density and distance to roads.



**Table 15: Acres of each Middle Peninsula County within each VDOF Fire Risk Category.**

County	LOW	MEDIUM	HIGH	Total Acreage
Essex	33,894	105,885	31,999	171,778
Gloucester	16,267	46,195	90,182	152,644
King and Queen	28,569	117,897	59,440	205,906
King William	42,127	89,417	51,039	182,583
Mathews	14,903	28,819	21,966	65,688
Middlesex	8,619	50,251	33,320	92,190
<b>Middle Peninsula Total</b>	<b>144,389</b>	<b>438,464</b>	<b>287,946</b>	<b>870,789</b>

**Table 16: Percent of each Middle Peninsula County's area within each VDOF Fire Risk Zone.**

County	LOW	MEDIUM	HIGH
Essex	19.7	61.6	18.6
Gloucester	10.7	30.3	59.1
King and Queen	13.9	57.3	28.9
King William	23.1	49.0	28.0
Mathews	22.7	43.9	33.4
Middlesex	9.3	54.5	36.1
<b>Middle Peninsula</b>	<b>16.6</b>	<b>50.4</b>	<b>33.1</b>

As a region, most of the area making up the Middle Peninsula falls within the “Medium” Fire Risk category (Table 15 and 16). It is noteworthy that nearly 60 percent of the area of Gloucester County falls within the “High” Fire Risk category (Table 16).

Debris burning continues to be the leading cause of forest fires in Virginia. The Commonwealth of Virginia has several laws that help to reduce the risk of wildfires. Most notably is the ‘Virginia's 4:00 PM Burning Law’, which goes into effect each spring. The 4:00 PM Burning Law is different from the burning bans, which are invoked only during periods of extreme fire danger. Briefly, the 4:00 PM Burning Law states: from February 15 through April 30 of each year, no burning before 4:00 PM is permitted if the fire is in, or within 300 feet of, woodland, brushland or fields containing dry grass or other flammable material.

Since forest fuels cure during the winter months, the danger of fire is higher in early spring than in summer when the forest and grasses are green with new growth. The 4:00 PM Burning Law is an effective tool in the prevention of forest fires.

Areas where homes meet the Wildland are called the Wildland/Urban interface. Flammable forest fuels often surround homes located in the woods. The VDOF suggests the following safety tips to minimize the threat to homes:

- Have a least 30 feet of defensible space surrounding a home. This will reduce the wildfire threat to a home by changing the characteristics of the surround vegetation. Defensible space also allows firefighters room to put out fires.
- Build with fire-resistant exterior construction materials, such as cement, brick, plaster, and stucco and concrete masonry. Double pane glass windows can make a home more resistant to wildfire heat and flames. Roofs should be Class A.
- Use landscaping materials and design to also create defensible space. Remove flammable plants that contain resins, oils and waxes that burn readily. Large, leafy hardwood trees should be pruned so that the lowest branches are at least 6 to 10 feet high to prevent a fire on the ground from spreading up to the treetops.

- Identify a home and neighborhood with legible and clearly marked street names and numbers so emergency vehicles can rapidly find the location of the emergency. Include a driveway that is at least 12 feet wide with a vertical clearance of 15 feet – provide access to emergency apparatus.

Between 2015 and 2020 there have been of 87 wildfires within the region (Appendix K). Based on VDOF records, each locality has been impacted by wildfire (Table 17 and 18):

**Table 17: The number wildfires in a given year (VDOF, 2021).**

County	Number of Wildfires in a Given Year						Total
	2015	2016	2017	2018	2019	2020	
Essex	2	3	4	6	5	1	21
Gloucester	6	5	3	3	4	3	24
King & Queen	1	3	5	4	1	4	18
King William	4	1	2	2	1	1	11
Mathews	0	3	1	1	1	1	7
Middlesex	1	2	0	2	0	1	6
Total	14	17	15	18	12	11	87

**Table 18: The total acres burned at as result of wildfires in a given year (VDOF, 2021).**

County	Number of Acres Burned in a Giver Year						Total
	2015	2016	2017	2018	2019	2020	
Essex	3.10	35.10	3.7	22.6	14.3	30	108.8
Gloucester	145	227.3	7.6	.4	42	108.7	531
King & Queen	16	6.3	9.8	34.2	1.5	74.4	142.2
King William	1.5	2.5	13.8	4	5	5.5	32.3
Mathews	0	2.8	3.3	3	1.8	.7	11.6
Middlesex	1	0.2	0	3.1	0	.2	4.5
Total	166.6	274.2	38.2	67.3	34.6	219.5	830.4

Previous wildfire events identified in the 2011 Mitigation Plan include:

- During 2009, Middlesex County experienced a major wildfire north of Urbanna between route 602 and US Route 17 near Hilliard Pond.
- During 2008, Gloucester County experienced a significant fire in the Guinea area that burned several acres. While this fire did not require any evacuations it did require mutual aid from other jurisdictions. This fire was coordinated through Abington Volunteer Fire and Rescue.

In 2008, drought conditions combined with strong winds resulted in sporadic wildfires in numerous locations throughout the Middle Peninsula region. Mutual aid assistance between area fire departments, as well as from the VDOF, was widely used during these wildfire events.

Mitigation strategies formalizing MOUs between area fire departments to quickly respond to the adverse effects of the wildfire hazard should be included as part of the AHMP update.

Mitigation strategies to improve communication systems between the local jurisdictions and with their state fire-fighting partners should also be proposed with this update.

In addition, the VDOF safety tips - as noted above - lend themselves to a public education mitigation strategy dealing with wildfires and should be included with this update.

### **Wildfire Extent (Impact)**

The VDOF thoroughly tracks the number of acres burned and estimated damages for each incident in the Commonwealth. Timing and coordination resulted in limitations in using this data as part of the ranking methodology.

#### **4.3.6. HAZMAT**

HAZMAT can be defined as a material (Chemical, Radiological, Biological or Reactive) that would be a danger to life or to the environment if released without precautions. Furthermore, a hazardous material is any substance or material in a quantity or form that may pose a reasonable risk to health, the environment, or property. The hazards and associated risks of hazardous materials will vary amongst Middle Peninsula as it includes incidents involving substances such as toxic chemicals, fuels, nuclear wastes and/or products, and other radiological and biological or chemical agents. In addition to accidental or incidental releases of hazardous materials due to fixed facility incidents and transportation accidents, regions must be ready to respond to hazmat releases as potential terrorism. It is important to note that the risk of a Hazmat incident is unpredictable and will vary amongst Middle Peninsula localities.

According to VDEM, all jurisdictions in Virginia have a Local Emergency Planning Committee (LEPC) that identifies local industrial hazardous materials and keeps the community informed of the potential risks. With a fixed facility, the hazards are pre-identified, and the facility is required to prepare a risk management plan and provide a copy of this plan to local governments.

Hazardous materials carried through Middle Peninsula localities by commercial vehicle may also cause a risk, particularly if the vehicle is involved in an accident. While the vehicle should have placards on the vehicle to identify the hazard on board, however they are less predictable. In accordance with 9VAC20-110 the Virginia Waste Management Board is responsible for promulgating regulations governing the transport of hazardous materials within the Commonwealth. Additionally, the VAC also provides requirements for “every person who transports or offers for transportation of hazardous materials within or through the Commonwealth of Virginia” (9VAC20-110-110) Therefore there are measures in place to help reduce the risk of hazards materials being transported through the Middle Peninsula Region.

### **HAZMAT Vulnerability**

The effects of hazardous material is ultimately dependent on the type and amount of hazardous material, however injuries and/or deaths could occur as a result of a hazmat incident. They can pose risk to health, safety, and property at fixed facilities and during transportation. According to VDEM, “A business might have to evacuate depending on the quantity and type of chemical released or local officials might close a facility or area for hours, possibility days until a substance is properly cleaned up. Businesses that store, produce or transport hazardous materials may be fined for accidental or intentional spills. The business involve in the release would typically be responsible for the cost of the cleanup. A business that is located near the site of the hazardous waste site of a hazardous materials spill or release is likely to be unaffected unless the substance is airborne and poses a threat to areas outside the accident site. In that case local emergency official would order an immediate evaluation of areas that could potentially be affected. Depending on the type of hazardous substance, it could take hours or days for emergency official to deem the area safe for return.” Ultimately this would impact business productivity and could impact the local/regional economy.

## HAZMAT Extent (Impact)

Hazardous materials are categorized into nine major hazard classes that communicated the risk associated with it. Table 19 shows categories and provides examples of the hazardous material.

<b>CLASS</b>	<b>Division</b>	<b>NAME OF CLASS OR DIVISION</b>	<b>EXAMPLE</b>
1	1.1	Explosives (mass detonation)	Dinitrophenol
	1.2	Projections Hazards	Ammunition Smoke, White Phosphorous
	1.3	Mass Fire Hazards	Article, Explosive No. 5
	1.4	Minor Hazards	Fireworks
	1.5	Very Insensitive	Blasting Agents Explosive, Blasting, Type E Article, Explosive Extremely Insensitive
	1.6	Extremely Insensitive	
2	2.1	Flammable Gases	Propane
	2.2	Non-Flammable Gases	Helium, Compressed
	2.3	Poisonous/Toxic Gases	Fluorine, Compressed
3		Flammable Liquids	Gasoline, Alcohol, Diesel Fuel, Fuel Oils
4	4.1	Flammable Solids	Ammonium Picrate, Wetted
	4.2	Spontaneously Combustible	Phosphorus, White Dry
	4.3	Dangerous when wet	Sodium
5	5.1	Oxidizers	Ammonium Nitrate, Liquid
	5.2	Organic Peroxides	Organic Peroxide Type B, Liquid
6	6.1	Poisons (Toxic Material)	Potassium Cyanide
	6.2	Infectious Substance	Diagnostic Specimen
7		Radioactive	Uranium, Plutonium
8		Corrosives	Hydrochloric Acid, Battery Acid, Formaldehyde, Sulfuric Acid
9		Miscellaneous Hazardous Materials	Asbestos, Airbag Inflaters
None		ORM-D (Other Regulated Material – Domestic)	Consumer Commodity (Hair Spray or Charcoal)
Combustible Liquid		Combustible Liquid	Heating Oil, Diesel Fuel

In addition to the categories of hazardous material, when shipping hazardous material driver must keep shipping papers and use the following to identify that they have hazardous material on board:

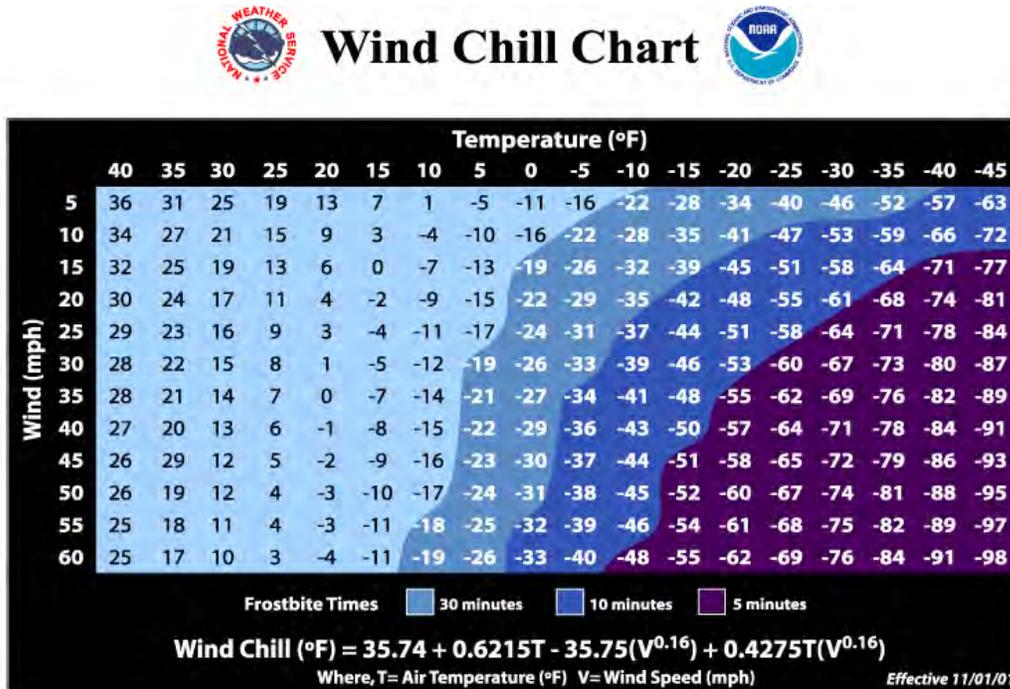
**Package labels** are diamond-shaped hazard warning labels found on most hazardous materials packages. These labels inform others of the hazard. If the diamond label does not fit on the package, shippers may put the label on a tag attached to the package. For example, compressed gas cylinders often have tags or decals. Global harmonization has standardized “Pictograms” which are also very prevalent on shipping labels and shipping papers to warn of potential hazards associated with the package contents.

**Placards** warn others of hazardous materials. They are placed on the outside of the vehicle and identify the hazard class of the cargo. A placarded vehicle must have at least four identical placards. Placards must be readable from all four directions. Therefore, they are put on the front, rear and both sides of the vehicle. Placards measure 10 ¾ inches square and are turned in a diamond shape. Cargo tanks and other bulk packaging display the identification number of their contents on placards. Or they may use orange panels or white diamond-shape displays the same size as placards.

### 4.3.7. Extreme Temperatures (Heat and Cold)

Extreme cold temperatures are not annual events in Virginia. Although wind chill advisories are issued nearly every year, especially in the western and northern portions of the state, life-threatening extreme cold, requiring wind chill warnings, is a rare occurrence in the Middle Peninsula. According to NOAA, Wind Chill is a term used to describe what the air temperature feels like to the human skill due to the combination of cold temperatures and winds blowing on exposed skin. Figure 18 shows the wind chill calculator.

Figure 18: Wind Chill Chart (NOAA, 2022).

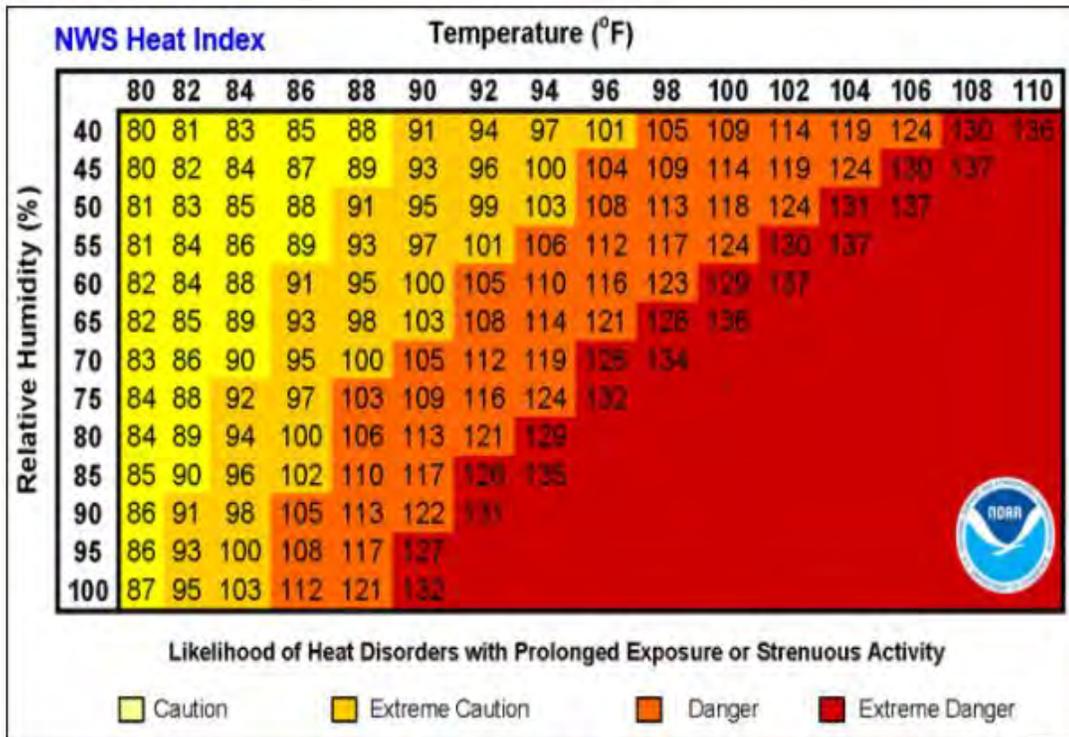


The NWS Wind Chill Temperature index uses advances in science, technology, and computer modeling to provide an accurate, understandable, and useful formula for calculating the dangers from winter winds and freezing temperatures. In early summer of 2001, Human trials were conducted at the Defense and Civil Institute of Environmental Medicine in Toronto, Canada. The trial results were used to improve the accuracy of the new formula and determine frostbite threshold values. During the human trials, twelve volunteers (six men and six women) were placed in a chilled wind tunnel and thermal transducers were stuck to their faces to measure heat flow from the cheeks, forehead, nose and chin while walking 3 mph on a treadmill. Each Volunteer participated in four trials of 90 minutes each and was exposed to varying wind speeds and temperatures. The new wind chill index is now being used in Canada and the United States.

The frequency of occurrence is dependent entirely upon the extreme cold criteria used - wind chill vs. air temperature. The primary impact of extreme cold is increased potential for frostbite, hypothermia, and potentially death because of over-exposure to extreme cold. Some secondary impacts of extreme/excessive cold may present a danger to livestock and pets, and frozen water pipes in homes and businesses.

Extreme heat, generally associated with drought conditions, is a phenomenon that is generally confined to the months of July and August, although brief periods of excessive heat have occurred in June and September. Extreme heat can be defined either by actual air temperature, or by the heat index, which relates the combined effects of humidity and air temperature on the body (Figure 19).

**Figure 19:** Heat Index Chart (NOAA, 2022).



Extreme heat is not an annual event in the Middle Peninsula. Although heat advisories are issued near every year, especially in the urban areas of Northern Virginia and Richmond. Life-threatening extreme heat is a rare occurrence in the Middle Peninsula region. The frequency of occurrence is dependent entirely upon the extreme heat criteria used (i.e. heat index vs. air temperature). The primary impact of extreme heat is increased potential for heat exhaustion or heat stroke, which can be fatal to the elderly and infirmed. In addition, there is an increased risk of dehydration, if proper steps are not taken to ingest adequate amounts of non-alcoholic fluids. The impact of extreme heat is most prevalent in urban areas, which are not found in the Middle Peninsula. Secondary impacts of excessive heat are severe strain on the electrical power system, and potential brownouts or blackouts.

The entire planning area is equally at risk to extreme temperature events.

#### 4.4. Hazards Considered “Critical” Hazards to the Middle Peninsula

The following sections describe hazards that are common throughout the Middle Peninsula region and deemed “Critical Hazards” to the Middle Peninsula by the LPT.

##### 4.4.1. Summer Storms

Summer Storms are weather systems accompanied by strong winds, lightning, heavy rain, and possibly hail and tornadoes. They can occur at any time in the Middle Peninsula of Virginia, although they are most frequent during the warm spring and summer months from April through September. The most common summer storm is the thunderstorm, with the severe thunderstorm with the most potential to cause damage. The potential thunderstorm threat is often measured by the number of “thunderstorm days” – defined as days in which thunderstorms are observed.

Thunderstorms form when a shallow layer of warm, moist air is overrun by a deeper layer of cool, dry air. Cumulonimbus clouds, frequently called “thunderheads,” are formed in these conditions. These clouds are often enormous (up to six miles or more across and 40,000 to 50,000 feet high) and may contain tremendous amounts of water and energy. That energy is often released in the form of high winds, excessive rains, lightning, and possibly hail and tornadoes.

Thunderstorms are typically short-lived (often lasting no more than 30-40 minutes) and fast moving (30-50 miles per hour). Strong frontal systems, however, may spawn one squall line after another, composed of many individual thunderstorm cells. Severe thunderstorms may also cause severe flood problems because of the torrential rains that they may bring to an area. Thunderstorms sometimes move very slowly and can thus dump a tremendous amount of precipitation onto a location. Flooding can result, including flash floods, “urban flooding,” and river flooding.

The entire planning area is equally at risk to summer storms.

#### **4.4.2. Winter Storms (Ice & Snow)**

##### **4.4.2-1 Ice Storms**

Virginia's biggest winter storms are the great "Nor'easters". At times, Nor'easters have become so strong that they have been labeled the "White Hurricane". In order for these storms to form, several things need to occur. High pressure builds over New England. Arctic air flows south from the high center into Virginia. The colder and drier the air is, the denser and heavier it becomes. This cold, dry air is unable to move west over the Appalachian Mountains and it remains trapped to the east side, funneling down the valleys and along the coastal plain toward North Carolina. To the east of the arctic air is the warm water of the Gulf Stream. The contrast of cold air sinking into the Carolinas and the warm air sitting over the Gulf Stream creates a breeding ground for storms. Combine this with the right meteorological conditions such as the position of the jet stream, and storm development may become "explosive" (sudden, rapid intensification; dramatic drop in the central pressure of the storm) (Watson and Sammler, 2004) (Figure 20).

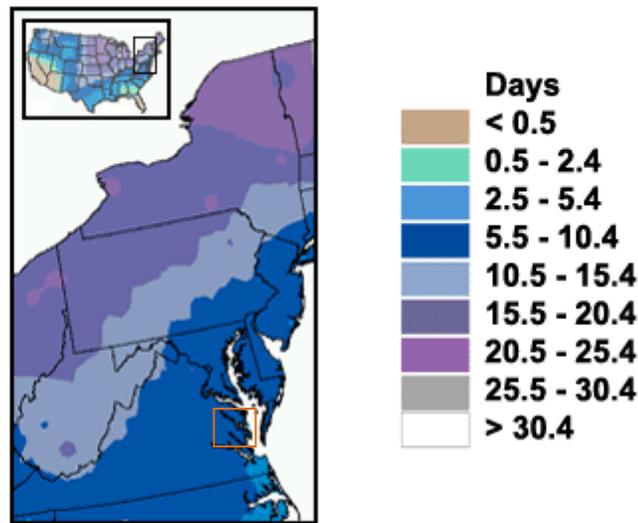
Winter Ice Storms occur generally as freezing rain, when precipitation, starts falling as snow, melts as it passes through a warm layer of air several thousand feet above the ground. Beneath the warm layer of air is a shallow layer of freezing air just above the ground. As the liquid precipitation falls through this layer of freezing air, it becomes super-cooled, meaning that its temperature falls below freezing, but it remains a liquid. Before it has a chance to freeze solid (into sleet or ice pellets), the super-cooled liquid droplets hit the ground (or some object such as a tree limb or power line), whose temperature is also below freezing; the water then freezes on contact.

For a good Nor'easter to develop, the jet stream entering the West Coast of the United States splits. The northern branch crosses the northern Rockies and Canada while the southern branch dips to cross the Gulf Coast states, where it picks up a disturbance that it carries northeast across Virginia to rejoin the northern branch over Newfoundland. The northern branch of the jet supports the southward sinking cold air. When this disturbance interacts with the temperature boundary formed by the warm Gulf Stream waters and the arctic air mass inland, a low-pressure system forms. The strong wind from the northeast gives the low-pressure storm its name, *Nor'easter*. Wind blowing counterclockwise around the storm center carries warm, moist air from the Gulf Stream up and over the cold inland air. The warm air rises and cools, and snow begins. The storm's speed and exact track to the north become critical in properly forecasting and warning for heavy snow across Virginia. On the Middle Peninsula, it is quite common for the rain-snow line to fall right over the northern sections of King William, King and Queen, and Essex Counties. Heavy snow often falls in a narrow 50-mile-wide path about 150 miles northwest of the low-pressure center. Closer to the low's center, the warmer ocean air changes the precipitation to sleet, freezing rain and eventually rain. If the forecasted storm track is off by just a little bit, it may mean - 64 - the

difference between forecasting heavy rain, freezing rain or sleet, and a foot of snow (Watson and Sammler, 2004). Therefore, Middle Peninsula localities will not experience winter ice storms the same.

Intense winds around the storm's center build waves that rack the coastline and sometimes drive water inland, causing extensive coastal flooding and severe beach erosion. Unlike a hurricane, which usually comes and goes within one tidal cycle, the Nor'easter can linger through several tides, each one piling more water on shore and into the bays. The March 5-9, 1962, Nor'easter, known as the "Ash Wednesday Storm", lingered off the Virginia Capes for days. It caused over \$200 million (in 1962 dollars) in property damage and major coastal erosion from North Carolina to Long Island, N.Y.

## Annual Mean Number of Days with Freezing Precipitation for the Chesapeake Bay Watershed Region

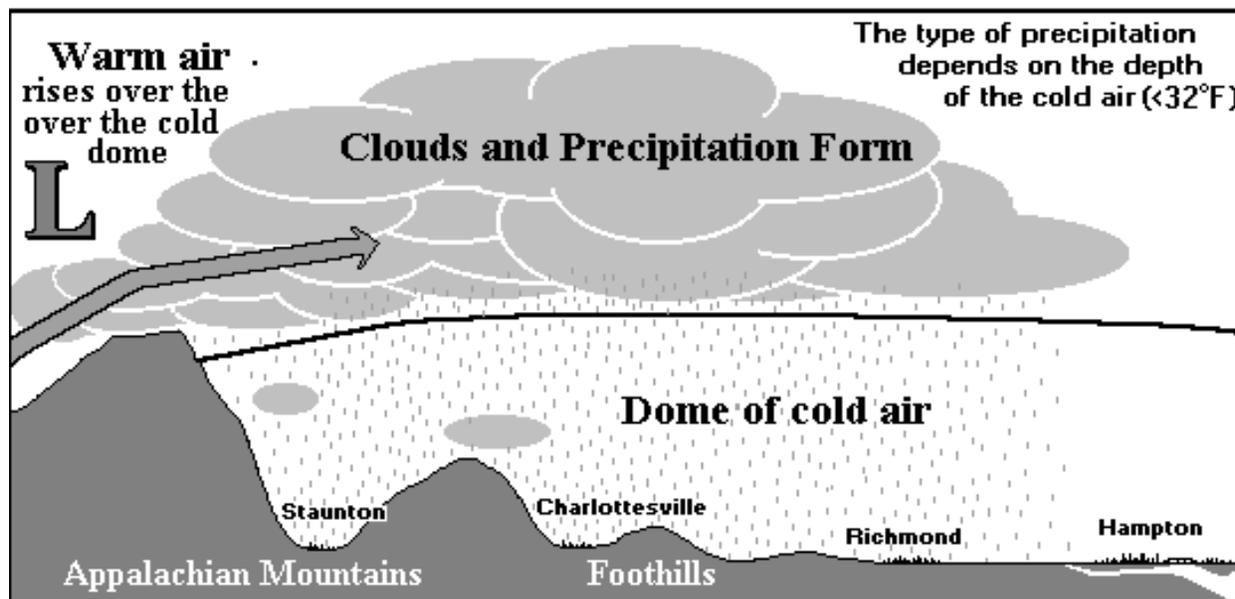


Source: National Climatic Data Center, NOAA

**Figure 20:** Annual mean number of days with freezing precipitation (rain or drizzle) for the Chesapeake Bay Watershed region. The area encompassing the Middle Peninsula is highlighted on the map with a red square.

As with snow, the frequency with which freezing rain occurs varies throughout the Chesapeake Bay watershed. In the northern part of the watershed, around Binghamton, NY, the incidence of freezing rain is one of the highest in the country. Although less common, freezing rain is still a threat even to the southern parts of the watershed. Figure 25 shows how the number of days with freezing precipitation (both rain and drizzle) in an average year varies throughout the Chesapeake Bay region. The Middle Peninsula generally experiences between 5.5 and 10.4 days of freezing rain annually. During the winter of 1993-1994, a series of ice storms struck Virginia. The conditions for the formation of an *ice storm* are not completely unlike those for the formation of a Nor'easter. High pressure over New England funnels cold, dry arctic air south over the state. The air tries to push west but cannot rise over the - 65 - Appalachian Mountains and becomes trapped on the east side. A storm moves northeast from the southern plains or Gulf Coast region. Instead of passing south and east of Virginia, it often moves up the western slopes of the mountains. As this warm, moist air rises over the mountains and the trapped cold air on the east side, precipitation begins (Watson and Sammler, 2004) (Figure 21). The type of precipitation depends on the depth of the

cold air. At first the thickness of the cold air mass is often enough to produce snow, but as the warm air passes over the cold air and erodes it, the cold air mass gets more and more shallow. Soon the cold air mass is too thin to produce snow. Rain droplets freeze into small ice pellets, or *sleet*, as it falls through the cold air. When sleet hits the ground, it bounces and does not stick to objects (Watson and Sammler, 2004).



**Figure 21:** Ice Storm-Formation (Watson and Sammler 2004).

Eventually, the cold air mass is so shallow that the rain does not freeze. If the temperature of the earth's surface is below freezing, then rain will freeze as it hits the ground, producing *freezing rain*, a very dangerous on roadways or walkways. As the ice accumulates on trees and wires, the weight eventually causes them to break, knocking out power and phone service. Sometimes, so much ice can accumulate that structural damage and collapse can occur to buildings and communication towers. This is precisely what occurred during the "Christmas Ice Storm" of December 1998, which hit southeast Virginia, including the Middle Peninsula. Icy conditions caused injuries from slips, falls, and numerous vehicle accidents. Ice accumulations of up to an inch brought down trees and power lines. Outages were so widespread (400,000 customers on Christmas Eve) that some people were without power for up to ten days (Watson and Sammler, 2004). Other types of weather systems generally do not cause major problems for Virginia. Storms such as the "Alberta Clipper," a fast-moving storm from the Alberta, Canada region, or a cold front sweeping through from the west generally do not bring more than one to four inches of snow in a narrow 50- to 60-mile-wide band. Sometimes, the high pressure and cold arctic air that follow in the wake of a clipper become the initial set up for a Nor'easter. In very rare cases, elements combine to produce very localized heavy snow without any fronts or storm centers nearby. These events are nearly impossible to forecast with any accuracy (Watson and Sammler, 2004).

However, in November 2009, Tropic Storm Ida made landfall in Alabama, but weakened, losing its tropical storm characteristics, as it crossed to North Carolina. The storm redeveloped off the coast of Carolina in the Atlantic Ocean. The resulting coastal low combined with an unusually strong Canadian high over New England resulted in a strong pressure gradient over Coastal Virginia and the Carolinas. This caused storming northeasterly winds, high waves and record high water levels. Stations of the coastline of the Virginia recorded wind speeds, gusts, and barometric pressures of this Nor'easter (Table 20).

**Table 20:** Maximum observed wind speeds, gusts and barometric pressure by stations located near Middle Peninsula Localities during the November 2009 Nor'easter.

Station Name	Maximum Wind Speed			Maximum Wind Gust			Minimum Barometric Pressure	
	Date & Time (GMT)	m/s*	Kt**	Date & Time (GMT)	m/s	Kt	Date & Time (GMT)	mb***
Kiptopeke, VA	11/13 00:00	14.7	29	11/12 21:12	22.3	43	n/a	n/a
Lewisetta, VA	11/12 00:00	12.3	24	11/12 21:30	19.5	38	11/12 8:24	1006.7
Yorktown USCG Training Center, VA	11/12 23:06	21.4	42	11/12 23:12	25.9	50	11/12 23:06	1001.5
Chesapeake Bay Bridge Tunnel, VA	11/12 22:42	26.6	52	11/13 4:24	33.4	65	11/12 4:24	997.0

\* 1 m/s (meters/second) = 2.2 miles per hour (mph) = 1.9 knots

\*\* 1 kt (knot) = 1.2 mph = 0.05 m/s

\*\*\* mb (millibar) = 0.03 inches

### Winter Ice Storms Vulnerability

Winter ice storms can impact individuals, property as well as the overall community. At the individual level ice has the potential to cause automobile accidents and reduce the walkability of community due to ice-covered walkways. Personal property may be impacted as pipes freeze or structural failures occur due to the weight of the ice. The overall community may also be impacted as transportation will be interrupted or halted, and the weight of ice to snap tree limbs could damage power lines or infrastructure.

### Winter Ice Storm Extent (Impact)

While a winter ice storm may be measured based the damages caused by the ice storm, wind speed and the barometric pressure, winter ice storms may also be measure on the Sperry-Piltz Ice Accumulation Index (2009). This scale can predict the projected footprint, total ice accumulation and the resulting potential damages from approaching ices storms (Table 21).

**Table 21:** The Sperry-Piltz Ice Accumulation Index, or “SPIA Index”. The below categories of damages are based upon combinations of precipitation totals, temperatures and wind/speeds/directions (SPIA, 2009).

ICE DAMAGE INDEX	DAMAGE AND IMPACT DISCRPTIONS
0	Minimal risk of dame to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
2	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
3	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1-5 days
4	Prolonged and widespread utility interruptions with extensive damage to main distribution feeder lines and some high voltage transmission lines/structures. Outages lasting 5-10 days.
5	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.

#### 4.3.2-2 Snowstorms

The winter months can bring a wide variety of hazards to the Middle Peninsula, including blizzards, snowstorms, ice, sleet, freezing rain, and extremely cold temperatures. All of these weather events can be experienced throughout the state, depending on the depth of cold air that is in place over the region when the storm event comes. The Middle Peninsula’s biggest winter weather threats come from Northeasters or Nor’easters. These large storms form along the southern Atlantic coast and move northeast into Virginia along the Mid-Atlantic coast. These events are explained in detail in the following section describing Critical Hazards to the Middle Peninsula, under the sub-heading “Winter Ice Storms”. Winter storm events can bring strong winds and anything from rain to ice to snow to even blizzard conditions over a very large area. This combination of heavy frozen precipitation and winds can be quite destructive and lead to widespread utility failures and high cleanup costs. Nor'easters may occur from November through April, but are usually at their worst in January, February, and March.

#### Snowstorm Vulnerability

The impacts of winter storms are minimal in terms of property damage and long-term effects. The most notable impact from winter storms is the damage to power distribution networks and utilities. Severe winter storms with significant snow accumulation have the potential to inhibit normal functions of the Middle Peninsula. Governmental costs for this type of event are a result of the needed personnel and equipment for clearing streets. Private sector losses are attributed to lost work when employees are unable to travel. Homes and businesses suffer damage when electric service is interrupted for long periods. Health threats can become severe when frozen precipitation makes roadways and walkways very slippery

and due to prolonged power outages and if fuel supplies are jeopardized. Occasionally, buildings may be damaged when snow loads exceed the design capacity of their roofs or when trees fall due to excessive ice accumulation on branches. The primary impact of excessive cold is increased potential for frostbite, and potentially death as a result of over-exposure to extreme cold. Some secondary hazards extreme/excessive cold present is a danger to livestock and pets, and frozen water pipes in homes and businesses.

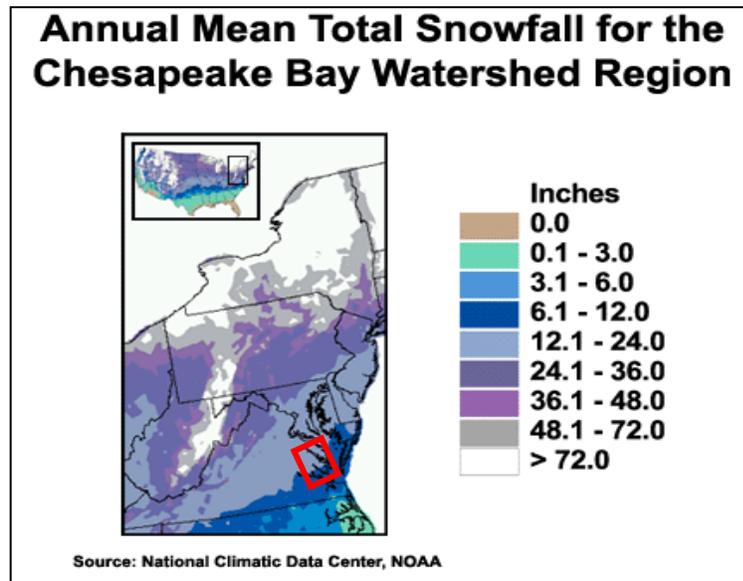
Snowstorms do not occur every year in the Middle Peninsula. The West Virginia University Extension Service developed estimates the likelihood for snowfall frequency and accumulation for 152 monitoring stations across the Commonwealth based on historic snowfall accumulation and frequency data (Rayburn and Lozier 2001, these data are available on-line at: <http://www.wvu.edu/~agexten/forglvst/VAsnow/index.htm>). Three of these stations are located on the Middle Peninsula: Urbanna in Middlesex County, Walkerton in King and Queen County, and West Point in King William County. While the other counties of the Middle Peninsula were not included in the West Virginia University Extension Office data, these stations may be considered representative to predict annual snow cover likelihood for the rest of the Middle Peninsula.

At the Urbanna Station in Middlesex County, snow cover data was collected for 24 years between 1949 and 1973. Based on snowfall frequency and accumulation during this period, a general risk of snow cover and snow depth in a given year was calculated. Rayburn and Lozier determined that there is a 50% risk of having between 1 and 8 inches of snow on the ground for 8 days or more. This means that, in one (1) year out of two (2), Urbanna will probably have snow of up to 8 inches on the ground for 8 days. In one (1) year out of four (4), Urbanna may have snow cover up to 8 inches deep for 12 days (in other words, there is a 25% chance of having snow for 12 days). In one year out of ten, Urbanna may have up to 8 inches of snow for 17 days (there is a 10% chance of having snow for 17 days). For deeper accumulations (greater than 8 inches), there is a 10% risk of having snow cover for 2 days or more. This means that, in 1 year out of 10, this location probably will have snow cover of at least 8 inches for 2 days.

At the Walkerton Station in King and Queen County, snow cover data was collected for 66 years between 1931 and 1997. Based on snowfall frequency and accumulation during this period, a general risk of snow cover and snow depth in a given year was calculated. Rayburn and Lozier determined that there is a 50% risk of having between 1 and 8 inches of snow on the ground for 6 days or more. This means that, in one year out of two, Walkerton will probably have snow of up to 8 inches on the ground for 6 days. In one year out of 4, Walkerton may have snow cover up to 8 inches deep for 13 days (in other words, there is a 25% chance of having snow for 13 days). In one year out of ten, Walkerton may have up to 8 inches of snow for 22 days (there is a 10% chance of having snow for 22 days). For deeper accumulations (greater than 8 inches), the risk is the same as reported for Urbanna and there is a 10% risk of having snow cover for 2 days or more. This means that, in 1 year out of 10, this location probably will have snow cover of at least 8 inches for 2 days. The average annual snowfall for 2014 at the Walkerton Station was 10.0 inches.

At the West Point station in King William County, snow cover data was collected for 44 years between 1953 and 1997. Based on snowfall frequency and accumulation during this period, a general risk of snow cover and snow depth in a given year was calculated. Rayburn and Lozier determined that there is a 50% risk of having between 1 and 8 inches of snow on the ground for 8 days or more. This means that, in one year out of two, West Point will probably have snow of up to 8 inches on the ground for 8 days. In one year out of 4, West Point may have snow cover up to 8 inches deep for 15 days (in other words, there is a 25% chance of having snow for 15 days). In one year out of ten, West Point may have up to 8 inches of snow for 19 days (there is a 10% chance of having snow for 19 days). For deeper accumulations (greater than 8 inches), the risk is the same as reported for both Urbanna and Walkerton. There is a 10% risk of having snow cover for 2 days or more. This means that, in 1 year out of 10, this location probably will

have snow cover of at least 8 inches for 2 days. The average annual snowfall for 2014 at the West Point Station was 10.1 inches.



**Figure 22:** Map of annual mean total snowfall for the Chesapeake Bay Watershed region (StormCenter Communications, 2003). The area encompassing the Middle Peninsula is highlighted on the map with a red square.

Compared to western, northern, and mountainous regions of the state, the risk of high snow accumulations in the Middle Peninsula is low and will vary amongst localities (Figure 22). According to the National Climatic Data Center, mean annual snowfall in the Middle Peninsula ranges from between 6 and 12 inches at the lower reaches of the region (primarily in Gloucester and Mathews Counties) to as much as 12 to 24 inches in the upper reaches of the region (primarily in Essex, King and Queen, King William, and Middlesex Counties). The proximity of adjacent water bodies bordering the region (Chesapeake Bay and its tributaries) to the Atlantic Ocean allows the Bay to retain heat and buffer to the region from intense snow. The amount of snow that falls across the watershed varies both from year to year and from location to location. Generally, areas to the north, such as in Pennsylvania and New York, see more snow in an average year than locations in the southern part of the watershed. For areas to the south, such as Norfolk, winters typically pass without a measurable amount of snowfall.

Snow without ice has adverse impacts for the road transportation network, which therefore limits the ability of residents to have access to essential and for some, life-critical emergency medical care.

The ability of the local jurisdictions to provide critical public safety services (ie. fire, emergency medical and law enforcement) could be a focus of any mitigation strategies proposed in the update during the emergency response phase when severe snow events hit the Middle Peninsula.

In December of 2009, a major snowstorm slammed the East Coast and snarled the busy holiday travel season as airports shut down runways, rail service slowed, and bus routes were suspended on the last weekend before Christmas. Record snowfall totals were reported at Washington Dulles and Reagan National airports. Accumulation at Dulles reached 16 inches, breaking the old record of 10.6 inches set December 12, 1964; 13.3 inches was reported at Reagan. The old record there was 11.5 inches set December 17, 1932.

### **Snowfall Extent (Impact)**

The Northeast Snowfall Impact Scale (NESIS) developed by Paul Kocin and Louis Uccellini of the NWS (Kocin and Uccellini, 2004) characterizes and ranks high-impact Northeast snowstorms. These storms have large areas of 10-inch snowfall accumulations and greater. NESIS has five categories: Extreme, Crippling, Major, Significant, and Notable. The index differs from other meteorological indices in that it uses population information in addition to meteorological measurements. Thus, NESIS gives an indication of a storm's societal impacts.

NESIS categories, their corresponding NESIS values, and a descriptive adjective:

Category	NESIS Value	Description
1	1—2.499	Notable
2	2.5—3.99	Significant
3	4—5.99	Major
4	6—9.99	Crippling
5	10.0+	Extreme

### **Winter Weather Section**

Since the original plan was developed there has only been one significant snowfall event in the Middle Peninsula. According to the National Climatic Data Center (NCDC), on February 10, 2010, between 1 and 5 inches fell across the region. All land area within the region is subject to snowfall. Due to only two operating weather stations in King and Queen and King William Counties, there is little data available for additional analysis. Therefore, the information described in the West Virginia Extension Service in the original plan will suffice.

Additional impacts include downed power lines, roof collapses during heavy snow loads, as well as frozen utility lines during extreme cold events.

### **4.4.3. Hurricanes**

Hurricanes are cyclonic storms that originate in tropical ocean waters. Most hurricanes develop in an area 300 miles on either side of the equator. Hurricanes are heat engines, fueled by the release of latent heat from the condensation of warm water. Their formation requires a low-pressure disturbance, sufficiently warm sea surface temperature, a rotational force resulting from the spinning of the earth and the absence of wind shear in the lowest 50,000 feet of the earth's atmosphere.

Hurricanes that impact Virginia form in the so-called Atlantic Basin - from the west coast of Africa towards the Caribbean Sea and Gulf of Mexico. Hurricanes in this basin generally form between June 1 and November 30 – with a peak around mid-September. In an average season, there are about 10 named

tropical storms in the Atlantic Basin with 6 of these likely to develop into hurricanes. The busiest hurricane season in the 20th century was in 1933, which saw 21 hurricanes/tropical storms. Two of these storms hit the Tidewater Region and caused significant devastation in the Middle Peninsula - known as the “Chesapeake-Potomac Hurricanes of 1933”. By contrast, the 1914 season saw no hurricanes and only one tropical storm.

As a hurricane develops, barometric pressure at its center falls and winds increase. A weather system with winds at or exceeding 39 mph is designated as a tropical storm, which is given a name and closely monitored by the NOAA National Hurricane Center in Miami, Florida. When winds are at or exceed 74 mph, the tropical storm is deemed to be a hurricane. Hurricane intensity is measured using the Saffir-Simpson Scale, ranging from a Category 1 (minimal) to a Category 5 (catastrophic) hurricane. The scale categorizes the intensity of hurricanes using a linear method based upon maximum sustained winds, minimum barometric pressure, and storm surge potential, which are combined to estimate the potential flooding and damage to property given a hurricane's estimated intensity. See the table below for greater details on the characteristics of Category 1 thru Category 5 hurricanes.

### **Hurricane Vulnerability**

Hurricanes have the greatest potential to inflict damage as they cross the coastline from the ocean, which is called landfall. Because hurricanes derive their strength from warm ocean waters, they are generally subject to deterioration once they make landfall. The forward momentum of a hurricane can vary from just a few miles per hour to 40 mph. This forward motion, combined with a counterclockwise surface air flow, makes the right front quadrant of the hurricane the location of the most potentially damaging winds.

Hurricanes have the potential to spawn dangerous tornadoes. The excessive rainfall and strong winds can also cause flash floods, flooding and abnormal rises in sea levels known as storm surges. Although a hurricane may cause a tremendous amount of wind and water damage, the accompanying storm surge is much more dangerous to life and property in coastal regions. The storm surge is a great dome of water typically 50 miles wide that comes sweeping across the coastline near the area where the eye of the hurricane makes landfall. This storm surge, aided by the hammering effect of breaking waves, acts like a giant bulldozer as it sweeps everything in its path. The stronger the hurricane, the higher and more dangerous the storm surge will be. Nine out of ten hurricane fatalities are caused by the storm surge.

The vulnerability will vary amongst localities within the Middle Peninsula. As Gloucester and Mathews County are located within the Chesapeake Bay Carter, and therefore these lower lying areas of the region will be the most vulnerability. Also, generally, as hurricane hit land the storm is slowed therefore those coastal areas of the region will be at most risk. However secondary impacts may be experienced inland and in upland counties (i.e. King William, King & Queen, and Essex Counties).

### **Hurricane Extent (Impact)**

The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time. The scale – originally developed by wind engineer Herb Saffir and meteorologist Bob Simpson – has been an excellent tool for alerting the public about the possible impacts of various intensity hurricanes. The scale provides examples of the type 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.

### **Category One Hurricane**

*Very dangerous winds will produce some damage*

(Sustained winds 74-95 mph, 64-82 kt, or 119-153 km/hr)

People, livestock, and pets struck by flying or falling debris could be injured or killed. Older (mainly pre-1994 construction) mobile homes could be destroyed, especially if they are not anchored properly as they tend to shift or roll off their foundations. Newer mobile homes that are anchored properly can sustain damage involving the removal of shingle or metal roof coverings, and loss of vinyl siding, as well as damage to carports, sunrooms, or lanais. Some poorly constructed frame homes can experience major damage, involving loss of the roof covering and damage to gable ends as well as the removal of porch coverings and awnings. Unprotected windows may break if struck by flying debris. Masonry chimneys can be toppled. Well-constructed frame homes could have damage to roof shingles, vinyl siding, soffit panels, and gutters. Failure of aluminum, screened-in, swimming pool enclosures can occur. Some apartment building and shopping center roof coverings could be partially removed. Industrial buildings can lose roofing and siding especially from windward corners, rakes, and eaves. Failures to overhead doors and unprotected windows will be common. Windows in high-rise buildings can be broken by flying debris. Falling and broken glass will pose a significant danger even after the storm. There will be occasional damage to commercial signage, fences, and canopies. Large branches of trees will snap, and shallow rooted trees can be toppled. Extensive damage to power lines and poles will likely result in power outages that could last a few to several days. Hurricane Dolly (2008) is an example of a hurricane that brought Category 1 winds and impacts to South Padre Island, Texas.

### **Category Two Hurricane**

*Extremely dangerous winds will cause extensive damage*

(Sustained winds 96-110 mph, 83-95 kt, or 154-177 km/hr)

There is a substantial risk of injury or death to people, livestock, and pets due to flying and falling debris. Older (mainly pre-1994 construction) mobile homes have a very high chance of being destroyed and the flying debris generated can shred nearby mobile homes. Newer mobile homes can also be destroyed. Poorly constructed frame homes have a high chance of having their roof structures removed especially if they are not anchored properly. Unprotected windows will have a high probability of being broken by flying debris. Well-constructed frame homes could sustain major roof and siding damage. Failure of aluminum, screened-in, swimming pool enclosures will be common. There will be a substantial percentage of roof and siding damage to apartment buildings and industrial buildings. Unreinforced masonry walls can collapse. Windows in high-rise buildings can be broken by flying debris. Falling and broken glass will pose a significant danger even after the storm. Commercial signage, fences, and canopies will be damaged and often destroyed. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks. Potable water could become scarce as filtration systems begin to fail. Hurricane Frances (2004) is an example of a hurricane that brought Category 2 winds and impacts to coastal portions of Port St. Lucie, Florida with Category 1 conditions experienced elsewhere in the city.

### **Category Three Hurricane**

*Devastating damage will occur*

(Sustained winds 111-130 mph, 96-113 kt, or 178-209 km/hr)

There is a high risk of injury or death to people, livestock, and pets due to flying and falling debris. Nearly all older (pre-1994) mobile homes will be destroyed. Newer mobile homes will sustain severe damage with potential for complete roof failure and wall collapse. Poorly constructed frame homes can be destroyed by the removal of the roof and exterior walls. Unprotected windows will be broken by flying debris. Well-built frame homes can experience major damage involving the

removal of roof decking and gable ends. There will be a high percentage of roof covering and siding damage to apartment buildings and industrial buildings. Isolated structural damage to wood or steel framing can occur. Complete failure of older metal buildings is possible, and older unreinforced masonry buildings can collapse. Numerous windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm. Most commercial signage, fences, and canopies will be destroyed. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to a few weeks after the storm passes. Hurricane Sandy (2012) is an example of a hurricane that brought Category 3 winds and impacts to coastal portions of Cuba, but it downgraded to a Category 2 storm off the coast of the Northeast.

### **Category Four Hurricane**

*Catastrophic damage will occur*

(Sustained winds 131-155 mph, 114-135 kt, or 210-249 km/hr)

There is a very high risk of injury or death to people, livestock, and pets due to flying and falling debris. Nearly all older (pre-1994) mobile homes will be destroyed. A high percentage of newer mobile homes also will be destroyed. Poorly constructed homes can sustain complete collapse of all walls as well as the loss of the roof structure. Well-built homes also can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Extensive damage to roof coverings, windows, and doors will occur. Large amounts of windborne debris will be lofted into the air. Windborne debris damage will break most unprotected windows and penetrate some protected windows. There will be a high percentage of structural damage to the top floors of apartment buildings. Steel frames in older industrial buildings can collapse. There will be a high percentage of collapse to older unreinforced masonry buildings. Most windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm. Nearly all commercial signage, fences, and canopies will be destroyed. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Long-term water shortages will increase human suffering. Most of the area will be uninhabitable for weeks or months. Hurricane Charley (2004) is an example of a hurricane that brought Category 4 winds and impacts to coastal portions of Punta Gorda, Florida with Category 3 conditions experienced elsewhere in the city.

### **Category Five Hurricane**

*Catastrophic damage will occur*

(Sustained winds greater than 155 mph, greater than 135 kt, or greater than 249 km/hr)

People, livestock, and pets are at very high risk of injury or death from flying or falling debris, even if indoors in mobile homes or framed homes. Almost complete destruction of all mobile homes will occur, regardless of age or construction. A high percentage of frame homes will be destroyed, with total roof failure and wall collapse. Extensive damage to roof covers, windows, and doors will occur. Large amounts of windborne debris will be lofted into the air. Windborne debris damage will occur to nearly all unprotected windows and many protected windows. Significant damage to wood roof commercial buildings will occur due to loss of roof sheathing. Complete collapse of many older metal buildings can occur. Most unreinforced masonry walls will fail which can lead to the collapse of the buildings. A high percentage of industrial buildings and low-rise apartment buildings will be destroyed. Nearly all windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm. Nearly all commercial signage, fences, and canopies will be destroyed. Nearly all trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Long-term water shortages will increase human suffering. Most

of the area will be uninhabitable for weeks or months. Hurricane Andrew (1992) is an example of a hurricane that brought Category 5 winds and impacts to coastal portions of Cutler Ridge, Florida with Category 4 conditions experienced elsewhere in south Miami-Dade County

Hurricane Isabel in 2003 was one of Virginia's costliest disasters, causing widespread devastation and disrupting the lives of thousands of citizens – including those living in the Middle Peninsula. This deadly storm was a Category 2 hurricane when it made landfall between Cape Lookout and Cape Hatteras on North Carolina's Outer Banks on Thursday, September 18, 2003. By the time it reached Virginia, it was downgraded to a Category 1 hurricane. Even though the storm followed a path west of the City of Richmond, Isabel's destructive effects were felt throughout Tidewater Virginia and the entire Mid-Atlantic Region.

Hampton Roads remained in the right front quadrant through most of the storm's landfall, which helped to push the storm surge into many inland areas along the rivers. Property damage resulting from the 4 to 12-foot storm surge was extensive in many parts of the region. Homes, bulkheads and piers were damaged, and the winds resulted in significant damage to properties and power lines. Rainfall totaled between 2 and 11 inches along the storm's track. Trees, especially those with shallow root systems, were blown over. Damages due to wind, rain, and storm surge resulted in flooding, electrical outages, piles of debris, transportation interruptions and damaged homes/businesses. Many citizens were without power for several days - with others in remote locations of the Middle Peninsula without power for up to three weeks.

Statewide losses to residential property were estimated to exceed \$590 million and businesses reported over \$84 million in losses. Thirty-two deaths were directly or indirectly attributed to this storm in Virginia. One of these deaths was in Gloucester County when an individual died of a heart attack after their vehicle was swept up in high water. Hurricane Isabel is considered one of the most significant tropical cyclones to affect portions of northeastern North Carolina and east-central Virginia since Hurricane Hazel in 1954 and the Chesapeake-Potomac Hurricane of 1933 (Beven and Cobb, 2004).

Although Virginia was spared a direct hit, the hurricane season of 2004 may be the costliest on record in the United States. Fifteen tropical or subtropical storms formed in the North Atlantic. Nine of these storms become hurricanes with six becoming major hurricanes of Category 3 or higher on the Saffir-Simpson Hurricane Scale. Six of the hurricanes, Alex, Charley, Frances, Gaston, Ivan and Jeanne, and three tropical storms struck the United States in 2004. The strongest hurricane was Ivan, which reached Category 5 status. Ivan was directly blamed for 26 deaths and damage estimates were \$13 billion in the United States.

With 4 hurricanes and tropical storms hitting the United States in a 5-week period, 2004 has been labeled as the year of the hurricane according to leading experts who participated in a Center for Health and the Global Environment briefing at Harvard Medical School (Compass Publications, Inc. 2004). They report that the intense period of destructive weather may be a harbinger of what is to come. Hurricanes have been on the increase over the past decade as part of a natural multi-decadal cycle (Ananthaswamy, 2003). These storms are more likely to form when the Atlantic is warm, as it was from the 1930s to the 1960s.

Although the decades since the 1960s have seen fewer hurricanes, numbers have risen since 1995 and may not have reached the predicted peak yet. There is growing evidence and concern that tropical storms will be more intense and pronounced as future climate changes are expected to persist.

By virtue of its position along the Atlantic Ocean and near the Gulf Stream, southeastern Virginia is frequently impacted by hurricanes. Continuous weather records for the Hampton Roads Area of Virginia

began on January 1, 1871, when the National Weather Service was established in downtown Norfolk. However, the recorded history of significant tropical storms that affected the area goes back much further.

Prior to 1871, very early storms have been described in ship logs, newspaper accounts, history books, and countless other writings. The residents of coastal Virginia during Colonial times were very much aware of the weather. They were a people that lived near the water and largely derived their livelihood from the sea. To them, a tropical storm was indeed a noteworthy event. The excellent records left by some of Virginia's early settlers and from official records of the National Weather Service are summarized in the "*Chronology of Middle Peninsula Hazard Events.*"

Since 1953, Atlantic tropical storms have been named from lists originated by the National Hurricane Center. The lists featured only women's names until 1979, after which male and female names were included in the lists for both the Atlantic and Gulf of Mexico storms. Whenever a hurricane has had a major impact, any country affected by the storm can request that the name of the hurricane be "retired" by agreement of the World Meteorological Organization (WMO). Retiring a name means that it cannot be reused for at least 10 years, to facilitate historic references, legal actions, insurance claim activities, etc. and to avoid public confusion with another storm of the same name. Retired names for storms that hit the Tidewater Region include Agnes (1972), Cleo (1964), David (1979), Donna (1960), Floyd (1999), Fran (1996), Gloria (1985), Gracie (1959), Hazel (1954), and Isabel (2003) (NOAA Atlantic Oceanographic and Meteorological Laboratory, Hurricane Research Division).

### **Middle Peninsula Storm Surge Hazard Maps**

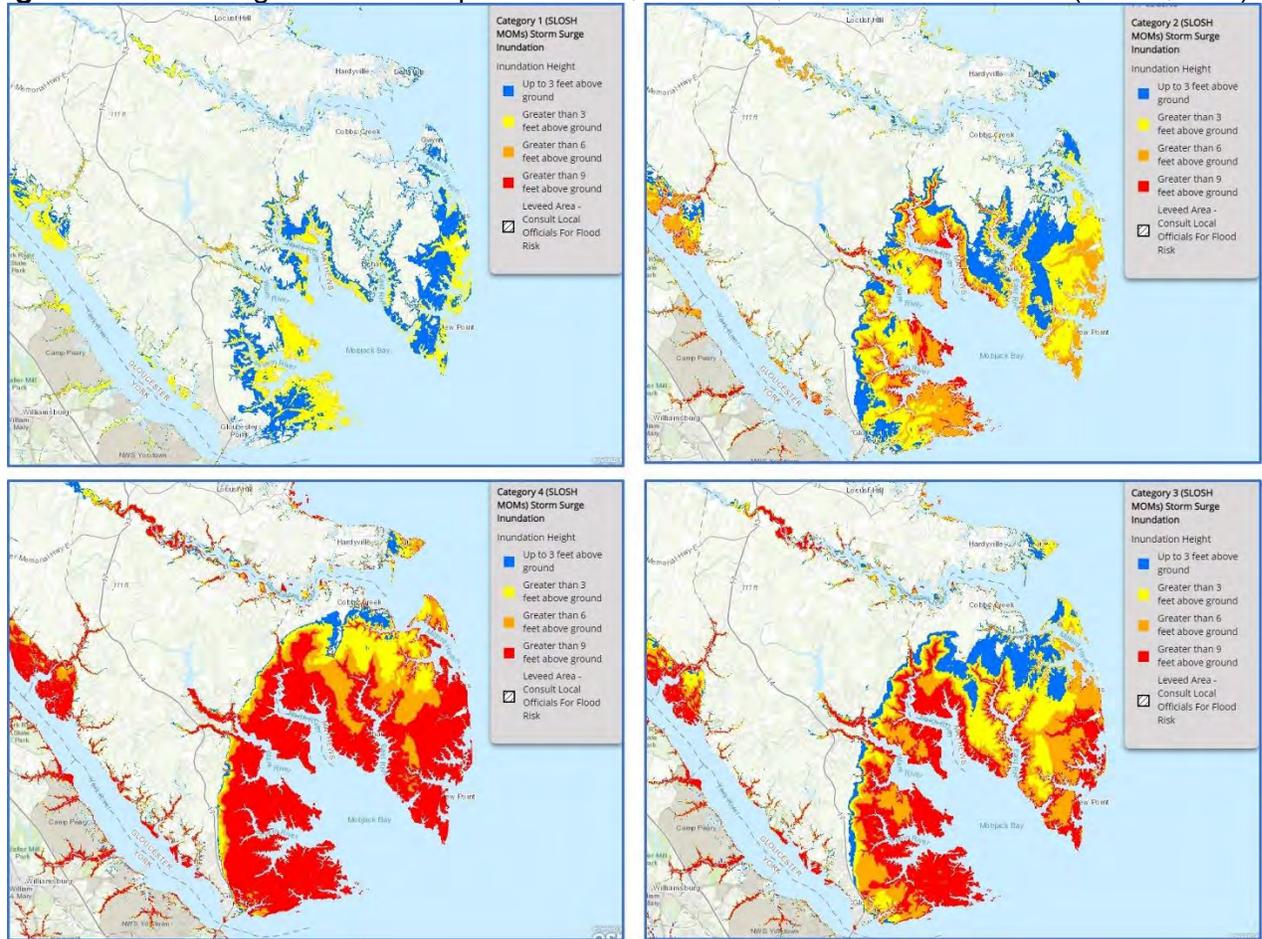
In order to estimate the geographic extent of potential damage from these hurricanes, a review of the 2008 Middle Peninsula Storm Surge Hazard Maps show the worst-case scenario of hurricane storm surge inundation at mean tide. Figures 29- 32 are maps developed by the U.S. Corp of Engineers in conjunction with the VDEM as part of their 2008 Virginia Hurricane Evacuation Study.

Due to the nature of the study, only Mathews, Gloucester and Middlesex Counties in the Middle Peninsula were included since they are considered coastal counties that suffer greatly from tidal surge impacts and therefore have impacts for evacuating residents from low-lying areas. Although the limits of the study only included the lower half of our region, it should be noted that all Middle Peninsula localities experienced storm surges during the latest severe storm - Hurricane Isabel in September 2003.

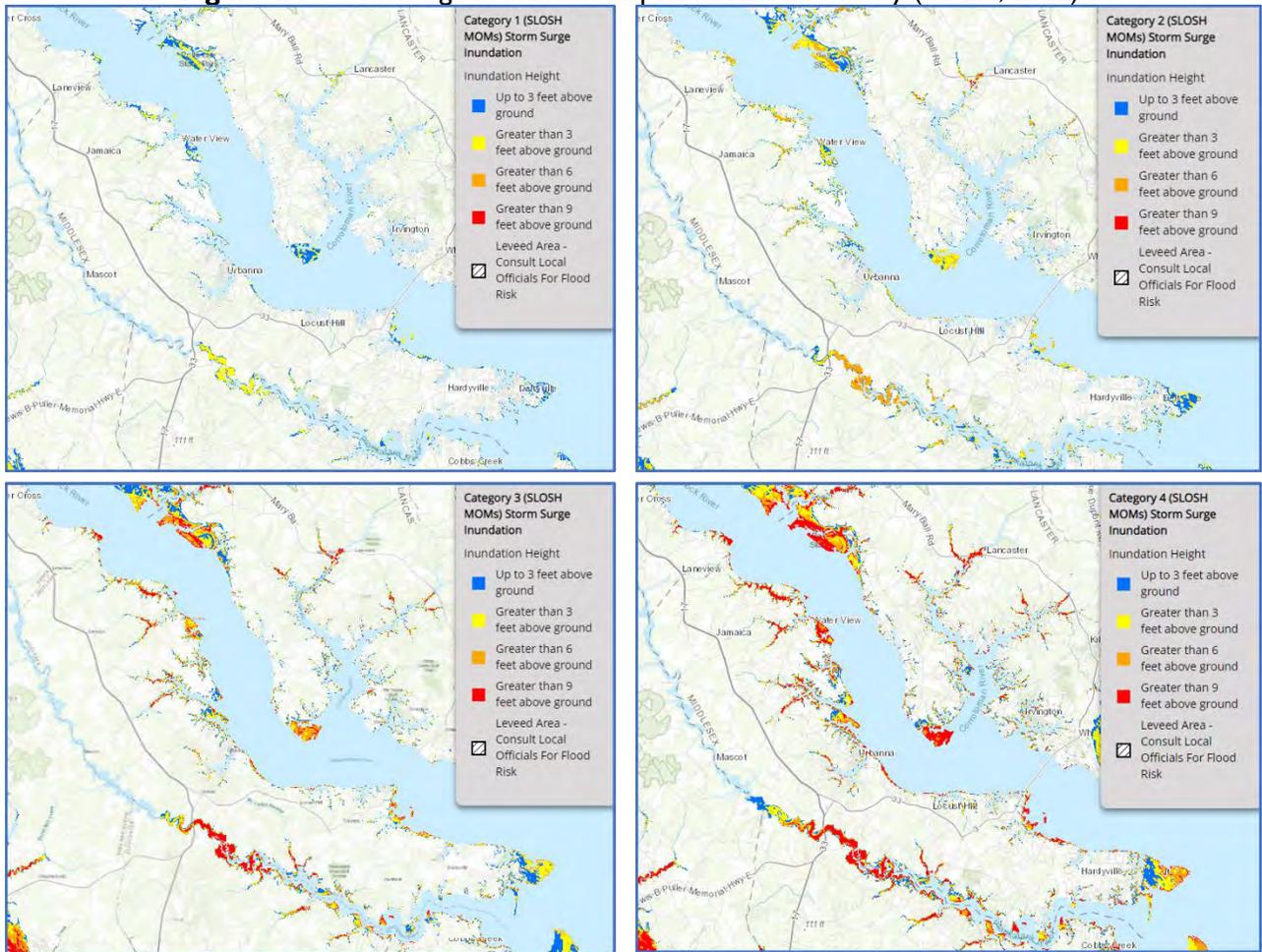
The data reflects only still saltwater flooding. Freshwater flooding may also occur with hurricane events from heavy rainfall runoff, and waves may accompany the surge and cause further inundation. The maps represent the surge from Category 1 through 4 hurricanes. State and federal officials do not include storm surges from a Category 5 hurricane since they do not believe that the ocean water temperature off of the Virginia Coast is warm enough for such an intense storm.

Figures 23 through 26 summarize surge height estimates using the SLOSH (Sea, Lake, and Overland Surges from Hurricanes) model is a numerical model used by the National Weather Service (NWS) to compute storm surge. Storm surge is defined as the abnormal rise of water generated by a storm, over and above the predicted astronomical tides. Flooding from storm surge depends on many factors, such as the track, intensity, size, and forward speed of the hurricane and the characteristics of the coastline where it comes ashore or passes nearby. For planning purposes, the National Hurricane Center (NHC) uses a representative sample of hypothetical storms to estimate the near worst-case scenario of flooding for each hurricane category.

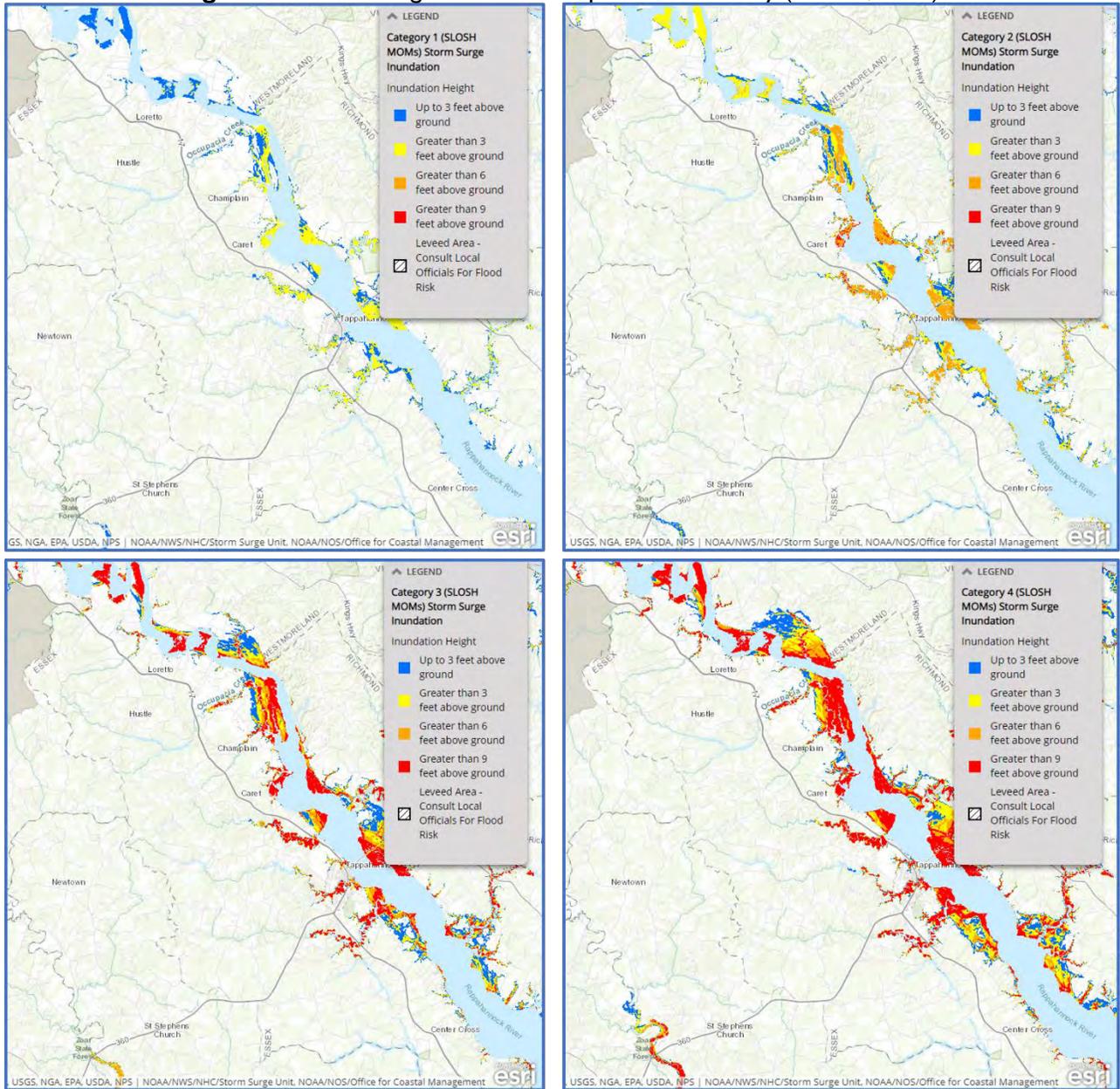
**Figure 23: Storm Surge Inundation Map of Middlesex, Gloucester, and Mathews Counties (NOAA, 2022).**



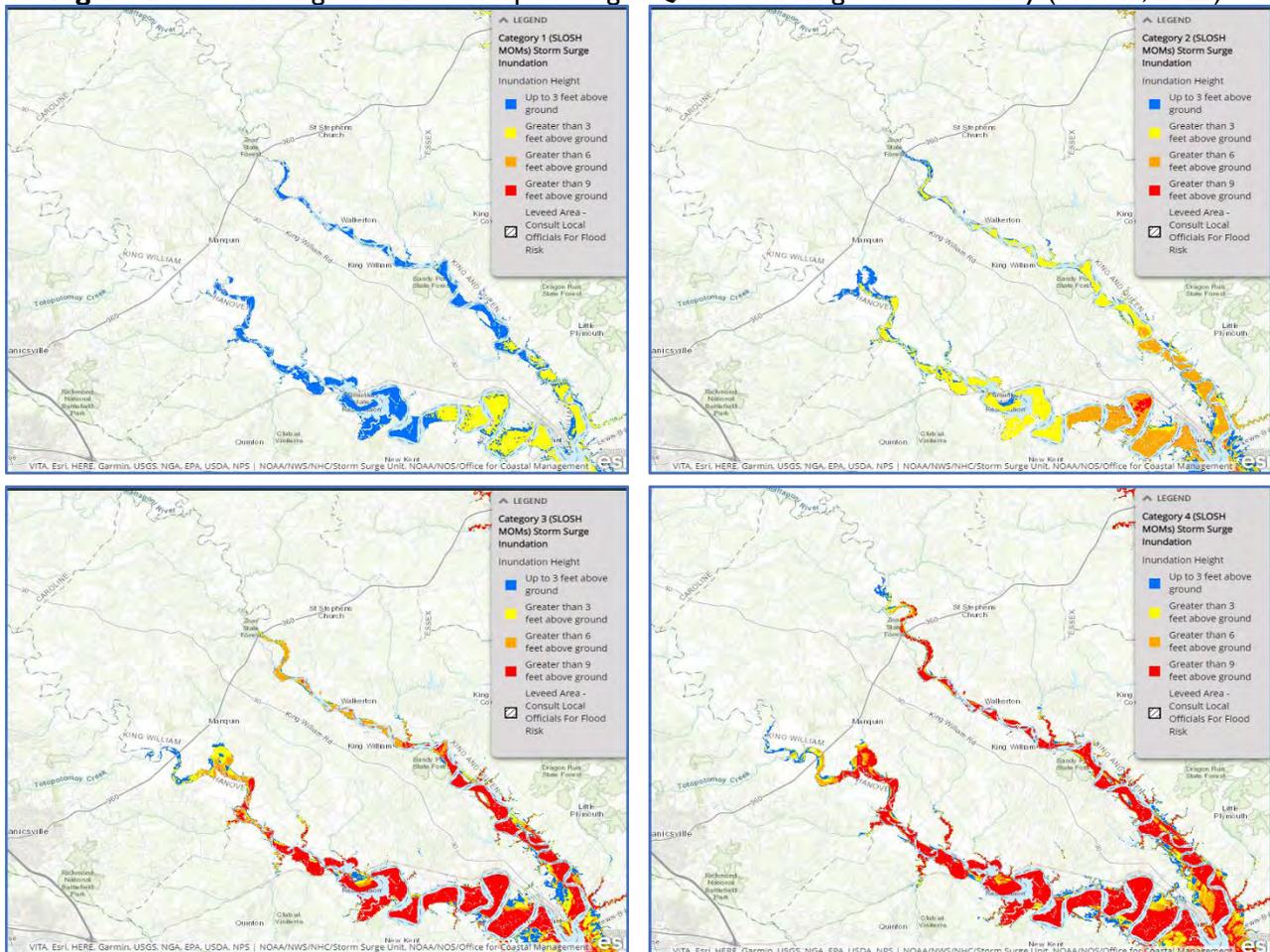
**Figure 24: Storm Surge Inundation Map of Middlesex County (VDEM, 2022).**



**Figure 25: Storm Surge Inundation Map of Essex County (NOAA, 2022).**



**Figure 26: Storm Surge Inundation Map of King & Queen and King William County (NOAA, 2022).**



### Historical Occurrences

In evaluating localized threats of hurricanes and tropical storms to the Middle Peninsula Region, NOAA hurricane tracking data from 1851 to 2020 was analyzed to identify storms that may have posed a threat to the region.

Based on this data, 90 storms - including hurricanes, tropical storms and tropical depressions - passed within 25 nautical miles of the Middle Peninsula Region. Of these storms 5 were hurricanes, 31 were tropical storms, 9 were tropical depressions, and 18 were extra-tropical storms (Table 22). Over the same period of time, 63 storms passed within 50 nautical miles of the region, including 13 hurricanes, 31 tropical storms, 9 tropical and subtropical depressions, and 18 extra-tropical storms (Table 22).

**Table 22:** Historic Storm Tracks within 50 and 25 nautical mile radii of the Middle Peninsula between 1851 and 2020.

Type of Storm	Quantity passing within 50 nm	Quantity passing within 25 nm
Hurricane – Category 5 (winds >157 mph)	0	0
Hurricane – Category 4 (winds 130-156 mph)	0	0
Hurricane – Category 3 (winds 111-129 mph)	1	0
Hurricane – Category 2 (winds 96-110 mph)	1	1
Hurricane – Category 1 (winds 74-95 mph)	11	4
Tropical Storm (winds 39-73 mph)	46	31
Tropical Depression (winds <38 mph)	9	9
Extra Tropical Storm	22	18
<b>Total:</b>	<b>90</b>	<b>63</b>

### General Chronology of Middle Peninsula Coastal Storm Hazard Events

Because of its proximity to the Atlantic Coast and Chesapeake Bay, the Middle Peninsula has been impacted by coastal storms throughout recorded history.

Hurricanes come close enough to produce hurricane force winds approximately three times every 20 years. Two or three times a century, winds and tides produce considerable damage and significantly threaten life. Historical records are invaluable to researchers trying to understand long-term patterns in the frequency and intensity of coastal storms and such data on storms and weather go back a long time in Virginia, thanks to record keeping by early weather observers such as George Washington, James Madison and Thomas Jefferson as well as journals/articles written by early settlers. The following is a brief synopsis of the major coastal storm events that have impacted the Middle Peninsula Region.

#### From 1564 to 1799

Hurricanes played an important role during the European exploration and colonization of the Americas. Great storms that besieged Virginia influenced the establishment of new settlements and changed the coastal geography, particularly on the Middle Peninsula. While official weather records did not begin until 1871 in Norfolk, tremendous coastal storms were often recorded through the shipwrecks they induced and in the writings of the early Virginia colonists.

The records of hurricane and tropical storm occurrences during this era are sparse compared to modern-day accounts, since the colonies were not settled until the early 1600's. The original settlers at Jamestown experienced the wrath of such storms firsthand and it is suggested that the lost colony of Roanoke Island may have been doomed by a coastal storm. The first such storm to be recorded occurred in 1564. Others followed in June 1566, June 1586, August 1587, and August 1591. A September 1667 storm, deemed the "Dreadful Hurry Cane of 1667", destroyed thousands of homes in Virginia (Brinkley, 1999). Twelve days of rain was said to have followed this storm, causing the Chesapeake Bay to rise 12 feet. This storm and a July 1788 hurricane may have followed a similar track as the 1933 hurricane, which caused massive devastation to the Middle Peninsula.

The October Hurricane of 1749 was a great disaster for Virginians. It formed Willoughby Spit in Norfolk and put the city streets of Hampton 4 feet below water. The Bay was said to have risen 15 feet above normal, destroying waterfront buildings (Ludlum, 1963). At least 50 vessels were driven ashore along the Virginia coast, with a loss of 22 lives. Damage in and around the city of Norfolk was estimated to be at least 30,000 Virginia Pounds (approximately \$3 million in today's currency – Brinkley, 1999).

The September 8, 1769, hurricane, considered one of the worst storms of the eighteenth century, passed over Williamsburg. Damage was "inconceivable" and crops were destroyed. Many old homes and trees were leveled. Heavy rain ruined tobacco crops and flooded roads. Tobacco in storage warehouses was also damaged. Heavy damage was seen in Chesapeake Bay. High winds tore off the top of a wharf at Yorktown and a schooner rammed a nearby storehouse. Four ships in the York River were driven ashore. Two ships on the James River were also wrecked. A vessel from Norfolk, filled with coal from Williamsburg, was forced up to Jamestown before it went to pieces (Roth and Cobb, 2001).

"The Independence Hurricane" of September 1775 ravaged the coast between Currituck, N.C., and Chincoteague on the Eastern Shore. Wharves and storehouses on the waterfront of Norfolk were devastated. Raging waters carried bridges away. At Williamsburg, mill-dams broke and corn stalks were blown flat. Many ships were damaged as they were thrown ashore at Norfolk, Hampton, and York. A full blockade of Hampton Roads thereafter brought shipping to a halt for three months. At least 25 died due to a shipwreck. On September 9, 1775, a Williamsburg correspondent of the Virginia Gazette wrote, "The shocking accounts of damage done by the rains last week are numerous; most of the mill-dams are broke, the corn laid almost level with the ground, and fodder destroyed; many ships and other vessels drove ashore and damaged at Norfolk, Hampton, and York. The death toll in Virginia and North Carolina was 163 lives (Roth and Cobb, 2001).

A strong gale played a role in a battle between the Royal Governor of Virginia, Dunmore, and General Lewis of the rebel forces on July 10, 1776. The royal fleet had been injured prior to the storm by General Lewis' forces and was sailing from Gwynn's Island (Mathews County) toward St. George's Island, in the Potomac. The British crew was without water and enduring smallpox when the gale struck. A flour-laden supply ship ran aground. One ship foundered at the Mouth of the Rappahannock, while another was stranded on the Eastern shore (Roth and Cobb, 2001).

On October 16, 1781, a storm of "unknown character" struck Virginia. The French Fleet and the Patriot Army, under the command of George Washington, trapped the Earl of Cornwallis at Yorktown. The Earl decided to flee to the north to Gloucester Point under the cover of darkness. A "furious storm" doomed the plan to failure, as seas ran high, and every boat was "swamped." He sent forward his flag of truce and surrendered, thus ending the battle (Roth and Cobb, 2001).

The "most tremendous gale of wind known in this country" passed over the Lower Chesapeake Bay September 22-24, 1785 and went along a track very similar to the Chesapeake-Potomac Hurricane of 1933 and likely severely impacted the Middle Peninsula. At Norfolk, lower stories of dwellings were flooded. Warehouses were totally carried away by the storm surge, causing large amounts of salt, sugar, corn, and lumber to disappear. A large number of cattle drowned, and people hung onto trees for dear life during the tempest. Vessels floated inland into cornfields and wooded areas (Roth and Cobb, 2001).

"George Washington's Hurricane" of July 23-24, 1788, made landfall in Virginia and passed directly over the Lower Chesapeake Bay and Mount Vernon, the home of George Washington. This track is very similar to the track of the Chesapeake-Potomac Hurricane of 1933. At Norfolk, winds increased at 5 p.m. on the 23rd with the wind originating from the northeast. At 12:30 a.m., the wind suddenly shifted to the south and "blew a perfect hurricane, tearing down chimneys, fences, and leveling corn." In addition, large trees were uprooted, and houses were moved from their foundations. Port Royal (Caroline County) and Hobb's Hole (Essex County) experienced a violent northeast gale, which drove several vessels ashore. In Fredericksburg, great quantities of corn, tobacco, and fruit were destroyed. Houses and trees fell in great numbers across Northumberland, Lancaster, Richmond and Westmoreland Counties on the Northern Neck. Crops were destroyed and many livestock perished in lower Mathews County. Many plantations saw their houses leveled. Homes were flooded with water six feet deep and several inhabitants drowned.

Gloucester County was inundated, and an estimated \$400,000 (in 1788 dollars) in damage was incurred (Roth and Cobb, 2001).

### **1800-1899**

Great Coastal Hurricane of 1806 (August 23) caught British and French ships off guard, while engaged in the Napoleonic Wars in the U.S. shipping lanes. The British man-of-war *L'Impeteax* drifted under jury masts for 23 days before finally beaching near Cape Henry. Ships of the two warring nations put in for repair and refitting at the port of Norfolk after the storm. This hurricane, due to its slow movement and consequent erosion of the coastline, completed the creation of Willoughby Spit at Hampton Roads. A seawall built to prevent further erosion at Smith Point lighthouse at the mouth of the Potomac River was damaged (Roth and Cobb, 2001).

A severe coastal storm dropped heavy rains on the Fredericksburg area in January 1863. It rained for 30 hours, dropping more than twelve inches, making mud so deep that mules and horses died attempting to move equipment. The rivers became too high and swift to cross, disrupting the Union Army offensive operation in the ill-famed "Mud March" (Watson and Sammler, 2004).

The Gale of '78 was one of the most severe hurricanes to affect eastern Virginia in the latter half of the 19th century and struck on October 23, 1878. This hurricane moved rapidly northward from the Bahamas on October 22nd and struck the North Carolina coast later that same day moving at a forward speed of 40 to 50 mph. The storm continued northward passing through east central Virginia, Maryland, and eastern Pennsylvania. Cobb and Smith Islands on the Eastern Shore were completely submerged during this storm (Roth and Cobb, 2001).

A September 1882 tropical storm, the "protracted and destructive rainstorm", swept away four mills near Ware's Wharf along the lower Rappahannock. The brunt of the cyclone only extended fifty miles inland. Heavy rains were also seen at Washington, D.C. (Roth and Cobb, 2001).

During an April 1889 Nor'easter, the Tidewater Region had sustained winds from the north of 75 mph measured at Hampton Roads and 105 mph at Cape Henry. Tides at Norfolk reached 8.37 feet above Mean Low Water, which is over 4 feet above flood stage level (Watson and Sammler, 2004).

Noteworthy hurricanes or tropical storms also occurred in September 1821 (one of the most violent on record for the 19th century), June 1825, August 1837, September 1846 (which formed Hatteras and Oregon Inlets in North Carolina), August 1850, September 1856, September 1876, August 1879, October 1887, August 1893, September 1894, October 1897 (tides in Norfolk rose 8.1 feet above Mean Lower Low Water), and October 1899 (tide in Norfolk rose 8.9 feet above Mean Lower Low Water).

### **From 1900 to 1999**

A number of coastal storms hit the Tidewater Region in the early part of the 20th century. Hurricanes and tropical storms in October 1903, August 1924, September 1924, August 1926, and September 1928 each brought high winds (in excess of 70 mph measured in Norfolk and in Cape Henry). The 1903 and 1928 storms also raised tides as much as 9 feet and 7 feet, respectively, higher than normal in the region (Roth and Cobb, 2001).

The summer of 1933 was the most active storm season for eastern Virginia in the 20th century. Two hurricanes, one on August 23 and one on September 16, struck the North Carolina and Virginia coasts and caused much devastation on the Middle Peninsula. In Chesapeake lore, the "Storm of '33" is recalled by older residents and enshrined in legend as the worst storm in memory (Mountford, 2003). The August

storm brought winds in excess of 80 mph and a storm surge that forced the tide nearly 10 feet above normal.

The September storm struck the area 24 days later and had sustained winds as high as 88 mph (measured at the Naval Air Station in Norfolk) and the tide reached 8.3 feet above Mean Lower Low Water (Roth and Cobb, 2001). Much of the land around the New Point Comfort lighthouse, the third oldest light on the Bay located at the entrance to Mobjack Bay and the mouth of the York River in Mathews County, was washed away and caused the lighthouse to be stranded on a very small island a few 100 yards from the tip of the mainland.

Hurricane Hazel hit eastern Virginia on October 15, 1954. This storm brought with it gusts of 100 mph which is the highest wind speed record at the Norfolk Airport location. A reliable instrument in Hampton recorded 130 mph winds (Roth and Cobb, 2001).

A severe nor'easter gave gale force winds (40+ mph) and unusually high tides to the Tidewater Virginia area on April 11, 1956. At Norfolk, the strongest wind gust was 70 mph. The strong northeast winds blew for almost 30 hours and pushed up the tide, which reached 4.6 feet above normal in Hampton Roads. Thousands of homes were flooded by the wind-driven high water and damages were huge. Two ships were driven aground. Waterfront fires were fanned by the high winds. The flooded streets made access by firefighters very difficult, which added to the losses (Watson and Sammler, 2004).

The "Ash Wednesday Storm" hit Virginia during "Spring Tide" (sun and moon phase to produce a higher-than-normal tide) on March 5-9, 1962. The storm moved north off the coast past Virginia Beach and then reversed its course moving again to the south and bringing with it higher tides and higher waves which battered the coast for several days. The storm's center was 500 miles off the Virginia Capes when water reached 9 feet at Norfolk and 7 feet on the coast. Huge waves toppled houses into the ocean and broke through Virginia Beach's concrete boardwalk and sea wall. Houses on the Middle Peninsula also saw extensive tidal flooding and wave damage. The beaches and shorefront had severe erosion (Watson and Sammler, 2004).

Hurricane Cleo in September 1964 produced the heaviest coastal rainfall in the area (11.40 inches in 24 hours) since records began in 1871 (Roth and Cobb, 2001).

Hurricane Agnes was downgraded to a tropical depression by the time it moved into Virginia in June 1972, but the rainfall produced by Agnes made this storm more than twice as destructive as any previous hurricane in the history of the United States (Roth and Cobb, 2001).

In July 1996, Hurricane Bertha passed over portions of Suffolk and Newport News. Bertha spawned 4 tornadoes across east-central Virginia. The strongest, an F1 tornado, moved over Northumberland County injuring 9 persons and causing damages of several million dollars. Other tornadoes moved over Smithfield, Gloucester and Hampton (Roth and Cobb, 2001).

In September 1999, Hurricane Floyd produced 10 to 20 inches of rain on saturated ground and resulted in a recorded 500-year flood for Franklin, VA. While North Carolina and southeastern Virginia were hit with the brunt of this storm, significant damage from downed trees and localized flooding occurred and all of the counties of the Middle Peninsula were included in the Federal Disaster Declaration (FEMA FEMA-1293-DR, Virginia).

### **From 2000 to 2009**

Hurricane Isabel hit the coasts of North Carolina and Virginia on September 18, 2003. It was a Category 1 hurricane when it made landfall. The highest sustained wind was 72 mph at Chesapeake Light. Storm surge varied significantly across the region. At Sewell's Point in Norfolk, the maximum water level was 7.9 feet above MLW. This represented a 5-foot storm surge - the biggest in the region since Hurricane Hazel in 1954. Thirty-six deaths were attributed to Hurricane Isabel in Virginia, including one in Gloucester County. Total damages for the Hampton Roads area amounted to \$506 million.

In 2004, Tropical Storm Gaston caused serious damage to a handful of VDOT Secondary Roads in the Central Garage/Manquin sections of King William County.

In 2006, Tropical Storm Ernesto caused residential and roadway flooding damage as well as beach erosion damage in Mathews County.

There were an additional 5 named tropical events during this period to hit the Middle Peninsula region resulting in minor severe weather damage.

In 2009 Middle Peninsula coastal localities experienced a significant Nor-Easter with high winds and coastal flooding.

### **From 2010-2015**

Hurricane Irene was hit the coast of North Carolina and had impacts on the Virginia coastal on August 26-27, 2011. Heavy rain, including some totals more than 10 inches, fell on eastern sections of Virginia. Irene lashed the eastern third of Virginia with tropical storm and isolated hurricane force gusts.

In early September 2011, the remnant of Tropical storm Lee produced flash flooding in some sections of eastern Virginia, with the Washington, DC, suburbs particularly hard hit.

Hurricane Sandy was a season hurricane that passed off the Mid Atlantic coast, before turning west, and striking the New Jersey & New York coast on October 29, 2012. Sandy was a very large storm that was transitioning from a tropical to a non-tropical storm as it moved north paralleling the U.S. East coast during the October 27-29 time frame. Sandy's impact was relatively small in Virginia, with very heavy rainfall and some flooding the biggest impacts. The most significant impact was felt on the DELMARVA, especially on the east side of the Chesapeake Bay from Salisbury, MD southward to Onancock, VA, where severe coastal flooding and storm surge inundated many areas, as Sandy passed by to the north. Crisfield, MD and Saxis, VA were hardest hit, with millions of dollars in damage to homes and businesses. Damage and flooding were worse than that which occurred in the same area during Hurricane Floyd (1999).

On record for the 2014 season, eight name tropical or subtropical storms formed in the North Atlantic. Six of these became hurricanes and two of these reached major hurricanes of Category 3 or higher on the Saffir-Simpson Hurricane Scale. Six of the hurricanes, Arthur, Bertha, Cristobal, Edouard, Fay, Gonzalo and Hanna, and one tropical storm struck the United States. According to the NWS, activity in the basin in 2014 was only about 63% of the 1981-2010 average.

### **From 2016-2020**

Tropical Storm Hermine moved northeast along the Southeast Coast then off the Mid-Atlantic Coast producing tropical storm force winds, minor to moderate coastal flooding, and heavy rainfall. Gloucester Courthouse reported 0.43 inches of rain.

Hurricane Dorian tracking northeast along the North Carolina coast and just off the Virginia coast produced tropical storm winds and associated wind damage across parts of southeast Virginia in May 2019. Within the Middle Peninsula, Gloucester, and Mathews Counties were impacted. Storm winds downed trees and power lines that caused power outages.

In August 2020, the center of Tropical Storm Isaias tracked north just inland of the Middle Atlantic Coast. The tropical storm produced tropical storm force winds and associated wind damage across Gloucester, Mathews, and Middlesex Counties.

### **Soil Erosion**

Hurricanes and nor'easters produce severe winds and storm surges that create significant soil erosion along rivers and streams in the Middle Peninsula. In addition to the loss of soil along these water bodies, there is damage to man-made shoreline hardening structures such as bulkheads and rap-rap as well as to piers, docks, boat houses and boats due to significant storm surges.

These damages are more severe along the broad open bodies of water on major rivers located closer to the Chesapeake Bay. In general terms, the damage is less intense as you move up the watershed from the southeastern area of the region towards the northwestern end of the Middle Peninsula. Therefore, the soil erosion would be most severe in Mathews, Gloucester and Middlesex Counties and to a lesser degree in the 3 remaining Middle Peninsula Counties of King and Queen, King William, and Essex Counties.

The location and the angle at which these hurricanes/nor'easters come ashore region can significantly affect the amount of soil erosion during a particular storm. It can generally be said that hurricane generated soil erosion is uneven in occurrence and that the storm surge affords 2 opportunities for erosion – once as water inundates low-lying amount coast lands and again as floodwaters ebb.

For example, with Hurricane Isabel in 2003, its enormous wind field tracked in a north-northwest direction to the west of the Chesapeake Bay with the right front quadrant blowing from the south-southeast. This pushed the storm surge up the Bay and piling it into the western shore – causing serious soil erosion to the eastern land masses in Mathews, Gloucester and Middlesex Counties.

Destructive as it was, Hurricane Isabel might have been worse. If it had been stronger at landfill, the storm surge generated in the Chesapeake Bay may have been higher. Had it stalled along its path and lingered through several tide cycles, prolonged surge conditions, exacerbated by high winds, might have cause more severe erosion. If rainfall has been higher, bank erosion due to slope failure might have been more common, particularly given the wetter than normal months that preceded Hurricane Isabel.

#### **4.4.4. Communicable Disease**

According to the Commonwealth of Virginia Hazard Mitigation Plan (2018), *A communicable disease is an illness caused by an infectious agent or its toxic products that develops when the agent or its product is transmitted from an infected person, animal, or arthropod to a susceptible host. Infectious agents include viruses, bacteria, fungi, parasites, or aberrant proteins called prions. The infectious agent might spread by one of several mechanisms, including contact with the infected individual or his or her body fluids, contact with contaminated items or a vector, or contact with droplets or aerosols. An infection, which is the actual spread of the infectious agent or its toxic product, is not synonymous with disease because an infection may not lead to the development of clinical signs or symptoms. Examples of communicable diseases include Zika virus, pandemic influenza, Ebola, Middle East Respiratory Syndrome (MERS), tuberculosis, COVID-19, hepatitis A, and pertussis (also known as whooping cough).*

## Vulnerability

Weather and climate have significant effects on both human and animal health. With changes in climate, the frequency, severity, duration, and location of weather and climate phenomena, changes should be expected, such as rising temperatures, heavy rains, and droughts. Changes in weather and climate can affect health by changing the severity and/or frequency of health problems that are already in play, and by creating unanticipated or unforeseen health problems or threats that have not previously existed.

Many communicable diseases are transmitted by vectors, such as mosquitoes, ticks, and fleas. Vectors can transmit an array of pathogens, such as viruses, bacteria, and protozoa, that can cause illness in humans (or humans and animals). The seasonality and prevalence, as well as distribution patterns, of vector-borne illnesses are influenced by climate factors, such as temperature and humidity. It is anticipated that changes in climate may have both short-term and long-term effects on both vector-borne disease transmissions and infection patterns. This will affect seasonal risk and possibly lead to broad geographic changes in disease patterns over time. Because of the number of factors involved in predicting how changes in climate may impact communicable disease transmission, it is difficult to predict how, exactly, climate change will impact vector-borne illness transmission.

In addition, it is possible that changes in climate may allow or encourage the emergence of new or significantly altered illnesses, heretofore unknown to the medical community.

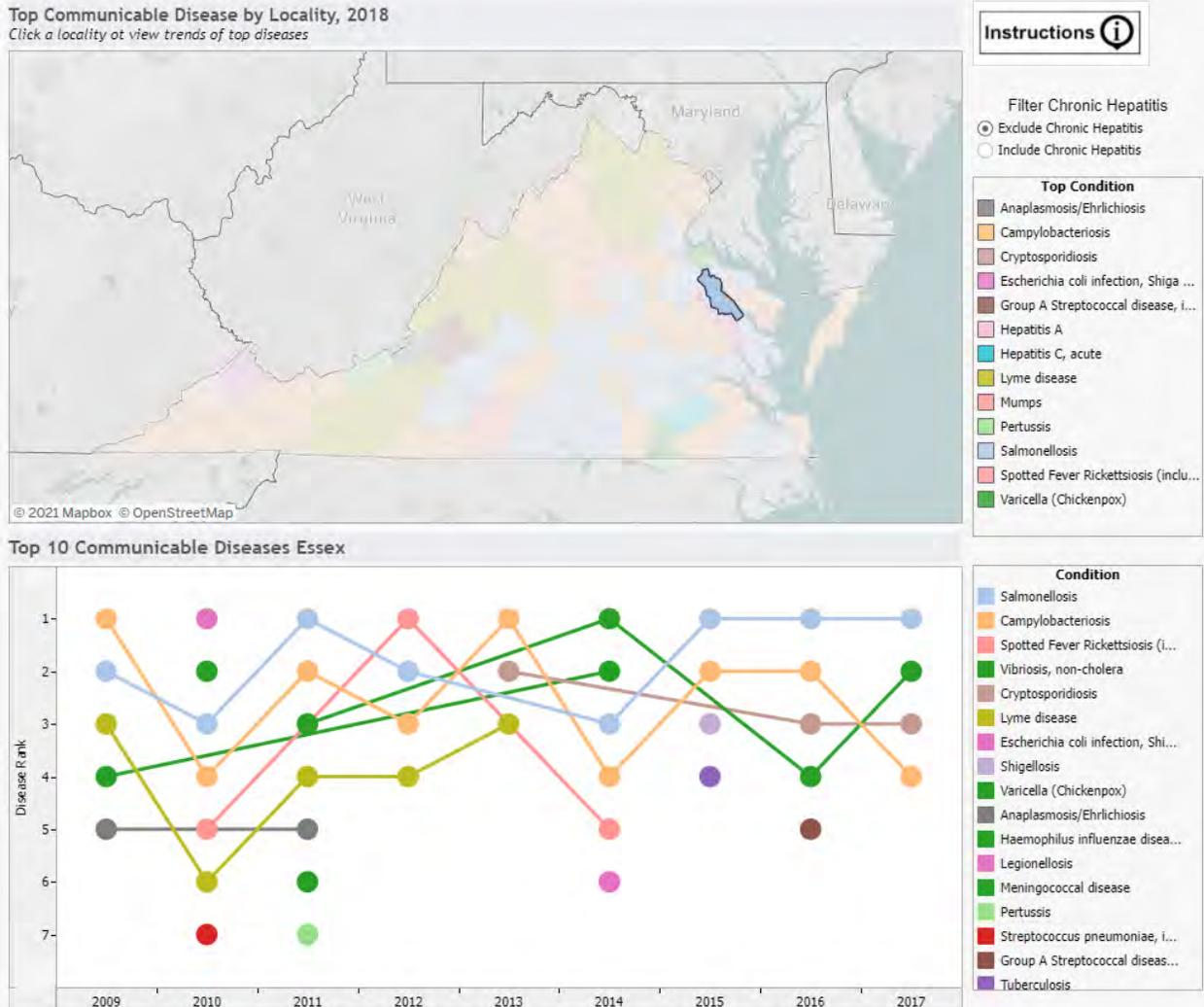
The hazard ranking for communicable disease is based primarily on the population count and population density for each jurisdiction. No geographic extent data was available for probability estimation; each jurisdiction was assigned a value of low (1) for ranking purposes. Property and crop damages were ranked as low for this hazard, as the hazard is unlikely to impact property and crops. Injuries and fatalities and events were estimated as medium (3) for all jurisdictions, to account for each jurisdiction's susceptibility to communicable disease. The parameters in the communicable disease risk assessment are described in the following table, along with the total ranking.

Locality	Population Vulnerability	Population Density	Injuries & Fatalities	Property Damage	Crop Damage	Events	Geographic Extent	Total Risk Ranking
Essex	Low	Low	Medium	Low	Low	Medium	Low	Medium-Low
Gloucester	Medium	Medium	Medium	Low	Low	Medium	Low	Medium-Low
King William	Low	Low	Medium	Low	Low	Medium	Low	Medium-Low
King & Queen	Low	Low	Medium	Low	Low	Medium	Low	Medium-Low
Mathews	Low	Medium	Medium	Low	Low	Medium	Low	Medium-Low
Middlesex	Low	Medium	Medium	Low	Low	Medium	Low	Medium-Low

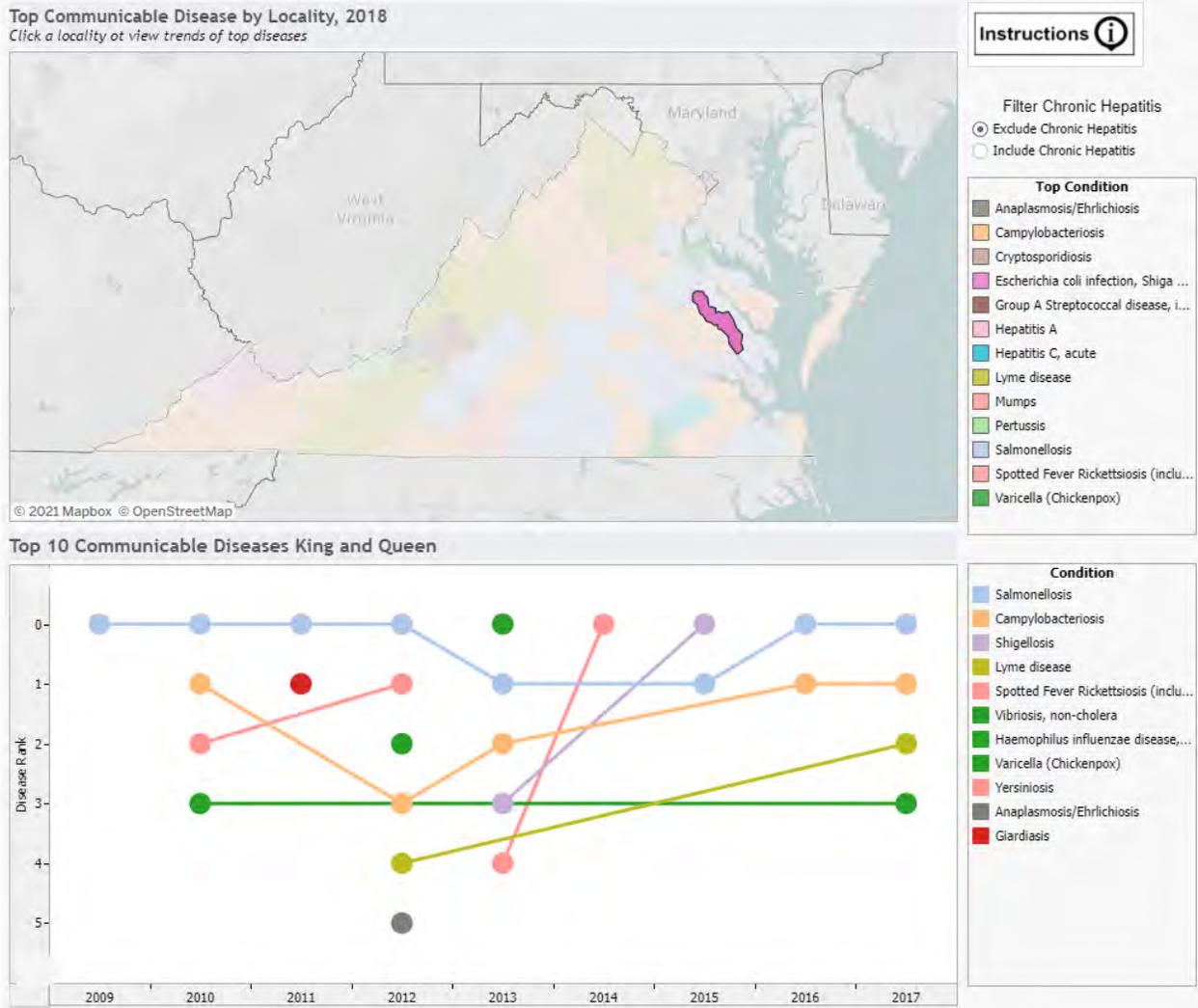
## Impact

The Virginia Department of Health (VDH) tracks reportable diseases throughout the Commonwealth and provides data on the top communicable illnesses by county for 2018 (the most recent year for which data are available). Figure 27 to 32 provides the incidence rate for the top ten communicable diseases across Middle Peninsula localities.

**Figure 27:** Within Essex County, Salmonellosis was the most frequently reported disease with 2 cases. This equates to a rate of 18.1 cases per 100,000 population (VDH, 2021).

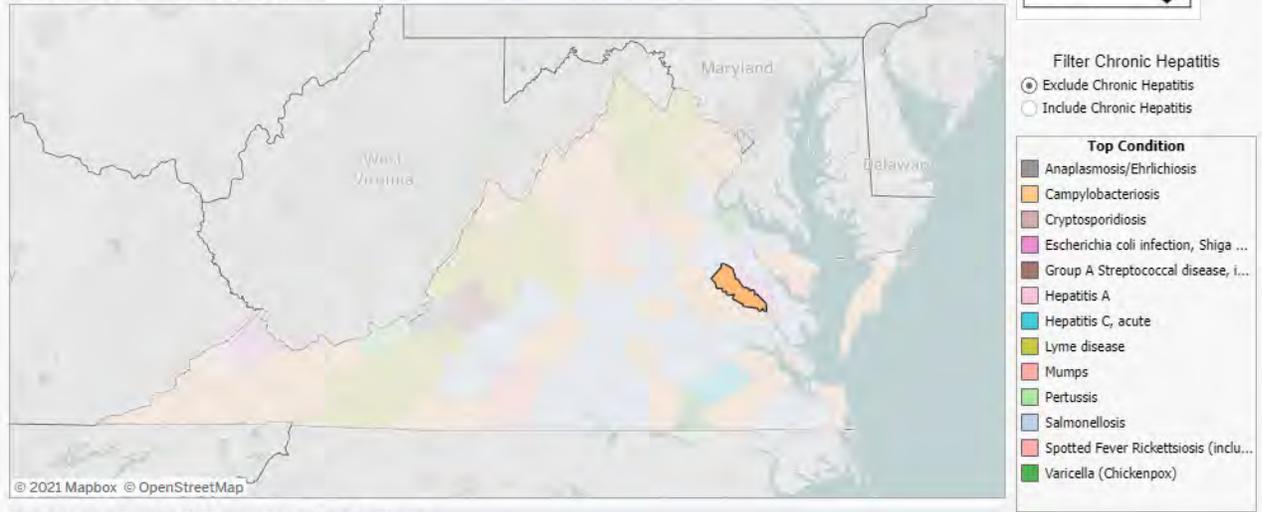


**Figure 28:** Within King & Queen County, Escherichia coli infection, Shiga Toxin-Producing was the most frequently reported disease with 2 cases. This equates to a rate of 28.6 cases per 100,000 population (VDH, 2021).

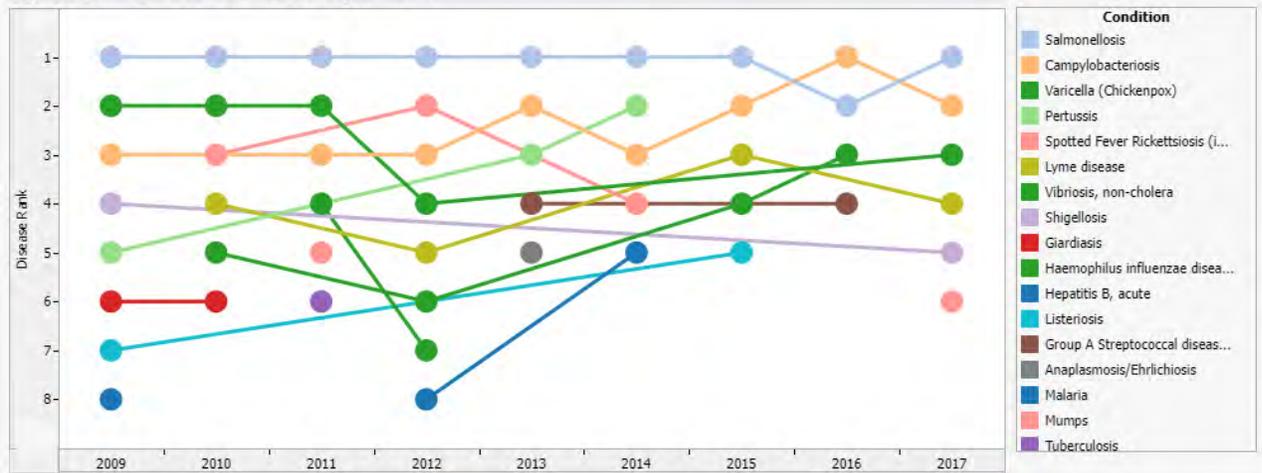


**Figure 29:** Within King William County, Campylobacteriosis was the most frequently reported disease with 7 cases. This equates to a rate of 41.9 cases per 100,000 population (VDH, 2021).

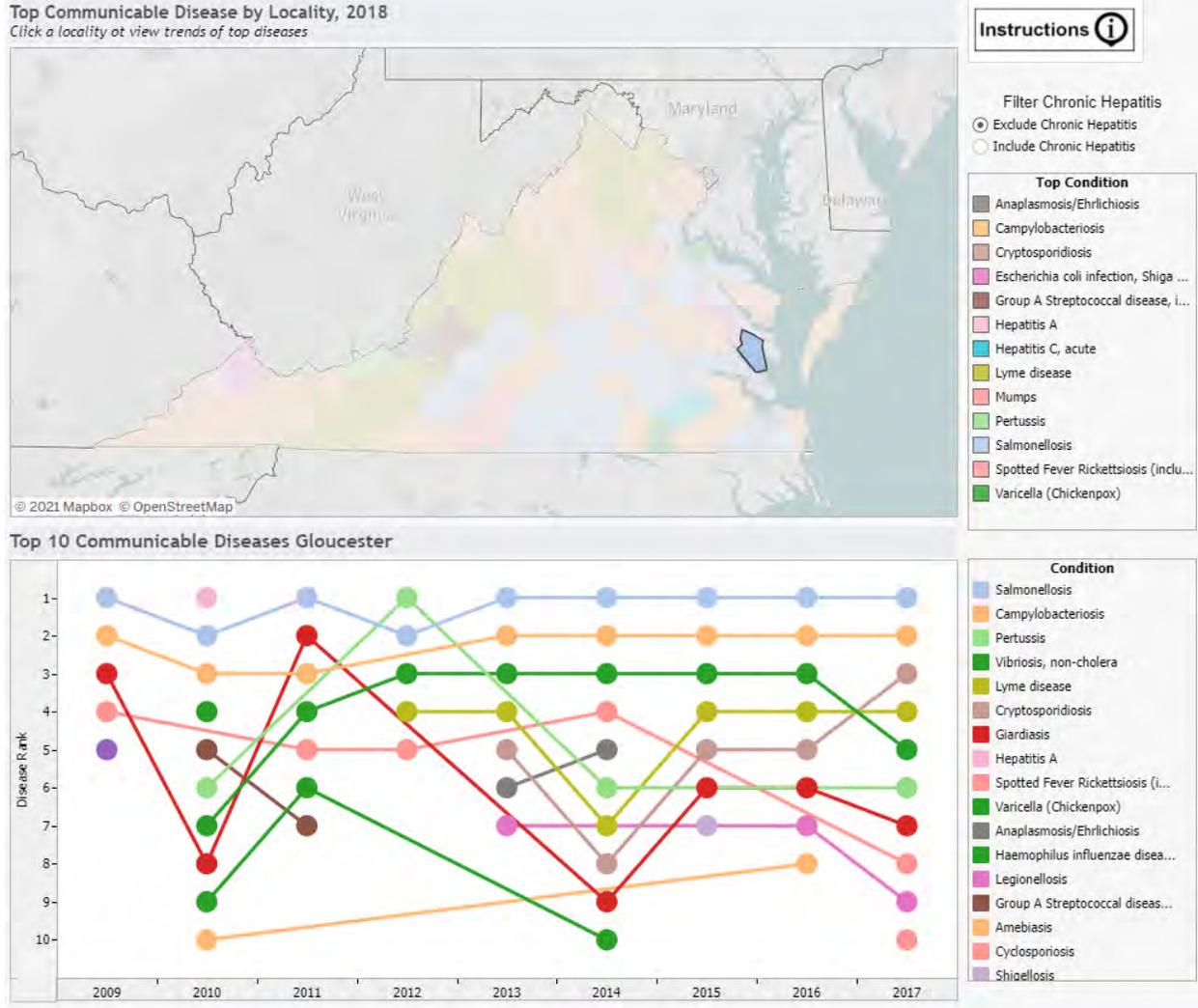
**Top Communicable Disease by Locality, 2018**  
 Click a locality to view trends of top diseases



**Top 10 Communicable Diseases King William**

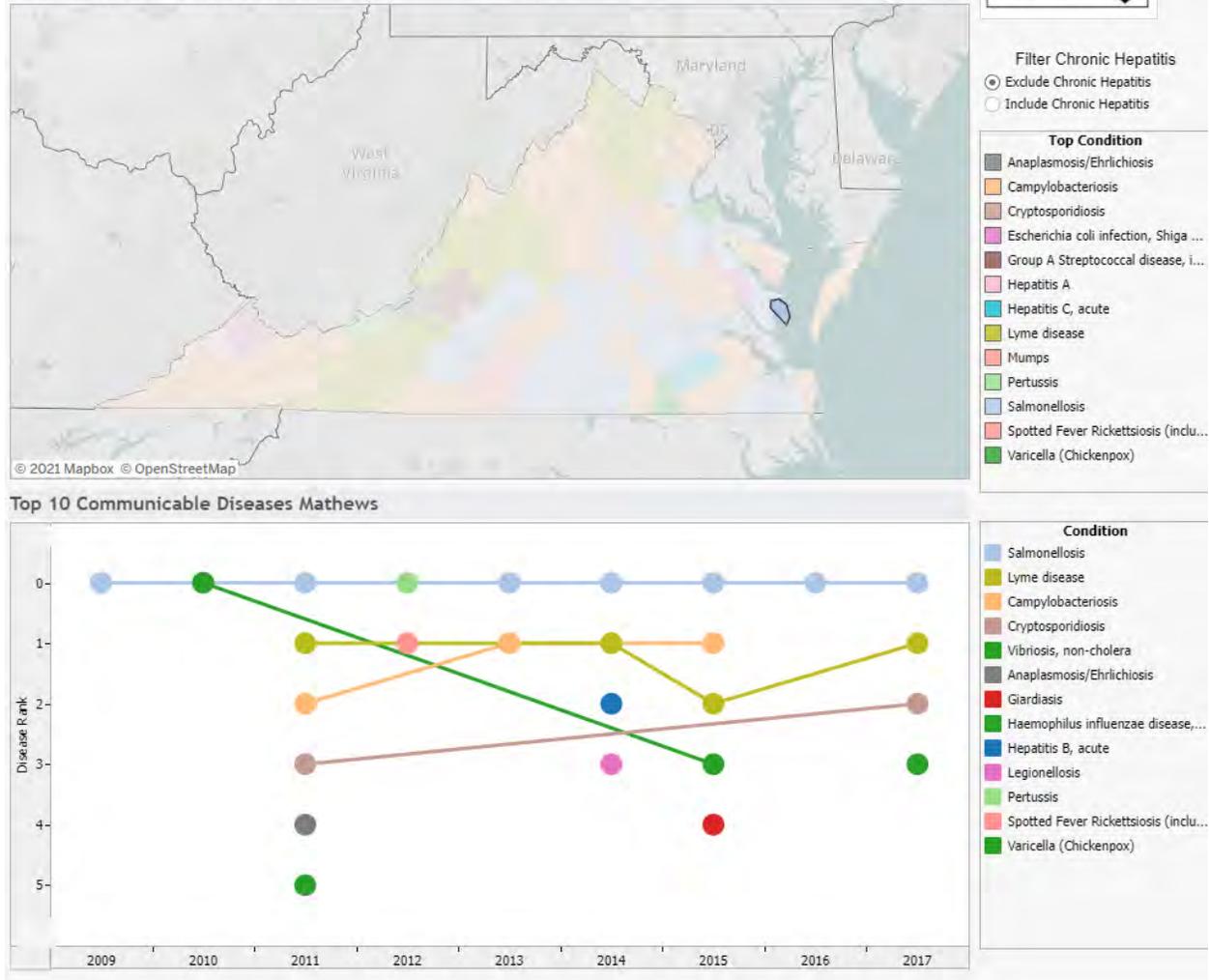


**Figure 30:** Within Gloucester County, Salmonellosis was the most frequently reported disease with 12 cases. This equates to a rate of 32.2 cases per 100,000 population (VDH, 2021).

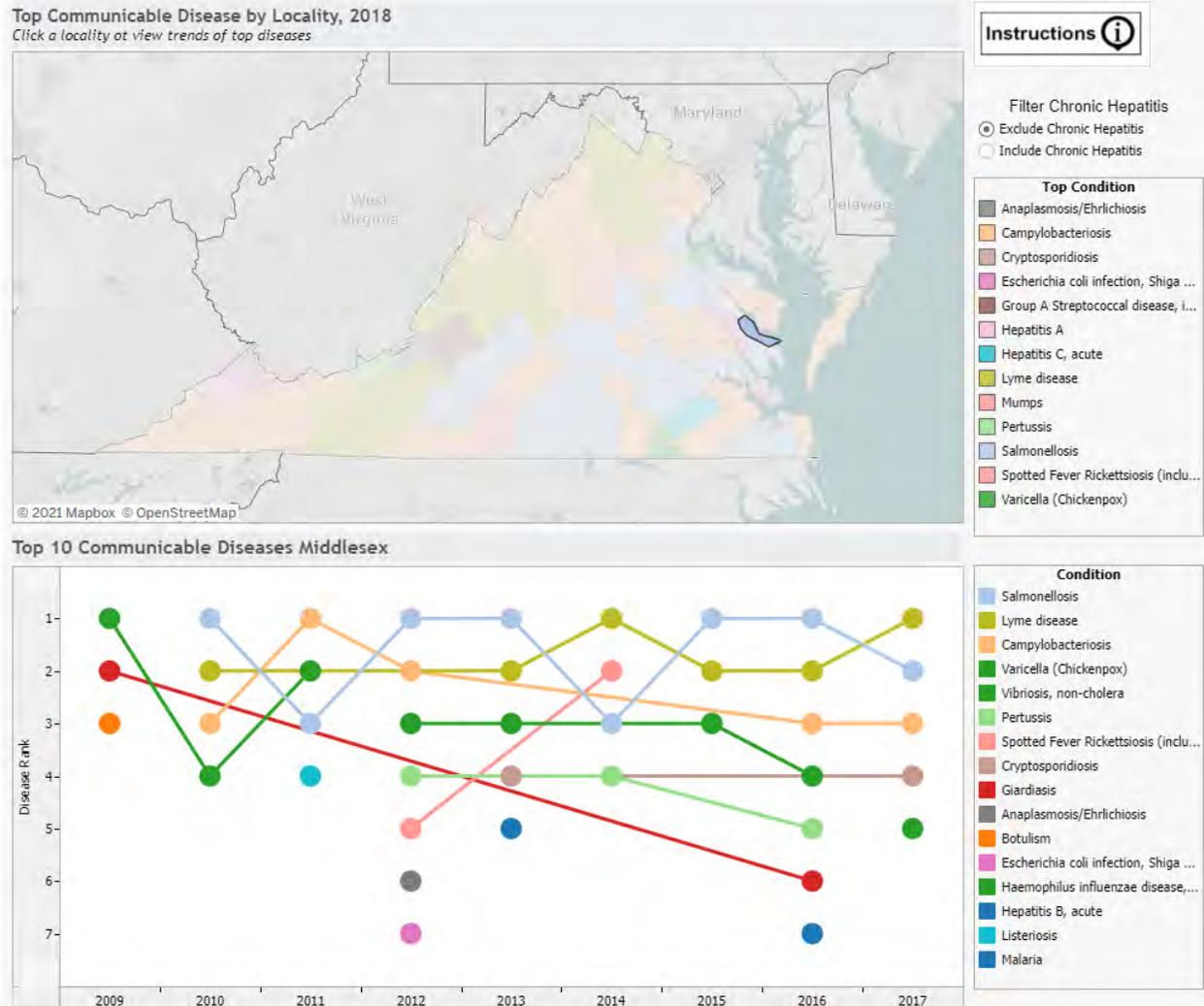


**Figure 31:** Within Mathews County, Salmonellosis was the most frequently reported disease with 4 cases. This equates to a rate of 45.6 cases per 100,000 population (VDH, 2021).

Top Communicable Disease by Locality, 2018  
 Click a locality to view trends of top diseases



**Figure 32:** Within Middlesex County, Salmonellosis was the most frequently reported disease with 5 cases. This equates to a rate of 46.8 cases per 100,000 population (VDH, 2021).



In early 2020, Coronavirus disease (COVID-19) surfaced and grew to pandemic proportions for the entire world. According to the World Health Organization (2021), *COVID-19 is an infectious disease caused by the SARS-CoV-2 virus. Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, some will become seriously ill and require medical attention. Older people and those with underlying medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, or cancer are more likely to develop serious illness. Anyone can get sick with COVID-19 and become seriously ill or die at any age.*

The Three Rivers Health District in Virginia includes Middle Peninsula Localities and Northern Neck Localities. Based on VDH data of the pandemic, Three Rivers Health District recorded the following cases during pandemic:



# COVID-19 in Virginia: Demographics



## Select Health District

(Affects Boxed Numbers and Health District Bar Charts)  
Three Rivers

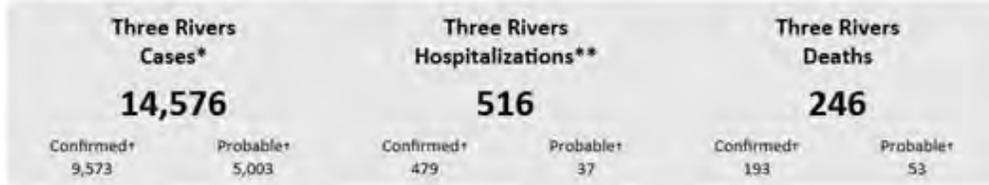
## Select Measure

(Affects All Bar Chart)

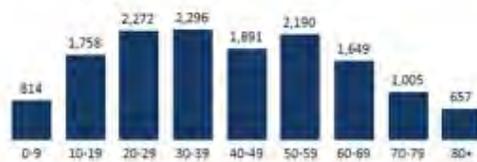
- Cases
- Hospitalizations
- Deaths

Dashboard Updated: 10/6/2021  
Data entered by 5:00 PM the prior day.

Current Selection: Three Rivers



Cases by Age Group - Three Rivers



Not Reported: 44

Cases by Age Group - Virginia



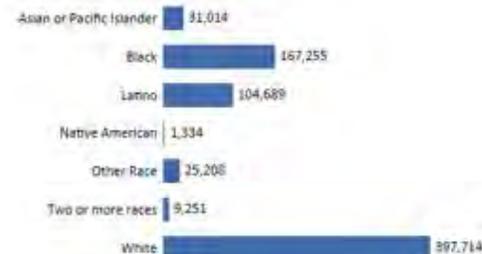
Not Reported: 22,779

Cases by Race and Ethnicity<sup>^</sup> - Three Rivers



Not Reported: 1,905

Cases by Race and Ethnicity<sup>^</sup> - Virginia



Not Reported: 145,972

Cases by Sex - Three Rivers

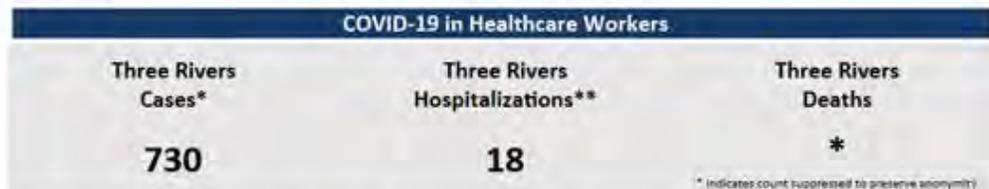


Not Reported: 87

Cases by Sex - Virginia



Not Reported: 6,481



\* Includes both people with a positive test (Confirmed), and symptomatic with a known exposure to COVID-19 (Probable).  
 \*\* Hospitalization status at time case was investigated by VDH. This underrepresents the total number of hospitalizations in Virginia.  
 † VDH adopted the updated CDC COVID-19 2021 Surveillance Case Definition on September 1, 2021 which is found here: <https://nccd.cdc.gov/surveillance/virginia/covid/case-2019-2021>  
 Source: Cases - Virginia Electronic Disease Surveillance System (VEDSS), data entered by 5:00 PM the prior day.  
 \* For more information about how VDH is presenting race and ethnicity data for COVID-19, please read our blog post: <https://www.vdh.virginia.gov/covid19/2021/06/16/race-ethnicity-covid-19-reporting-updates/>

Three Rivers Health District also recorded deaths during the pandemic:



To summarize Middle Peninsula data, Table 23 shows covid-19 cases, hospitalizations, and deaths from March 2020 to the present (October 2021).

Locality	Cases	Hospitalizations	Deaths
Essex County	1,167	55	15
Gloucester County	3,712	87	64
King & Queen County	592	39	8
King William County	1,808	68	22
Mathews County	863	29	19
Middlesex County	909	32	27
Total	9,051	310	155

In an effort to curb the spread of COVID-19 the Center of Disease Control has been encouraging vaccination. Table 24 shows the Middle Peninsula regional vaccination summary (from Spring 2020 to October 2021).

	Essex Co.	Gloucester Co.	King & Queen Co.	King William Co.	Mathews Co.	Middlesex Co.	Regional Total
<b>Vaccine Doses Administered:</b>	11,826	39,637	6,994	17,373	10,111	12,402	98,343
<b>People With At Least One Dose:</b>	6,342	21,306	3,824	9,381	5,371	6,676	52,900
<b>People Fully Vaccinated:</b>	5,825	19,481	3,487	8,545	4,932	6,112	48,382
<b>At Least One Dose Rate per 100,000:</b>	57,902	57,047	54,434	54,706	60,799	63,088	
<b>Fully Vaccinated Rate per 100,000:</b>	53,182	52,161	49,637	49,831	55,830	57,758	
<b>Percent of the Population with At Least One Dose:</b>	57.90%	57.00%	54.40%	54.70%	60.80%	63.10%	
<b>Percent of the Population Fully Vaccinated:</b>	53.20%	52.20%	49.60%	49.80%	55.80%	57.80%	
<b>Percent of the Adult Population with At Least One Dose:</b>	67.10%	67.60%	63.00%	66.30%	69.50%	71.80%	
<b>Percent of the Adult Population Fully Vaccinated:</b>	62.00%	62.00%	57.60%	60.70%	64.00%	66.00%	

#### 4.4.5. Flooding

There are variety of flooding sources impacting Middle Peninsula localities, including stormwater, riverine flooding, coastal flooding, and ditch flooding. Flooding is partial or complete inundation of normally dry land areas.

*Riverine flooding* is defined as the overflow of rivers, streams, drains, and lakes due to excessive rainfall, rapid snowmelt, or ice. This type of flooding is different from *coastal flooding*, which is caused by storm surge and wave action and affects coastal areas, especially those along the beachfront. There are several types of riverine floods, including headwater, backwater, interior drainage, and flash flooding. Flash flooding is characterized by rapid accumulation or runoff of surface waters from any source. This type of flooding impacts smaller rivers, creeks, and streams and can occur because of dams being breached or overtopped. Because flash floods can develop in a matter of hours, most flood-related deaths result from this type of event.

Periodic flooding of lands adjacent to non-tidal rivers and streams is a natural and inevitable occurrence. When stream flow exceeds the capacity of the normal water course, some of the above-normal stream flow spills over onto adjacent lands within the floodplain. Riverine flooding is a function of precipitation levels and water runoff volumes within the watershed of the stream or river. The recurrence interval of a flood is defined as the average time interval, in years, expected to take place between the occurrence of a flood of a particular magnitude and an equal or larger flood. Flood magnitude increases with increasing recurrence interval.

The major rivers of the Middle Peninsula are tidal in nature, serving as estuarine tributaries of the Chesapeake Bay. Flood hazard varies by locality and type of flooding. Riverine flooding is more of a threat to mountainous regions, where population areas typically lie in narrow valleys, which lack the ability to store and dissipate large amounts of water. Consequently, stream flow tends to increase rapidly.

Riverine flooding was addressed during the flood mitigation planning process and mitigation strategies in this update will include:

1. Continuing to maintain and enforce a strong NFIP,
2. Investigating the feasibility of undertaking a FEMA-promoted Community Rating System (CRS) for enhanced floodplain protection policies, and
3. Actively promoting public education programs about development in and adjacent to areas with a history of flooding from rivers and creeks.

##### 4.4.5-1 Riverine Flooding

As riverine flooding is defined as the overflow of rivers, streams, drains, and lakes due to excessive rainfall, rapid snow melt, rapid ice melt or a combination of all three and this type of flooding involves the partial or complete inundation of normally dry land areas. It differs from coastal flooding, which is caused by a combination of rain, storm surge and wave action and affects coastal areas, especially those along the beachfront.

Approximately 60% of Virginia's river flooding begins with flash flooding from tropical systems passing over or near the state. Riverine flooding also occurs because of successive rainstorms. Rainfall from any one storm may not be enough to cause a problem, but with each successive storm's passage over the basin, rivers rise until eventually they overflow their banks. If this occurs in late winter or spring, melting snow in the mountains can produce additional runoff that can compound flooding problems.

There are several types of riverine flooding including headwater, backwater, interior drainage, and flash flooding:

**Headwater flooding** results from significant rain events that occur at the upper reaches of a watershed that then flow downstream within a short period of time.

**Backwater flooding** results when the lower portion of a river or stream is blocked by debris or backed up due to a storm surge along the coast.

**Interior drainage flooding** results when a dam gives way and the water being held in the impoundment is released all at once to the downstream receiving channel.

**Flash flooding** is characterized by rapid accumulation and runoff of surface waters from any source. This type of flooding impacts smaller rivers, creeks, and streams and can occur because of dams being breached or overtopped. Because flash floods can develop in a matter of hours, most flood-related deaths result from this type of event.

Although flash flooding is more of a threat in the steeper mountainous regions of the state where population areas typically lie in narrow valleys that lack the ability to store and dissipate large amounts of water, some of the hilly areas in the upper reaches of the Middle Peninsula watersheds can experience rapid increase in stream flow resulting in some riverine flooding and subsequent threats to life and property.

**Periodic flooding** of lands adjacent to non-tidal rivers and streams is a natural and inevitable occurrence. When stream flow exceeds the capacity of the normal water course, some of the above-normal stream flow spills over onto adjacent lands within the floodplain. Riverine flooding is a function of precipitation levels and water runoff volumes within the watershed of the stream or river.

The recurrence interval of a flood is defined as the average time interval, in years, expected to take place between the occurrence of a flood of a particular magnitude and a second one of equal or greater magnitude. Flood magnitude increases with increasing recurrence interval. The interval most referred to and also the basis for many local government regulations is known as the 100-year flood or storm event.

The major rivers in the lower Middle Peninsula are tidal in nature and they serve as estuarine tributaries of the Chesapeake Bay. Flood hazards vary due to the river's location and the type of storm event taking place.

### **Riverine Flooding Vulnerability**

Populations and property are extremely vulnerable to flooding. Homes, business, public buildings and critical infrastructure may suffer damage and be susceptible to collapse due to heavy flooding. Floodwaters can carry chemicals, sewage, and toxins from roads, factories, and farms; therefore any property affected by the flood may be contaminated with hazardous materials. Debris from vegetation and man-made structures may also be hazardous following the occurrence of a flood. In addition, floods may threaten water supplies and water quality, as well as initiate power outages, and create health issues such as mold.

### **Riverine Flooding Extent (Impact)**

The FEMA Special Flood Hazard Area designations area associated with the probability of flooding (Table 25).

<b>Zone V</b>	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined
<b>Zone VE</b>	Coastal flood zone with velocity hazard (wave action); wave heights above 3 feet; Base Flood Elevations determined.
<b>Zone A</b>	100 Year flood area (1% annual change of flood). Base Flood Elevations determined.
<b>Zone AE</b>	100-year flood area (1% annual chance of flood). Base Flood Elevations determined.
<b>Zone AO</b>	Subject to 100-year shallow flooding with flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); Base Flood Elevations undetermined
<b>Zone X</b>	Areas with 0.2% annual chance of flood or less; areas in 100-year flood zone with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
<b>Zone X500</b>	The same description as Zone X, however, this area falls between the 100 and 500-year flood zone.
<b>UNDES</b>	Area in which flood hazards are undetermined.

#### **4.4.5- 2 Ditch Flooding**

As per the Commonwealth of DEQ Guidance Memorandum No. 08-2004 Regulation of Ditches under the Virginia Water Protection (VWP) Program, ditch is defined as a linear feature excavated for the purpose of draining or directing surface or groundwater. Ditches may also be constructed to collect groundwater or surface water for the purposes of irrigation.

#### **Ditch Flooding Vulnerability**

Throughout the Middle Peninsula of Virginia, the network of aging roadside ditches and outfalls, serving 670 miles of roads, creates the region’s primary stormwater conveyance system. Currently each locality in the region experiences inadequate drainage and as a result, roads and private properties are frequently flooded after a storm event. The lowest lying localities (ie. Mathews and Gloucester County) are more vulnerable to ditch flooding as most of their land is either at or slightly above sea level. This low topography and lack of grade does not assist the flow of water out of areas. Therefore, roadway flooding frequently cuts residents and business off from the county and emergency services for extended periods of time. Flooding has also caused the county school system to be closed due safety concerns. Flooding, risks to public health and safety, property damage, and long-term loss of property use and values are consequences of the inadequate drainage systems, all of which ultimately negatively impact the economy of the Middle Peninsula.

Conditions contributing to the failure of the drainage system, include, but are not limited to, the following:

1. A lack of maintenance, including removal of sediment and overgrown vegetation, causing slopes to be inadequate or reverse slope and/or tides not allowed to recede;
2. Insufficient elevation change (topographic constraints);
3. Cross-culverts are filled with sediment, not adequately maintained, damaged, and/or installed with an inadequate / reverse slope;
4. Unclear ownership and ditch maintenance responsibility (VDOT or private);
5. Sea level rise; and
6. Land subsidence.

When high exposure to hurricanes, nor’easters, tropical storms, sea level rise, and land subsidence is coupled with clogged roadside ditches and outfalls, illicit filling of the ditches on private property, and/or failing ditches,

there are significant social, economic, and environmental impacts.

### **Ditch Flooding Extent (Impact)**

Ditch flooding is currently measured through observations. Currently in Mathews County a citizen group records observations and takes photos of the ditch flooding. Additionally in 2015 the Draper Aden Associated partnered with Mathews County to develop a Stormwater Ditch Steering Committee that consisted of private citizens, VDOT, and MPPDC representatives. Areas within Mathews were selected to focus on that were prone to ditch flooding and were called priority areas. These priority areas were visited, and existing conditions were noted. Based on findings in the field, DAA provided site recommendations to improve the given ditch as well as associated costs of the improvements. This information will be the basis of a roadside ditch database underdevelopment in 2016.

### **4.4.5-3 Coastal Flooding**

According to the Commonwealth of Virginia Hazards Mitigation Plan coastal flooding occurs when strong onshore winds push water from an ocean, bay or inlet onto the land. In addition, coastal areas experience flooding from overland flow, ponding and inadequate storm water drainage. Coastal flooding may arise from tropical cyclones (hurricanes and tropical storms) or Nor'easters (extra tropical storms).

Flooding is the most frequent and costly natural hazard in the United States - besides fire. Nearly 90% of Presidential Disaster Declarations result from natural events where flooding is a major component. Excess water from snowmelt, rainfall, or storm surge accumulates and overflows onto adjacent floodplains and other low-lying land adjacent to rivers, lakes, ponds and the Chesapeake Bay. Based on data

Coastal flooding is typically a result of storm surge, wind-driven waves, and heavy rainfall. These conditions are produced by hurricanes during the summer and fall, and nor'easters and other large coastal storms during the winter and spring. Storm surges may overrun barrier islands and push sea water up coastal rivers and inlets, blocking the downstream flow of inland runoff.

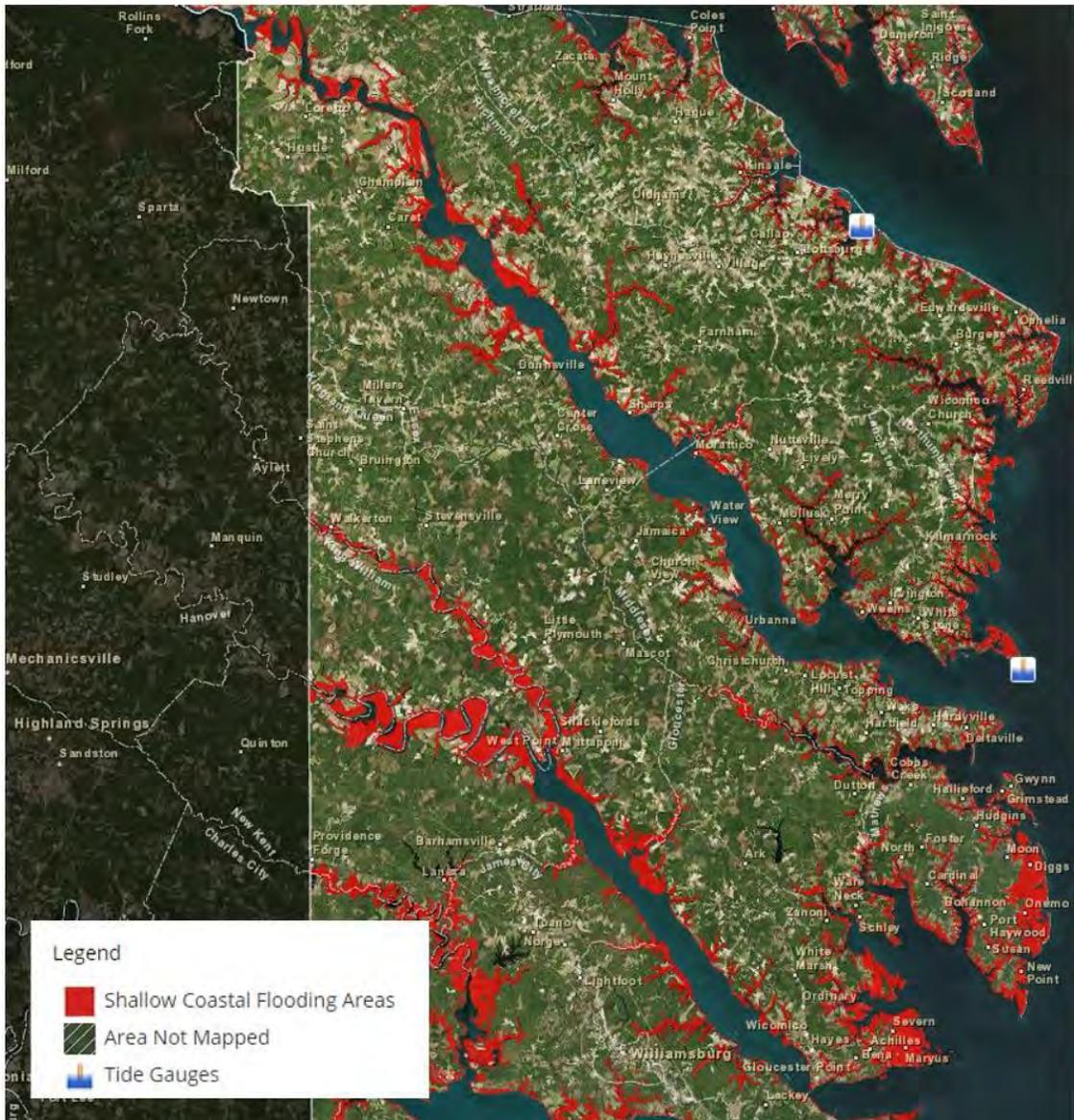
### **Coastal Flooding Vulnerability**

Thousands of acres of crops and forest lands may be inundated by both saltwater and freshwater. Escape routes, particularly from barrier islands, may be cut off quickly, stranding residents in flooded areas and hampering rescue efforts. Coastal flooding is very dangerous and causes the most severe damage where large waves are driven inland by the wind. Wind driven waves destroy houses, wash away protective dunes, and erode the soil so that the ground level can be lowered by several feet. Because of the coastal nature of the Middle Peninsula, the region is very susceptible to this type of flooding and resulting damage.

Based on NOAA's Coastal Management Digital Coast Database frequent shallow flooding occurs in the Middle Peninsula region. As many coastal areas experience periodic mini-to-moderate shallow coastal flooding events – typically as result of meteorological factors that include high tides, winds, and rain. Figure 33 is a map of the Middle Peninsula showing the areas impacting the coastal areas. One can see that there is varying degree of impact amongst Middle Peninsula localities.

Figure 33:

Frequent Shallow Coastal Flooding in Middle Peninsula Virginia  
(NOAA, 2015)



**Coastal Flooding Extent (Impacts)**

To help identify coastal flooding, FEMA will conduct engineering studies referred to as Flood Insurance Studies (FISs). Using the information gathered in these studies, FEMA engineers and cartographers delineate Special Flood Hazard Areas (SFHAs) on flood maps. SFHA are subject to inundation by a flood that has a 1-percent or greater chance of being equaled or exceeded in any given year. This type of flood is commonly referred to as the 100-year flood or base flood. A 100-year flood is not a flood that occurs every 100 years. In fact, the 100-year flood has a 26 percent chance of occurring during a 30-year period, the length of many mortgages. The 100-year flood is a regulatory standard used by Federal agencies and most states,

to administer floodplain management programs. The 100-year flood is also used by the NFIP as the basis for insurance requirements nationwide.

#### **4.4.5-4 Stormwater Flooding**

Storm water can be a cause of or a contributing factor to flash or urban flooding. Flooding increases as solid surfaces replace permeable surfaces or natural green spaces, as storm water is unable to filter into the landscape. Storm water deposits sediment that decreases the depth and flow capacity of waterways (natural and manmade), further increasing flooding. Storm water runoff flooding is most evident in areas where urbanization has occurred. Changes in land use have a major impact on both the quantity and quality of storm water runoff. Impervious cover decreases the amount of rainwater that can naturally infiltrate into the soil, thereby increasing the volume and rate of storm water runoff.

Stormwater may enter surface waters directly or through natural and constructed channel systems. Pollution, such as automobile oil, grease, metals, sediment, bacteria from animal waste, fertilizers, and pesticides, even deposits from airborne pollutants can contaminate the runoff.

Unmanaged stormwater can cause erosion and flooding. It can also carry excess nutrients, sediment and other contaminants into rivers and streams. Properly managed stormwater can recharge groundwater and protect land and streams from erosion, flooding, and pollutants.

Within the Middle Peninsula, roadside ditches are the region's stormwater conveyance system. Therefore, high water tables, clogged roadside ditches or unmaintained ditches may not be adequate to move water away from roads or infrastructure.

#### **Stormwater Vulnerability**

As climate change is expected to create more severe storms this means more water to manage. Therefore, as mentioned previously, when high exposure to hurricanes, nor'easters, tropical storms, sea level rise, and land subsidence is coupled with clogged roadside ditches and outfalls, illicit filling of the ditches on private property, and/or failing ditches and high water tables, there are significant social, economic, and environmental impacts.

#### **Stormwater Extent (Impact)**

The entire region is impacted by stormwater; however, those localities and communities that are lower in elevation and/or have a higher water table will experience more impacts to flooding due to stormwater since the water has nowhere to go.

Buildings are in danger from hydrostatic loads, which occur when flood waters come into contact with a building, its foundation, or a building element. Inadequately elevated buildings on shallow foundations are most in danger from vertical hydrostatic forces (buoyancy or flotation). Such buildings are vulnerable to uplift from flood and wind forces because the weight of a foundation or building element is much less when submerged than when not submerged (FEMA Coastal Construction Manual, 2011). Hydrodynamic loads are a function of flow velocity and structural geometry and can destroy walls, push structures off foundations, and carry sediment and debris (FEMA Coastal Construction Manual, 2011).

In addition to stormwater impacts on infrastructure, stormwater may also impact agriculture. If water sits on agricultural fields for too long periods, this could decrease crop yields.

## **Middle Peninsula Resources at Potential Risk of Loss Floodplain Properties and Structures**

While floodplain boundaries are officially mapped by FEMA's National Flood Insurance Program (NFIP), flood waters sometimes go beyond the mapped floodplains and/or change courses due to natural processes (e.g., accretion, erosion, sedimentation, etc.) or human development (e.g., filling in floodplain or floodway areas, increased imperviousness areas within the watershed from new development, or debris blockages from vegetation, cars, travel trailers, mobile homes, and propane tanks).

Since the floodplains in the United States are home to over 9 million households and there continues to be a high demand for residential and commercial development along water features, most property damage results from inundation by sediment and debris-filled water. Flooding is one of the most significant hazards faced by the Middle Peninsula. A majority of the flooding that has damaging effects on the region is tidal flooding, which primarily occurs in conjunction with severe coastal storms such as hurricanes or nor'easters.

In addition to tidal flooding, some regions of the Middle Peninsula are subject to flooding events induced by rain associated with a hurricane or a tropical storm, which can produce extreme amounts of rainfall in short periods of time. In August 2004, Tropical Storm Gaston dumped 14 inches of rain in a matter of hours on King William County, washing out numerous roads and bridges. This storm qualified the county for disaster aid through a Presidential Disaster Declaration.

Flooding of vacant land or land that does not have a direct effect on people or the economy is generally not considered a problem. Flood problems arise when floodwaters cover developed areas, locations of economic importance, infrastructure, or any other critical facility. Low-lying land areas of Essex, Gloucester, Mathews, and Middlesex Counties and the lower reaches of King and Queen and King William Counties are highly susceptible to flooding, primarily from coastal storm when combined with tidal surges.

These flood-prone regions include marsh areas adjacent to waterways, and the wide, flat outlets where its streams and rivers meet the Chesapeake Bay and its tributaries. Fluctuations in the surrounding water levels produce a mean tidal range of approximately 3 feet. The timing or coincidence of maximum surge-producing forces with the normal high tide is an important factor in consideration of flooding from tidal sources. Strong winds from the east or southeast can push Chesapeake Bay water into the mouth of the York and Rappahannock Rivers and Mobjack Bay – thereby flooding lower portions of the Middle Peninsula. This surge combined with the normal high tide can increase the mean water level by 15 feet or more.

The Flood Insurance Rate Maps (FIRMs) show flooding during a 100-year storm event or, in other words, the storm that has a 1% chance of being equaled or exceeded in any given year. The FIRMs account for both coastal surge driven flooding, as well as flooding generated from rain events. The 1% annual-chance-flood (or the 100-year flood as it is commonly referred to) represents a magnitude and frequency that has a statistical probability of being equaled or exceeded in any given year. Another way of looking at it is that the 100-year flood has a 26% (or a 1 in 4) chance of occurring over the life of a 30-year mortgage on a home (FEMA, 2002).

Along with nearly 20,000 communities across the country, all of the localities in the Middle Peninsula voluntarily participate in the National Flood Insurance Program by adopting and enforcing floodplain management ordinances in order to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities (FEMA, 2002).

The U.S. Congress established the National Flood Insurance Program (NFIP) with the passage of the National Flood Insurance Act of 1968. Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Flood damage is reduced by nearly \$1 billion a year by communities implementing 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 not built-in compliance with these standards. It is estimated that for every \$3 paid in flood insurance claims, there is \$1 spent in disaster assistance payments (FEMA, 2002).

Mapping flood hazards creates broad-based awareness of the flood hazards and provides the data needed for local floodplain management programs and to provide flood insurance actuarial rates for new construction (FEMA, 2002).

Floodplain maps covering the Middle Peninsula Region have recently been updated. FEMA produced these new digital maps in the following years:

**2015**

Essex County  
Middlesex County

**2014**

Gloucester County  
Mathews County

**2013**

King & Queen County  
King William County

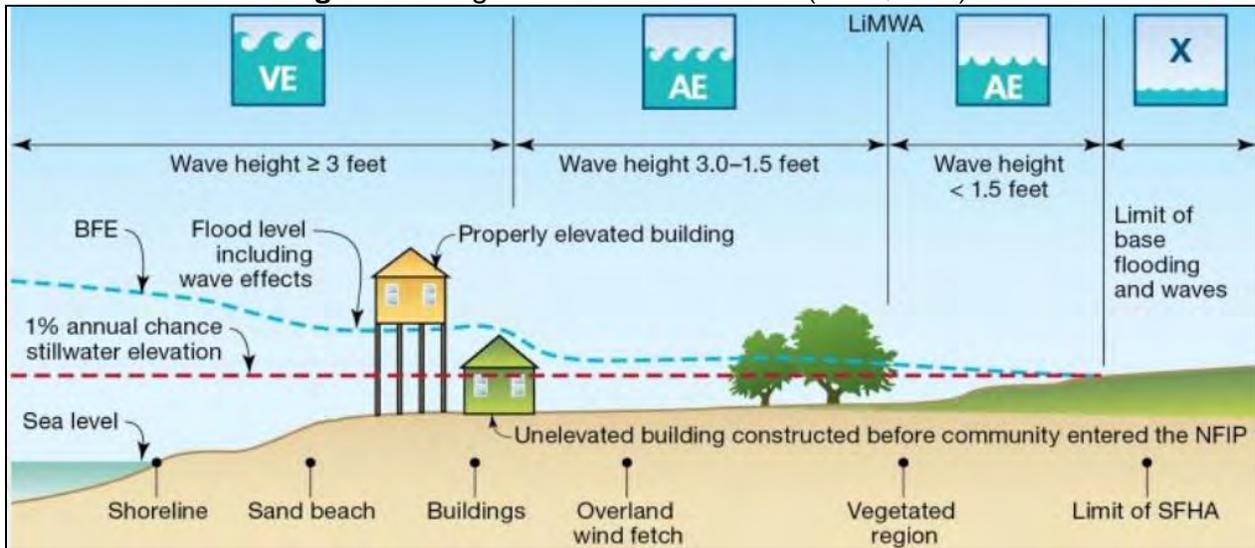
The recently completed digital floodplain maps/data can be integrated into the GIS of those Middle Peninsula localities that utilize GIS technology.

In recent years, FEMA has comprehensively analyzed Region III's coastal flood hazard and integrated the latest topographic data sets with state-of-the-art storm modeling techniques (FEMA, 2015). This new information replaces maps and studies that are based on data and modeling technology from as far back as the 1970's (FEMA, 2015). With this new data and technology, new FIRMs have been generated. The FIRMs reflect floodplain zones are standardized to the 100-year flood and assigned an area called the Special Flood Hazard Area (SFHA). A SFHA is a high-risk area defined as any land that would be inundated by a flood having a 1-percent chance of occurring in any given year (FEMA, 2002). In the Middle Peninsula, the SFHA includes zones designated as VE, A, Coastal A, AE, AO, X, and X500. Table 25 provides definitions for the zones.

<b>Table 25: FEMA Flood Zone Designations found in the Middle Peninsula Region.</b>	
<b>Zone VE &amp; V</b>	SFHA along coasts subject to inundation by the 100-year flood with additional hazards due to velocity (wave action). Base flood elevations derived from detailed hydraulic analyses are shown within these zones. This delineated flood hazard includes wave heights equal to or greater than three feet. <i>Mandatory flood insurance purchase requirements apply.</i>
<b>Zone A</b>	SFHA subject to inundation by the 100-year flood. Because detailed hydraulic analyses have not been performed, no base flood elevation or depths are shown. <i>Mandatory flood insurance purchase requirements apply.</i>
<b>Zone AE</b>	SFHA subject to inundation by the 100-year flood determined in a Flood Insurance Study by detailed methods. Base flood elevations are shown within these zones. This delineates flood hazards including wave heights less than three feet. <i>Mandatory flood insurance purchase requirements apply.</i>
<b>Zone AO</b>	SFHA inundated by the 100-year flood where flooding is anticipated to average depth of 1 to 3 feet, where a clearly defined channel does not exist, where the path of flooding is unpredictable, and where velocity flow may be evident.
<b>Zone X</b>	These areas have been identified in the Flood Insurance Study as areas of moderate or minimal hazard from the principal source of flood in the area. However, buildings in these zones could be flooded by severe, concentrated rainfall coupled with inadequate local drainage systems. Local storm water drainage systems are not normally considered in the community's FIS. The failure of a local drainage system creates areas of high flood risk within these rate zones. <i>Flood insurance is available in participating communities but is not required by regulation in these zones.</i>
<b>Zone X500</b>	The same description as Zone X, however, this area falls between the 100 and 500-year flood zone.
<b>UNDES</b>	Undescribed. No information available.

To further assist community official and property owners in recognizing an increased potential for damage due to wave action in the AE zone, FEMA issued guidance in December 2008 on identifying and mapping the 1.5-foot wave high line, referred to as the Limit and Moderate Wave Action (LiMWA) (Figure 34). As LiMWA addresses the fact that wave action does cease at the AE Zone delineate, a new SFHA has been developed between the VE and AE Zone called Zone Coastal A. Zone Coastal A is landward of a V Zone, or land ward of an open coastal without mapped V Zones. While the Coastal A Zone in not a NFIP mandate, it offers design and construction practice for communities that wish to adopt high floodplain management standards. Within the Middle Peninsula, Gloucester County, Mathews County and the Town of West Point are the only locality that has included Coastal A Zone within their FIRMs and floodplain management policy.

**Figure 34:** Diagram of coastal flood zones (FEMA, 2015).



Under the NFIP regulations, participating NFIP communities are required to regulate all development in the SFHAs. Development is defined as:

*“any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.”*

Before a property owner can undertake any development in the SFHA, a permit must be obtained from the locality. The locality is responsible for reviewing the proposed development to ensure that it complies with the locality’s floodplain management ordinance. Localities are also required to review proposed developments in the SFHAs to ensure that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law, such as 404 Wetland Permits from the Army Corps of Engineers or permits under the Endangered Species Act.

Under the NFIP, localities must review all new development proposals to ensure that they are reasonably safe from flooding and that the utilities and facilities serving these developments are constructed to minimize or eliminate flood damage.

In general, the NFIP minimum floodplain management regulations require that new construction or substantial improvements to existing buildings in the Zone A must have their lowest floor, including basements, elevated to or above the Base Flood Elevation (BFE). Non-residential structures in Zone A can be either elevated or dry flood proofed. In Zone V, the building must be elevated on piles/columns and the bottom of the lowest horizontal structural member of the lowest floor of all new construction or substantially improved existing buildings must be elevated to or above the BFE.

When the NFIP was created, the U.S. Congress recognized that insurance for “existing buildings” constructed before a community joined the Program would be prohibitively expensive if the premiums were not subsidized by the Federal Government. Congress also recognized that most of these flood-prone buildings were built by individuals who did not necessarily have sufficient knowledge of the flood hazard to make informed decisions.

Under the NFIP, “existing buildings” are generally referred to as pre-FIRM buildings. These buildings were built before the flood risk was known and identified on the locality’s FIRM. Currently, about 26% of the 4.3 million NFIP policies in force are pre-FIRM subsidized policies as compared to 70% of the policies that were being subsidized in 1978 (FEMA, 2002).

**Middle Peninsula Flood Insurance Data**

According to data from DCR dated October 28, 2021, there are a total of 3,399 flood insurance policies covering Middle Peninsula properties (Table 26).

<b>Table 26: Flood Insurance Policies within the Middle Peninsula (DCR, 2021).</b>			
<b>Locality</b>	<b>Total Policies</b>	<b># of Claims Since 1978</b>	<b>Total Value of Claims</b>
<b>Essex</b>	180	223	\$5,706,414.53
<b>Tappahannock</b>	59	17	\$196,025.24
<b>Gloucester</b>	1416	1336	\$29,978,952
<b>King &amp; Queen</b>	50	22	\$644,684.83
<b>King William</b>	12	10	\$77,367.15
<b>West Point</b>	81	78	\$2,288,641.12
<b>Mathews</b>	1225	1145	\$20,350,449.48
<b>Middlesex</b>	338	220	\$2,939,203.54
<b>Urbanna</b>	38	78	\$277,744.64
<b>Totals</b>	3399	3063	\$62,459,482.53

<b>Table 27: Repetitive Loss Properties in the Middle Peninsula (DCR, 2021).</b>				
<b>County</b>	<b># of Properties</b>	<b># of Claims</b>	<b>Total Building Claims</b>	<b>Average Claim</b>
<b>Essex</b>	32	82	\$1,855,068.89	\$22,622.79
<b>Mathews</b>	169	417	\$8,252,285.42	\$19,789.65
<b>Gloucester</b>	146	384	\$3,310,607.84	\$21,642.21
<b>Middlesex</b>	35	78	\$1,084,995.57	\$13,910.20
<b>Town of Urbanna</b>	2	4	\$120,595.91	\$30,148.98
<b>Town of Tappahannock</b>	2	4	\$66,220.74	\$16555.19
<b>Town of West Point</b>	9	21	\$644,314.91	\$30,681.66

Repetitive loss (RL) properties can define two ways:

1. The NFIP defines Repetitive Loss as 2 or more claims of at least \$1000 over a 10-year rolling period. This is the data that appears in this plan (Table 27).
2. The Hazard Mitigation Assistance program defines Repetitive Loss as having incurred flood-related damage on 2 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.

Table 28 shows the number of SRL properties within the Middle Peninsula region.

**Table 28: Severe Repetitive Loss Properties in the Middle Peninsula (DCR, 2021).**

County	# of Properties	# of Claims	Total Building Payments	Average Pay
Essex	2	9	\$142,973.31	\$22,884.81
Mathews	11	49	\$1,288,909.58	\$34,179.62
Gloucester	13	63	\$1,857,182.84	\$33,028.95
Middlesex	2	6	\$157,821.97	\$37,271.90

**4.5. Locality Specific Critical Facilities and Public Utilities**

**4.5.1. King and Queen County Critical Facilities and Public Utilities**

The County’s Courthouse Complex is located in the central portion of the county along the Route 14 ridgeline, which runs in a southeasterly/northwesterly direction. The Complex is the center of county government and contains all county offices. The law enforcement and public safety functions are located in the new courts/administration building, which has a generator that serves these areas of the building during a power outage. The complex is located outside of the 500-year floodplain.

Additional properties that the County owns include 4 solid waste facilities located at 4 different locations throughout the county and the property that the regional library is located on. All 5 of these properties lie outside of the 500-year floodplain.

There are 4 volunteer fire departments (VFD) and 2 volunteer rescue squads (VRS) located at scattered positions throughout the county. All these emergency response facilities are located outside the 500-year floodplain.

The County’s 3 school sites are all located along the high and dry Route 14/721 corridor. Central High School, located in the King and Queen Courthouse area in the middle portion of the county, is the County’s designated shelter due to flooding or any other type of natural disaster.

The Middle Peninsula Regional Airport is located in the southern portion of the county and is owned and operated by a regional authority. The Airport Authority is made up of 4 local governments including King and Queen, King William and Gloucester Counties as well as the Town of West Point. Life-Evac, a medical transport helicopter service, is located at the airport. The airport terminal and runway are located outside the 500-year floodplain.

There are no public water or sewer facilities anywhere in the County - all properties in the County are served by individual wells and septic systems.

**Repetitive and Severe Repetitive Loss Residential Structures in King and Queen County**

According to FEMA’s records, King and Queen County has no Repetitive Loss residential properties or Severe Repetitive Losses as of 2020.

According to VDOT and County officials, flood prone roads in King and Queen County include the following in Table 29.

<b>Table 29: King and Queen County Flood Prone Roads</b>		
<b>Route</b>	<b>Road Name</b>	<b>Location of Flooding</b>
749	Kays Lane	At Root Swamp
721	Newtown Road	near Bradley Farm Road
721	Newtown Road	near Level Green Road
721	Newtown Road	near Glebe Road
623	Indian Neck Road	near Rappahannock Cultural Center
625	Poplar Hill Road	near Spring Cottage Road
628	Spring Cottage Road	near Eastern View Road
628	Todds Bridge Road	near Gunsmoke Lane
628	Pattie Swamp Road	at swamp
631	Fleets Mill Road	at Fleets Millpond
631	Norwood Road	at Dickeys Swamp
636	Minter Lane	at Walkerton Creek
620	Powcan Road	at Poor House Lane
620	Duck Pond Road	at Garnetts Creek
634	Mt. Elba Road	at flat areas
633	Mantua Road	at Garnetts Creek
617	Exol Road	at Exol Swamp
614	Devils Three Jump Road	Devils Three Jump Road
14	The Trail	at Truhart
613	Dabney Road	At Little Tastine Swamp
611	Tastine Road	At Little Tastine Swamp
603	Lombardy Road	At Little Tastine Swamp
608	Clancie Road	At Bugan Villa Drive
601	Stratton Major Road	Near Union Prospect Baptist Church
601	Stratton Major Road	Near Union Road
644	Jonestown Road	At Meadow Swamp
605	Plain View Lane	At Guthrie Creek
601	Cheery Row Lane	At Guthrie Creek and swamp
666	Tuckers Road	Entire road including Tuckers R.P.
667	Wrights Dock Road	Entire road
640	Lyneville Road	At 36" cross-pipes
625	Bryds Mill	At cross-pipes
615	Union Hope Road	At Exol Swamp
604	Bryds Bridge Road	At Bryds Bridge
612	Lilly Pond Rod	At Dragons Swamp Bridge
610	Dragonville Rod	At Timber Brook Swamp
614	Rock Springs Road	At bridge
14	Buena Vista Road	at K&Q/ Gloucester County line

### **Public Boat Ramps**

There are 2 public boats ramps in the county along the Mattaponi River that are operated/maintained by the Virginia Department of Game and Inland Fisheries (VDGIF):

Water Body	Access Area	Barrier Free	Type	Ramps	Latitude	Longitude
Mattaponi River	Melrose	Yes	Concrete Ramp	I	37° 38' 14" N 37.6372145	76° 51' 18"W -76.8549627
Directions: From King & Queen Courthouse, Rt. 14 South (2.8 miles); Right onto Rt 602 (1.2 miles) to Ramp						
Mattaponi River	Waterfence	Yes	Concrete Ramp	I	37° 35' 31" N 37.5920552	76° 47' 55"W -76.7987125
Directions: From West Point, Rt 33 East, turn Left onto SR 14 (5 miles), turn Left onto SC 611 to end						
<i>Virginia Department of Game and Inland Fisheries, 2015</i>						

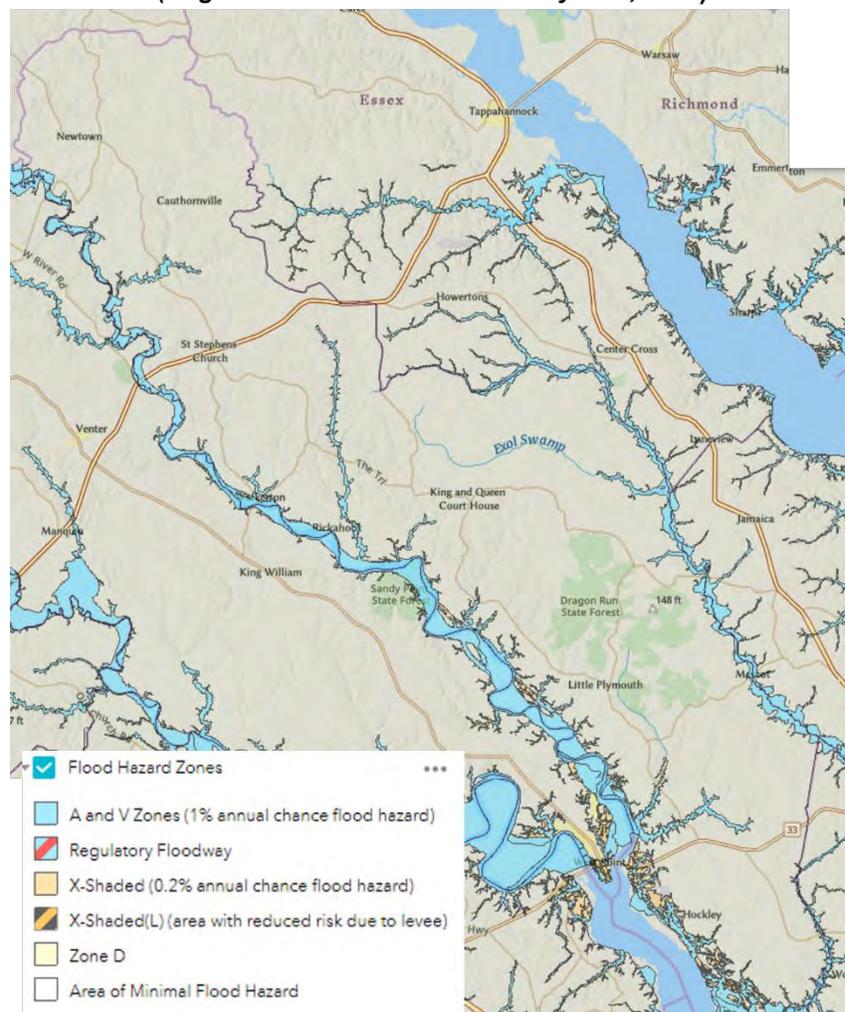
In addition to the VDGIF sites, there is a water access site to the Mattaponi River in Walkerton and in Shacklefords.

Due to the low velocity of the flood waters along this section of the Mattaponi River, none of these boat landings sustain damage from flood waters.

### Floodplain

Below is a map of the floodplain within King and Queen County.

**Flood Hazard Zones in King & Queen County**  
(Virginia Flood Risk Information System, 2021)

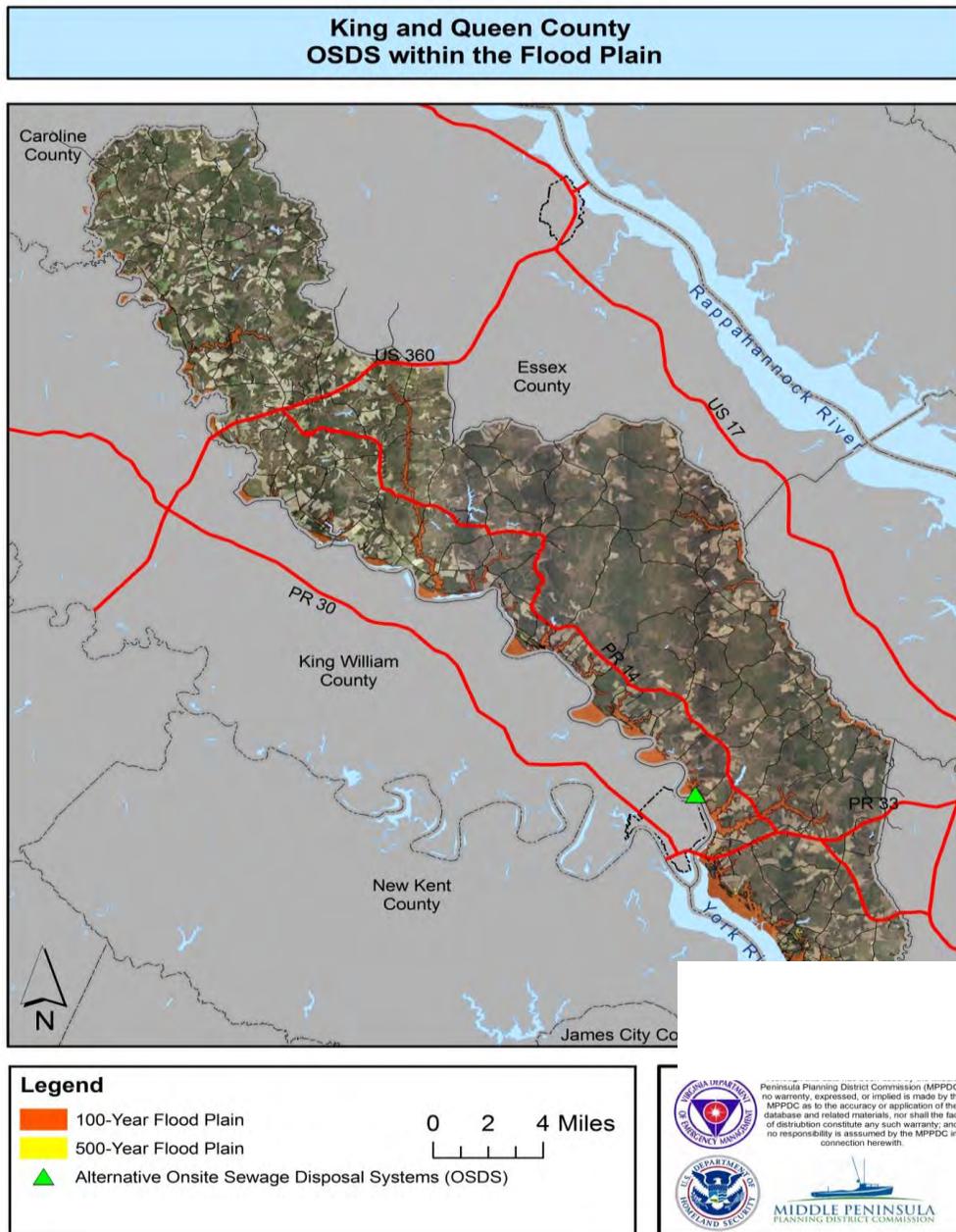


### Alternative On-site Sewage Disposal Systems (OSDS)

The Virginia Department of Health (VDH) regulations have changed dramatically in recent years to keep pace with improvements in technology. Now, there are a number of “alternative on-site sewage disposal systems” that are allowed to be constructed where poor soils and/or a high-water table prevented the construction of a conventional septic system on the property. As of 2009, there were 1,208 OSDSs permitted and installed in the Middle Peninsula. There are an additional 2,006 OSDSs permitted by VDH but not yet installed (Figure 35).

Many of these are located in the 100-year floodplain, some of which could suffer damage during flooding events since most of the systems have essential mechanical and other components at-grade or slightly above grade.

**Figure 35:**



#### 4.5.2. Essex County Critical Facilities and Public Utilities

The County's Offices are located within the Town of Tappahannock, which is centrally located mid-county along the Route 17 corridor. The County Offices are in a handful of buildings in downtown Tappahannock in an area that is outside of the 500-year floodplain. There are emergency generators at the County Administration Building and at the Sheriff's Office/Dispatch Center.

Additional properties that the County owns include 2 solid waste facilities located at Center Cross and Bray's Fork, the county library, the elementary school/school board offices, and the middle school/high school complex. All properties are located outside of the 500-year floodplain. The new middle school has an emergency generator.

The county/town is served by one volunteer fire department that has 3 fire stations. One station is located in Tappahannock along Airport Road, another is located at the northern end of the county along Route 17 at Loretto and the third station is located at the southern end of the County near Center Cross. The Tappahannock Volunteer Rescue Squad is in downtown Tappahannock, and it serves town residents as well as all county residents. All emergency response facilities are located outside of the 500-year floodplain. The fire department on Airport Road and the EMS facility downtown have emergency generators.

The Tappahannock-Essex County Community Airport is located off Route 360 at Paul's Crossroads. The airport is located on a high ridgeline, which is outside of the 500-year floodplain.

The new animal shelter that serves the town and county is located at the town's former maintenance facility along Airport Road, which does not flood.

#### Repetitive and Severe Repetitive Loss Residential Structures in Essex County

According to FEMA's records, Essex County has 32 Single-Family Repetitive Loss properties and 2 Single-Family Severe Repetitive Losses as of September 2021.

According to VDOT officials, flood prone roads in the Essex County/Tappahannock area include the following:

Route	Road Name	Location
17	Church Lane	Tickners Creek at June Parker Marina
617	Island Farm Road	Piscataway Creek
646	Fort Lowery Lane	Rappahannock River
680	River Place	Rappahannock River

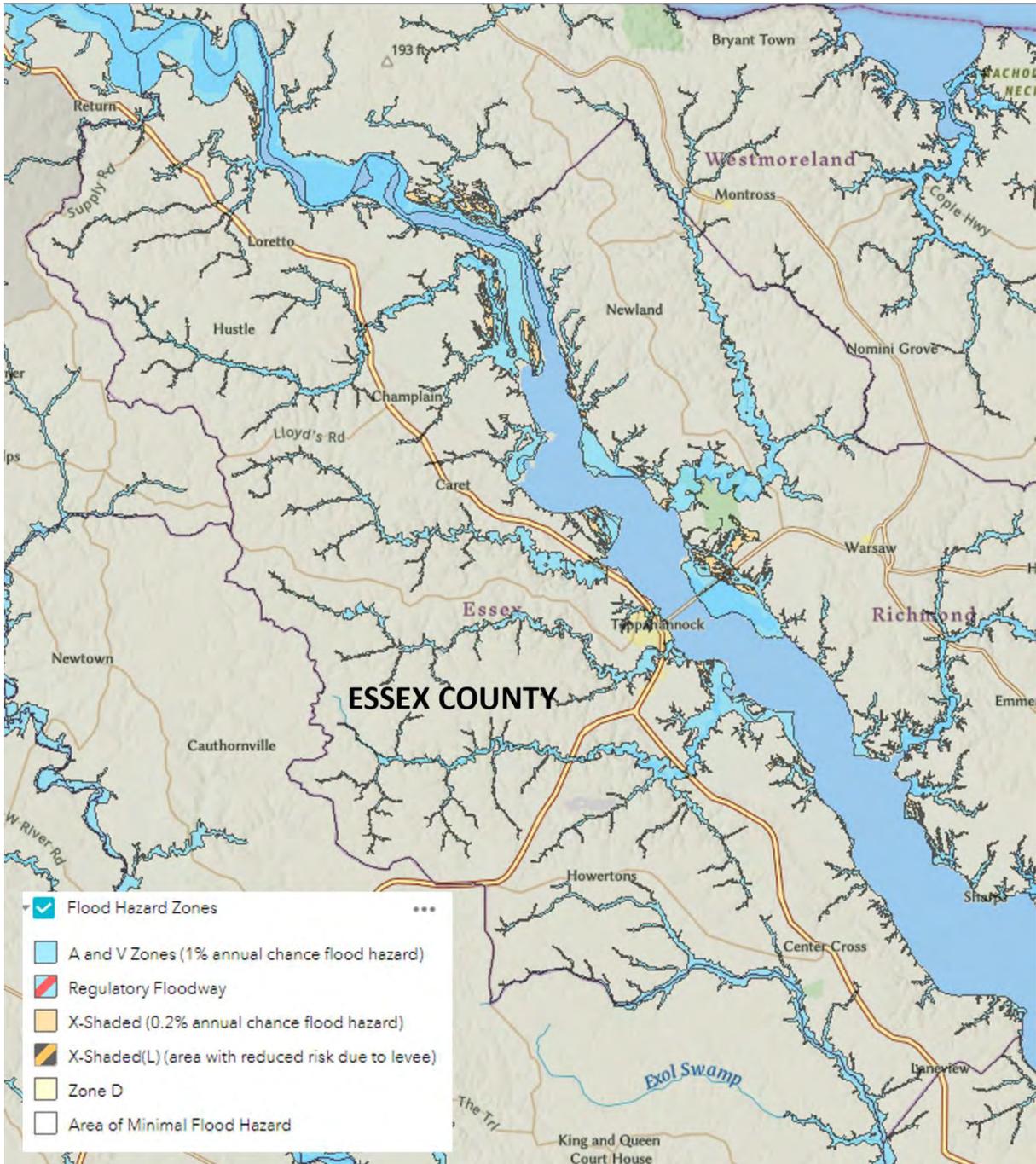
Route 17 is the main south/north road serving the county. This primary road has been designated as a hurricane evacuation route by the Commonwealth of Virginia for some Tidewater residents evacuating northward during a Category 2 or stronger hurricane. The road was elevated to reduce the risk and frequency of flooding on this stretch of road.

Also, according to town officials, all roads that dead end at the Rappahannock River flood but sustain little damage since flood velocities are low along this section of the river through Tappahannock.

#### Floodplain

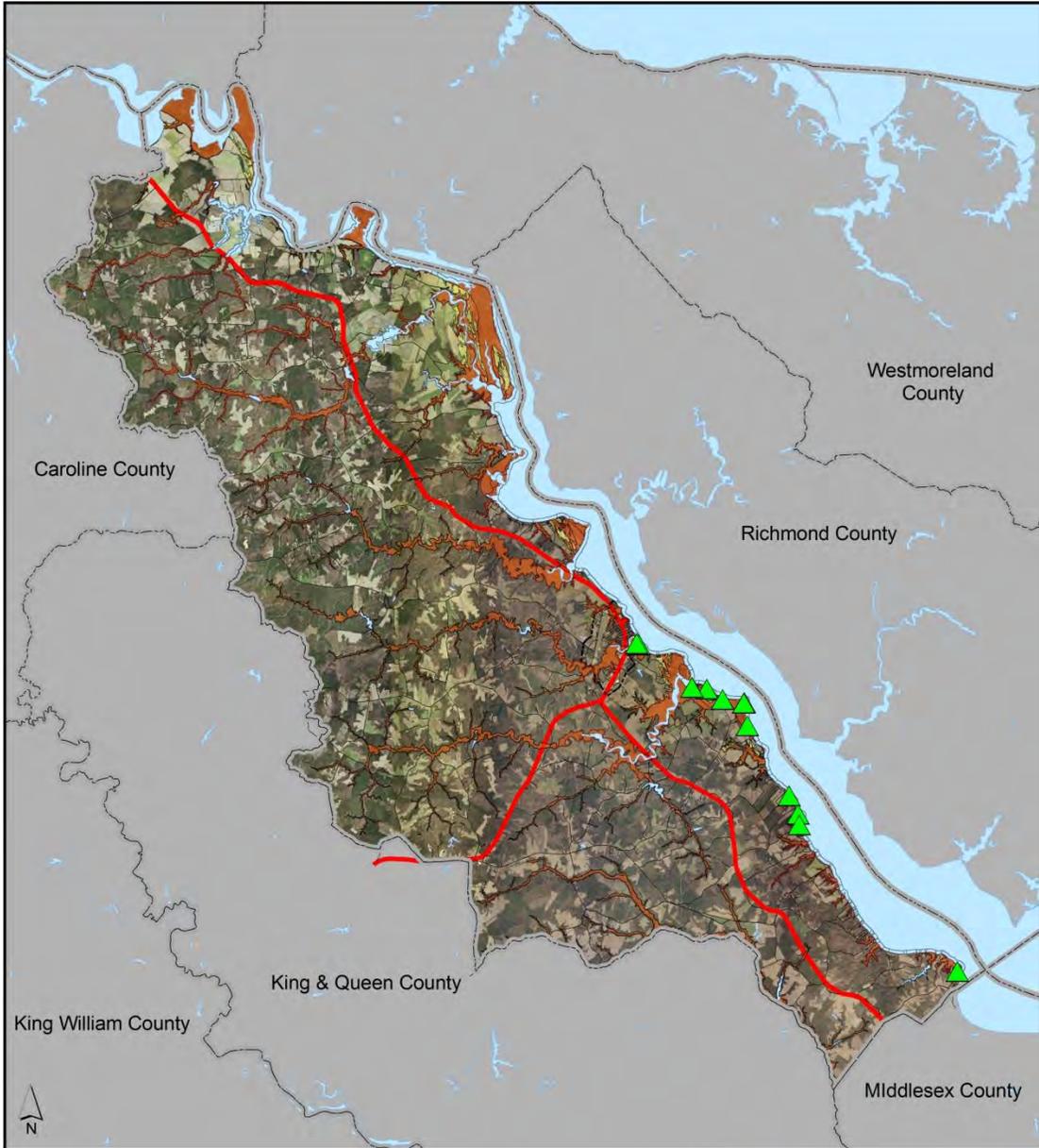
Below is a map of the floodplain within Essex County.

## Flood Hazard Zones in Essex County (Virginia Flood Risk Information System, 2021)



**Alternative On-site Sewage Disposal Systems (OSDS).** The following map (Figure 53) show the location of the OSDS systems constructed in the 100-year and 500-year floodplain in Essex County:

**Essex County  
OSDS within the Flood Plain**



**Legend**

- 100-Year Flood Plain
- 500-Year Flood Plain
- Alternative Onsite Sewage Disposal Systems (OSDS) selection

0    2    4 Miles

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**Tappahannock Critical Facilities and Public Utilities**

The Town of Tappahannock provides public water and sewer services to its citizens. The water system does not sustain damage during floods.

The wastewater treatment plant is located along Hoskins Creek on the west side of Route 17. The wastewater treatment plant does not suffer damage during severe flooding events. In the last plan there was mention that there was one sewerage pump station located along Newbill Drive that received flood damage during hurricane strength storms. During Hurricane Isabel in 2003, the electrical controls needed to be repaired since there was flood damage. However, since the last plan the Newbill Drive electrical controls have been raised to above the flood line of Hurricane Isabel in hopes to avoid future issues.

**Public Boat Landings**

There is one public boat ramp in the Town of Tappahannock along Hoskin’s Creek that is operated/maintained by the VDGF:

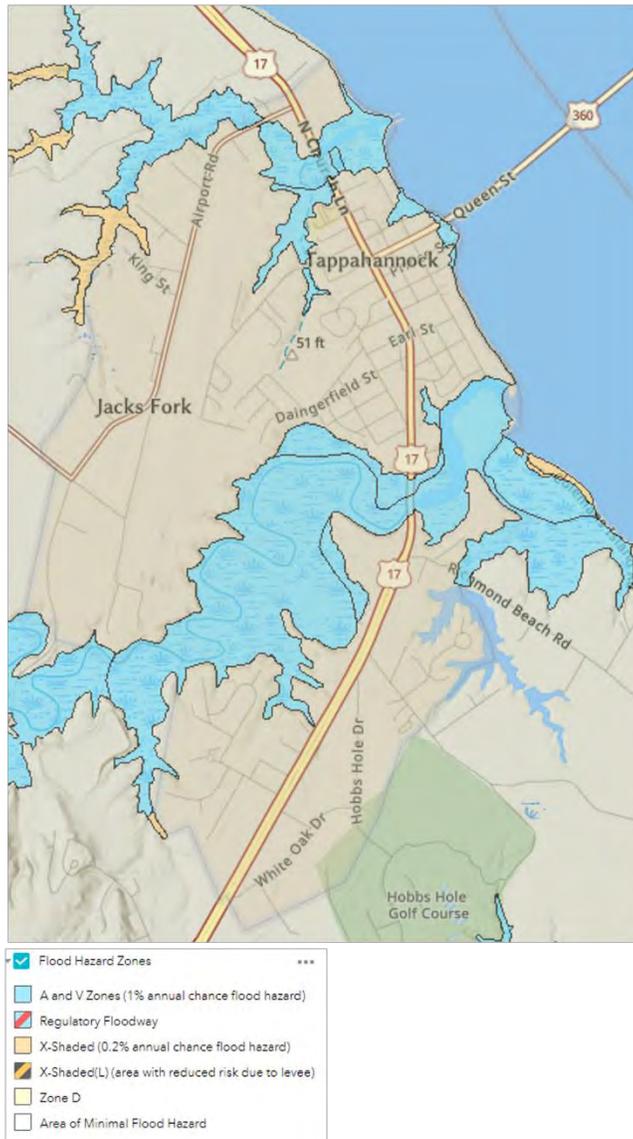
Water Body	Access Area	Barrier Free	Type	Ramps	Latitude	Longitude
Hoskin’s Creek	Hoskin’s Creek	No	Concrete Ramp	1	35° 55’ 12” N 37.9200873	76° 51’ 26”W -76.8571004
Directions: Town of Tappahannock, Rt. T-1002 (Dock Street)						
<i>Virginia Department of Game and Inland Fisheries, 2015</i>						

In addition to Hoskin’s Creek, there is public access at the Prince Street Road ending which is owned by the Middle Peninsula Chesapeake Bay Public Access Authority. While Prince Street may suffer minor damage during severe storm events, Dock Street does not sustain damage from flood waters according to town officials.

**Repetitive and Severe Repetitive Loss Residential Structures in the Town of Tappahannock**

According to FEMA’s records, the Town of Tappahannock has 2 Single Family Repetitive Loss properties and no Severe Repetitive Losses as of September 2021. The following map shows the floodplains in the Town of Tappahannock.

### Flood Hazard Zones in the Town of Tappahannock (Virginia Flood Risk Information System, 2021)



#### 4.5.3. King William County Critical Facilities and Public Utilities

Public water and sewerage systems serve portions of the Route 360 growth corridor in Central Garage. A package wastewater treatment plant discharges sewer effluent into an unnamed tributary that leads into Moncuin Creek, which then flows into the Pamunkey River. Floodwaters do not adversely impact the wastewater treatment plant.

The public water system serves the relatively high and dry Central Garage area. Therefore, this Route 360/30 area water system does not sustain damage from flooding events.

According to VDOT officials, flood prone roads in the King William County and Town of West Point include the following:

Route	Road Name	Location
30	King William Road	Cypress Swamp at Olson's Pond
636	VFW Road	Cypress Swamp
632	Mt. Olive- Cohoke Road	Intersection of Route 633
609	Smokey Road	Herring Creek
628	Dorrel Road	Herring Creek
1006	Thompson Ave	West Point Creek
1003	Chelsea Road	West Point Creek to dead end
1130	Glass Island Road	Mattaponi River
1107	Kirby Street	1 <sup>st</sup> to 7 <sup>th</sup> Streets
n/a	1 <sup>st</sup> to 7 <sup>th</sup> Streets	Between Kirby St. and Pamunkey River
n/a	2 <sup>nd</sup> to 5 <sup>th</sup> Streets	Between Lee St. and Mattaponi River

### Public Boat Landings

There are 2 public boat ramps in King William County that is owned and maintained by VDGIF:

Water Body	Access Area	Barrier Free	Type	Ramps	Latitude	Longitude
Mattaponi River	Aylett	Yes	Concrete Ramp	1	37° 47' 8" N 37.7855806	77° 6' 11" W -77.1030150
Directions: Aylett, Rt 360 East, Right onto Rt 600						
Pamunkey River	Lestor Manor	Yes	Concrete Ramp	1	37° 35' 10" N 37.5861120	76° 59' 4" W -76.9845725
Directions: From King William Courthouse, Rt 30 South (.7 miles); Right on Rt 633 (7.4 miles); Left on Rt 672 (.4 miles)						
<i>Virginia Department of Game and Inland Fisheries, 2015</i>						

Additionally, there is a very small canoe/kayak launch at Zoar State Forest located a few miles north of Route 360.

Due to the low velocity of the flood waters along these upper reaches of the Mattaponi River, neither of these boat landings sustain damage from flood waters.

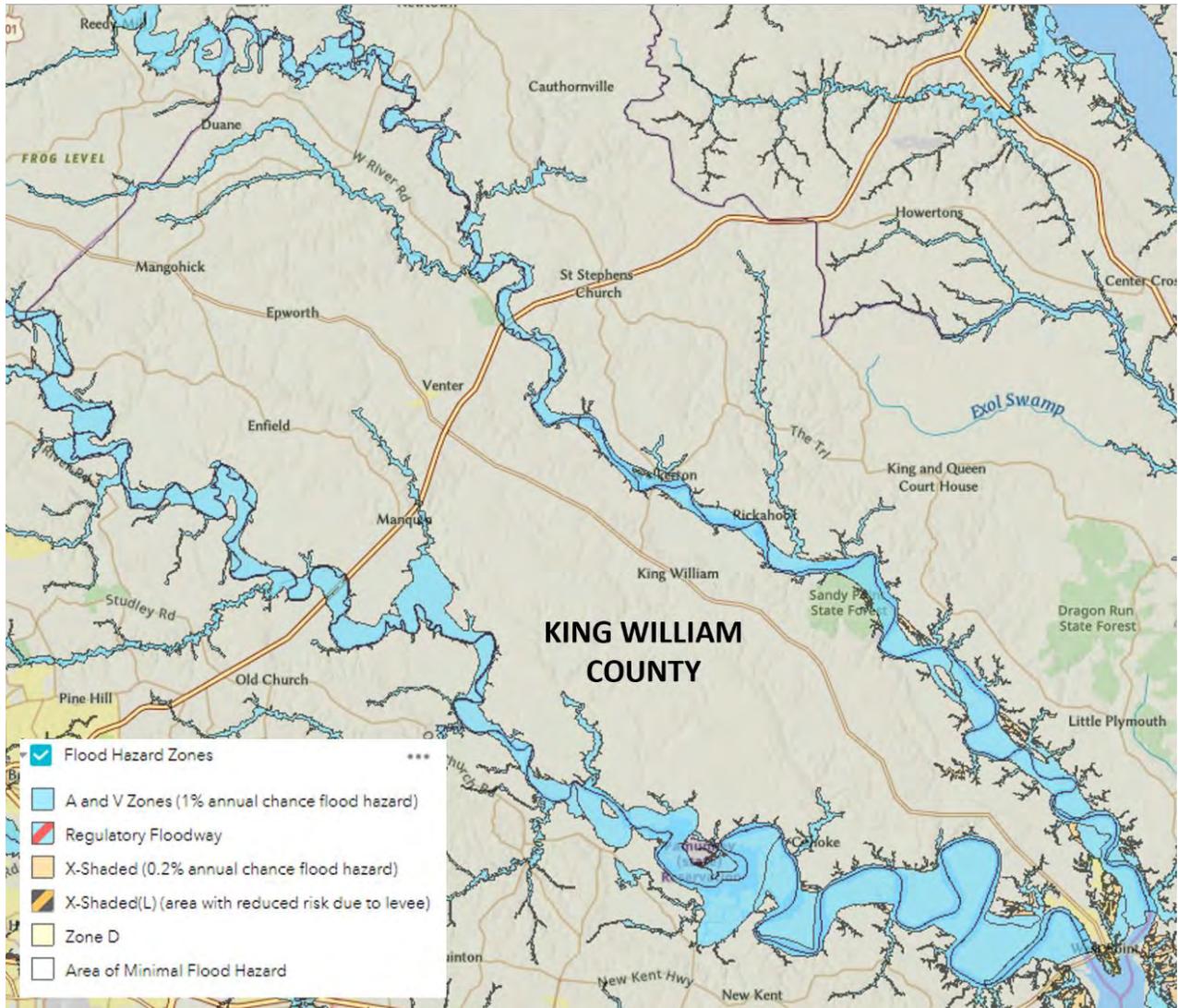
### Repetitive and Severe Repetitive Loss Residential Structures in King William County

According to FEMA's records, King William County has no Repetitive Loss residential properties or Severe Repetitive Loss as of October 2021.

### Floodplain

The following map shows the floodplains in King William County.

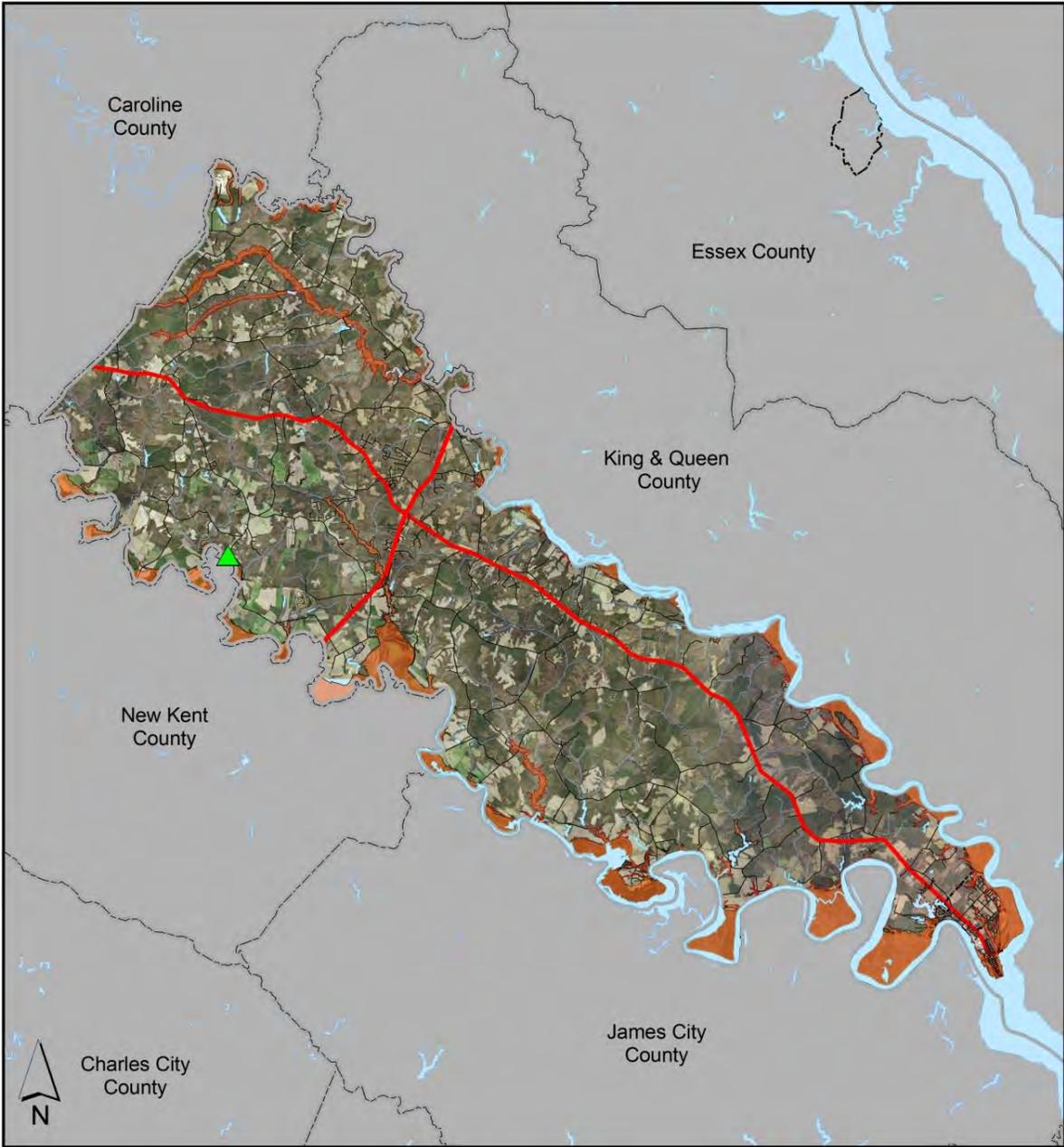
## Flood Hazard Zones in King William County (Virginia Flood Risk Information System, 2021)



### Alternative On-site Sewage Disposal Systems (OSDS)

The map (Figure 64) below shows the locations of the installed OSDS facilities constructed in the 100-year floodplain in King William County.

## King William County OSDS within the Flood Plain



**Legend**

- 100-Year Flood Plain
- 500-Year Flood Plain
- ▲ Alternative Onsite Sewage Disposal System (OSDS)

0      2      4 Miles

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### Town of West Point Critical Facilities and Public Utilities

Located at the confluence of the Mattaponi and Pamunkey Rivers where they become the headwaters of the York River, there is public infrastructure, private residences and downtown businesses that are at risk of flooding during severe storms.

The town provides both public water and sewer service to its residents. The water system is owned and operated by the town and sustains little damage during flooding events.

The ownership and operation of the town's sewerage system has been turned over to the Hampton Roads Sanitation District (HRSD). The wastewater treatment plant is located at the east end of 23<sup>rd</sup> Street. The facility did not flood during Hurricane Isabel in 2003 and the vital electrical and mechanical controls are on a slightly elevated portion of the site and therefore, the facility's location does not pose a risk of flooding.

A sewer pump station located on 2<sup>nd</sup> Street near the point does have a flooding problem. During Hurricane Isabel, the pump motors in the well house flooded and needed to be dried out. However, the electrical controls are mounted high enough in the pump house so that they did not sustain flood damage. There is a sewer pump station located on 13<sup>th</sup> street that did not flood during Hurricane Isabel, but the floodwaters did reach within 1-foot of the facility.

### Public Boat Landings

There is one public boat landing located along the Mattaponi River on the north side of the Lord Delaware Bridge on Glass Island Road. This facility does receive minor damage to the roadway and parking areas during severe storms.

Water Body	Access Area	Barrier Free	Type	Ramps	Latitude	Longitude
Mattaponi River	West Point	Yes	Concrete Ramp	2	37° 47' 8" N 37.5406099	76° 47' 23" W -76.7896487
Directions: Town of West Point on Rt 33						
						VDGIF, 2015

### Public Park Facility

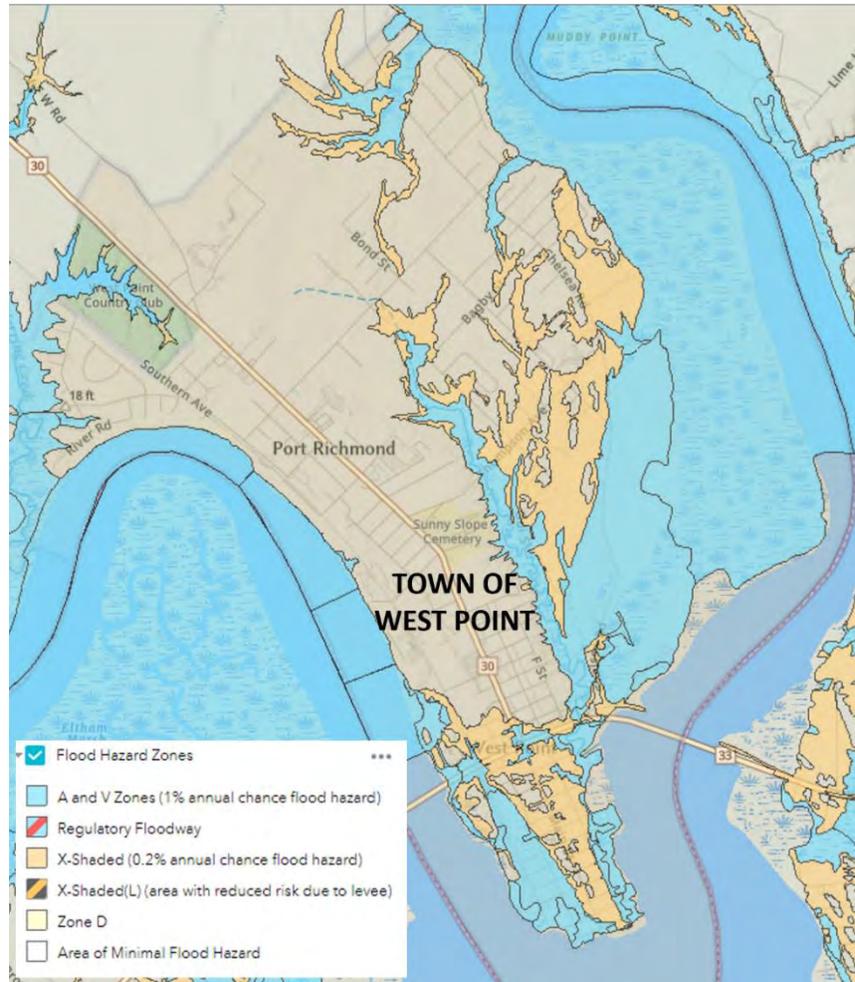
On the south side of the Lord Delaware Bridge, there is a small-town park with walking trails and benches adjacent to the water's edge. This is a new facility that was built in conjunction with the new bridge construction that was completed in 2006. Due to the minimal amount of infrastructure at this shoreline facility, it is anticipated that there will be no more than minor damages from rising waters in this wetlands area adjacent to the Mattaponi River.

### Repetitive and Severe Repetitive Loss Residential Structures in West Point

According to FEMA's records, the Town of West Point has 8 Single Family and 1 Non-Residential Repetitive Loss properties and zero Severe Repetitive Losses as of October 2021.

The floodplains are displayed in the following map.

## Flood Hazard Zones in the Town of West Point (Virginia Flood Risk Information System, 2021)



Numerous homes and downtown businesses at the southern end of West Point flood during severe storms particularly as flood waters reached 8 feet 6 inches above mean low water which is 6 inches above the 8 ft 100-year flood plain elevation. The West Point School Complex, which serves as the town's shelter, is located on the northern side of the town and the buildings are not subjected to floodwaters. However, Chelsea Road is located along the Mattaponi River, and it is 1 of 2 routes that are used to access the school complex. This roadway does flood during severe storms.

### 4.5.4. Gloucester Critical Facilities and Public Utilities

The county has a relatively extensive network of public water and sewer facilities in and around the Gloucester Courthouse area. The Beaverdam Reservoir, located just north of the courthouse area, serves as the drinking water source for the county's public water supply system. As discussed earlier in the Dam Impoundment Section of the plan, the dam is structurally well-built and remains fully certified by the DCR (Figure 3). Below the dam there are approximately 200 homes that would flood if the Reservoir structure failed. However, in 1999 the impoundment overflowed during Hurricane Floyd yet no flood damage to the home since the excess water flowed downstream using the emergency spillway.

Table 32 provides a list of dams within the locality that may be impacted by natural hazards as well.

<b>Table 32:</b> The following is a list of dams in Gloucester County that are on the Virginia Department of Conservation and Recreation's Certification List.				
<b>Dam Name</b>	<b>Class</b>	<b>Height</b>	<b>Capacity in Acre Feet</b>	<b>Water Body</b>
Woodberry Farm	3	8	158	Jones Creek
Weaver Dam	3	6	81	Jones Creek
Haynes	3	15	366	Carter Creek
Robins Creek	3	16	219	Wilson
Cow Creek	2	16	931	Cow
Burke Stream	3	20	481	Burke Mill
Cypress Shores River	3	15	143	Piankatank
Haines Pond	3	9	50	Carter Creek
Beaverdam Reservoir	1	39	20,523	Beaverdam Creek
Wood Duck Pond	4	Unknown	Unknown	Unknown
Leigh Lake	4	12	unknown	Jones Creek

The water distribution system does not suffer damage during severe storm events since it is a closed underground system. The sewerage collection lines and pumps stations are owned and operated by Gloucester County. There are 2 pump stations in the Gloucester Courthouse area (Pump # 11 and Pump #13) that sustained damage during Hurricane Floyd in 1999. The damage was caused by floodwaters resulting from the overtopping of the Beaverdam Reservoir as previously mentioned. After the wastewater is collected, it is transported in a large force main that runs down Route 17, crosses under the York River and then flows into the York River Wastewater Treatment Plant in York County. The large force main and treatment plant are owned and operated by the Hampton Roads Sanitation District. The force main is a closed underground system that does not sustain damage during severe flooding events.

The Achilles Elementary School site, located in the southeastern section of the county, is adversely affected by flood waters from storms surges associated with a Category 1 hurricane.

According to VDOT officials, flood prone roads in Gloucester County include the following:

<b>Table 33:</b> Gloucester County Flood Prone Roads.		
<b>Route</b>	<b>Road Name</b>	<b>Location of Floodwaters</b>
684	Starvation Road	From Big Oak Lane to ESM
662	Allmondsville Road	From Rte. 606 to Rte. 618
618	Chappahosic Road	From Rte. 662 to Rte. 639
636	Brays Point Road	From Eagle Lane to ESM
1303	Carmines Islands Road	From Gardner Lane to ESM
646	Jenkins Neck Road	Various spots from Owens Road to ESM
648	Maundys Creek Road	From Rte. 649 to ESM
649	Maryus Road	From Haywood Seafood Lane to ESM
652	Rowes Point Road	From 653 to ESM
649	Severn Wharf Road	Various spots from 653 to ESM

## Public Boat Ramps

There are 4 public boat landings in Gloucester County that are owned and operated by the VDGIF:

Water Body	Access Area	Barrier Free	Type	Ramps	Latitude	Longitude
Piank tank River	Deep Point	Yes	Concrete Ramp	1	37° 32' 10" N 37.5361228	76° 29' 43" W -76.4953889
Directions: From Glens, Rt 198 East (7.5 miles); Left on Rt 606 (1.5 miles)						
Porpop tank River	Tanyard	No	Concrete Ramp	1	37° 27' 17" N 37.4548078	76° 40' 5" W -76.6679753
Directions: From Gloucester, Rt 14 North (4.3 miles); Left on Rt 613 (3.3 miles); Right on Rt 610 (.6 miles); left on Rt 617 (.5 miles)						
Ware River	Warehouse	Yes	Concrete Ramp	1	37° 24' 11" N 37.4031611	76° 29' 23" W -76.4896286
Directions: East of Gloucester on Rt 621						
York River	Gloucester Point	Yes	Concrete Ramp	2	37° 14' 45" N 37.2457058	76° 30' 17" W -76.5048003
Directions: Town of Gloucester Point, Rt 1208 – TEMPORARILY CLOSED						
VDGIF, 2015						

In addition to VDGIF there is a list of other public boat ramps throughout the County, including:

- **Cappahosic Landing Location:** End of Cappahosic Road. York River Access. Bank fishing, beach, Picnicking, limited parking, and restrooms - May thru October. Park area maintained by Gloucester County while the Landing is maintained by VDOT.
- **Cedar Bush, Oliver's Landing Location:** End of Cedar Bush Road. York River Access. Gravel ramp and finger pier. Maintained by Gloucester County and VDOT.
- **Field's Landing:** End of Field's Landing Road. York River Access. Car top boats only, no trailer access. Maintained by VDOT.
- **Glass Point Landing:** End of Glass Road. Severn River Access. Car top boats only, no trailer access Maintained by Gloucester County and VDOT.
- **Gloucester Point Beach Park Location:** End of Greate Road, next to Coleman Bridge. York River Access. Sandy beach, swimming, picnicking, outdoor showers – seasonal, restrooms, playground, fishing pier, parking and two landings. One landing is maintained by Gloucester County and one by DGIF (see above for details).
- **John's Point Landing** - End of John's Point Road. Small boats only, gravel ramp and sand ramp for car top boats: Fishing Parking Maintained by Gloucester County and VDOT
- **Miller's Landing** - car top boats only, no trailer access Location: End of Miller's Landing Road Poropotank River Access Fishing Parking Maintained by VDOT
- **Payne's Landing:** End of Paynes Landing Road. Ware River Access. Car top boats only, no trailer access. Maintained by Gloucester County.

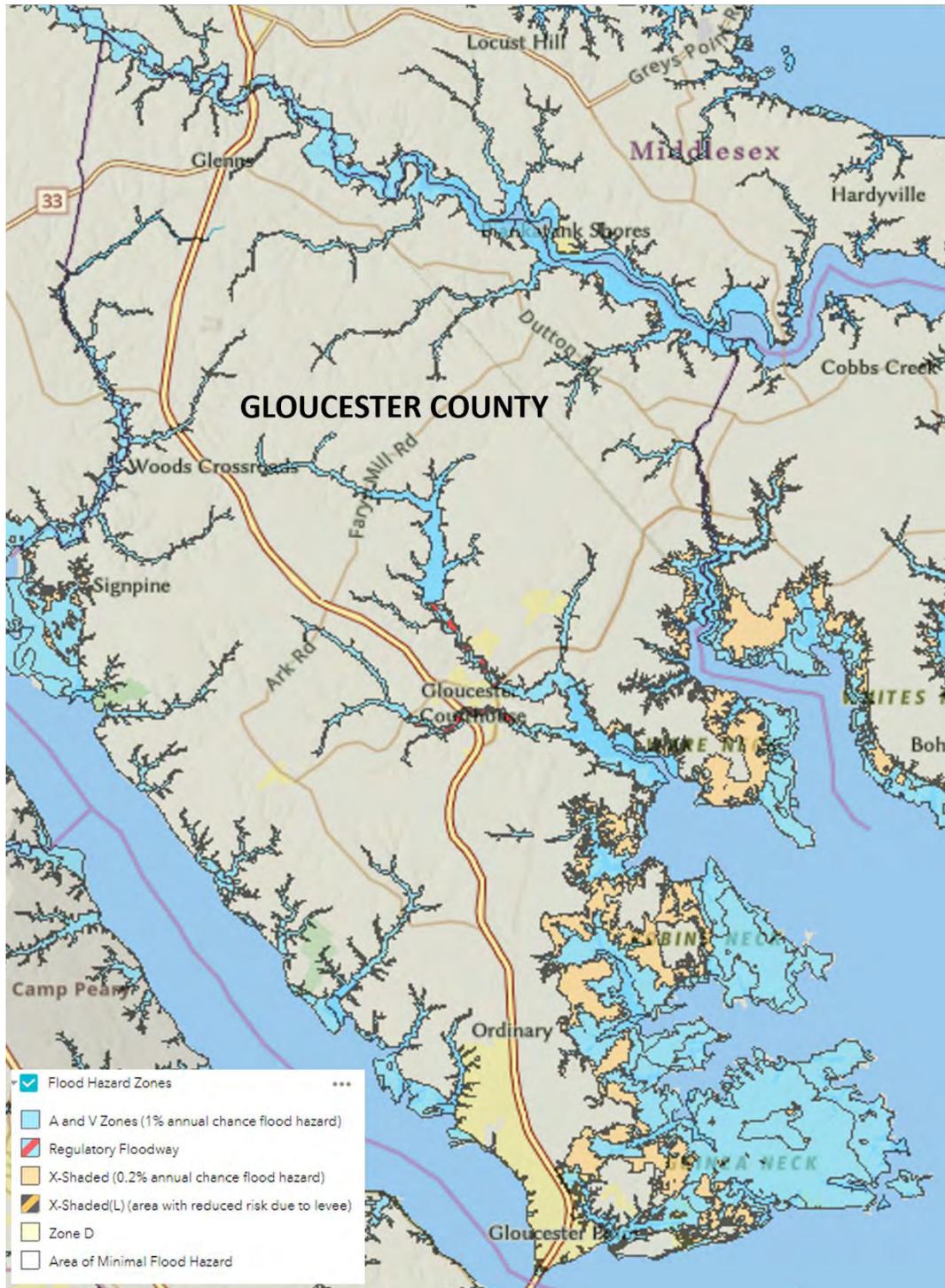
## Repetitive and Severe Repetitive Loss Residential Structures in Gloucester County

According to FEMA's records, Gloucester County has 146 (ie.141 Single Family, 1 Non-Residential, 3 Condos, and one 2-4 Family properties) Repetitive Loss properties and 13 (i.e. 11 Single Family and 2 non-residential properties) Severe Repetitive Losses as of October 2021.

## Floodplain

The following map shows the floodplains in Gloucester County.

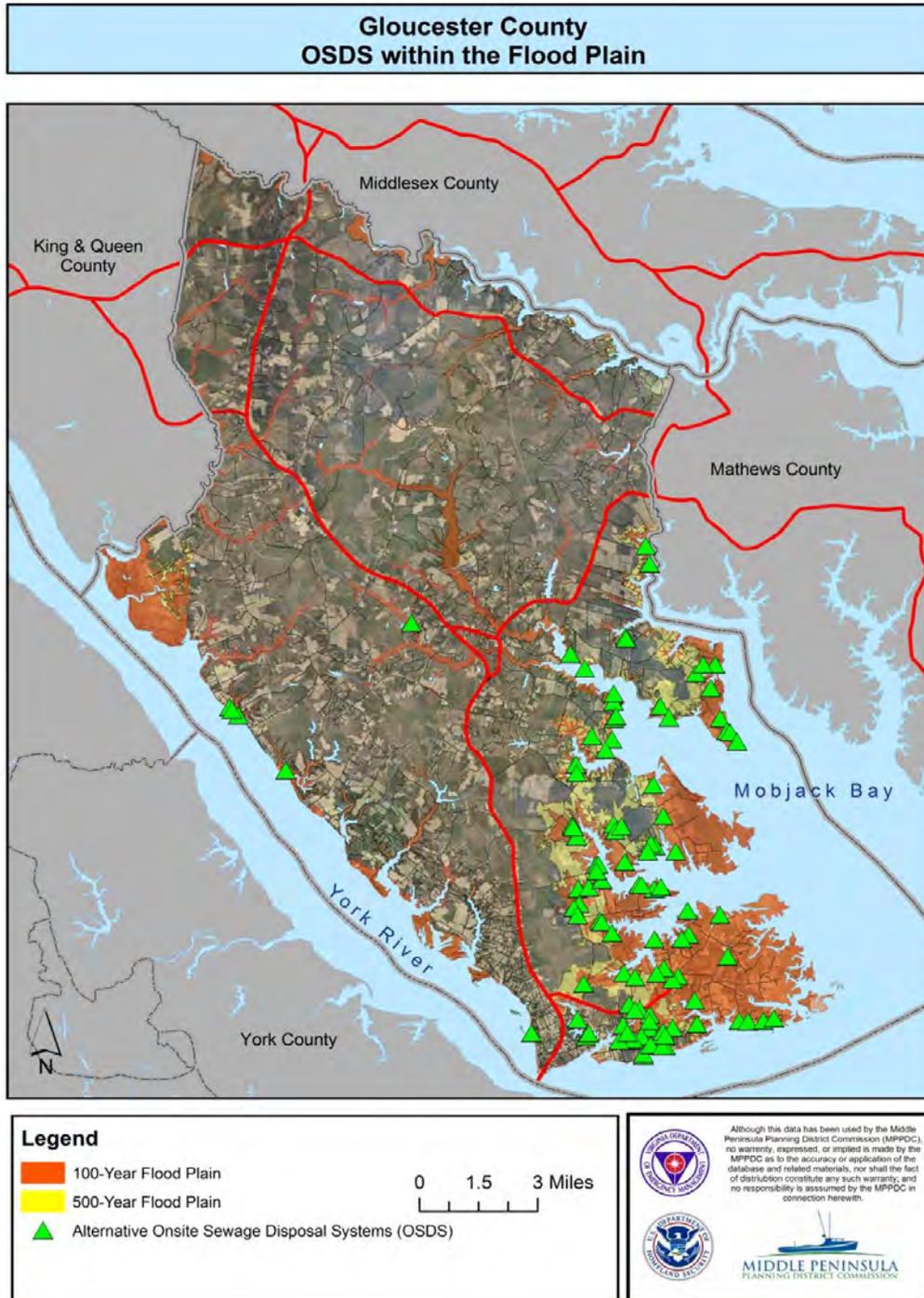
## Flood Hazard Zones in Gloucester County (Virginia Flood Risk Information System, 2021)



### Alternative On-site Sewage Disposal Systems (OSDS)

The following maps (Figure 36) show the locations of the installed OSDS facilities constructed in the 100-year and 500-year floodplain in Gloucester County.

Figure 36:



#### 4.5.5. Mathews Critical Facilities and Public Utilities

New Point Comfort Lighthouse, located at the southern tip of Mathews County, has undergone significant flood damage resulting from the lighthouse being separated from the mainland due to severe erosion. Mathews County owns the lighthouse facility. In 2016 the Waterfront Development Corporation installed a new pier at the lighthouse that allowed contractors to access the site for restoring the stone tower. Restoration of the tower started in 2020 and concluded on October 12, 2021, when a ceremony was held to relight the lighthouse.

According to VDOT officials, flood prone roads in Mathews County include the following:

**Table 34:** Mathews County Flood Prone Roads

Route	Road Name	Location
610	Marsh Hawk Road	From Rte. 614 to Rte. 611
600	Circle Drive	From Rte.14 to Rte. 14
600	Light House or Point Road	From Rte. 14 to ESM
611	Tabernacle Road	From Rte. 613 to Rte. 609
611	Tabernacle Road	From Rte. 610 to Rte. 609
609	Bethel Beach Road	From Rte. 610 to ESM
609	Bethel Beach Road	From Rte. 614 to Rte. 611
643	Haven Beach Road	From Rte. 704 to ESM
633	Old Ferry Road	From Rte. 704 to 636
608	Potato Neck Road	From Rte. 649 to ESM
644	Bandy Ridge Road	From Rte. 611 to Rte. 614

#### Public Boat Ramps

There is one public boat landing in Mathews County that is owned and operated by the VDGIF:

Water Body	Access Area	Barrier Free	Type	Ramps	Latitude	Longitude
East River	Town Point	Yes	Concrete Ramp	1	37° 24' 55" N 37.4143723	76° 20' 15" W -76.3375842
Directions: From Mathews, Rt 14 South (3.8 miles); Right onto Rt 615 (.6 miles)						
VDGIF, 2015						

#### Repetitive and Severe Repetitive Loss Residential Structures in Mathews County

According to FEMA's records, Mathews County has 169 (i.e. 164 Single family, 3 Non-resident, 1 Other resident, and 1 Condo) Repetitive Loss residential properties and 11 Single Family Severe Repetitive Losses as of October 2021.

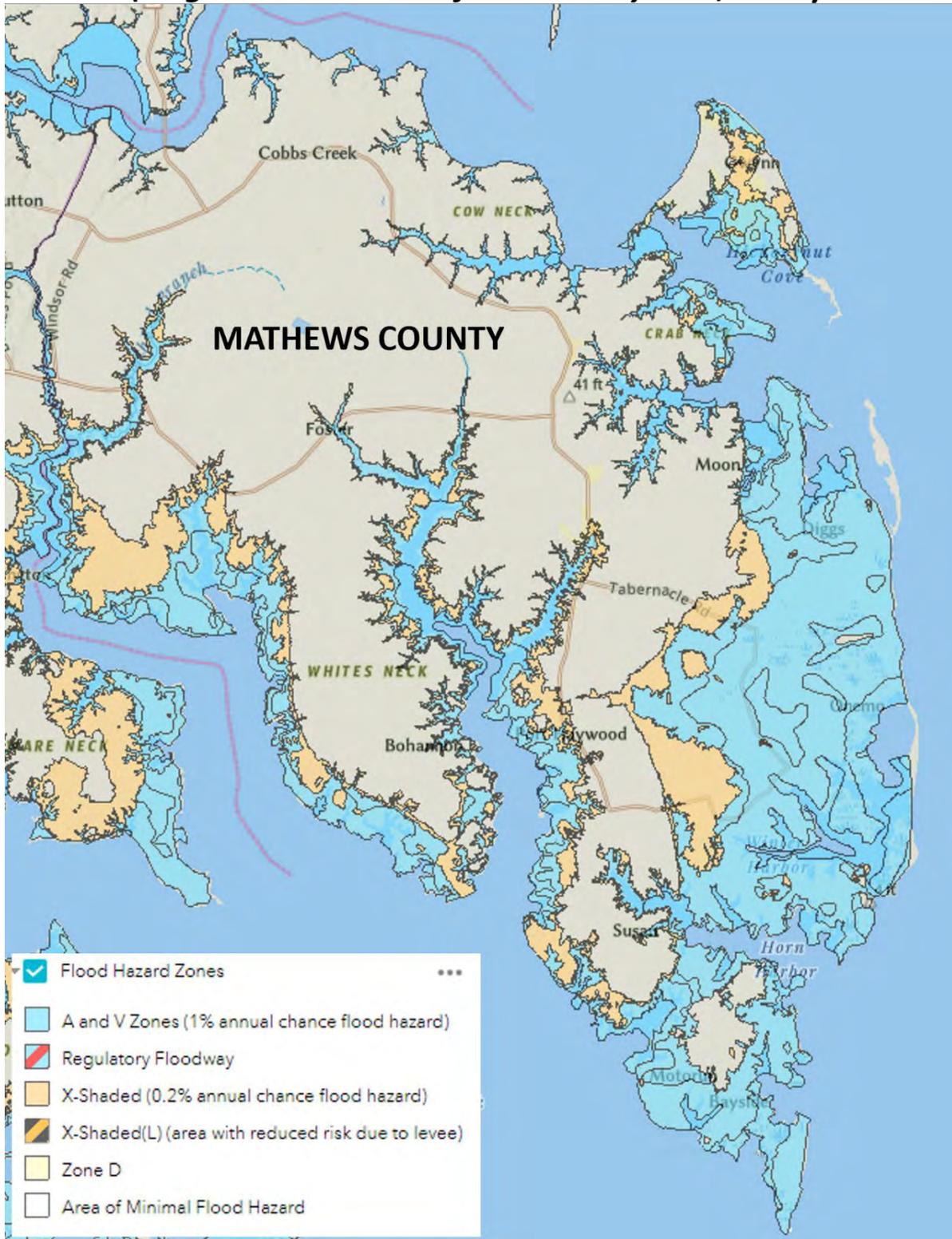
#### Public School Properties

During a Category 2 hurricane, the Thomas Hunter Middle School and the Lee Jackson Elementary School properties become flooded.

#### Floodplain

The following map shows the floodplains in Mathews County.

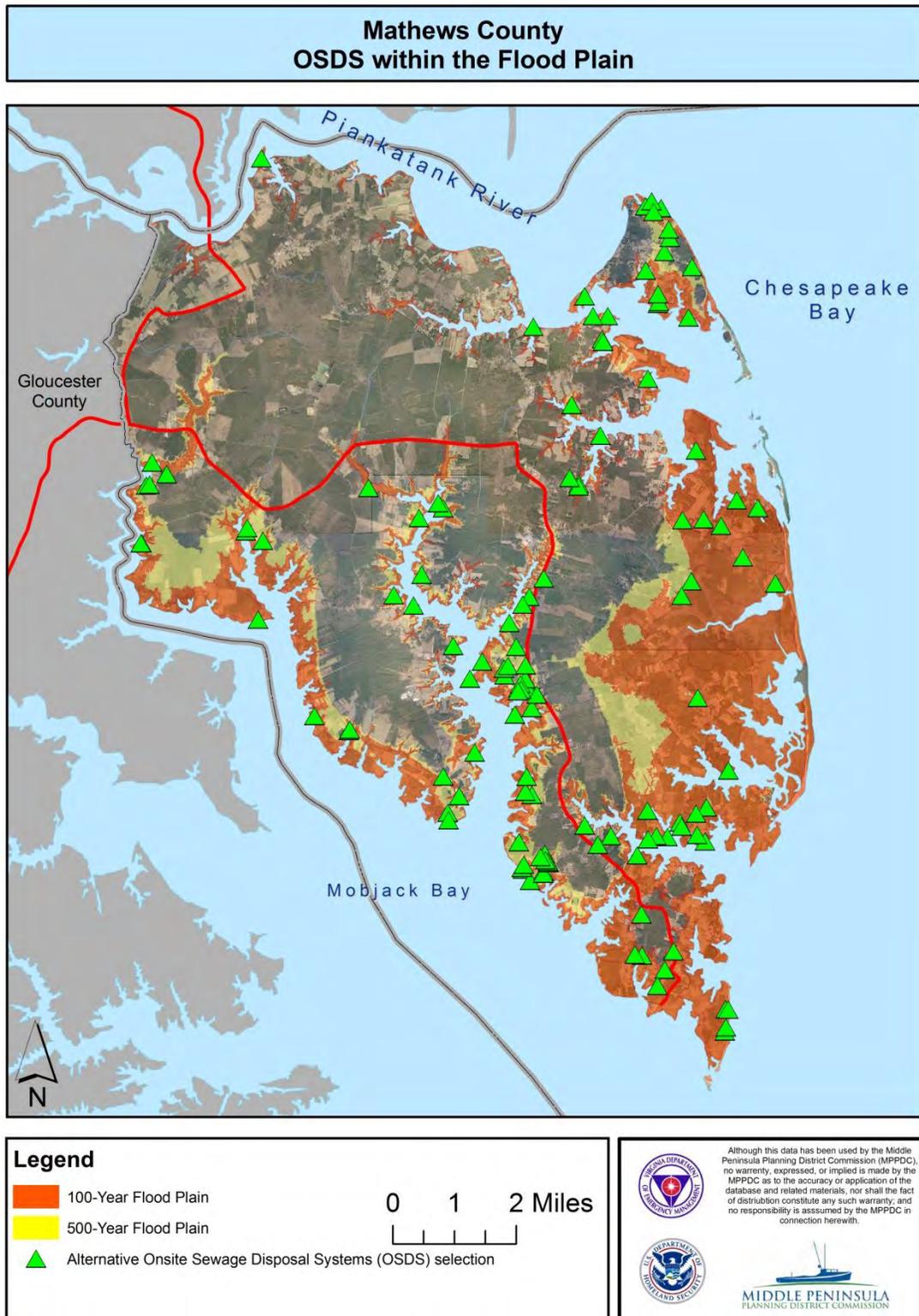
## Flood Hazard Zones in Mathews County (Virginia Flood Risk Information System, 2021)



### Alternative On-site Sewage Disposal Systems (OSDS)

The following map (Figure 37) show the location of the OSDS facilities constructed in the 100-year and 500-year floodplains in Mathews County.

Figure 37:



#### 4.5.6. Middlesex County Critical Facilities and Public Utilities

The county does not currently operate any public water systems. However, there are community water systems operated by private companies serving the Village of Saluda and some of the larger residential subdivisions in the lower portion of the county in the Hartfield and Deltaville areas. These water systems do not sustain flood damages from severe hurricanes and nor'easters.

The County does have a public sewerage system in the planning stages that will serve the Village of Saluda and properties east along the Route 33 corridor towards the Cook's Corner area. The wastewater treatment plant and outfall for this proposed system will be built along a tributary of Urbanna Creek, located between Saluda and Cook's Corner.

Since this project is in the permitting/design stage, it is assumed that the facility will be designed and constructed in a manner to avoid any future adverse impacts from floodwaters.

According to VDOT officials, flood prone roads in Middlesex County/Urbanna include the following:

Route	Road Name	Location
648	Montague Island Road	From Rte.604 to ESM
651	Smokey Point	From Rte. 640 to Rte. 685
1103	Irma's Lane	From Rte. 33 to Rte. 1102
628	Mill Creek Road	From Rte. 702 to ESM
636	Timber Neck Road	From Rte. 643 to Rte. 659

#### Public Boat Ramps

There are 3 public boat landings in Middlesex County that are owned and operated by the VDGIF:

Water Body	Access Area	Barrier Free	Type	Ramps	Latitude	Longitude
Parrotts Creek	Mill Stone	Yes	Concrete Ramp	1	37° 43' 36" N 37.7266569	76° 37' 19"W -76.6219992
Directions: Church View, Rt 17 North (1.1 miles); Right on Rt 640 (4.4miles); Left on Rt 608 (0.8 miles)						
Rappahannock River	Mill Creek	Yes	Concrete Ramp	1	37° 35' 3" N 37.5842494	76° 25' 28"W -76.4244480
Directions: From Hartfield, Rt 3 North (0.5 miles); Right on Rt 626 (3.1 miles)						
Rappahannock River	Saluda	Yes	Concrete Ramp	1	37° 37' 21" N 37.6225893	76° 34' 54"W -76.5816117
Directions: Rt 618 North (1.4 miles) of Saluda						
VDGIF, 2015						

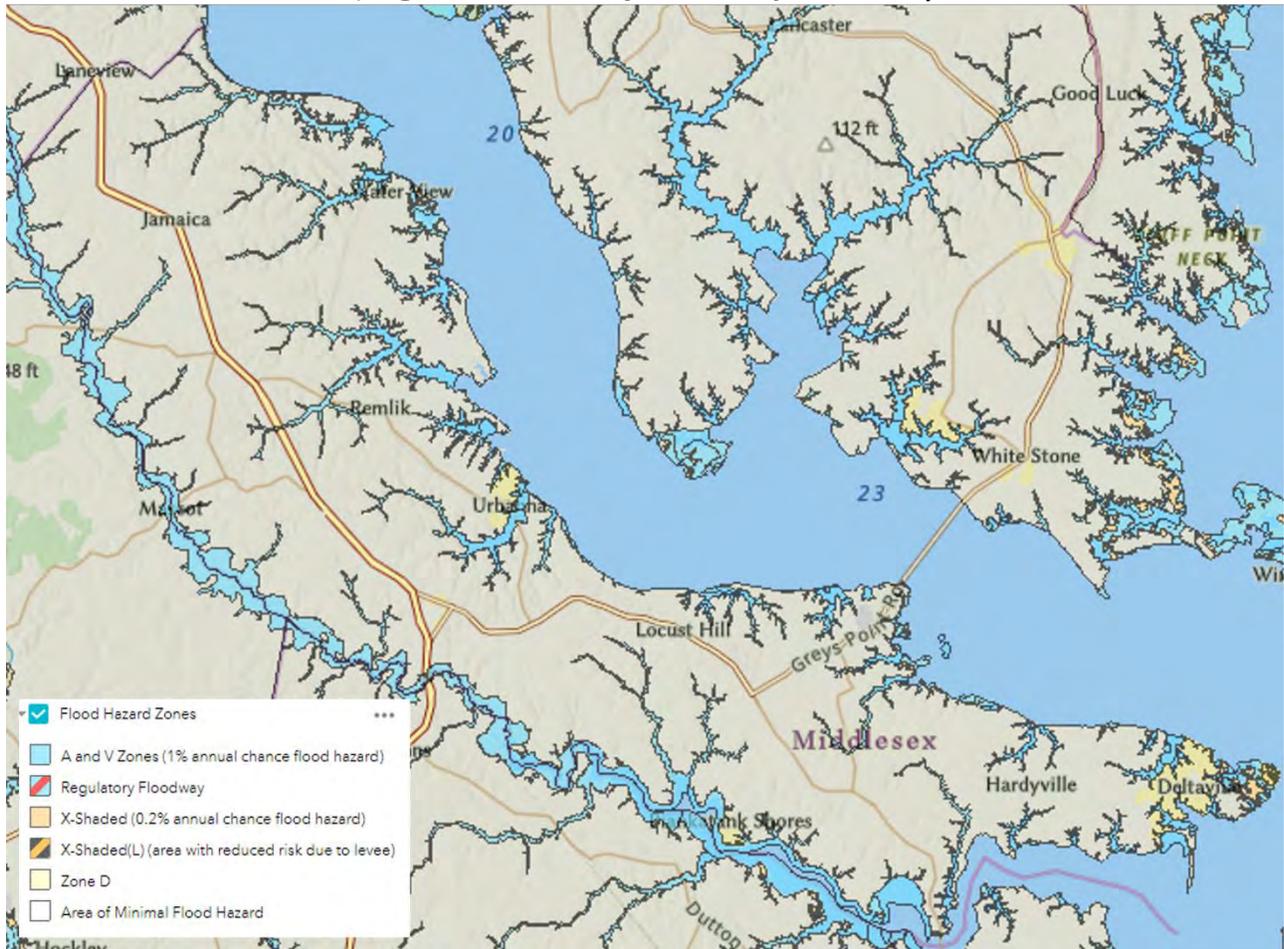
#### Repetitive and Severe Repetitive Loss Residential Structures in Middlesex County

According to FEMA's records, Middlesex County has 35 Single Family Repetitive Loss properties and 2 Single Family Severe Repetitive Loss properties as of October 2021.

#### Floodplain

The following map shows the floodplains in Middlesex County.

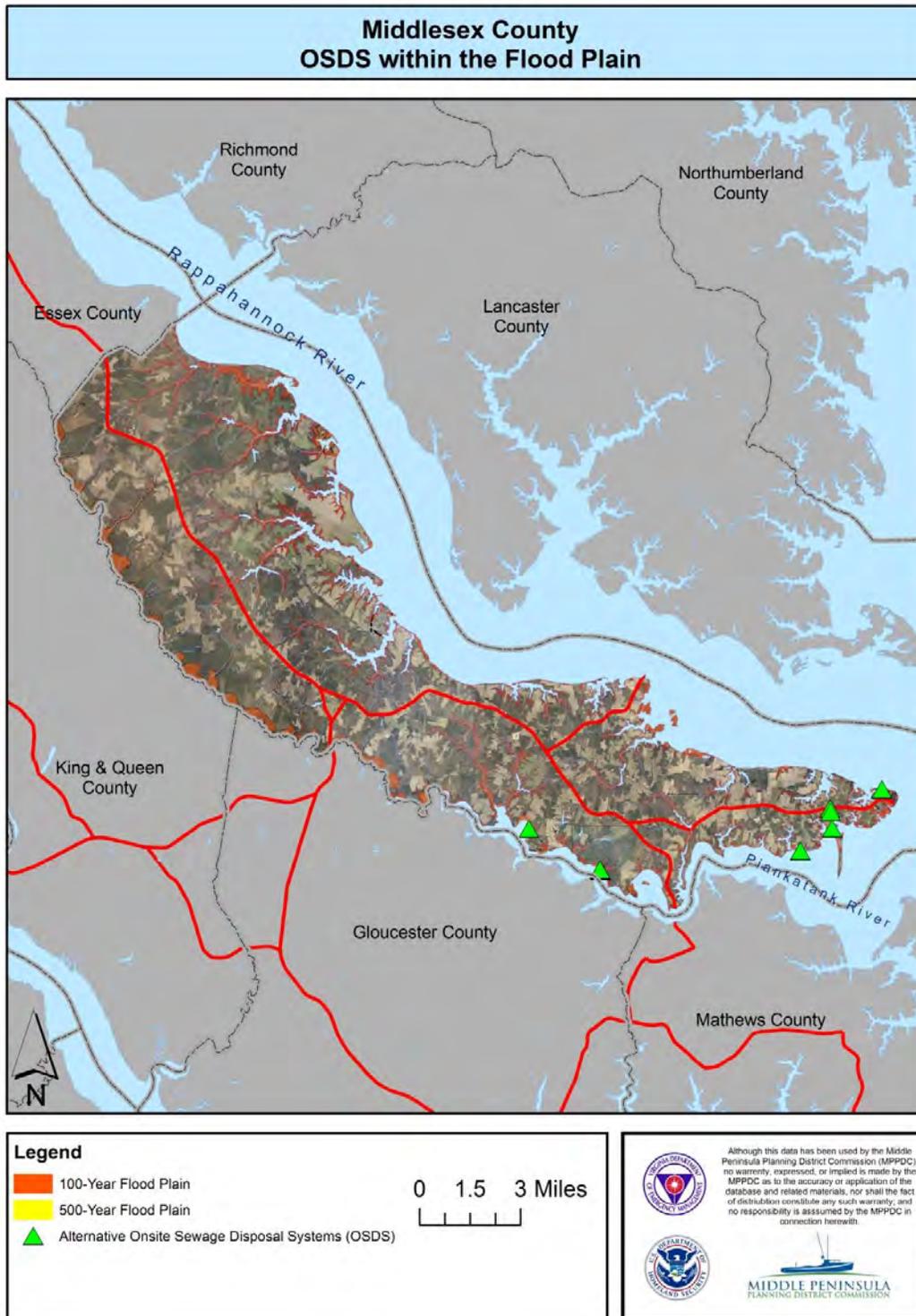
### Flood Hazard Zones in Middlesex County (Virginia Flood Risk Information System, 2021)



### Alternate On-site Sewage Disposal Systems (OSDS)

The map (Figure 38) below shows the location of the OSDS facilities constructed in the 100-year and 500-year floodplain in Middlesex County.

Figure 38:



### **Urbanna Critical Facilities and Public Utilities**

The Town of Urbanna provides public water and sewer service to its residents. The town operates the public water system which serves town residents as well as some nearby customers in surrounding Middlesex County.

The sewerage collection and treatment system is operated by the HRSD. When flood waters are anticipated, the staff at HRSD turn off the pumps at the sewerage pump stations to prevent pumping floodwaters into the wastewater treatment plant.

The wastewater treatment plant is located on high land next to the town's water tower, which is an area that does not flood.

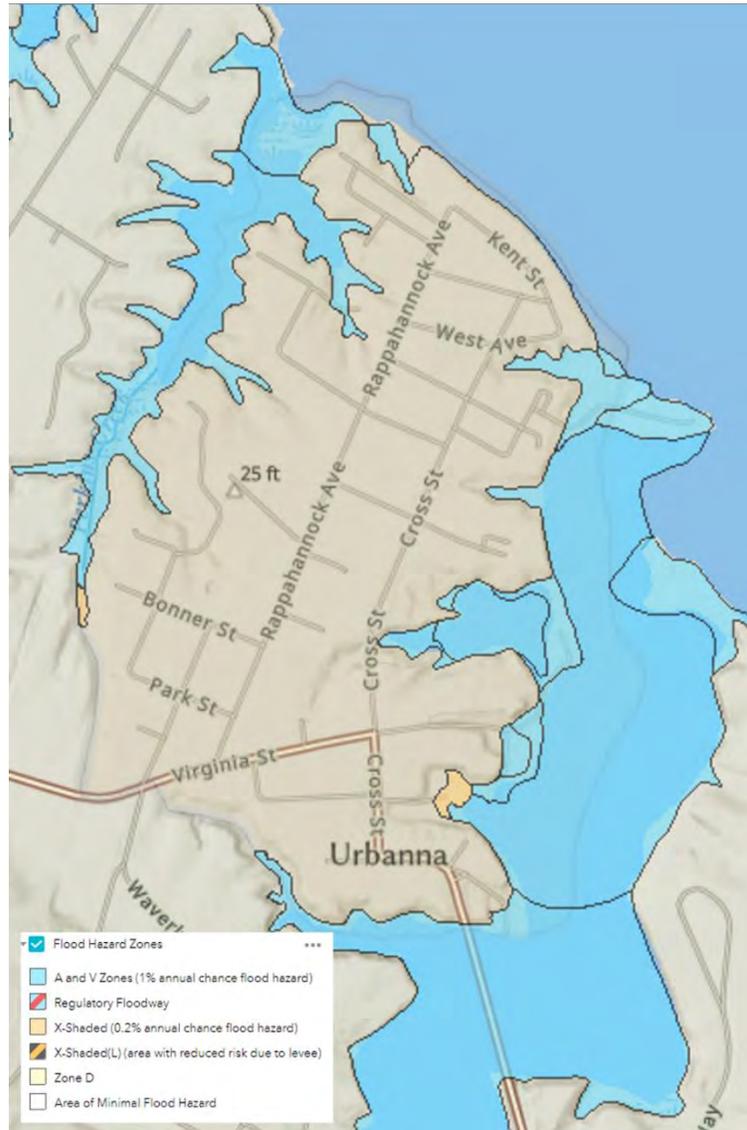
The town operates the Urbanna Town Marina that includes a boat/fishing dock, a small beach area, a small park and a small operations building - all located at Upton's Point along the Rappahannock River. This facility suffered significant damage in 2003 from Hurricane Isabel and has been completely rebuilt since then at an approximate cost of \$850,000.

### **Repetitive and Severe Repetitive Loss Residential Structures in the Town of Urbanna**

According to FEMA's records, the Town of Urbanna has 2 (ie. 1 Single Family and 1 Other resident property) Repetitive Loss residential properties and zero Severe Repetitive Loss properties as of October 2021.

In 2003, Hurricane Isabel damaged/destroyed 5 houses along low-lying Island Drive. When these houses were re-built by the property owners, they were elevated in order to prevent future damage from flood waters along this section of the Rappahannock River. The following map shows the floodplains in the Town of Urbanna.

**Flood Hazard Zones in the Town of Urbanna  
(Virginia Flood Risk Information System, 2021)**



**4.5.7. Upper Mattaponi Critical Facilities**

The Upper Mattaponi Indian Tribe established a medical facility in Aylett, Virginia in 2021. Aylett Family Wellness is the Commonwealth’s first Indian Health Service Clinic, which operates under the PL 93-638 contract, and offers a trio of medical services to tribal citizens and residents of the rural community. The clinic is a primary care provider; however, the facility also offers on-site laboratory services and a fully functioning pharmacy. Aylett Family Wellness is located at 7864 Richmond Tappahannock Highway, Aylett, Virginia 23009.

The government offices of the Upper Mattaponi Indian Tribe are located at 13467 King William Road, King William, Virginia 23086.

## Section 5: Risk Assessment Analysis

### **Flooding, Hurricane, and Sea Level Rise**

Hazus is a nationally recognized multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of Hazus is to provide methodology and software application to develop multi-hazard losses at a regional scale. The published online Hazus Technical Manuals provide detailed information about how the models work and how the models generate estimated loss estimates. The loss estimates are used primarily by local, state and regional officials to plan and stimulate efforts to reduce risk from multi-hazards and prepare for emergency response and recovery<sup>1</sup>.

Potential loss estimates analyzed in Hazus includes:

- Physical damage to residential and commercial buildings, schools, essential facilities, and infrastructure
- Economic loss including lost jobs, business interruptions, repair, and reconstruction costs.

This analysis for flood, hurricane, and sea level rise impact implements two Hazus analysis modules, flood and wind. The Hazus flood module uses depth of flooding data along with industry standard depth damage curves to estimate the economic impact of various flood scenarios. Riverine flooding, coastal flooding, and sea level rise scenario depth of flooding estimates from the National Oceanic and Atmospheric Agency (NOAA) are analyzed in the Hazus flood module. Hurricane damages are calculated with wind speed, direction, and duration analysis from the Hazus hurricane module. Model information is from either historical hurricane tract and impacts or are estimated in a probabilistic scenario. Hurricane wind driven storm surge is not calculated in the Hurricane model, but instead is a component of the coastal analysis that takes both estimated storm surge and wave-run-up into account in the depth of flooding damages.

Results of the Hazus modules are captured at the Census block level for all Hazards. Census blocks align well with County and incorporated jurisdiction boundaries. The results for the three federally recognized Tribes within the Middle Peninsula, they are represented as a portion of the overall County results and Tribal Designated Statistical Areas (TDSA) have been included in maps. According to the US Census Bureau, TSDAs are *intended to encompass a compact and contiguous area that contains a concentration of individuals who identify with the delineating federally recognized American Indian tribe. TSDAs are also intended to be comparable to American Indian reservations within the same state or region and provide a means for reporting statistical data for the area.* Please note this TSDAs may not be the Tribe's planning area of the AHMP, land owned by the Tribe, land in trust to the Tribe, Tribal ancestral land, or land of importance to the Tribe. Additionally, upon correspondence with the Tribes the TSDAs did not sufficiently represent their Tribe. Finally, it was found that this the TDSA data did not include the Upper Mattaponi Tribe. Future Hazus runs will need to improve and capture the Tribes planning area and assess the losses within these areas.

For each scenario, Flood Hazards (Riverine and Coastal), Hurricane Wind Hazard, and Sea Level Rise Hazard, a description of the methodology and parameters for estimation of the hazard, a description of the built and potential loss environment, and the results of the scenario are presented in narrative, tabular, and mapping formats. All supporting digital input and results are included as an annex to this analysis.

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<sup>1</sup> Hazus User & Technical Manuals, <https://www.fema.gov/flood-maps/tools-resources/flood-map-products/hazus/user-technical-manuals>

## Flood Hazard Analysis

The Hazus flood hazard analysis module was used to identify and characterize the flood hazards and the subsequent loss-potential or risk for both riverine and coastal flooding impacts. The standard methodology of defining loss potential for any given hazard, includes annualizing the potential over a series of statistical return periods. Annualization is the mathematical method of converting individual losses to a weighted-average that may be experienced in any given year. This Plan's scope of analysis examines risk by annualizing the impact of flooding from the 0.2%, 1%, 2%, 4%, and 10% annual chance return periods. In layman's-terms these same annual-chance return periods are often described as the 500-year, 100-year, 50-year, 25-year and 10-year events as shown in Table 35. Coastal flood risk is usually represented by a single event, the one-percent-annual chance return period that incorporates both storm surge and wave-run-up values. This study has developed storm surge return periods to match the riverine flood hazard events so an annualized flood loss can be established.

**Table 35: Annual probability for flood hazard recurrence intervals.**

Flood Recurrence Interval	Annual Chance of Occurrence
10-year	10.0%
25-year	4.0%
50-year	2.0%
100-year	1.0%
500-year	0.2%

Each of these flood hazard return periods represent a statistical event of the chance of being equaled or exceeded in any given year; i.e., the likelihood that a particular event with a given intensity occurs on average per year. Once each of these statistical return periods are calculated, an annualized value is computed offering a perspective for any given year.

The flood modeling performed as part of the current Plan update, and the respective risk results, represents estimated flood losses for each statistical return period and then the annualized flood losses. However, it is important to note that the idiom of 'comparing apples with oranges' very-much applies to the various elements of flood modeling as well as modeling risk from potential flooding. Therefore, where appropriate differing modeling methodologies and their respective results have been separated for comparative purposes as described and highlighted in the bulleted list below. The same list also presents the order in which Hazus modeling information is presented in this report:

The flood hazard modeling performed includes the following:

- FEMA Floodplains and Depth Grid Information
- Hazus Building Stock (Inventory of Buildings and Facilities):
  - All modeling utilized default Hazus building inventory values (Version 4.2 – US Census Bureau 2010 Building Stock Data)
  - All modeling utilized default Hazus Dasymetric Census Geographies

- All modeling utilized default Hazus essential facilities
- **Hazus Levels 1 and 2 Multi-frequency Flood Modeling** –Hazus derived flood hazards were combined with FEMA’s detailed engineering modeling of flood hazards as published on FEMA’s Map Service Center. The following core inputs and parameters were included in this study:
  - All GIS grid products are in Universal Transverse Mercator (UTM) Projection with X,Y (North American Datum of 1983), and Z units (North American Vertical Datum of 1988) in Feet. All GIS grid products were created or converted to a 10-ft grid cell size for analysis.
  - Digital Elevation Model (DEM) – National Elevation Dataset (NED) One-Arc Second (~30 meter resolution)
  - Frequencies (Both Riverine & Coastal hazards) - 0.2%, 1%, 2%, 4%, and 10%. No grid is created representing an annualized depth of flooding. Annualized results are derived from the loss estimation.
  - FEMA’s Riverine and Coastal analysis is completed by Hydrologic Unit Code (HUC) and data from two HUCs were available to be incorporated as a Level 2 update for flood hazard analysis. These HUCs provided updated data for portions of Essex, King & Queen, Middlesex, Gloucester and Mathews Counties. FEMA does not have updated data for King William County. Data were imported from:
    - FRD\_02080104\_GeoDatabase\_20201006
    - FRD\_02080102\_GeoDatabase\_20201006
  - Riverine:
    - Level 1 - One-Square Mile (sq mi) Drainage Threshold for places where there were no updated data from FEMA, such as King William County,
    - Level 2 – FEMA’s engineering detailed studies produced depth grids for all return periods.
  - Coastal:
    - Level 2
      - FEMA’s detailed engineering analysis provided an update to the one-percent-annual chance return period for coastal hazards that combines both surge and wave run-up analysis for a limited spatial area.
      - “Starting Stillwater Elevations” as published in the Flood Insurance Study’s (FIS) Table 2 – Transect Data (see each FEMA FIS document for the table details) from each respective FEMA Flood Insurance Study (FIS) to develop depth grids for return periods other than the one-percent-annual chance:
        - ESSEX COUNTY – Revised May 4, 2015
        - GLOUCESTER COUNTY – Revised November 19, 2014
        - KING AND QUEEN COUNTY – Preliminary October 3, 2013
        - KING WILLIAM COUNTY – Preliminary October 3, 2013
        - MIDDLESEX COUNTY – Revised May 18, 2015
        - MATHEWS COUNTY – Revised December 9, 2014
      - Hazus default shoreline data was modified to extend up the York River so that Level 1 coastal modeling could be completed for King William County, King and Queen County, and portions of Gloucester County upstream of the George Washington Memorial Highway Bridge (US 17).

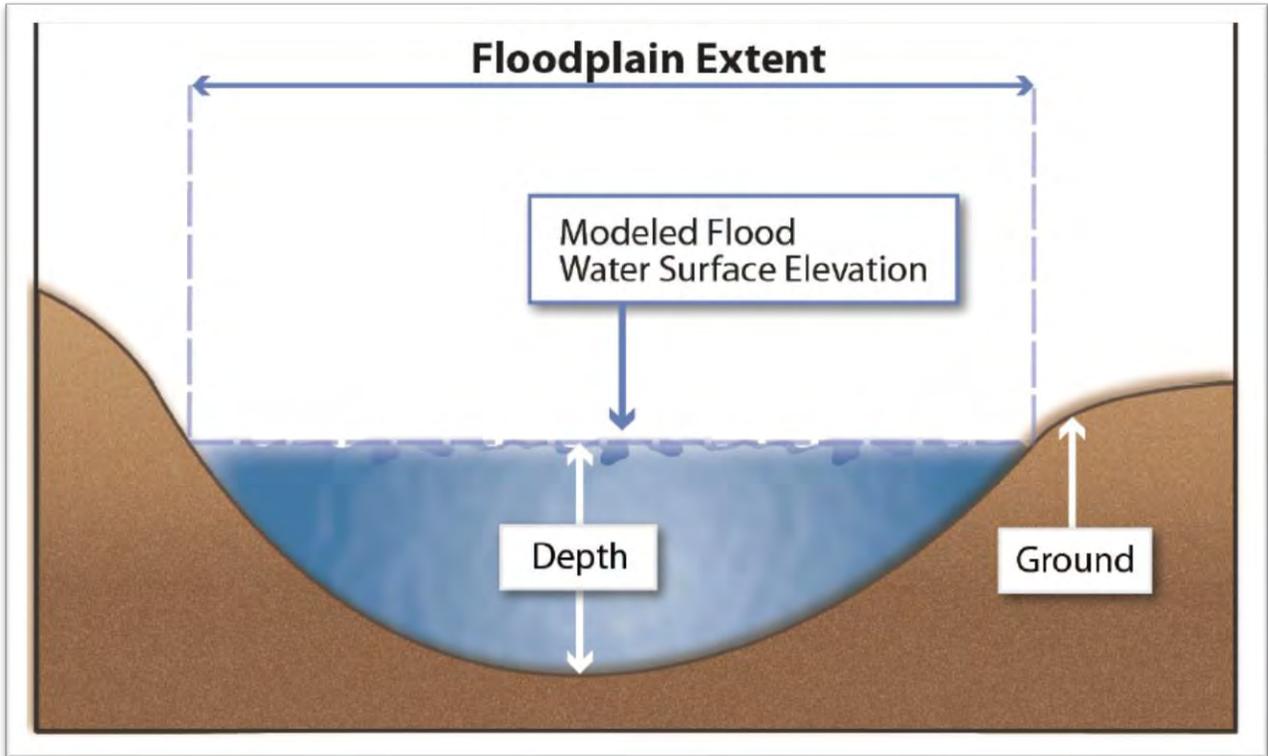
- **Hazus Level I Analysis and Summary of Losses**– Analysis for annualized losses and losses for each return period:
  - Level I
    - Multiple frequencies (each return period available for riverine and coastal)
      - Hazus default general building stock is analyzed for each return period and then summarized as loss totals by dollars of building and contents loss, and dollars of business interruption.
      - Hazus default essential facilities losses have totals summarized by dollars of building and content’s loss, along with an estimate of time to full restoration of the function of that facility
    - Annualized (riverine and coastal)
      - General building stock is processed for annualized loss analysis summarized as loss totals by dollars of building and contents loss, and by capita. Summaries are also built for general occupancy class type, and construction material.
      - Hazus does not provide this analysis methodology for Essential Facilities
  - Results will be presented in the narrative, tables, and maps as losses due to riverine hazards, losses due to coastal hazards, and then the combined impact of both hazard types.

### **FEMA Floodplains and Depth Grid Information**

FEMA initiates Flood Insurance Studies (FIS) on a national prioritization schedule. The most recent FIS’s have been incorporated into this Plan as outlined by date in the list above; dates ranging from 2013 to 2020. These various new studies have produced updated riverine and coastal flood hazards for most of the jurisdictions in the Middle Peninsula planning area. The new riverine coastal flood hazards associated with the most recent FEMA studies have been produced under the Risk MAP Program. In short, the Risk MAP Program seeks to include risk assessments as part of an FIS to better communicate the risk of flooding. Consequently, a Risk MAP study includes all of the regulatory FIS products; namely engineering, floodplain mapping, digital FIRM data and report text. However, in addition to the traditional regulatory products, Risk MAP also includes new non-regulatory products aimed at communicating risk. One of the core non-regulatory datasets that FEMA develops includes the creation of depth grids from the digital FIRM data. Depth grids are the key to performing risk assessments in the Hazus software as they are able to be directly imported from authoritative sources of engineering modeling. Figures 42 and 43 illustrates the extent of flood hazards as defined by the most recent FEMA flood insurance studies that were incorporated into this study making this a Level 2 hazard data analysis.

The flood hazard within Hazus is ultimately defined by a depth grid which is a representation of the difference between the estimated water surface and ground elevations for each respective flood frequency or annual chance.

The following image is a simplified representation as shown in FEMA’s Guidance for Flood Risk Analysis and Mapping, Flood Depth and Analysis Grids (May 2014):



The new Risk MAP projects for each of the counties in the Middle Peninsula Regional include new riverine coastal one-percent-annual-chance depth grids. Figure 39 shows these new coastal one-percent-annual chance depth grids and the new FEMA digital FIRM floodplains.

**Figure 39: FEMA Level 2 Depth Grids.**

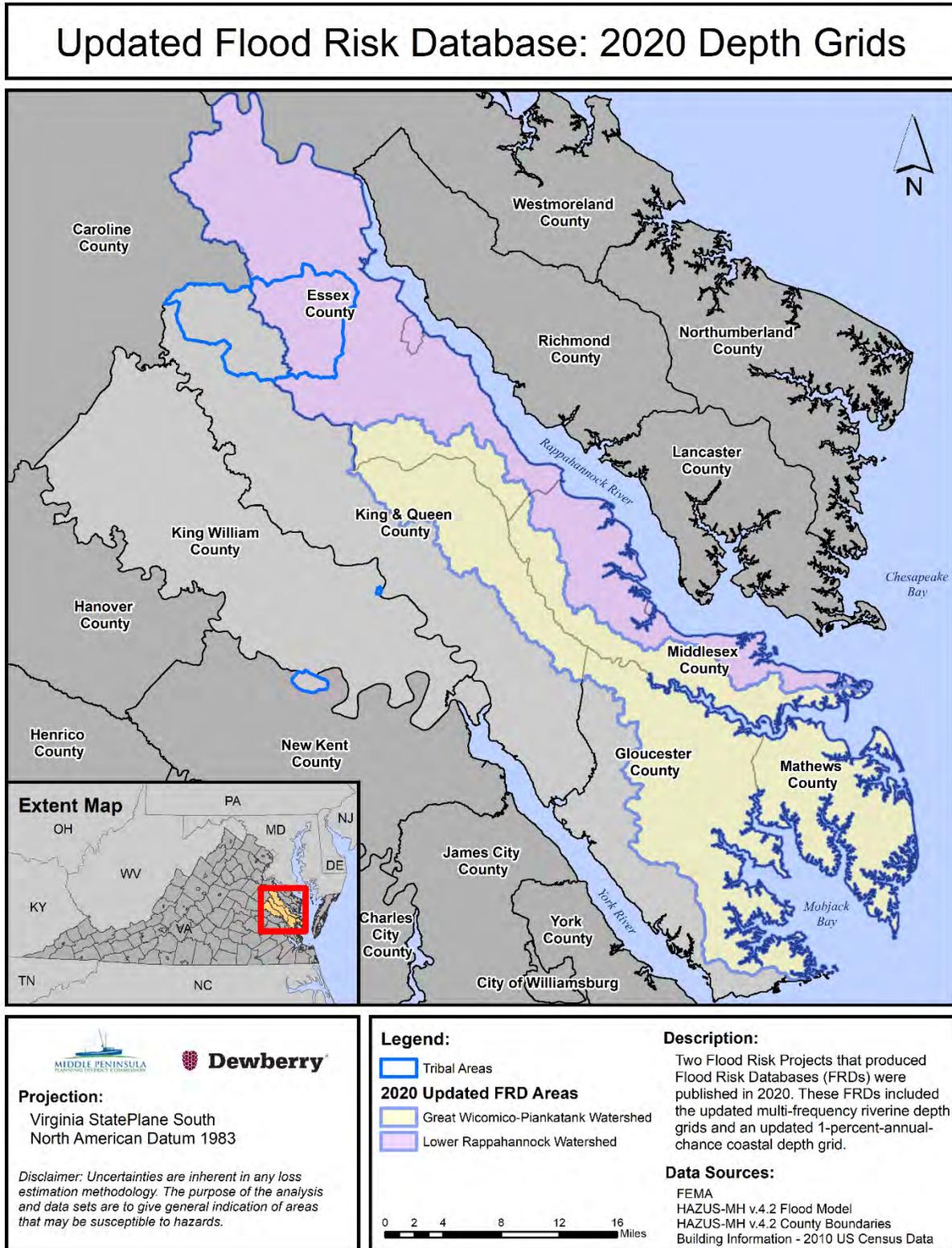
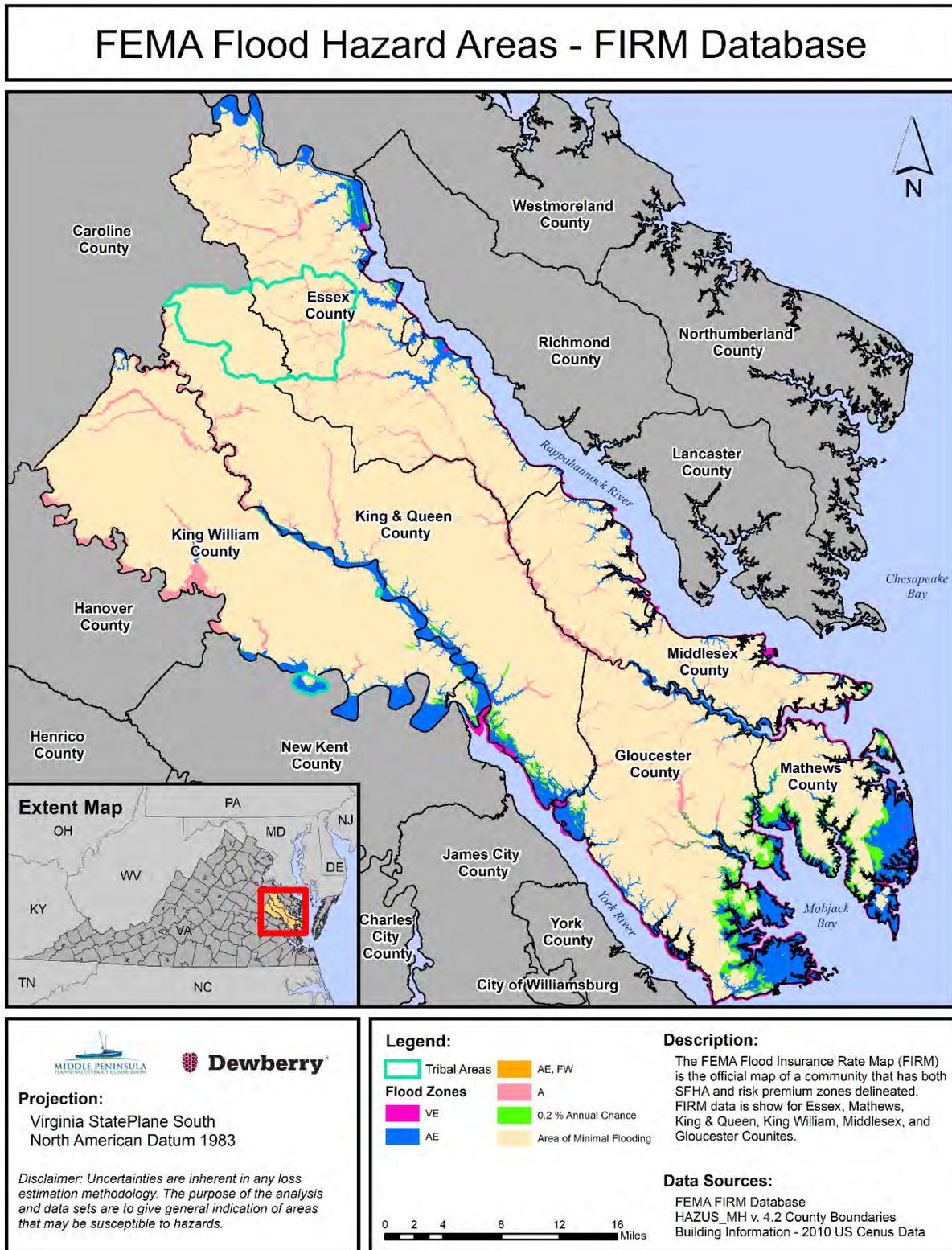


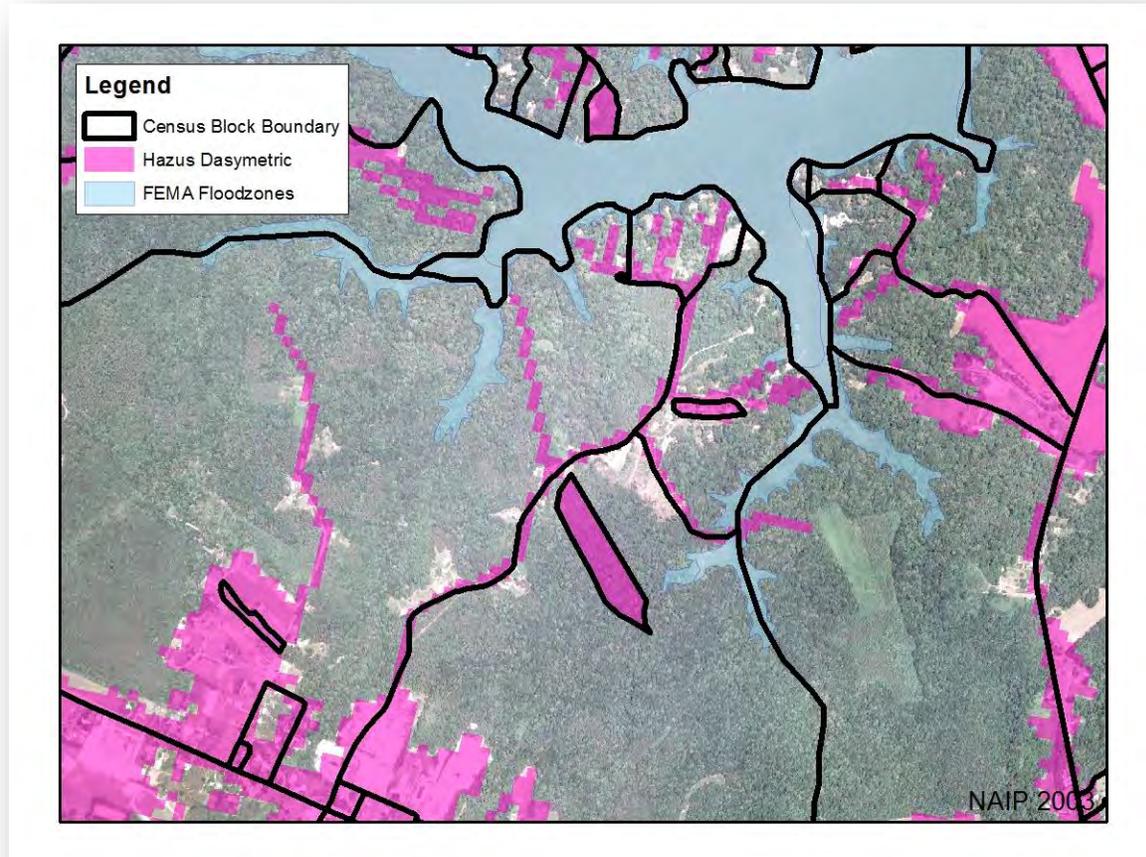
Figure 40: Level I Hazards.



### Hazus Building Stock (Inventory of Buildings and Facilities)

Hazus general building stock is an inventory of the built environment that is at risk of damage by a hazard. Each respective type or sub-type of buildings in the following categories; residential, commercial, industrial, agricultural, religious, government, and education has risk based on the replacement value for buildings in that use category, the size and construction of these buildings, and the replacement cost to rebuild if the building is destroyed. For the damage calculations, Hazus assumes that all buildings are evenly distributed throughout a given census block and therefore damage is estimated as a percent and is weighted by the area of inundation at a given depth for a given census block. The methodology therefore, is known as an area-weighted methodology.

FEMA has initiated recent improvements to the area-weighted methodology by further refining the distribution of building square-footage to land areas characterized by development and removing land areas typical of non-developed land classes (e.g., forests, wetlands, etc...). This refinement is called dasymetric mapping and the current Plan modeling utilizes the FEMA dasymetric building stock. The following image shows a small example area in which the developed areas are pink:



Use of the new dasymetric data will typically reduce the total area subject to area-weighted loss estimations - particularly for those census blocks that have flood risk but no actual development within the floodplains. An area analysis of the dasymetric versus full stock census blocks is compared in the following table:

Digital FIRM Acreage Type	Census Block Type	
	Dasymetric	Entire Census Block
<b>Acres of 0.2% Annual Chance Floodplains (500-year)</b>	29,199 Acre (3.5% of Total Acres)	127,531 Acre (15.2% of Total Acres)
<b>Acres of 1% Annual Chance Floodplains (100-year)</b>	23,288 Acre (2.8% of Total Acres)	111,222 Acre (13.3% of Total Acres)
<b>Total Acres of Census Blocks Middle Peninsula Region</b>	<b>836,632 Acres</b>	

A comparison of FEMA’s digital FIRM data intersecting the two types of Hazus census blocks reveals that an estimated 3.5% of the dasymetric data is within the extents of the 0.2-percent-annual chance flood hazard area versus 15.2% when using full census blocks. And, considering the 1-percent-annual chance flood hazard area, there is approximately 2.8% intersecting the dasymetric data versus 13.3% when using full census blocks. Consequently, this refinement can be considered a benefit to the risk analyses in that the expectation of over-estimations are mitigated by limiting potential losses to developed areas.

Loss estimations are first based on inundation area for specified sub-types of building’s cost per square-footage. The second type of data includes information on the local economy that is used in estimating losses. Table 35 displays the economic loss categories used to calculate annualized losses by Hazus. Data for this analysis has been provided at the census block level.

**Table 35:** Hazus direct economic loss categories and descriptions.

Category Name	Description of Data Input into Model	Hazus Output
<b>Building</b>	Cost per sq ft to repair damage by structural type and occupancy for each level of damage	Cost of building repair or replacement of damaged and destroyed buildings
<b>Contents</b>	Replacement value by occupancy	Cost of damage to building contents
<b>Inventory</b>	Annual gross sales in \$ per sq ft	Loss of building inventory as contents related to business activities
<b>Relocation</b>	Multiple factors; primarily a function of Rental Costs (\$/ft <sup>2</sup> /month) for non-entertainment buildings where damage ≥10%	Relocation expenses (for businesses and institutions); disruption costs to building owners for temporary space.
<b>Income</b>	Income in \$ per sq ft per month by occupancy	Capital-related incomes losses as a measure of the loss of productivity, services, or sales
<b>Rental</b>	Rental costs per month per sq ft by occupancy	Loss of rental income to building owners
<b>Wage</b>	Wages in \$ per sq ft per month by occupancy	Employee wage loss as described in income loss

The Middle Peninsula Planning District Commission currently has approximately 46,146 structures with an estimated potential exposure of the built environment of approximately \$19.7 billion. Average estimated replacement value of buildings in the study area range from approximately \$318,000 to \$490,000, with the mean approximation value of \$412,000. Eighty-Two percent of the planning district's general occupancy is categorized as residential, and 11% is commercial. Table 36 provides inventory information for each of the six counties that were included in the analysis. Gloucester County occupies a largest percentage (40%) of the building stock exposure for the region.

**Table 36:** Building stock exposure for general occupancies by county.

County	Residential	Commercial	Industrial	Agriculture	Religion	Govt.	Education	Total \$ and % of Total
Essex	\$1,690,695	\$404,683	\$149,121	\$21,320	\$38,252	\$20,307	\$36,124	\$2,360,502 (12%)
Gloucester	\$6,468,784	\$879,665	\$164,938	\$28,290	\$116,120	\$36,529	\$196,149	\$7,890,475 (40%)
King & Queen	\$992,231	\$57,304	\$30,890	\$5,828	\$27,490	\$3,346	\$8,736	\$1,125,825 (6%)
King William	\$2,799,158	\$294,544	\$118,245	\$28,276	\$57,502	\$27,319	\$29,734	\$3,354,778 (17%)
Mathews	\$1,739,804	\$159,583	\$50,753	\$8,584	\$27,408	\$7,692	\$14,446	\$2,008,270 (10%)
Middlesex	\$2,431,988	\$379,226	\$69,110	\$12,200	\$36,784	\$13,212	\$48,482	\$2,991,002 (15%)
<b>Total</b>	<b>\$16,122,660</b>	<b>\$2,175,005</b>	<b>\$583,057</b>	<b>\$104,498</b>	<b>\$303,556</b>	<b>\$108,405</b>	<b>\$333,671</b>	<b>\$19,730,852</b>
% of Total	82%	11%	3%	< 1%	2%	< 1%	2%	100%

All values are in thousands of dollars.

**Note:** Total exposure differs between exporting by building occupancy versus building construction type due to rounding issues in the Hazus data estimation equations.

Building stock exposure is also classified by building type. General Building Types (GBTs) have been developed as a means to classify the different building types. This provides an ability to differentiate between buildings with substantially different damage and loss characteristics. Building types represent the characteristics of a typical building in its class. The damage and loss prediction models are developed for each building type. The estimated performance of a building type is based upon the "average characteristics" of the total population of buildings within each class. Five general classifications have been established, including wood, masonry, concrete, steel and manufactured homes. A brief description of the building types is available in Table 37. The Hazus inventory serves as the default when a user does not have better data available.

**Table 37:** Hazus general building type classes.

General Building Type	Description
<b>Wood</b>	Wood frame construction
<b>Masonry</b>	Reinforced or unreinforced masonry construction
<b>Steel</b>	Steel frame construction
<b>Concrete</b>	Cast-in-place or pre-cast reinforced concrete construction
<b>Manufactured Home</b>	Factory-built residential construction

Wood construction represents the majority (62%) of building types in the planning district. Masonry construction accounts for nearly a quarter (25%) of the building types. Table 38 provides building stock exposure for these five main building types.

**Table 38:** Building stock exposure for general building construction type by county.

County	Wood	Masonry	Concrete	Steel	Manufactured Home	Total
Essex	\$739,917	\$277,995	\$12,384	\$54,013	\$41,811	\$1,126,120
Gloucester	\$4,926,253	\$2,004,985	\$184,550	\$629,434	\$145,376	\$7,890,598
King & Queen	\$1,296,670	\$500,835	\$34,312	\$122,743	\$53,977	\$2,008,537
King William	\$2,152,946	\$851,390	\$65,898	\$244,516	\$40,194	\$3,354,944
Mathews	\$1,289,067	\$592,340	\$101,638	\$323,107	\$54,516	\$2,360,668
Middlesex	\$1,845,893	\$762,017	\$70,862	\$242,371	\$70,147	\$2,991,290
<b>Total</b>	<b>\$12,250,746</b>	<b>\$4,989,562</b>	<b>\$469,644</b>	<b>\$1,616,184</b>	<b>\$406,021</b>	<b>\$19,732,157</b>
% of Total	62%	25%	3%	8%	2%	100%

All values are in thousands of dollars  
**Note: Total exposure differs between exporting by building occupancy versus building construction type of \$1,305 due to rounding issues in the Hazus data estimation equations.**

### Multi-Frequency Riverine and Coastal Flood Modeling – Results

Tables 39 to 45 show the multi-frequency results for riverine hazards, coastal hazards, and the combined impact of both hazards for the Middle Peninsula Region and each County. Flood hazard damage dollars are calculated based on a depth-damage curve in Hazus applied to the replacement cost per square footage of the building to get a damage cost. These costs are calculated for a Census Block which are summarized for each County.

**Table 39:** Middle Peninsula Regional summary of multi-frequency flood damage building stock losses.

Area	Scenario	Total Losses	Building Losses	Content Losses	Business Disruption
<b>Riverine Results</b>					
All Counties	10-percent-annual-chance event	\$6,104	\$2,984	\$1,906	\$1,214
All Counties	4-percent-annual-chance event	\$10,148	\$5,103	\$3,193	\$1,852
All Counties	2-percent-annual-chance event	\$11,685	\$5,916	\$3,681	\$2,088
All Counties	1-percent-annual-chance event	\$12,496	\$6,370	\$3,910	\$2,216
All Counties	0.2-percent-annual-chance event	\$16,440	\$8,632	\$5,367	\$2,441
<b>Coastal Results</b>					
All Counties	10-percent-annual-chance event	\$271,438	\$83,571	\$62,781	\$62,543
All Counties	4-percent-annual-chance event	\$338,809	\$108,861	\$81,028	\$74,460
All Counties	2-percent-annual-chance event	\$476,059	\$161,805	\$119,470	\$97,392
All Counties	1-percent-annual-chance event	\$621,101	\$211,662	\$156,991	\$126,224
All Counties	0.2-percent-annual-chance event	\$2,126,639	\$777,140	\$573,157	\$388,171
<b>Combined Riverine and Coastal Results</b>					
All Counties	10-percent-annual-chance event	\$278,756	\$86,555	\$64,687	\$63,757
All Counties	4-percent-annual-chance event	\$350,809	\$113,964	\$84,221	\$76,312
All Counties	2-percent-annual-chance event	\$489,832	\$167,721	\$123,151	\$99,480
All Counties	1-percent-annual-chance event	\$635,813	\$218,032	\$160,901	\$128,440
All Counties	0.2-percent-annual-chance event	\$2,145,520	\$785,772	\$578,524	\$390,612
<b>All values are in thousands of dollars</b>					

**Table 40:** Essex County multi-frequency building stock losses.

Area	Scenario	Total Losses	Building Losses	Content Losses	Business Disruption
<b>Riverine Results</b>					
Essex County	10-percent-annual-chance event	\$61	\$26	\$11	\$12
Essex County	4-percent-annual-chance event	\$105	\$51	\$26	\$14
Essex County	2-percent-annual-chance event	\$130	\$70	\$32	\$14
Essex County	1-percent-annual-chance event	\$161	\$87	\$44	\$15
Essex County	0.2-percent-annual-chance event	\$273	\$150	\$79	\$22
<b>Coastal Results</b>					
Essex County	10-percent-annual-chance event	\$20,864	\$6,246	\$4,592	\$5,013
Essex County	4-percent-annual-chance event	\$25,117	\$7,857	\$5,950	\$5,655
Essex County	2-percent-annual-chance event	\$34,053	\$11,358	\$8,469	\$7,113
Essex County	1-percent-annual-chance event	\$36,698	\$12,234	\$9,106	\$7,679
Essex County	0.2-percent-annual-chance event	\$76,309	\$28,640	\$21,279	\$13,195
<b>Combined Riverine and Coastal Results</b>					
Essex County	10-percent-annual-chance event	\$20,925	\$6,272	\$4,603	\$5,025
Essex County	4-percent-annual-chance event	\$25,222	\$7,908	\$5,976	\$5,669
Essex County	2-percent-annual-chance event	\$34,183	\$11,428	\$8,501	\$7,127
Essex County	1-percent-annual-chance event	\$36,859	\$12,321	\$9,150	\$7,694
Essex County	0.2-percent-annual-chance event	\$76,582	\$28,790	\$21,358	\$13,217
<b>All values are in thousands of dollars</b>					

**Table 41:** Gloucester County multi-frequency building stock losses.

Area	Scenario	Total Losses	Building Losses	Content Losses	Business Interruption
<b>Riverine Results</b>					
Gloucester County	10-percent-annual-chance event	\$4,080	\$1,400	\$1,018	\$831
Gloucester County	4-percent-annual-chance event	\$4,502	\$1,571	\$1,133	\$899
Gloucester County	2-percent-annual-chance event	\$4,798	\$1,711	\$1,219	\$934
Gloucester County	1-percent-annual-chance event	\$4,342	\$1,532	\$1,050	\$880
Gloucester County	0.2-percent-annual-chance event	\$5,863	\$2,272	\$1,597	\$997
<b>Coastal Results</b>					
Gloucester County	10-percent-annual-chance event	\$154,036	\$44,690	\$34,858	\$37,244
Gloucester County	4-percent-annual-chance event	\$189,929	\$58,427	\$44,840	\$43,331
Gloucester County	2-percent-annual-chance event	\$263,119	\$87,486	\$66,375	\$54,629
Gloucester County	1-percent-annual-chance event	\$337,821	\$113,743	\$86,876	\$68,601
Gloucester County	0.2-percent-annual-chance event	\$1,369,365	\$553,523	\$394,102	\$210,870
<b>Combined Riverine and Coastal Results</b>					
Gloucester County	10-percent-annual-chance event	\$158,116	\$46,090	\$35,876	\$38,075
Gloucester County	4-percent-annual-chance event	\$194,431	\$59,998	\$45,973	\$44,230
Gloucester County	2-percent-annual-chance event	\$267,917	\$89,197	\$67,594	\$55,563
Gloucester County	1-percent-annual-chance event	\$342,163	\$115,275	\$87,926	\$69,481
Gloucester County	0.2-percent-annual-chance event	\$1,375,228	\$555,795	\$395,699	\$211,867
<b>All values are in thousands of dollars</b>					

**Table 42:** King & Queen County multi-frequency building stock losses.

Area	Scenario	Total Losses	Building Losses	Content Losses	Business Interruption
<b>Riverine Results</b>					
King & Queen County	10-percent-annual-chance event	\$240	\$151	\$65	\$12
King & Queen County	4-percent-annual-chance event	\$337	\$213	\$94	\$15
King & Queen County	2-percent-annual-chance event	\$404	\$255	\$111	\$19
King & Queen County	1-percent-annual-chance event	\$480	\$300	\$138	\$21
King & Queen County	0.2-percent-annual-chance event	\$602	\$373	\$177	\$26
<b>Coastal Results</b>					
King & Queen County	10-percent-annual-chance event	\$8,145	\$3,834	\$2,421	\$945
King & Queen County	4-percent-annual-chance event	\$10,370	\$4,884	\$3,060	\$1,213
King & Queen County	2-percent-annual-chance event	\$14,516	\$6,910	\$4,306	\$1,650
King & Queen County	1-percent-annual-chance event	\$17,794	\$8,451	\$5,345	\$1,999
King & Queen County	0.2-percent-annual-chance event	\$41,356	\$20,037	\$12,505	\$4,407
<b>Combined Riverine and Coastal Results</b>					
King & Queen County	10-percent-annual-chance event	\$8,385	\$3,985	\$2,486	\$957
King & Queen County	4-percent-annual-chance event	\$10,707	\$5,097	\$3,154	\$1,228
King & Queen County	2-percent-annual-chance event	\$14,920	\$7,165	\$4,417	\$1,669
King & Queen County	1-percent-annual-chance event	\$18,274	\$8,751	\$5,483	\$2,020
King & Queen County	0.2-percent-annual-chance event	\$41,958	\$20,410	\$12,682	\$4,433
<b>All values are in thousands of dollars</b>					

**Table 43:** King William County multi-frequency building stock losses.

Area	Scenario	Total Losses	Building Losses	Content Losses	Business Interruption
<b>Riverine Results</b>					
King William County	10-percent-annual-chance event	\$2,790	\$1,340	\$784	\$333
King William County	4-percent-annual-chance event	\$6,894	\$3,193	\$1,903	\$899
King William County	2-percent-annual-chance event	\$8,256	\$3,798	\$2,278	\$1,090
King William County	1-percent-annual-chance event	\$9,559	\$4,372	\$2,643	\$1,272
King William County	0.2-percent-annual-chance event	\$11,954	\$5,744	\$3,472	\$1,369
<b>Coastal Results</b>					
King William County	10-percent-annual-chance event	\$27,939	\$8,530	\$7,935	\$5,737
King William County	4-percent-annual-chance event	\$31,502	\$9,938	\$9,170	\$6,197
King William County	2-percent-annual-chance event	\$37,947	\$12,445	\$11,378	\$7,062
King William County	1-percent-annual-chance event	\$50,041	\$13,677	\$13,062	\$11,651
King William County	0.2-percent-annual-chance event	\$332,192	\$56,306	\$66,274	\$104,806
<b>Combined Riverine and Coastal Results</b>					
King William County	10-percent-annual-chance event	\$30,729	\$9,870	\$8,719	\$6,070
King William County	4-percent-annual-chance event	\$38,396	\$13,131	\$11,073	\$7,096
King William County	2-percent-annual-chance event	\$46,203	\$16,243	\$13,656	\$8,152
King William County	1-percent-annual-chance event	\$59,600	\$18,049	\$15,705	\$12,923
King William County	0.2-percent-annual-chance event	\$344,146	\$62,050	\$69,746	\$106,175
<b>All values are in thousands of dollars</b>					

**Table 44:** Mathews County multi-frequency building stock losses.

Area	Scenario	Total Losses	Building Losses	Content Losses	Business Interruption
<b>Riverine Results</b>					
Mathews County	10-percent-annual-chance event	\$11	\$1	\$0	\$5
Mathews County	4-percent-annual-chance event	\$14	\$3	\$1	\$5
Mathews County	2-percent-annual-chance event	\$25	\$6	\$1	\$9
Mathews County	1-percent-annual-chance event	\$29	\$10	\$3	\$8
Mathews County	0.2-percent-annual-chance event	\$33	\$12	\$5	\$8
<b>Coastal Results</b>					
Mathews County	10-percent-annual-chance event	\$29,332	\$1,340	\$784	\$13,604
Mathews County	4-percent-annual-chance event	\$41,224	\$3,193	\$1,903	\$18,064
Mathews County	2-percent-annual-chance event	\$59,952	\$3,798	\$2,278	\$26,938
Mathews County	1-percent-annual-chance event	\$79,603	\$4,372	\$2,643	\$36,294
Mathews County	0.2-percent-annual-chance event	\$119,002	\$5,744	\$3,472	\$54,893
<b>Combined Riverine and Coastal Results</b>					
Mathews County	10-percent-annual-chance event	\$29,343	\$1,341	\$784	\$13,609
Mathews County	4-percent-annual-chance event	\$41,238	\$3,196	\$1,904	\$18,069
Mathews County	2-percent-annual-chance event	\$59,977	\$3,804	\$2,279	\$26,947
Mathews County	1-percent-annual-chance event	\$79,632	\$4,382	\$2,646	\$36,302
Mathews County	0.2-percent-annual-chance event	\$119,035	\$5,756	\$3,477	\$54,901
<b>All values are in thousands of dollars</b>					

**Table 45:** Middlesex County multi-frequency building stock losses.

Area	Scenario	Total Losses	Building Losses	Content Losses	Business Interruption
<b>Riverine Results</b>					
Middlesex County	10-percent-annual-chance event	\$136	\$66	\$28	\$21
Middlesex County	4-percent-annual-chance event	\$148	\$72	\$36	\$20
Middlesex County	2-percent-annual-chance event	\$160	\$76	\$40	\$22
Middlesex County	1-percent-annual-chance event	\$141	\$69	\$32	\$20
Middlesex County	0.2-percent-annual-chance event	\$156	\$81	\$37	\$19
<b>Coastal Results</b>					
Middlesex County	10-percent-annual-chance event	\$271,438	\$83,571	\$62,781	\$62,543
Middlesex County	4-percent-annual-chance event	\$338,809	\$108,861	\$81,028	\$74,460
Middlesex County	2-percent-annual-chance event	\$476,059	\$161,805	\$119,470	\$97,392
Middlesex County	1-percent-annual-chance event	\$621,101	\$211,662	\$156,991	\$126,224
Middlesex County	0.2-percent-annual-chance event	\$2,126,639	\$777,140	\$573,157	\$388,171
<b>Combined Riverine and Coastal Results</b>					
Middlesex County	10-percent-annual-chance event	\$278,756	\$86,555	\$64,687	\$63,757
Middlesex County	4-percent-annual-chance event	\$350,809	\$113,964	\$84,221	\$76,312
Middlesex County	2-percent-annual-chance event	\$489,832	\$167,721	\$123,151	\$99,480
Middlesex County	1-percent-annual-chance event	\$635,813	\$218,032	\$160,901	\$128,440
Middlesex County	0.2-percent-annual-chance event	\$2,145,520	\$785,772	\$578,524	\$390,612
<b>All values are in thousands of dollars</b>					

### **General Building Stock Annualized Flood Losses**

Annualization is the mathematical method of converting individual losses to a weighted-average that may be experienced in any given year. Annualized loss is the preferred measure with which to express potential risk for hazard mitigation planning as it is useful for creating a common denominator by which different types of hazards may be compared. Annualized losses compared across a region, may indicate targeted areas for prioritization of hazard mitigation actions. Areas with significant annualized losses may be subject to not only local flooding (nuisance flooding) but also frequent storm event flooding as well.

Hazus riverine flood model annualized losses for the Middle Peninsula are \$889,000. Property or “capital stock” losses are \$761,000 and make up about 85.6% of the damages which includes the values for building, content, and inventory. Business interruption accounts for \$128,000 (14.4%) of the annualized losses and includes relocation, income, rental, and wage costs.

Hazus coastal flood model annualized losses for the Middle Peninsula are \$40,020,000. Property or “capital stock” losses are \$29,881,000 and make up about 74.7% of the damages. Business interruption accounts for \$10,139,000 (25.3%) of the annualized losses.

Hazus combined flood model annualized losses for the Middle Peninsula are \$40,909,000. Property or “capital stock” losses are \$30,642,000 and make up about 74.9% of the damages. Business interruption accounts for \$10,267,000 (25.1%) of the annualized losses. Of the combined annualized losses, riverine losses account for only 2.2% of the combined loss, whereas coastal losses account for 97.8% of the combined loss.

The flood model incorporates National Flood Insurance Program (NFIP) entry dates to distinguish Pre-FIRM and Post-FIRM data from the census blocks. Pre-FIRM buildings constructed prior to the initial FIRM are considered “pre-FIRM” and those constructed on or after the initial FIRM are considered “post-FIRM”. This distinction is important because post-FIRM buildings were built above the base flood elevation (BFE), which makes those buildings less susceptible to flooding. This results in different damage curves between pre- and post-FIRM buildings. If the different curves were not used for these two categories of structures, the results would be skewed and the loss estimates inaccurate. The results provided in this report show the combined total losses for both pre- and post-FIRM values combined.

Losses are calculated for riverine hazards, coastal hazards, and then a combination of both hazards. This separation by hazard class may also help focus or target specific mitigation actions that may differ riverine to coastal areas.

Table 47 illustrates the expected annualized losses broken down by county and Table 48 includes the annualized losses along with Population and Per-Capita losses.

**Table 46:** Annualized losses for pre and post-FIRM buildings.

County	Building Losses	Content Losses	Inventory Losses	Relocation	Income Losses	Rental Losses	Wage Losses	Annualized Losses
<b>Riverine Results</b>								
Essex	\$1	\$1	\$0	\$0	\$0	\$0	\$0	\$2
Gloucester	\$153	\$104	\$0	\$25	\$9	\$6	\$31	\$328
King & Queen	\$16	\$8	\$0	\$0	\$0	\$0	\$0	\$24
King William	\$295	\$172	\$0	\$34	\$1	\$10	\$11	\$523
Mathews	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Middlesex	\$7	\$4	\$0	\$1	\$0	\$0	\$0	\$12
Middle Peninsula Region	\$472	\$289	\$0	\$60	\$10	\$16	\$42	\$889
<b>Coastal Results</b>								
Essex	\$959	\$709	\$5	\$270	\$105	\$83	\$171	\$2,302
Gloucester	\$9,367	\$7,009	\$34	\$2,172	\$956	\$626	\$1,639	\$21,803
King & Queen	\$608	\$389	\$6	\$106	\$0	\$29	\$1	\$1,139
King William	\$1,293	\$1,268	\$8	\$207	\$192	\$100	\$687	\$3,755
Mathews	\$3,674	\$2,404	\$15	\$1,356	\$155	\$375	\$260	\$8,239
Middlesex	\$1,290	\$842	\$1	\$328	\$107	\$90	\$124	\$2,782
Middle Peninsula Region	\$17,191	\$12,621	\$69	\$4,439	\$1,515	\$1,303	\$2,882	\$40,020
<b>Combined Riverine and Coastal Results</b>								
Essex	\$960	\$710	\$5	\$270	\$105	\$83	\$171	\$2,304
Gloucester	\$9,520	\$7,113	\$34	\$2,197	\$965	\$632	\$1,670	\$22,131
King & Queen	\$624	\$397	\$6	\$106	\$0	\$29	\$1	\$1,163
King William	\$1,588	\$1,440	\$8	\$241	\$193	\$110	\$698	\$4,278
Mathews	\$3,674	\$2,404	\$15	\$1,356	\$155	\$375	\$260	\$8,239
Middlesex	\$1,297	\$846	\$1	\$329	\$107	\$90	\$124	\$2,794
Middle Peninsula Region	\$17,663	\$12,910	\$69	\$4,499	\$1,525	\$1,319	\$2,924	\$40,909
<b>All values are in thousands of dollars</b>								

**Table 47:** Annualized losses and per-capita losses.

County	Population <sup>1</sup>	Annualized Losses	Per-Capita Losses
<b>Riverine Results</b>			
Essex	11,151	\$2,000	\$0.18
Gloucester	36,858	\$328,000	\$8.90
King & Queen	6,945	\$24,000	\$3.46
King William	15,935	\$523,000	\$32.82
Mathews	8,978	< \$1,000	< \$0.11
Middlesex	10,959	\$12,000	\$1.09
Middle Peninsula Region	90,826	\$889,000	\$9.79
<b>Coastal Results</b>			
Essex	11,151	\$2,302,000	\$206.44
Gloucester	36,858	\$21,803,000	\$591.54
King & Queen	6,945	\$1,139,000	\$164.00
King William	15,935	\$3,755,000	\$235.64
Mathews	8,978	\$8,239,000	\$917.69
Middlesex	10,959	\$2,782,000	\$253.86
Middle Peninsula Region	90,826	\$40,020,000	\$440.62
<b>Combined Riverine and Coastal Results</b>			
Essex	11,151	\$2,304,000	\$206.62
Gloucester	36,858	\$22,131,000	\$600.44
King & Queen	6,945	\$1,163,000	\$167.46
King William	15,935	\$4,278,000	\$268.47
Mathews	8,978	\$8,239,000	\$917.69
Middlesex	10,959	\$2,794,000	\$254.95
Middle Peninsula Region	90,826	\$40,909,000	\$450.41
1 2010 Census-based population counts - as exists within Hazus stock data.			

King William County has the highest riverine annualized losses, \$523,000, accounting for 58.8% of the total riverine losses for Middle Peninsula and ranks first in terms of per-capita losses at \$32.82. Gloucester County has the highest coastal annualized losses, \$21,803,000, accounting for 53.3% of the total coastal losses for Middle Peninsula and ranks second in terms of per-capita coastal losses at \$591.54. Gloucester County also has the highest combined annualized losses, \$22,131,000, accounting for 54.1% of the total coastal losses for Middle Peninsula. It continues to rank second in terms of per-capita losses, with a combined value of \$600.44. The majority of the expected damages can be attributed to building and content value.

Gloucester County also has the second highest riverine losses, \$328,000, accounting for 36.9% of the total riverine annualized losses for the Middle Peninsula and ranks second in terms of annualized per-capita riverine loss at \$8.90. Mathews County has the second highest coastal losses, \$8,239,000, accounting for 20.6% of the total coastal annualized losses for the Middle Peninsula and ranks first in terms of annualized per-capita coastal loss at \$917.69. Mathews County has the second highest combined losses as well, but as it has no annual riverine losses greater than \$1,000 and therefore had no recorded riverine annual loss, all values are identical to Mathews County coastal losses.

Riverine building value losses account for approximately 52% of the expected riverine annualized damages and 32.1% is attributed to content value losses. Coastal building value losses account for approximately 42.85% of the expected coastal annualized damages and 31.49% is attributed to content value losses. Combined building value losses account for approximately 43.1% of the expected annualized damages and 31.5% is attributed to content value losses.

Residential building damage represents the majority of the damages, followed closely by the residential content damages for the riverine, coastal, and combined hazards. Wood buildings account for \$608,000, or 68.4% of the riverine annualized damages of which the majority are in King William County. Wood still accounts for the majority of damage in the coastal (\$24,109,000; 60.2%) and combined (\$24,717,000; 60.4%) hazards as well. However, for both the coastal and the combined hazards, the county with the majority of damages is Gloucester County, with \$21,803,000 annually for coastal and \$22,131,000 annually combined. Occupancy results indicate that agricultural, non-profit and industrial have the largest percent of exposure at risk; i.e. these are the predominant occupancy types that intersect the flood hazard. Manufactured homes only account for 3.3% of the combined annualized damages but have the highest percentage of building stock at risk to yearly damages. Tables 49 and 50 summarize the property losses and business interruption losses shown by occupancy and building type. The slight differences in the annualized losses for building type and occupancy can be attributed to the Hazus classification methodology as seen in Tables 50 and 51.

**Table 48:** Middle Peninsula Region annualized losses by building type.

Construction Type	Building Losses	Content Losses	Inventory Losses	Relocation	Income Losses	Rental Losses	Wage Losses	Annualized Losses
<b>Riverine Results</b>								
Wood	\$350	\$191	\$0	\$47	\$0	\$14	\$6	\$608
Masonry	\$111	\$67	\$0	\$13	\$3	\$2	\$13	\$209
Steel	\$5	\$26	\$0	\$0	\$7	\$0	\$22	\$60
Manufactured Housing	\$6	\$1	\$0	\$0	\$0	\$0	\$0	\$7
Concrete	\$0	\$4	\$0	\$0	\$0	\$0	\$1	\$5
Sub-Total	\$472	\$289	\$0	\$60	\$10	\$16	\$42	\$889
Percentage	53%	33%	0%	7%	1%	1%	5%	100%
<b>Coastal Results</b>								
Wood	\$11,873	\$7,652	\$3	\$2,915	\$316	\$873	\$477	\$24,109
Masonry	\$4,168	\$3,214	\$9	\$1,045	\$470	\$288	\$882	\$10,076
Steel	\$324	\$1,121	\$51	\$190	\$591	\$99	\$1,178	\$3,554
Manufactured Housing	\$752	\$341	\$0	\$252	\$0	\$15	\$0	\$1,360
Concrete	\$74	\$293	\$6	\$37	\$138	\$28	\$345	\$921
Sub-Total	\$17,191	\$12,621	\$69	\$4,439	\$1,515	\$1,303	\$2,882	\$40,020
Percentage	43%	31%	1%	11%	4%	3%	7%	100%
<b>Combined Riverine and Coastal Results</b>								
Wood	\$12,223	\$7,843	\$3	\$2,962	\$316	\$887	\$483	\$24,717
Masonry	\$4,279	\$3,281	\$9	\$1,058	\$473	\$290	\$895	\$10,285
Steel	\$329	\$1,147	\$51	\$190	\$598	\$99	\$1,200	\$3,614
Manufactured Housing	\$758	\$342	\$0	\$252	\$0	\$15	\$0	\$1,367
Concrete	\$74	\$297	\$6	\$37	\$138	\$28	\$346	\$926
Total	\$17,663	\$12,910	\$69	\$4,499	\$1,525	\$1,319	\$2,924	\$40,909
Percentage	43%	31%	1%	11%	4%	3%	7%	100%
<b>All values are in thousands of dollars</b>								

**Table 49:** Middle Peninsula Region annualized losses by occupancy type.

Occupancy Type	Building Losses	Content Losses	Inventory Losses	Relocation	Income Losses	Rental Losses	Wage Losses	Annualized Losses
<b>Riverine Results</b>								
Residential	\$444	\$220	\$0	\$54	\$0	\$15	\$2	\$735
Commercial	\$6	\$36	\$0	\$0	\$16	\$0	\$24	\$82
Industrial	\$2	\$7	\$0	\$0	\$0	\$0	\$0	\$9
Non-Profit	\$0	\$7	\$0	\$0	\$1	\$0	\$4	\$12
Agricultural	\$0	\$1	\$0	\$0	\$0	\$0	\$0	\$1
Education	\$0	\$5	\$0	\$0	\$1	\$0	\$7	\$13
Government	\$0	\$2	\$0	\$0	\$0	\$0	\$12	\$14
<b>Sub-Total</b>	<b>\$452</b>	<b>\$278</b>	<b>\$0</b>	<b>\$54</b>	<b>\$18</b>	<b>\$15</b>	<b>\$49</b>	<b>\$866</b>
<b>Percentage</b>	<b>52%</b>	<b>32%</b>	<b>0%</b>	<b>6%</b>	<b>2%</b>	<b>2%</b>	<b>6%</b>	<b>100%</b>
<b>Coastal Results</b>								
Residential	\$16,223	\$9,842	\$0	\$3,814	\$70	\$1,046	\$173	\$31,168
Commercial	\$422	\$1,431	\$22	\$283	\$1,110	\$171	\$1,329	\$4,768
Industrial	\$158	\$333	\$52	\$8	\$6	\$1	\$17	\$575
Non-Profit	\$45	\$398	\$0	\$44	\$115	\$3	\$302	\$907
Agricultural	\$9	\$42	\$2	\$2	\$12	\$0	\$3	\$70
Education	\$50	\$340	\$0	\$106	\$278	\$9	\$659	\$1,442
Government	\$3	\$41	\$0	\$5	\$1	\$1	\$484	\$535
<b>Sub-Total</b>	<b>\$16,910</b>	<b>\$12,427</b>	<b>\$76</b>	<b>\$4,262</b>	<b>\$1,592</b>	<b>\$1,231</b>	<b>\$2,967</b>	<b>\$39,465</b>
<b>Percentage</b>	<b>43%</b>	<b>31%</b>	<b>1%</b>	<b>11%</b>	<b>4%</b>	<b>3%</b>	<b>7%</b>	<b>100%</b>
<b>Combined Riverine and Coastal Results</b>								
Residential	\$16,667	\$10,062	\$0	\$3,868	\$70	\$1,061	\$175	\$31,903
Commercial	\$428	\$1,467	\$22	\$283	\$1,126	\$171	\$1,353	\$4,850
Industrial	\$160	\$340	\$52	\$8	\$6	\$1	\$17	\$584
Non-Profit	\$45	\$405	\$0	\$44	\$116	\$3	\$306	\$919
Agricultural	\$9	\$43	\$2	\$2	\$12	\$0	\$3	\$71
Education	\$50	\$345	\$0	\$106	\$279	\$9	\$666	\$1,455
Government	\$3	\$43	\$0	\$5	\$1	\$1	\$496	\$549
<b>Total</b>	<b>\$17,362</b>	<b>\$12,705</b>	<b>\$76</b>	<b>\$4,316</b>	<b>\$1,610</b>	<b>\$1,246</b>	<b>\$3,016</b>	<b>\$40,331</b>
<b>Percentage</b>	<b>43%</b>	<b>31%</b>	<b>1%</b>	<b>11%</b>	<b>4%</b>	<b>3%</b>	<b>7%</b>	<b>100%</b>
<b>All values are in thousands of dollars</b>								

**Table 50:** County annualized losses by construction type.

County	Concrete	Masonry	Manufactured Homes	Steel	Wood	Annualized Loss
<b>Riverine Results</b>						
Essex	\$0	\$0	\$0	\$0	\$2	\$2
Gloucester	\$3	\$82	\$2	\$35	\$206	\$328
King & Queen	\$0	\$4	\$0	\$0	\$20	\$24
King William	\$2	\$120	\$4	\$25	\$372	\$523
Mathews	\$0	\$0	\$0	\$0	\$0	\$0
Middlesex	\$0	\$3	\$1	\$0	\$8	\$12
Middle Peninsula Region	\$5	\$209	\$7	\$60	\$608	\$889
<b>Coastal Results</b>						
Essex	\$69	\$570	\$48	\$221	\$1,394	\$2,302
Gloucester	\$496	\$5,579	\$678	\$2,179	\$12,871	\$21,803
King & Queen	\$6	\$268	\$59	\$27	\$779	\$1,139
King William	\$256	\$1,040	\$9	\$656	\$1,794	\$3,755
Mathews	\$68	\$1,936	\$523	\$317	\$5,395	\$8,239
Middlesex	\$26	\$683	\$43	\$154	\$1,876	\$2,782
Middle Peninsula Region	\$921	\$10,076	\$1,360	\$3,554	\$24,109	\$40,020
<b>Combined Riverine and Coastal Results</b>						
Essex	\$69	\$570	\$48	\$221	\$1,396	\$2,304
Gloucester	\$499	\$5,661	\$680	\$2,214	\$13,077	\$22,131
King & Queen	\$6	\$272	\$59	\$27	\$799	\$1,163
King William	\$258	\$1,160	\$13	\$681	\$2,166	\$4,278
Mathews	\$68	\$1,936	\$523	\$317	\$5,395	\$8,239
Middlesex	\$26	\$686	\$44	\$154	\$1,884	\$2,794
Middle Peninsula Region	\$926	\$10,285	\$1,367	\$3,614	\$24,717	\$40,909
<b>All values are in thousands of dollars</b>						

**Table 51:** County annualized losses by occupancy type.

County	Residential	Commercial	Industrial	Non-Profit	Education	Gov.	Agriculture	Annualized Losses
<b>Riverine Results</b>								
Essex	\$2	\$2	\$0	\$0	\$0	\$0	\$0	\$4
Gloucester	\$246	\$37	\$1	\$5	\$13	\$14	\$0	\$316
King & Queen	\$22	\$0	\$0	\$0	\$0	\$0	\$0	\$22
King William	\$455	\$43	\$8	\$7	\$0	\$0	\$1	\$514
Mathews	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Middlesex	\$10	\$0	\$0	\$0	\$0	\$0	\$0	\$10
Middle Peninsula Region	\$735	\$82	\$9	\$12	\$13	\$14	\$1	\$866
<b>Coastal Results</b>								
Essex	\$1,807	\$381	\$49	\$10	\$15	\$7	\$0	\$2,269
Gloucester	\$16,325	\$2,996	\$262	\$539	\$1,375	\$79	\$38	\$21,614
King & Queen	\$1,069	\$0	\$45	\$0	\$0	\$0	\$0	\$1,114
King William	\$2,412	\$676	\$74	\$158	\$35	\$402	\$4	\$3,761
Mathews	\$7,268	\$411	\$131	\$142	\$13	\$41	\$28	\$8,034
Middlesex	\$2,287	\$304	\$14	\$58	\$4	\$6	\$0	\$2,673
Middle Peninsula Region	\$28,881	\$4,464	\$561	\$849	\$1,438	\$529	\$70	\$36,792
<b>Combined Riverine and Coastal Results</b>								
Essex	\$1,809	\$383	\$49	\$10	\$15	\$7	\$0	\$2,273
Gloucester	\$16,571	\$3,033	\$263	\$544	\$1,388	\$93	\$38	\$21,930
King & Queen	\$1,091	\$0	\$45	\$0	\$0	\$0	\$0	\$1,136
King William	\$2,867	\$719	\$82	\$165	\$35	\$402	\$5	\$4,275
Mathews	\$7,268	\$411	\$131	\$142	\$13	\$41	\$28	\$8,034
Middlesex	\$2,297	\$304	\$14	\$58	\$4	\$6	\$0	\$2,683
Middle Peninsula Region	\$31,903	\$4,850	\$584	\$919	\$1,455	\$549	\$71	\$40,331
<b>All values are in thousands of dollars</b>								

Figures 41 through 48 on the following pages show the total annualized loss for the planning district and individual counties culminating in Figure 48 which categorizes the Total Annualized Losses by Top Ten ranking of Census blocks representing those areas throughout the Middle Peninsula Region that may require mitigation measures.

Figure 41:

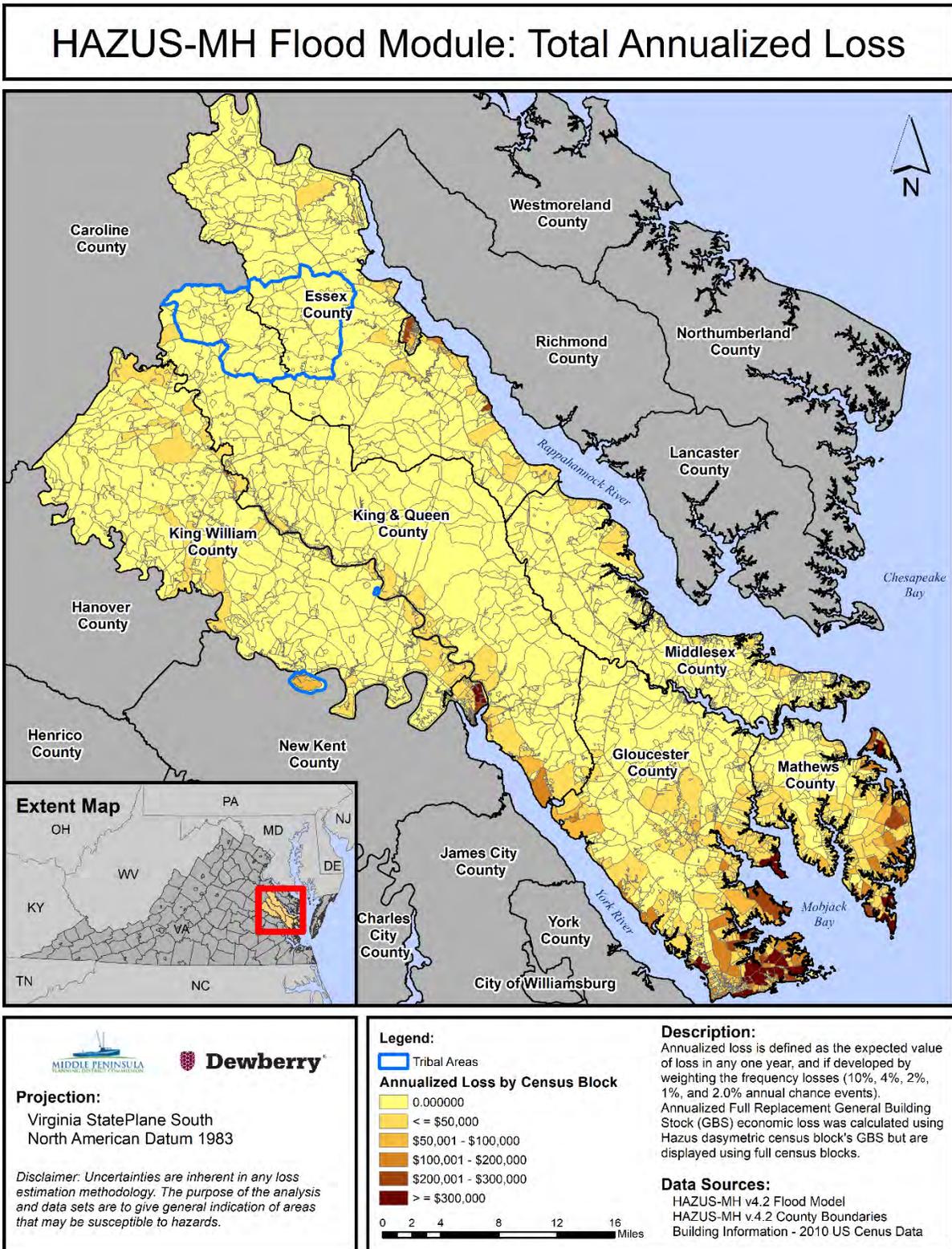


Figure 42:

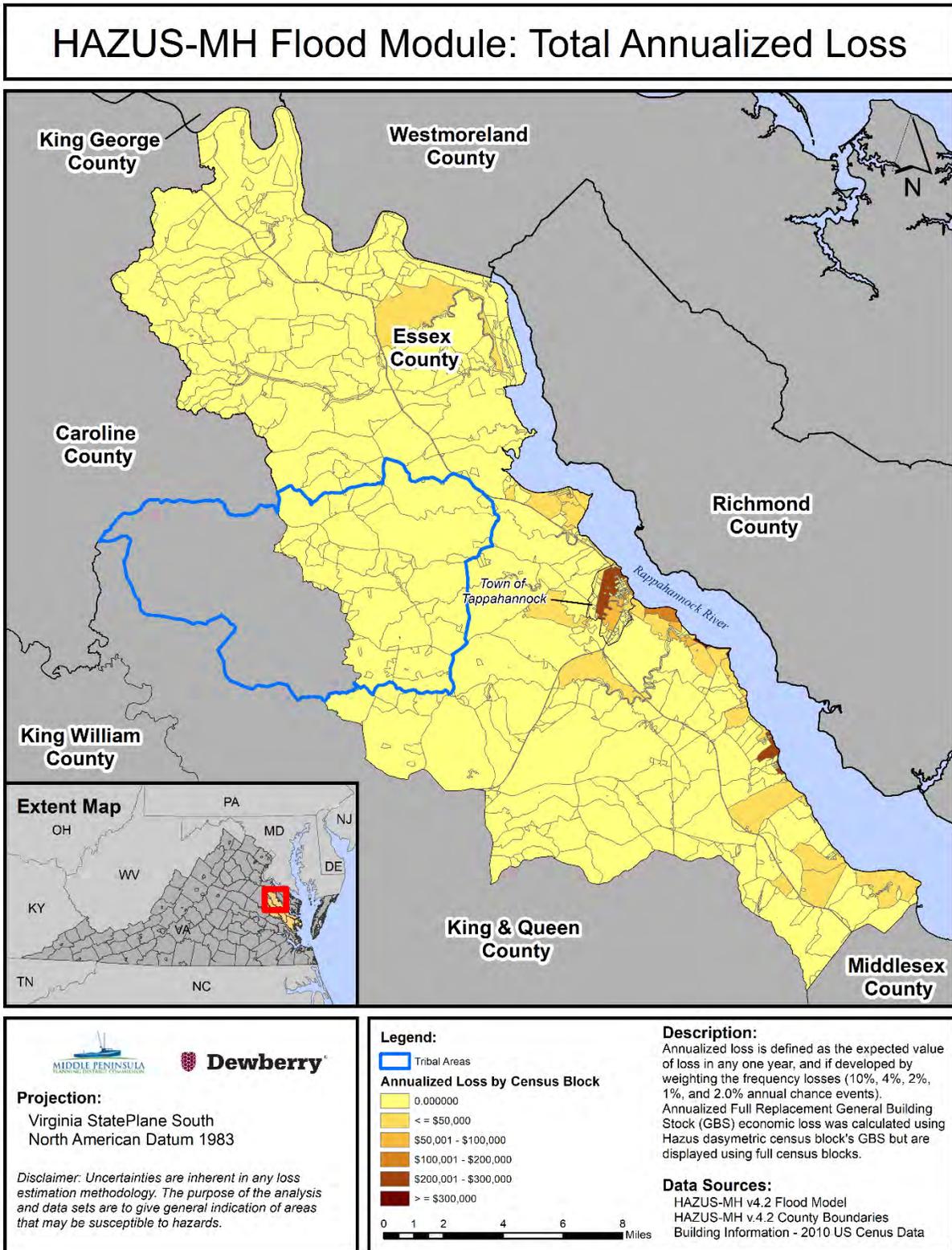


Figure 43:

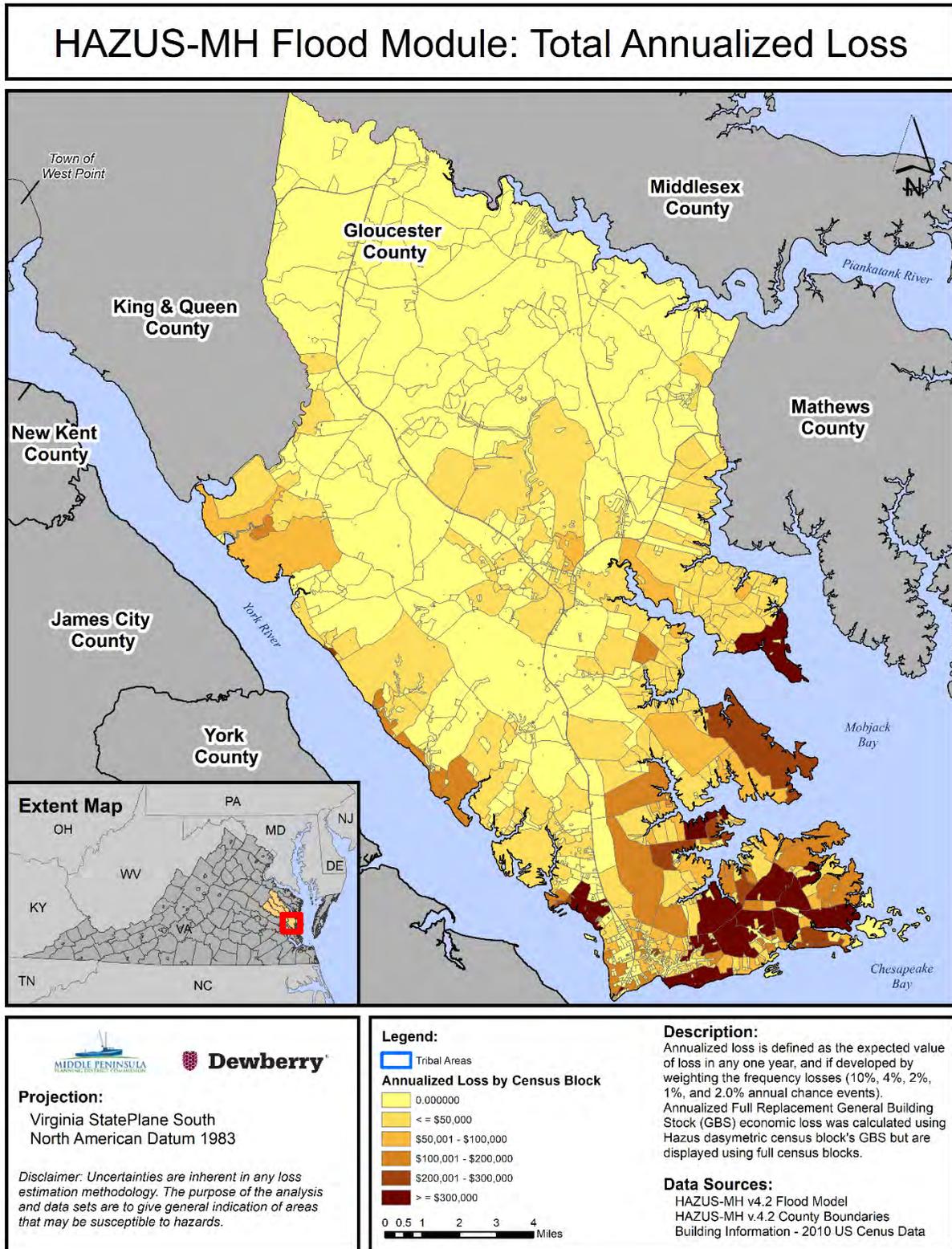


Figure 44:

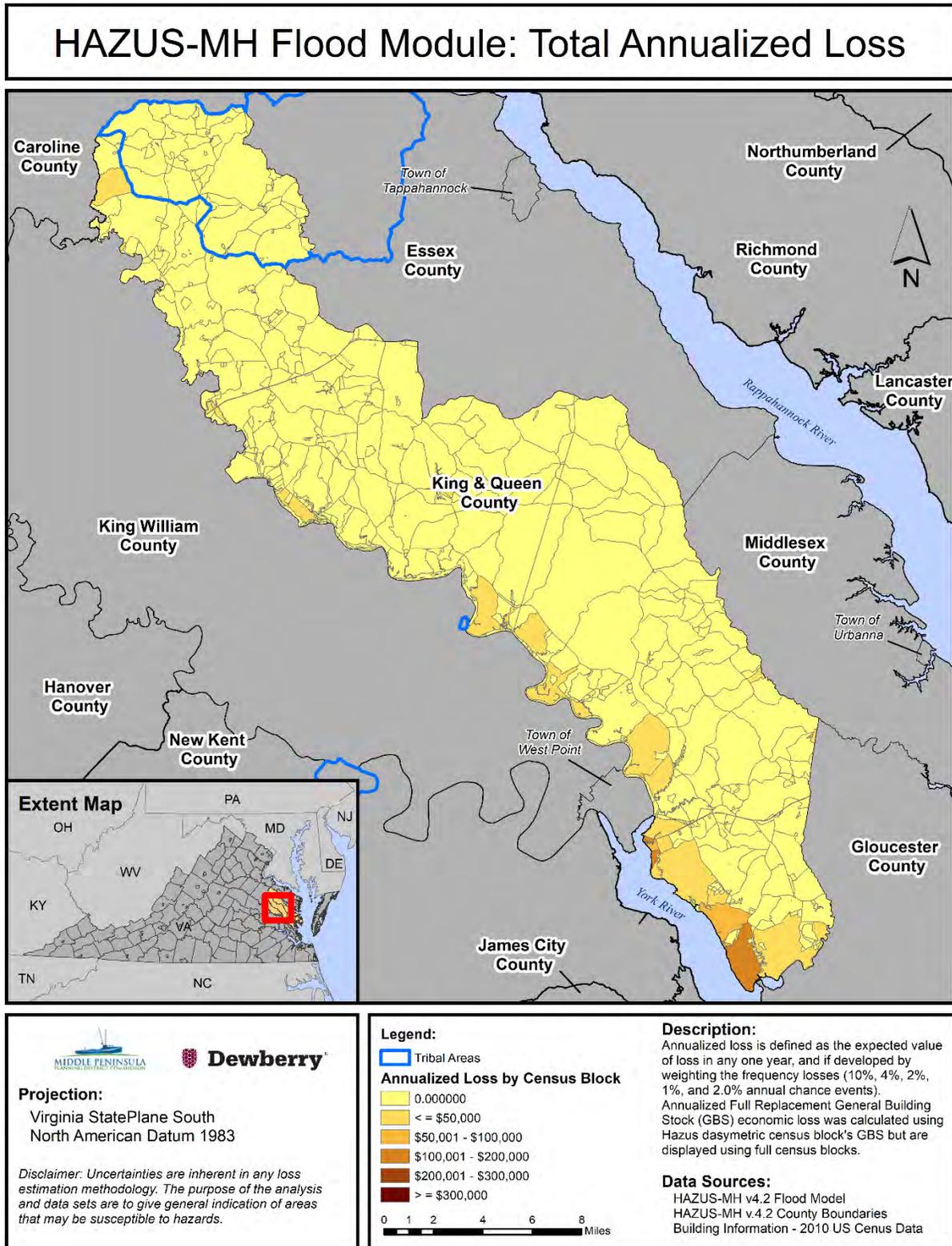


Figure 45:

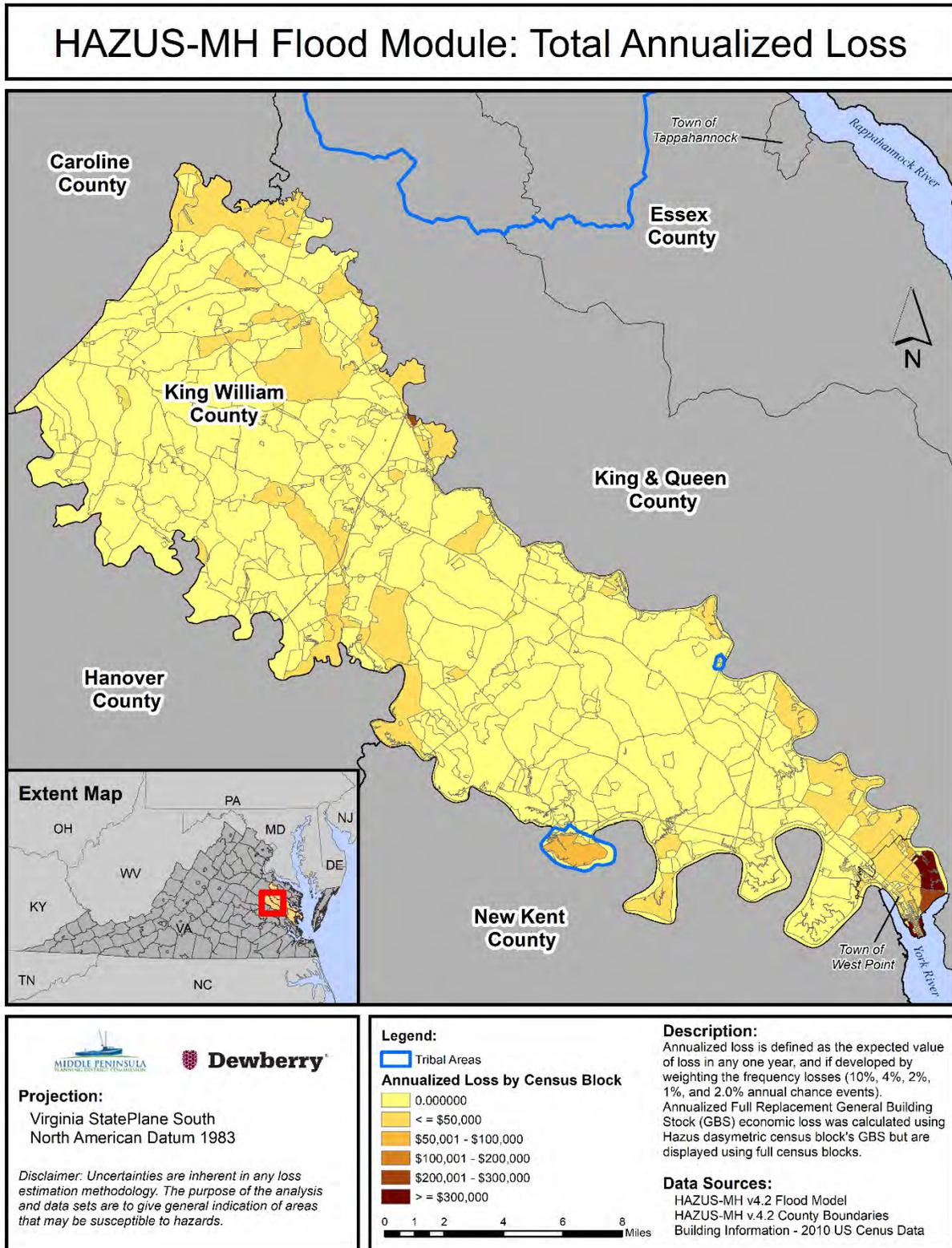
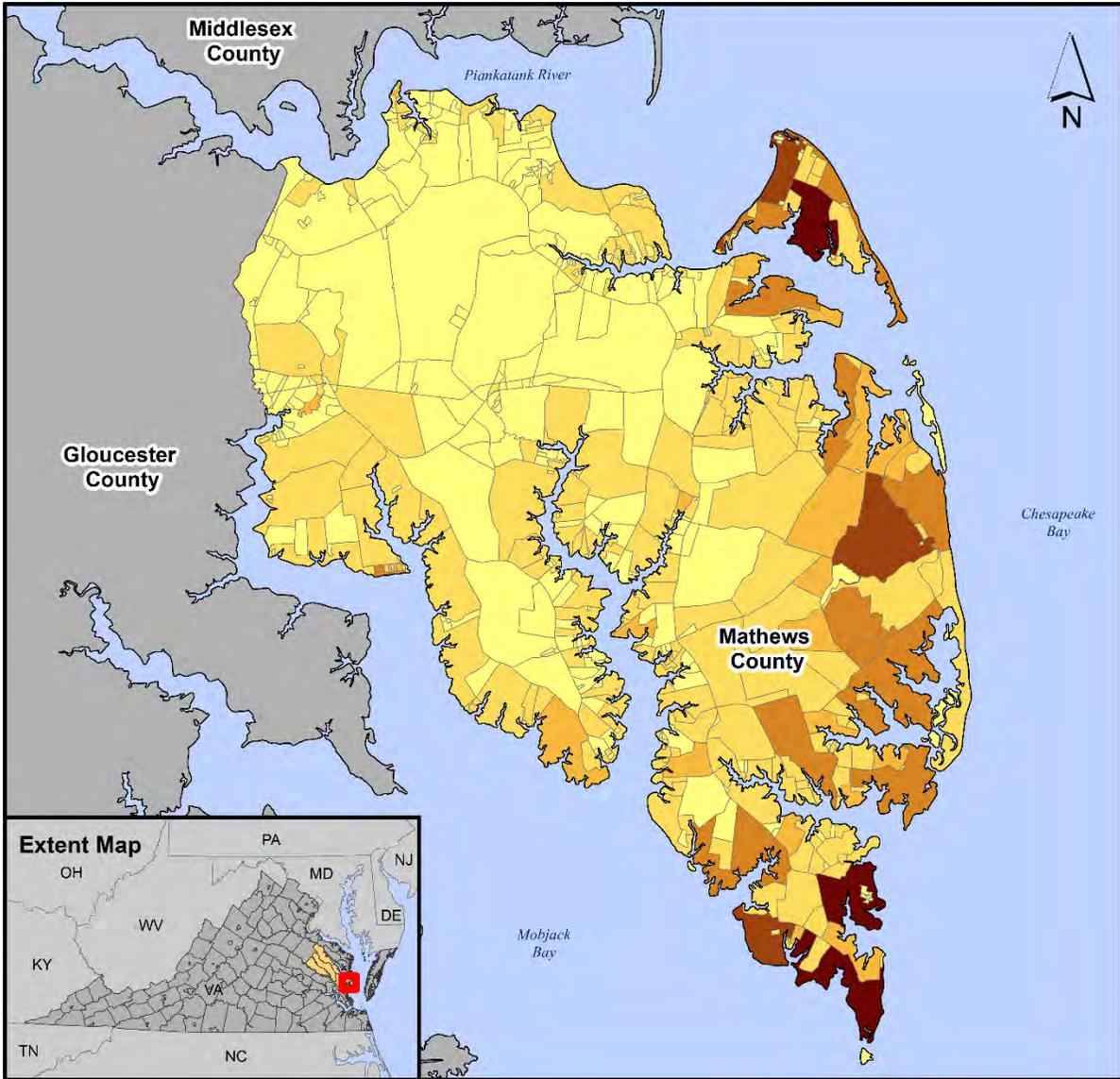


Figure 46:

# HAZUS-MH Flood Module: Total Annualized Loss






**Projection:**  
Virginia StatePlane South  
North American Datum 1983

*Disclaimer: Uncertainties are inherent in any loss estimation methodology. The purpose of the analysis and data sets are to give general indication of areas that may be susceptible to hazards.*

**Legend:**

-  Tribal Areas

**Annualized Loss by Census Block**

-  0.000000
-  <= \$50,000
-  \$50,001 - \$100,000
-  \$100,001 - \$200,000
-  \$200,001 - \$300,000
-  >= \$300,000

0 0.5 1 2 3 4 Miles

**Description:**  
Annualized loss is defined as the expected value of loss in any one year, and is developed by weighting the frequency losses (10%, 4%, 2%, 1%, and 2.0% annual chance events). Annualized Full Replacement General Building Stock (GBS) economic loss was calculated using Hazus dasymmetric census block's GBS but are displayed using full census blocks.

**Data Sources:**  
HAZUS-MH v4.2 Flood Model  
HAZUS-MH v4.2 County Boundaries  
Building Information - 2010 US Census Data

Figure 47:

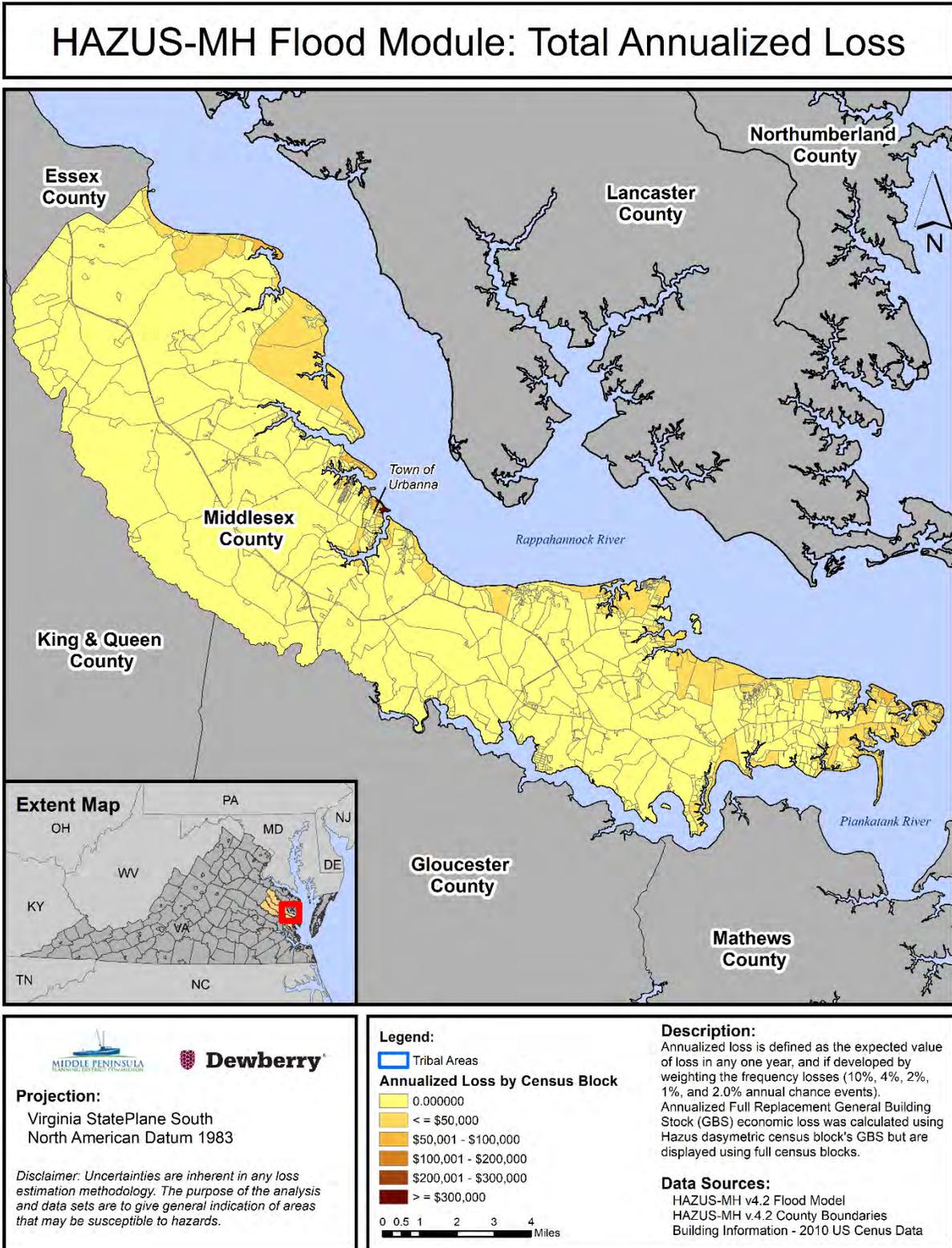
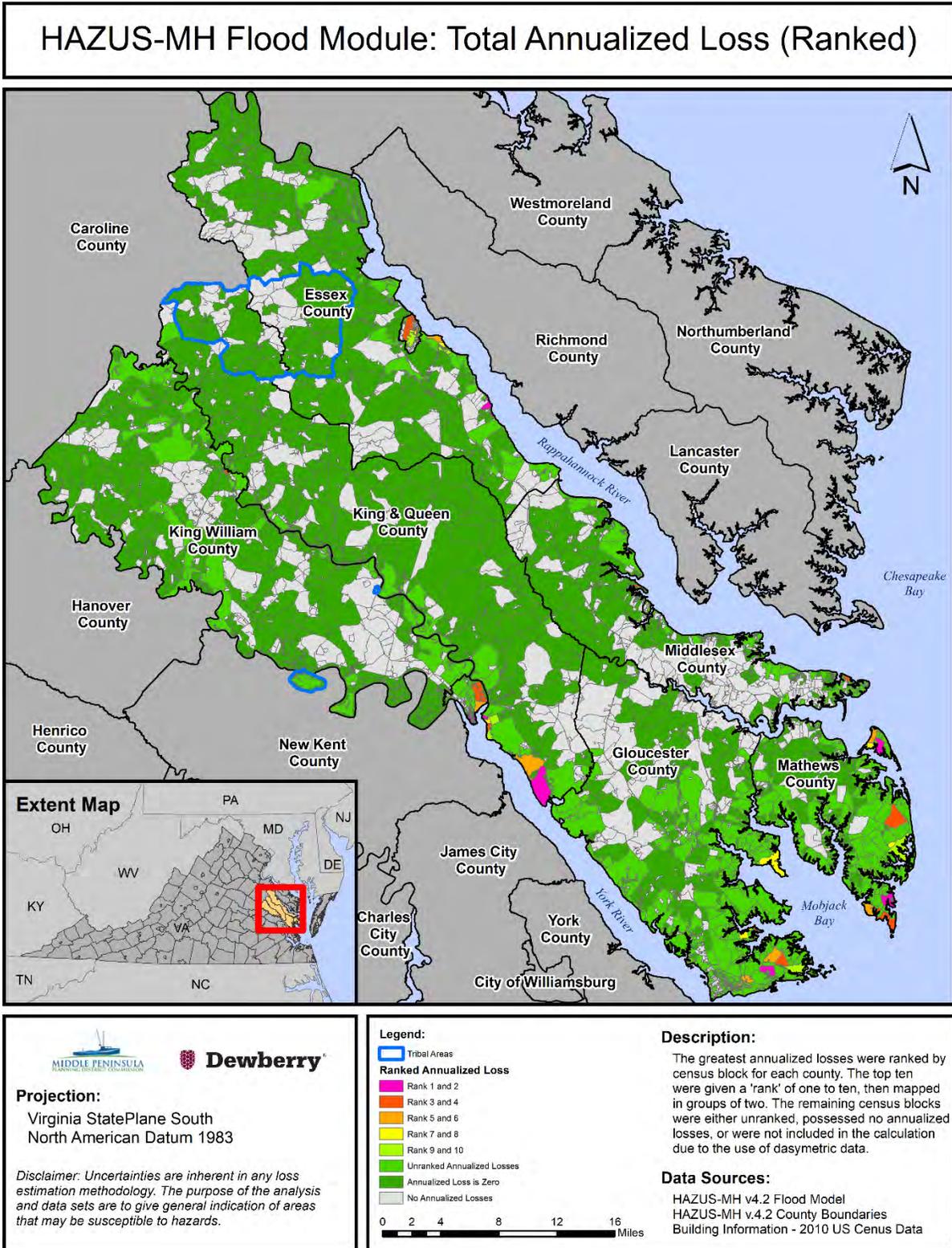


Figure 48:



Gloucester County accounts for about 54% of the planning district's combined riverine and coastal annualized losses. The census blocks bordering the York River and Mobjack Bay have higher loss values as compared to the larger census blocks in the northwest portions of the county. Combined damages along the York River are approximately half of the damages along Mobjack Bay. The southeast portion of the County contains the greatest concentration of loss. The vicinity of Guinea Road and Kings Creek Road; beginning in the locale of Hayes and heading east to Kings Creek being bordered on the north by the Severn River and on the south by the York River exhibits the greatest concentration of loss. Additionally, the land area of Saddlers Neck to Stump Point being bounded on the north by the Northwest Branch Severn River and Willetts Creek to the south exhibits a second concentration of risk. Finally, the peninsula and vicinity of Ware Neck Point -where the Ware River and North River converge – is another location exhibiting a concentration of losses.

Losses in Mathews County are spread throughout the county with a high frequency of census block having damages greater than \$50,000 along the Chesapeake Bay to include the various harbor/haven inlets and also at the confluences of the Piankatank River in the north as well as Mobjack Bay in the south. Another location that exhibits relatively higher loss estimates includes Roys Point in the area around Daniel Avenue. Ultimately, Mathews County ranks second of the six counties and accounts for 20.1% of the total annualized losses in the Middle Peninsula planning district.

The census blocks bordering the Pamunkey and Mattaponi rivers contain almost all of the annualized damages for King William County with the greatest concentration of losses in the Town of West Point. Wood framed structures across the county account for more than 50% of the losses. The total annualized damages for the Town of West Point are approximately \$3.5 million. Total annualized losses of the Pamunkey Indian Reservation are approximately \$80,000 and the Mattaponi Indian Reservation is \$12,000. One location in the northwestern portion of the County exhibits relatively higher annualized loss values; the area is in the vicinity of Aylett, with Aylett experiencing the losses near \$352,000.

Middlesex County's annualized losses account for 6.8% of the total risk with wood framed structures accounting for about 67% of the losses. The census blocks along the Rappahannock River collectively account for the greatest amount of losses within the County. Losses in the vicinity of Mud Creek, Balls Point, the Town of Urbana, and the confluence with the Chesapeake Bay constitute the areas having the highest loss values. The Town of Urbana has an estimated \$745,000 in annualized damages and includes the census block having the highest estimated loss (\$607,000) within the County. The second highest census block loss (\$160,000) is located at the confluence between the Rappahannock River and the Chesapeake Bay in the southeastern portion of the County.

The majority of damage within Essex County is along the Rappahannock River with the greatest concentration of annualized losses from the Town of Tappahannock in the north, extending downstream to the vicinity of Bowlers Wharf. Total annualized damages along the length of the Rappahannock are approximately \$2.28 million. The concentrated damages from Tappahannock to Wares Point is approximately \$2.05 million or nearly 90% of the expected damages along the Rappahannock River. The Town of Tappahannock accounts for approximately \$0.76 million or nearly one-third of the expected damages in the area of concentrated damages along the Rappahannock. The County and Town combined, account for approximately 5.6% of annualized damages for the Middle Peninsula region.

King and Queen County has the lowest annualized loss values for the region, accounting for 2.8% of the total damages. Residential occupancy makes up the majority of the losses in the county. A relatively small group of census blocks along the York River account for most of the damages near \$1.03 million. In comparison, along the Mattaponi River damages are in the range of near \$101,000 or roughly one-tenth of the expected damages along the York River. Notwithstanding, a small pocket of development at

the end of Limehouse Road along the Mattaponi River downstream of Muddy Point and opposite the Town of West Point is an area with annualized losses near \$61,000. The Rappahannock Tribe’s tribal designated statistical area (TDSA) has no calculated annual flood loss.

Table 52 lists the annualized flood losses for the Middle Peninsula Tribal Nations. Please note that the Upper Mattaponi is not represented in the below data but is included in the county data. GIS boundaries were sourced from the "American Indian/Alaska Native/Native Hawaiian Areas" as identified in the 2020 TIGER/Line GIS data, which is publicly available from the U.S. Census Bureau’s website. (<https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html>). This website defines Reservation and TDSA areas as:

- *American Indian Reservations: The U.S. Census bureau’s boundary files for American Indian reservations are areas with boundaries established by treaty, statute, and/or executive or court order. The reservations and their boundaries are identified for the Census Bureau by the Bureau of Indian Affairs (BIA), an agency in the U.S. Department of the Interior, or by State governments.*
- *Tribal Designated Statistical Areas<sup>2</sup>: the U.S. Census Bureau includes Tribal designated statistical areas that are geographic entities delineated by Federally and State-recognized tribes without a land base, that is, with no reservation or trust lands.*  
(<https://www2.census.gov/geo/pdfs/reference/GARM/Ch5GARM.pdf>):

It’s important to note that upon correspondences with the Tribes this data does not accurately reflect Tribal lands. For instance, the Upper Mattaponi Indian Tribe is concerned with tribal land, land that citizens own, ancestral land, and land areas of Tribal interest, including but not limited to, traditional hunting and fishing areas, areas maintaining cultural significance, and all other ceded and non-ceded lands since the inception of the Tribe. The ancestral lands of Tsenacomacah encompassed the Tidewater and Eastern Shore regions, particularly the coastal and inland waterways in the York, James, and Rappahannock River watersheds. The Upper Mattaponi Indian Tribe is centered in King William County, with much of the tribal community base residing in ancestral lands. While the majority of tribal citizens live in Virginia, there are UMIT citizens in over thirty states.

For Tribal Nations shown in Table 52, all flood damage is from riverine sources.

**Table 52:** Tribal Nation based Hazus annualized losses.

Tribal Nation	Total Annualized Loss
Mattaponi Indian Reservation	\$12,000 (13%)
Pamunkey Indian Reservation	\$80,000 (87%)
Rappahannock Tribe's TDSA	No Losses
<b>Total Tribal Losses</b>	<b>\$92,000</b>
To Note: <i>The Upper Mattaponi Indian Tribe was not included in the national HAZUS annualized losses database.</i>	

<sup>2</sup> Please note this TDSAs may not be the Tribe’s planning area for the AHMP, land owned by the Tribe, land in trust to the Tribe, Tribal ancestral land, or land of importance to the Tribe. Future Hazus runs will need to improve and capture the Tribes planning area and assess the losses within these areas.

## Essential Facilities and Loss Estimation

Hazus defines essential facilities as:

- Primary medical care facilities. Alternative care sites like nursing homes, outpatient, or urgent care sites are not included
- emergency operation centers
- public schools used for sheltering
- fire stations
- police stations

Schools are specifically those vital to emergency response and recovery following a disaster as they often play a key role in sheltering people displaced from damaged homes. Generally, the default Hazus data shows that there are very few locations of each type of essential facility in a census tract, making it easier to obtain site-specific information for each facility. Thus, damage and loss-of-function are evaluated on a building-by-building basis for this class of structure; even through the uncertainty in each such estimate is large<sup>3</sup>. To upgrade to a Level 2 analysis for essential facilities, each category of facility would be updated from local information. For a Level 2 analysis the key items to update are:

- Create a latitude/longitude for every building on a site (e.g. each school or hospital building). Normally smaller sheds such as yard maintenance or open sided structures such as pavilions are excluded.
- Capture the square footage, year built, unique name/id, and point of contact for all building locations being updated.
- Assign a building assessed replacement valuation to each essential facility. Often the assessor parcel information will only show a total for the improvements on a parcel so each building will need its own valuation
- Assign a first finished floor elevation to every building on the campus
- Gather contents information. Essential facilities like hospitals, fire stations and other emergency services may have very expensive equipment located on the first floor and are subject to content losses.
- For hospitals define the number of beds available.
- For schools and fire stations identify kitchens and available space for sheltering needs
- Define each of the building construction types. Schools often leverage portable buildings, manufactured facilities, or small metal outbuildings.
- Identify any flood wet or dry proofing that may have occurred at the building such as flood gates, elevation, or dry-lock for masonry construction types. Also note if generators are available and if they are elevated.

The Hazus essential facilities database includes default data for Medical Care Facilities, Emergency Response Facilities (fire stations, polices stations, emergency operation centers), and schools. Figure 49 displays the spatial location of the default essential facilities as provided with the Hazus software for the Plan.

Many Plans also identify critical facilities that are key to the functionality of a community. These often include water/wastewater services, key community functions, power facilities, road crossings/bridges, and other lifelines critical for restoration after a natural disaster. These individual facilities may be analyzed as a user defined feature (UDF) for flood damages. Unfortunately, the essential facilities module

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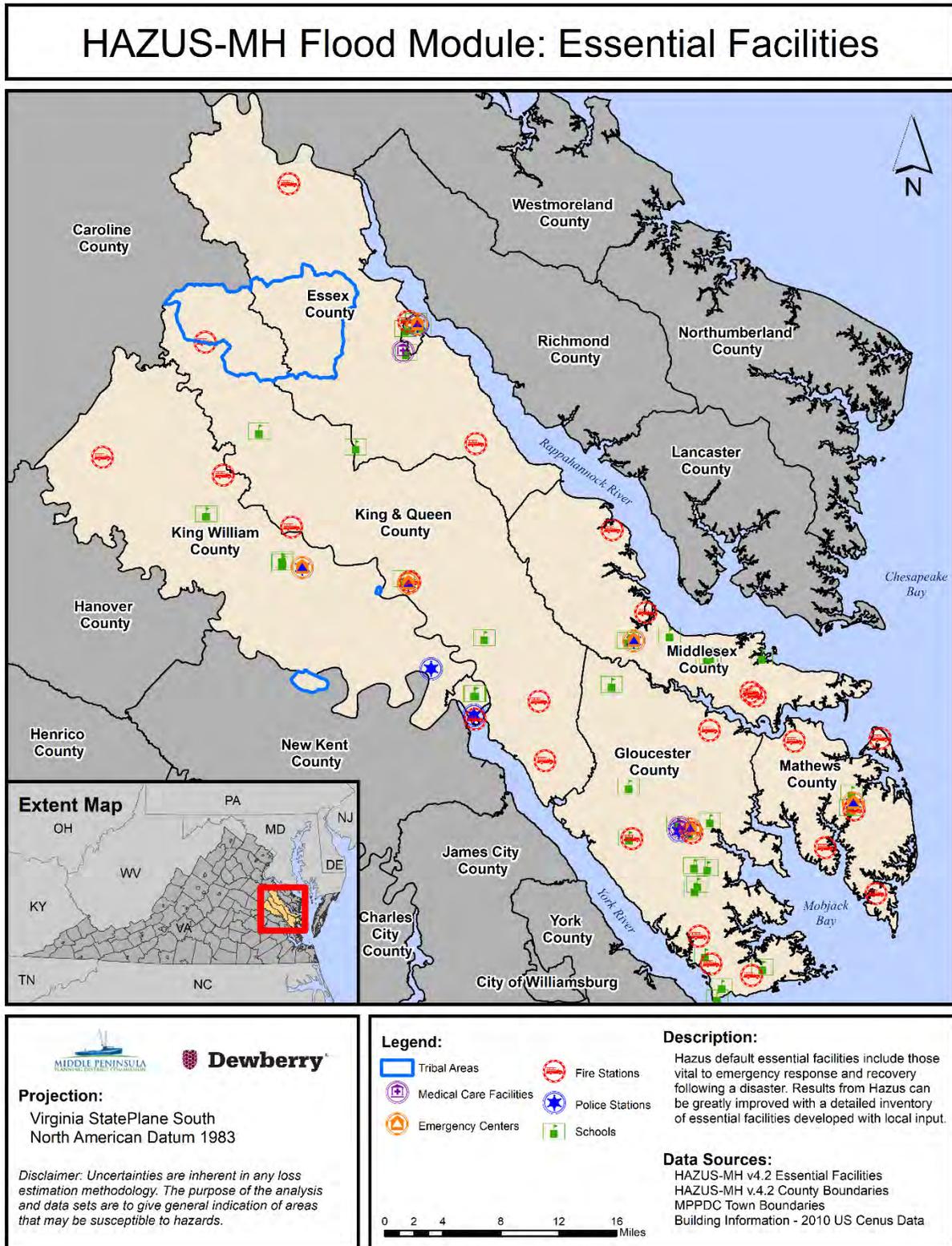
<sup>3</sup> Multi-hazard Loss Estimation Methodology Hurricane Model User Manual, HAZUS-MH V4.2, Chapter 1: Introduction, I-6

in Hazus does not incorporate an evaluation of restoration time, sheltering and lifeline outage and return to service functionality for other than its own essential facility categories.

The majority of the region's essential facilities are able to remain functional for the 10-percent-, 4-percent-, 2-percent-, 1-percent-, and 0.2-percent-annual-chance recurrence intervals. No facilities were damaged due to only riverine flood hazard. Only 6 essential facilities were calculated as damaged for the coastal flood hazard. Figure 50 highlights the locations of those facilities that are damaged by the Hazus Level I multi-frequency flood hazard(s) – thus experiencing estimated damage and loss. The previous Plan's results showed damages to West Point elementary, middle and high schools from coastal influenced flooding. This version of the Plan incorporated updated coastal modeling from FEMA, and these essential facilities showed no expected damages.

Table 53 lists the damaged essential facilities, the percent-annual-chance event that damaged the facility, it's building and contents losses, and the maximum time to full functionality.

Figure 49:

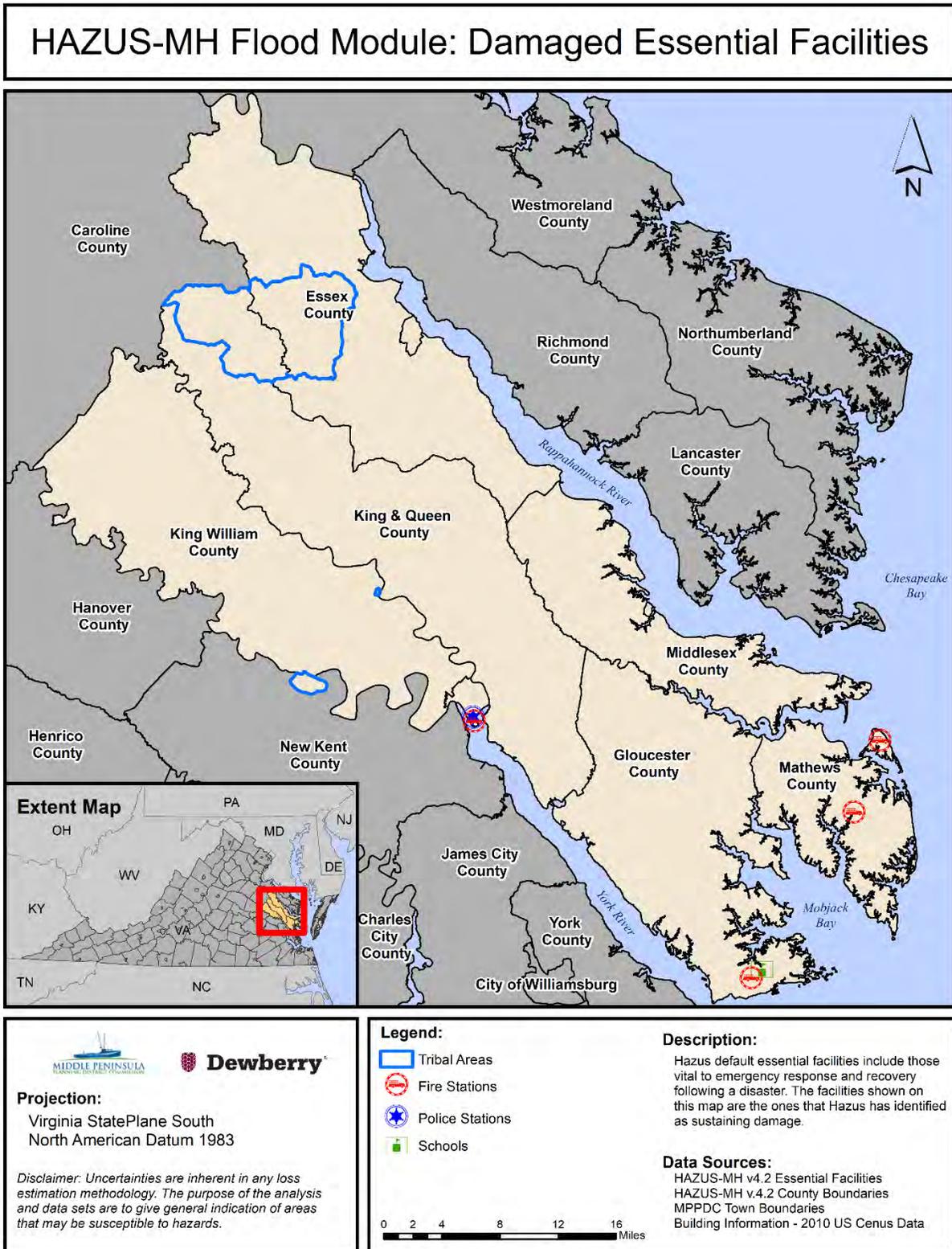


**Table 53:** Damages to essential facilities.

Name	City	Return Period	Flood Hazard	Building DmgPct	Building Losses	Contents DmgPct	Content Losses	Days to Full Restoration
Abingdon Volunteer Fire and Rescue Incorporated Station 2	Hayes	0.2-percent-annual-chance	Coastal	21.18%	\$3,494	92.55%	\$3,494	630
Achilles Elementary	Hayes	0.2-percent-annual-chance	Coastal	18.80%	\$1,152	81.40%	\$4,990	720
Mathews Volunteer Fire Department Incorporated Station 1	Mathews	10-percent-annual-chance	Coastal	7.88%	\$198	11.53%	\$435	480
Mathews Volunteer Fire Department Incorporated Station 1	Mathews	4-percent-annual-chance	Coastal	9.23%	\$232	16.93%	\$639	480
Mathews Volunteer Fire Department Incorporated Station 1	Mathews	2-percent-annual-chance	Coastal	10.49%	\$264	28.90%	\$1,091	480
Mathews Volunteer Fire Department Incorporated Station 1	Mathews	1-percent-annual-chance	Coastal	13.14%	\$331	60.70%	\$2,292	630
Mathews Volunteer Fire Department Incorporated Station 1	Mathews	0.2-percent-annual-chance	Coastal	11.55%	\$291	47.38%	\$1,789	480
Mathews Volunteer Fire Department Incorporated Station 3	Gwynn	0.2-percent-annual-chance	Coastal	9.48%	\$239	17.91%	\$676	480
West Point Police Department	West Point	0.2-percent-annual-chance	Coastal	11.26%	\$283	42.40%	\$1,601	480
West Point Volunteer Fire Department / West Point Volunteer Rescue Squad	West Point	0.2-percent-annual-chance	Coastal	12.18%	\$307	55.92%	\$2,111	630

*Note: No essential facilities had any calculated damage for the riverine flood hazard.*

Figure 50:



### **Comparative Flood Modeling and Comparative Hot Spot Maps**

The previous version of this plan included a section to compare the potential results of a Hazus generated depth of flooding product (Level 1) to the results of a Level 2 analysis that included engineering study of flood hazards converted to depth grids to that closely aligned with FEMA's special flood hazard area. This previous comparison made the case for the use of a Level 1 analysis as the best available data. This comparative analysis was not created for this version as the Plan as the flood hazard data was updated with all available FEMA flood study data from engineering riverine and coastal modeling sources, where it was available. The incorporation of engineering supported depth grids creates a Level 2 Hazus scenario representing the best available data used to estimate riverine and coastal flood damages.

Additional analysis was also completed in the previous Plan to compare the essential facilities that were damaged to an overlay of the essential facilities with FEMA's flood hazard mapping to identify hot spots. As the flooding depth grids in this version of the plan are directly created from FEMA's flood hazard mapping product, the comparison of the Level 1 Hazus damages to Level 2 FEMA flood hazard areas is not needed. The damages to the essential facilities should now be consistent with FEMA's flood hazard areas.

### **Potential Mitigation Actions**

The potential mitigation actions noted are those that are Hazus-specific and would benefit refinement of Hazus analyses. The previous Plan update included the following items (below). Those items that have been accomplished in the current Plan update are symbolized with a check-mark (☑) and those that still remain for future efforts (☐). New potential Hazus Mitigation actions are denoted with the following (➤).

- Update flood risk to have improved multi-frequency riverine depth grids over the remaining areas of Middle Peninsula.
- Update flood risk to have accurate multi-frequency coastal depth grids over all areas of Middle Peninsula.
- Once multi-frequency depth grids have been created for both riverine and coastal flooding across all areas of Middle Peninsula, re-run Hazus for to update this plan with the 2020 census data.
- Level 2 general building stock and essential facilities improvements.
  - Improvements in the future should aim to further refine the building stock. Notably, one improvement should include adding new development that may not have been in the land use/land cover data; e.g., new housing developments, new construction, etc.
  - Perform localized building-level assessments in known areas of loss and or areas subject to likely losses.
- Improve Data associated with the federally recognized tribes.

## Hurricane Wind Analysis

The hurricane wind model uses state of the art wind field models, and calibrated and validated hurricane data. Wind speed has been calculated as a function of central pressure, translation speed, and surface roughness as described in the Hazus Wind Model Technical Manual as:

- Central pressure is modeled as a function of sea surface temperature, and the storm heading, speed, etc., are updated at each six-hour point in the storm history. Linear interpolation is used between the six-hour points;
- Translation speed is modeled as the forward speed of the storm with winds in the right front quadrant as the strongest due to additive nature of the wind (forward speed + hurricane induced wind speed). Typically, as well, this has the least amount of surface friction to reduce the wind speed, since it is generally more of water
- Surface roughness is modeled as the friction of the earth's surface that would reduce wind speed. For example, land, buildings and trees create drag on the wind versus just open water which has the lowest friction.

This assessment has been completed for Probabilistic Level I analysis for the Hurricane wind hazard. The standard methodology of defining loss potential for any given hazard, includes annualizing the potential over a series of statistical return periods. Annualization is the mathematical method of converting individual losses to a weighted-average that may be experienced in any given year. The standard probabilistic scope pertaining to Hazus Level I hurricane wind risk corresponds to annualizing the 0.1%, 0.2%, 0.5%, 1%, 2%, 5%, and 10% wind return periods. These same annual-chance return periods are often described as the 1,000-year, 500-year, 200-year, 100-year, 50-year, 20-year and 10-year events as shown in Table 54 below. As this is a probabilistic analysis, the hurricane that is simulated does not represent an actual, historic hurricane tract or path. This is a simulation for the study area of a hurricane with common parameters derived from multiple historic events along with industry standardized modeling for scenarios.

**Table 54:** Annual probability based on wind recurrence intervals.

Wind Recurrence Interval	Annual Chance of Occurrence
10-year	10.0%
20-year	5.0%
50-year	2.0%
100-year	1.0%
200-year	0.5%
500-year	0.2%
1000-year	0.1%

Practically, these statistical events represent the chance of being equaled or exceeded in any given year; i.e., the likelihood that a particular event with a given intensity occurs on average at least once every x-

years. Once each of these statistical return periods are calculated, an annualized value is computed thus offering a perspective for any given year. For this analysis, it is the annual chance of occurrence that is used to describe a given recurrence event.

In addition to the Level 1 probabilistic methodology for development of the wind event, a Level 1 analysis is performed on the default economic building stock data and the default essential facilities data provided with the Hazus software; i.e., no local data inputs. For a Level 1 analysis, dollar values shown in this report should only be used to represent cost of damage for large aggregations of building types. Highly detailed, building specific, loss estimations have not been completed for this analysis as they require additional local data inputs. To perform a Level 2 analysis of the economic building stock would involve replacing the default information with property replacement values provided from each county's tax assessor data and supplemented with property valuations from property not in the assessor's system (such as government facilities that are not included in local tax assessment data). In addition, the essential facilities such as emergency operation centers, police stations, fire stations, school campus buildings, and hospital campus sites would be updated to include not only replacement value but also content valuations. Updating the economic inventory involves cooperation with all partners to the plan and often needs redaction of any data with privacy concerns. For the Level 2 environment revised assumptions also need to be developed for the building structure design, approximate finished floor elevation heights, and any wet or dry flood-proofing or wind mitigation that may have been added to the improvement on a property. Updating the building inventory for a Level 2 environment provides the benefit of better and more relevant data to the local region, but the creation of these data also requires pre-coordination with all potential data contributors to the project. Ideally a Level 2 building inventory update would be conducted prior to the kickoff of a plan's update cycle to allow for more time to collect and process data from all jurisdictions participating in the plan.

Note that combined wind, storm surge and wave-type scenarios have not been implemented in this Plan update however, the Flood modeling includes various scenarios that include the effects of storm surge and wave-action. Storm surge risk and coastal flooding is discussed in Section 4.

Loss estimation for this Hazus module is based on specific input data. The inputs include square footage of buildings for specified structural or occupancy types and information on the local economy that is used in estimating losses. Table 55 displays the economic loss categories used to calculate annualized losses by Hazus.

**Table 55:** Hazus direct economic loss categories and descriptions.

Category Name	Description of Data Input into Model	Hazus Output
<b>Building</b>	Cost per square foot to repair damage by structural type and occupancy for each level of damage	Cost of building repair or replacement of damaged and destroyed buildings
<b>Contents</b>	Replacement value by occupancy	Cost of damage to building contents
<b>Inventory</b>	Annual gross sales in dollars per square foot	Loss of building inventory as contents related to business activities
<b>Relocation</b>	Multiple factors; primarily a function of Rental Costs (\$/ft <sup>2</sup> /month) for non-entertainment buildings where damage ≥10%	Relocation expenses (for businesses and institutions); disruption costs to building owners for temporary space.
<b>Income</b>	Income in dollars per square foot per month by occupancy	Capital-related incomes losses as a measure of the loss of productivity, services, or sales
<b>Rental</b>	Rental costs per month per square foot by occupancy	Loss of rental income to building owners
<b>Wage</b>	Wages in \$ per sq ft per month by occupancy	Employee wage loss as described in income loss

A probabilistic scenario Hazus analysis was completed using the planning district as the study area. The individual county results have been derived from this data set.

The Middle Peninsula region currently has approximately 45,683 structures with an estimated exposure value of approximately \$12.5 Billion. Average estimated replacement value of buildings in the study area range from \$205,000 to \$312,000, with the mean approximation value of \$273,000 <sup>4</sup>. Ninety-four percent of the planning district's general occupancy is categorized as residential, followed by commercial (4%). The remaining two percent is a combination of industrial, agriculture, religion, government, and education buildings. Table 56 provides inventory information for each of the six counties that were included in the analysis. Gloucester County occupies a large percentage (40%) of the building stock exposure for the region.

<sup>4</sup> Previous Plan values adjusted per BLS CPI Inflation Calculator (2000 to 2010) to match Hazus/Census years.

**Table 56:** Building stock exposure for general occupancies by county.

County	Residential	Commercial	Industrial	Agriculture	Religion	Govt.	Education	Total \$ and % of Total
Essex	\$1,690,695	\$404,683	\$149,121	\$21,320	\$38,252	\$20,307	\$36,124	\$2,360,502 (12%)
Gloucester	\$6,468,784	\$879,665	\$164,938	\$28,290	\$116,120	\$36,529	\$196,149	\$7,890,475 (40%)
King & Queen	\$992,231	\$57,304	\$30,890	\$5,828	\$27,490	\$3,346	\$8,736	\$1,125,825 (6%)
King William	\$2,799,158	\$294,544	\$118,245	\$28,276	\$57,502	\$27,319	\$29,734	\$3,354,778 (17%)
Mathews	\$1,739,804	\$159,583	\$50,753	\$8,584	\$27,408	\$7,692	\$14,446	\$2,008,270 (10%)
Middlesex	\$2,431,988	\$379,226	\$69,110	\$12,200	\$36,784	\$13,212	\$48,482	\$2,991,002 (15%)
<b>Total</b>	<b>\$16,122,660</b>	<b>\$2,175,005</b>	<b>\$583,057</b>	<b>\$104,498</b>	<b>\$303,556</b>	<b>\$108,405</b>	<b>\$333,671</b>	<b>\$19,730,852</b>
<b>% of Total</b>	82%	11%	3%	< 1%	2%	< 1%	2%	100%

**All values are in thousands of dollars**

Building stock exposure is also classified by building type. General Building Types (GBTs) have been developed as a means to classify the different building types. This provides an ability to differentiate between buildings with substantially different damage and loss characteristics. Model building types represent the average characteristics of buildings in a class. The damage and loss prediction models are developed for model building types and the estimated performance is based upon the "average characteristics" of the total population of buildings within each class. Five general classifications have been established, including wood, masonry, concrete, steel and manufactured homes (MH). A brief description of the building types is available in Table 57.

**Table 57:** Hazus general building type classes.

General Building Type	Description
<b>Wood</b>	Wood frame construction
<b>Masonry</b>	Reinforced or unreinforced masonry construction
<b>Steel</b>	Steel frame construction
<b>Concrete</b>	Cast-in-place or pre-cast reinforced concrete construction
<b>MH</b>	Factory-built residential construction

Buildings with wood construction represents the majority (74%) of building types in the planning district and align predominantly with residential building practices. Masonry construction accounts for almost a quarter of the building type exposure and is primarily for non-residential buildings. Table 58 provides building stock exposure for the five main building types.

**Table 58:** Building stock exposure for general building type by county.

County	Wood	Masonry	Concrete	Steel	Manufactured Home	Total
Essex	\$739,917	\$277,995	\$12,384	\$54,013	\$41,811	\$1,126,120
Gloucester	\$4,926,253	\$2,004,985	\$184,550	\$629,434	\$145,376	\$7,890,598
King & Queen	\$1,296,670	\$500,835	\$34,312	\$122,743	\$53,977	\$2,008,537
King William	\$2,152,946	\$851,390	\$65,898	\$244,516	\$40,194	\$3,354,944
Mathews	\$1,289,067	\$592,340	\$101,638	\$323,107	\$54,516	\$2,360,668
Middlesex	\$1,845,893	\$762,017	\$70,862	\$242,371	\$70,147	\$2,991,290
<b>Total</b>	<b>\$12,250,746</b>	<b>\$4,989,562</b>	<b>\$469,644</b>	<b>\$1,616,184</b>	<b>\$406,021</b>	<b>\$19,732,157</b>
% of Total	62%	25%	3%	8%	2%	100%
<b>All values are in thousands of dollars</b>						

**Multi-frequency Hurricane Modeling – Probabilistic Level 1 methodology**

Annualized loss is defined as the expected value of loss in any one year and is developed by aggregating the losses and exceedance probabilities for the 10-percent-, 5-percent-, 1-percent-, 0.5-percent-, 0.2-percent-, and 0.1-percent-annual-chance return periods. The following figures illustrate the 3-second peak gust wind speeds for the 1-percent-, 0.2-percent-, and 0.1-percent-annual-chance return periods. Wind speeds are based on estimated 3-second gusts in open terrain at 10 meters above the ground at the centroid of each census tract. Buildings that must be designed for a 1-percent-annual-chance mean recurrence interval wind event include<sup>5</sup>:

- Buildings where more than 300 people congregate in one area
- Buildings that will be used for hurricane or other emergency shelter
- Buildings housing a day care center with capacity greater than 150 occupants
- Buildings designed for emergency preparedness, communication, or emergency operation center or response
- Buildings housing critical national defense functions
- Buildings containing sufficient quantities of hazardous materials

<sup>5</sup> Whole Building Design Guide (WBDG) Wind Safety of the Building Envelop by Tom Smith 5/26/2008

Figure 51:

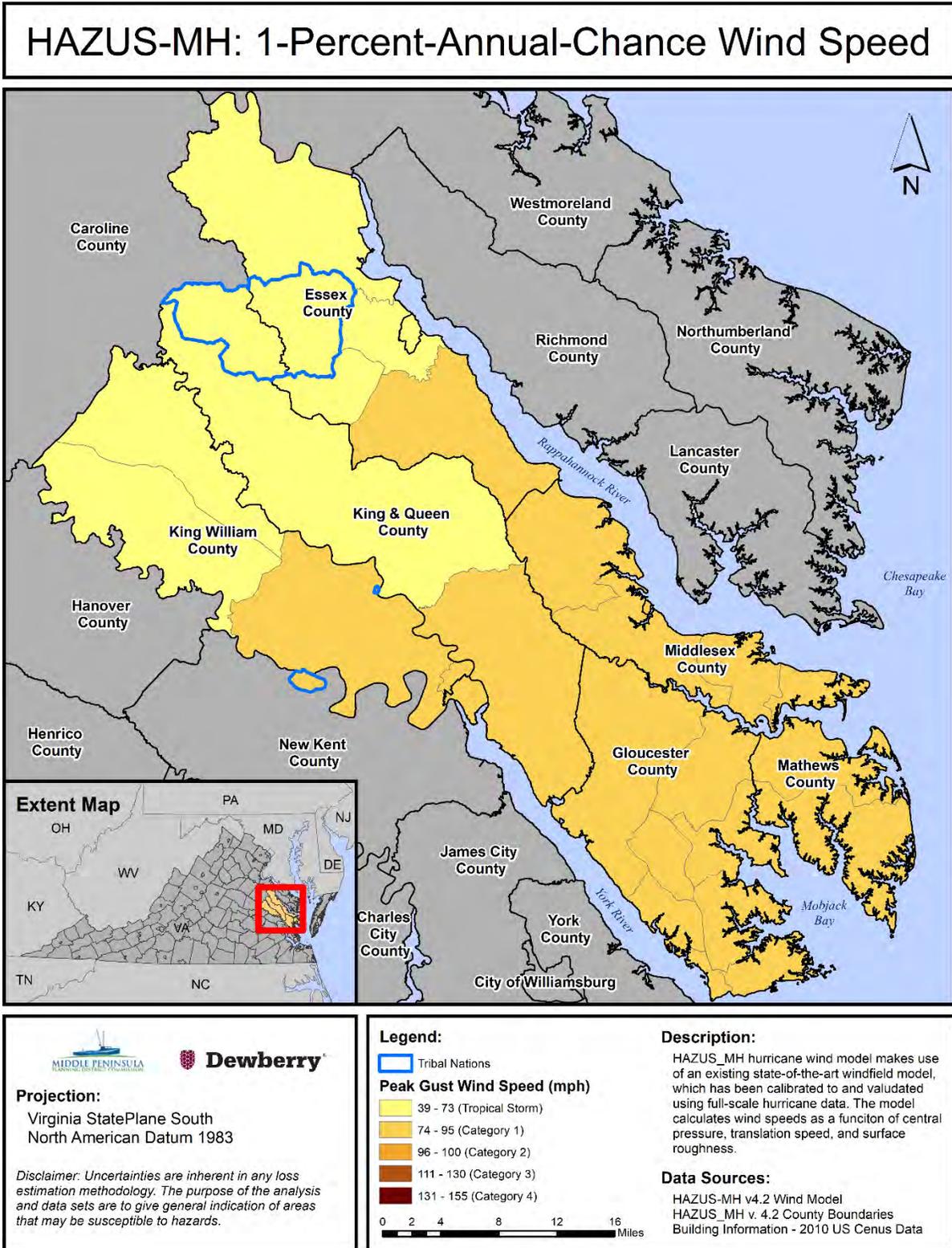
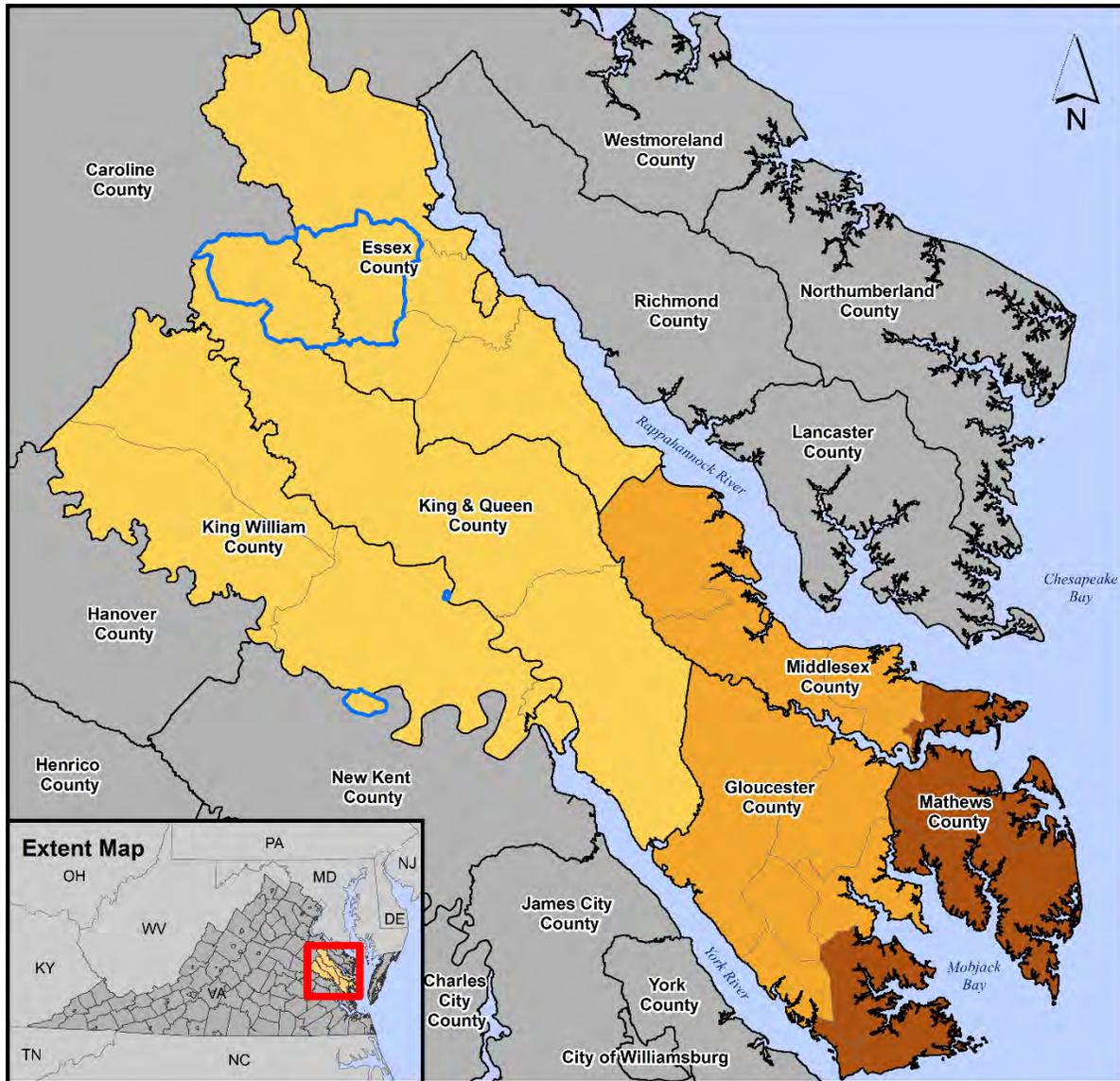


Figure 52:

# HAZUS-MH: 0.2-Percent-Annual-Chance Wind Speed






**Projection:**  
Virginia StatePlane South  
North American Datum 1983

*Disclaimer: Uncertainties are inherent in any loss estimation methodology. The purpose of the analysis and data sets are to give general indication of areas that may be susceptible to hazards.*

**Legend:**

-  Tribal Nations

**Peak Gust Wind Speed (mph)**

-  39 - 73 (Tropical Storm)
-  74 - 95 (Category 1)
-  96 - 100 (Category 2)
-  111 - 130 (Category 3)
-  131 - 155 (Category 4)

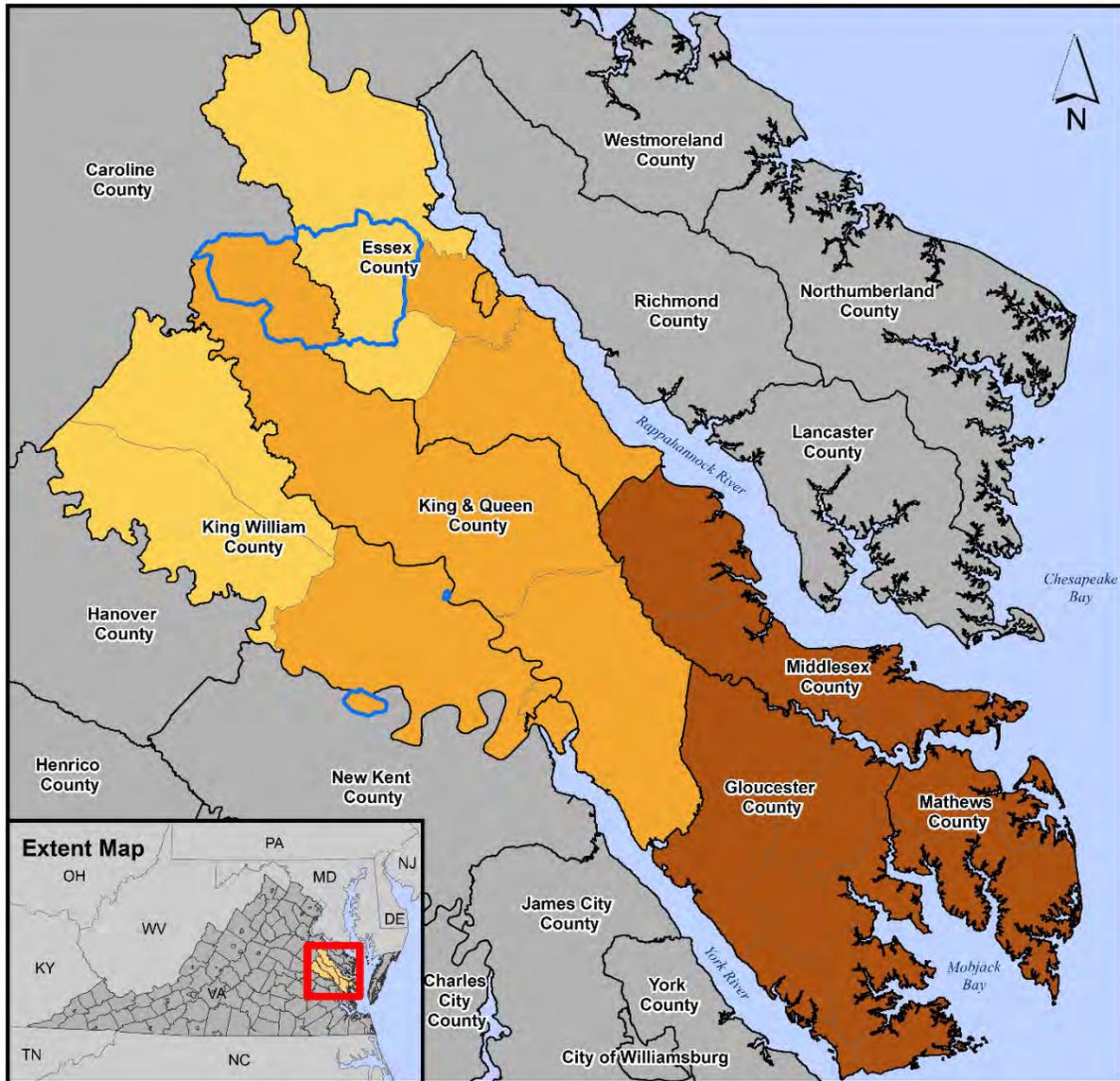
0 2 4 8 12 16 Miles

**Description:**  
HAZUS\_MH hurricane wind model makes use of an existing state-of-the-art windfield model, which has been calibrated to and validated using full-scale hurricane data. The model calculates wind speeds as a function of central pressure, translation speed, and surface roughness.

**Data Sources:**  
HAZUS-MH v4.2 Wind Model  
HAZUS\_MH v. 4.2 County Boundaries  
Building Information - 2010 US Census Data

Figure 53:

# HAZUS-MH: 0.1-Percent-Annual-Chance Wind Speed






**Projection:**  
Virginia StatePlane South  
North American Datum 1983

*Disclaimer: Uncertainties are inherent in any loss estimation methodology. The purpose of the analysis and data sets are to give general indication of areas that may be susceptible to hazards.*

**Legend:**

-  Tribal Nations

**Peak Gust Wind Speed (mph)**

-  39 - 73 (Tropical Storm)
-  74 - 95 (Category 1)
-  96 - 100 (Category 2)
-  111 - 130 (Category 3)
-  131 - 155 (Category 4)

0 2 4 8 12 16 Miles

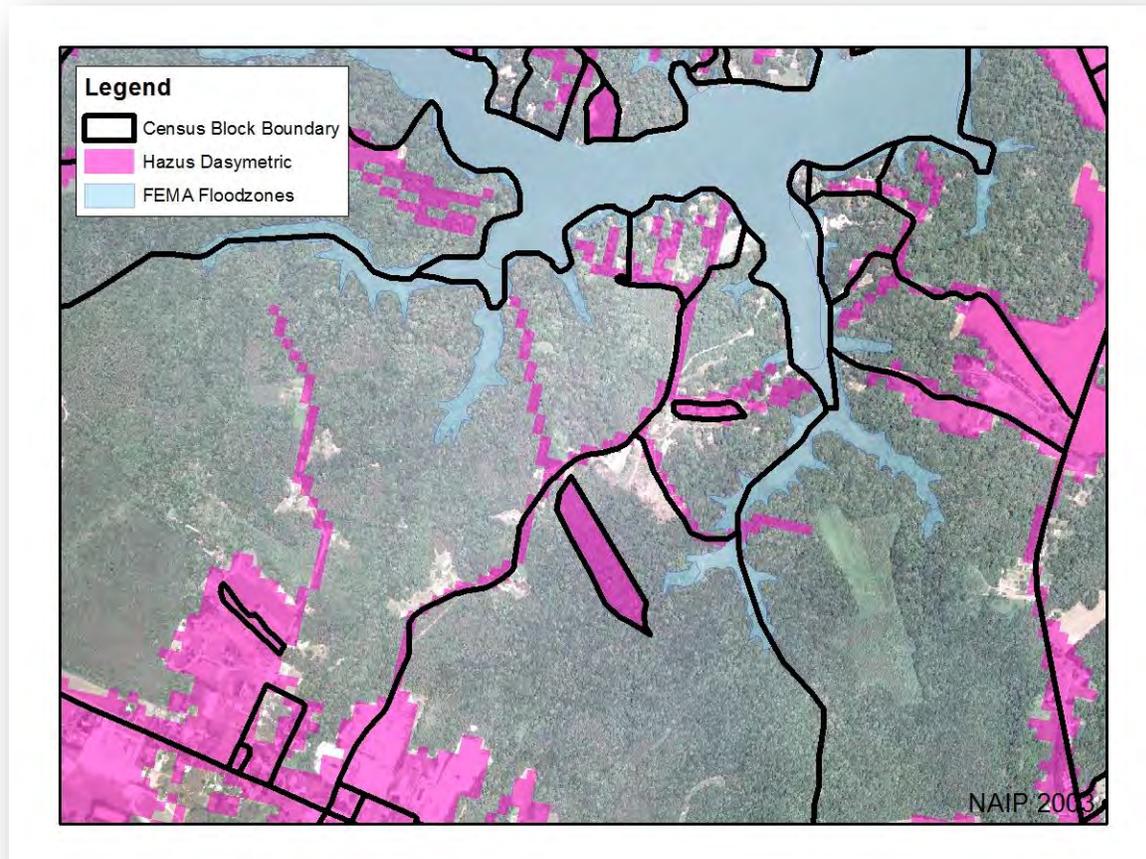
**Description:**  
HAZUS\_MH hurricane wind model makes use of an existing state-of-the-art windfield model, which has been calibrated to and validated using full-scale hurricane data. The model calculates wind speeds as a function of central pressure, translation speed, and surface roughness.

**Data Sources:**  
HAZUS-MH v4.2 Wind Model  
HAZUS\_MH v. 4.2 County Boundaries  
Building Information - 2010 US Census Data

### **Hazus Building Stock (Inventory of Buildings and Facilities)**

Hazus general building stock is an inventory of the built environment that is at risk of damage by a hazard. Each respective type or sub-type of building in the following categories; residential, commercial, industrial, agricultural, religious, government, and education has risk based on the replacement value for buildings in that use category, the size and construction of these buildings, and the replacement cost to rebuild if the building is destroyed. For the damage calculations, Hazus assumes that all buildings are evenly distributed throughout a given census block and therefore damage is estimated as a percent and is weighted by the area of inundation at a given depth for a given census block. The methodology therefore, is known as an area-weighted methodology.

FEMA has initiated recent improvements to the area-weighted methodology by further refining the distribution of building square-footage to land areas characterized by development and removing land areas typical of non-developed land classes (e.g., forests, wetlands, etc...). This refinement is called dasymetric mapping and the current Plan modeling utilizes the FEMA dasymetric building stock. The following image shows a small example area in which the developed areas are pink:



Use of the new dasymetric data will typically reduce the total area subject to area-weighted loss estimations - particularly for those census blocks that have flood risk but no actual development within the floodplains. A more detailed explanation is included in the Flood Hazard Analysis section.

### General Building Stock Loss Estimation

The probabilistic Hazus hurricane analysis predicts that the Middle Peninsula can annually expect close to \$2,766,673 in damages due to hurricane wind events. Property or “capital stock” losses of \$2,618,514 make up about 95% of the damages. This includes the values for buildings, contents, and inventory. Business interruption accounts for approximately \$148,159 of the annualized losses, or 5%, and includes relocation, income, rental, and wage costs.

Table 59 illustrates the expected annualized losses broken down by county. Gloucester County has the highest annualized losses of \$1,396,164, accounting for 50% of the total losses for Middle Peninsula. The majority of the expected damages can be attributed to building and content value.

Mathews County has the second highest annualized losses of \$505,371, accounting for 18% of the total annualized losses for Middle Peninsula.

Building structure damage accounts for approximately 66% of the expected annualized damages; residential occupancy makes up the vast majority of these losses. More than 70% of the buildings are categorized as wood frame and 20% masonry construction. Tables 60 and 61 summarize the property losses and business interruption losses shown by occupancy and building type. The slight differences in the annualized losses for building type and occupancy can be attributed to the Hazus classification methodology.

**Table 59: County based Hazus annualized losses by all building and occupancy types.**

County	Building	Content	Inventory	Relocation	Income	Rental	Wage	Total
Essex	\$121.15	\$56.91	\$0.32	\$5.98	\$0.39	\$2.04	\$0.78	\$187.57
Gloucester	\$898.06	\$430.14	\$0.56	\$44.51	\$2.91	\$14.72	\$5.25	\$1,396.16
King and Queen	\$74.93	\$32.73	\$0.05	\$3.41	\$0.06	\$0.97	\$0.10	\$112.25
King William	\$139.26	\$47.41	\$0.21	\$5.78	\$0.26	\$1.92	\$0.73	\$195.57
Mathews	\$314.98	\$164.44	\$0.20	\$18.05	\$0.85	\$5.75	\$1.09	\$505.37
Middlesex	\$268.35	\$68.54	\$0.26	\$21.92	\$1.33	\$7.37	\$1.99	\$369.75
<b>Total</b>	<b>\$1,816.73</b>	<b>\$800.17</b>	<b>\$1.62</b>	<b>\$99.65</b>	<b>\$5.80</b>	<b>\$32.77</b>	<b>\$9.94</b>	<b>\$2,766.67</b>
<b>% Total</b>	66%	29%	< 1%	3%	< 1%	1%	< 1%	100%
<b>All values are in thousands of dollars</b>								

**Table 60:** Annualized losses by general building type in the middle peninsula region.

Building Type	Building	Contents	Inventory	Relocation	Income	Rental	Wage	Annualized Losses
Concrete	\$5.83	\$2.31	\$0.20	\$1.21	\$0.51	\$0.74	\$1.09	\$11.88
Masonry	\$398.89	\$139.56	\$0.33	\$24.41	\$1.71	\$8.41	\$3.03	\$576.32
MH	\$53.64	\$10.47	\$0.00	\$4.53	\$0.00	\$0.63	\$0.00	\$69.27
Steel	\$27.52	\$11.58	\$0.92	\$4.65	\$2.33	\$2.09	\$3.95	\$53.06
Wood	\$1,338.16	\$636.83	\$0.17	\$64.84	\$1.26	\$20.92	\$1.87	\$2,064.04
Annualized Losses	\$1,824.05	\$800.75	\$1.62	\$99.65	\$5.80	\$32.77	\$9.94	\$2,774.57
% of Ann. Loss	66%	29%	< 1%	3%	< 1%	1%	< 1%	100%
<b>All values (except percentages) are in thousands of dollars</b>								

**Table 61:** Annualized losses by general occupancy type in the middle peninsula region.

Occupancy Type	Building	Contents	Inventory	Relocation	Income	Rental	Wage	Annualized Losses
Residential	\$1,746.96	\$772.31	\$0.00	\$88.87	\$0.05	\$28.46	\$0.11	\$2,636.76
Commercial	\$42.42	\$14.83	\$0.37	\$7.11	\$4.60	\$3.94	\$5.28	\$78.57
Industrial	\$10.52	\$6.48	\$1.12	\$0.66	\$0.13	\$0.10	\$0.21	\$19.22
Non-Profit	\$5.74	\$1.51	\$0.00	\$0.87	\$0.55	\$0.08	\$1.30	\$10.06
Education	\$7.03	\$3.21	\$0.00	\$1.40	\$0.43	\$0.10	\$1.02	\$13.19
Government	\$1.65	\$0.72	\$0.00	\$0.34	\$0.02	\$0.08	\$2.00	\$4.81
Agricultural	\$2.39	\$1.11	\$0.13	\$0.40	\$0.01	\$0.02	\$0.01	\$4.06
Annualized Losses	\$1,816.73	\$800.17	\$1.62	\$99.65	\$5.80	\$32.77	\$9.94	\$2,766.67
% of Ann. Loss	66%	29%	< 1%	3%	< 1%	1%	< 1%	100%
<b>All values (except percentages) are in thousands of dollars</b>								

**Table 62:** County based Hazus annualized losses by general building type.

County	Total Exposure	Concrete	Masonry	Manufactured Homes	Steel	Wood	Annualized Losses
Essex	\$1,436,867	\$1.20	\$39.92	\$5.10	\$4.98	\$136.55	\$187.76
Gloucester	\$4,988,369	\$6.11	\$284.60	\$29.71	\$26.57	\$1,051.57	\$1,398.56
King and Queen	\$726,010	\$0.15	\$21.71	\$4.01	\$0.81	\$85.82	\$112.50
King William	\$2,131,234	\$0.79	\$43.08	\$2.70	\$3.35	\$146.30	\$196.22
Mathews	\$1,289,697	\$1.34	\$99.76	\$14.78	\$6.77	\$384.01	\$506.66
Middlesex	\$1,892,206	\$2.29	\$87.25	\$12.97	\$10.58	\$259.79	\$372.88
<b>Annualized Losses</b>		\$11.88	\$576.32	\$69.27	\$53.06	\$2,064.04	\$2,774.57
<b>% of Annualized Losses</b>		< 1%	21%	3%	2%	74%	Hazus (V4.2) results
<b>% of Total Exposure</b>		< 1%	< 1%	< 1%	< 1%	< 1%	
<b>All values (except percentages) are in thousands of dollars</b>							

**Table 63:** County based Hazus annualized losses by general occupancy type.

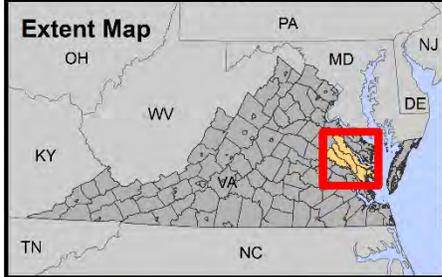
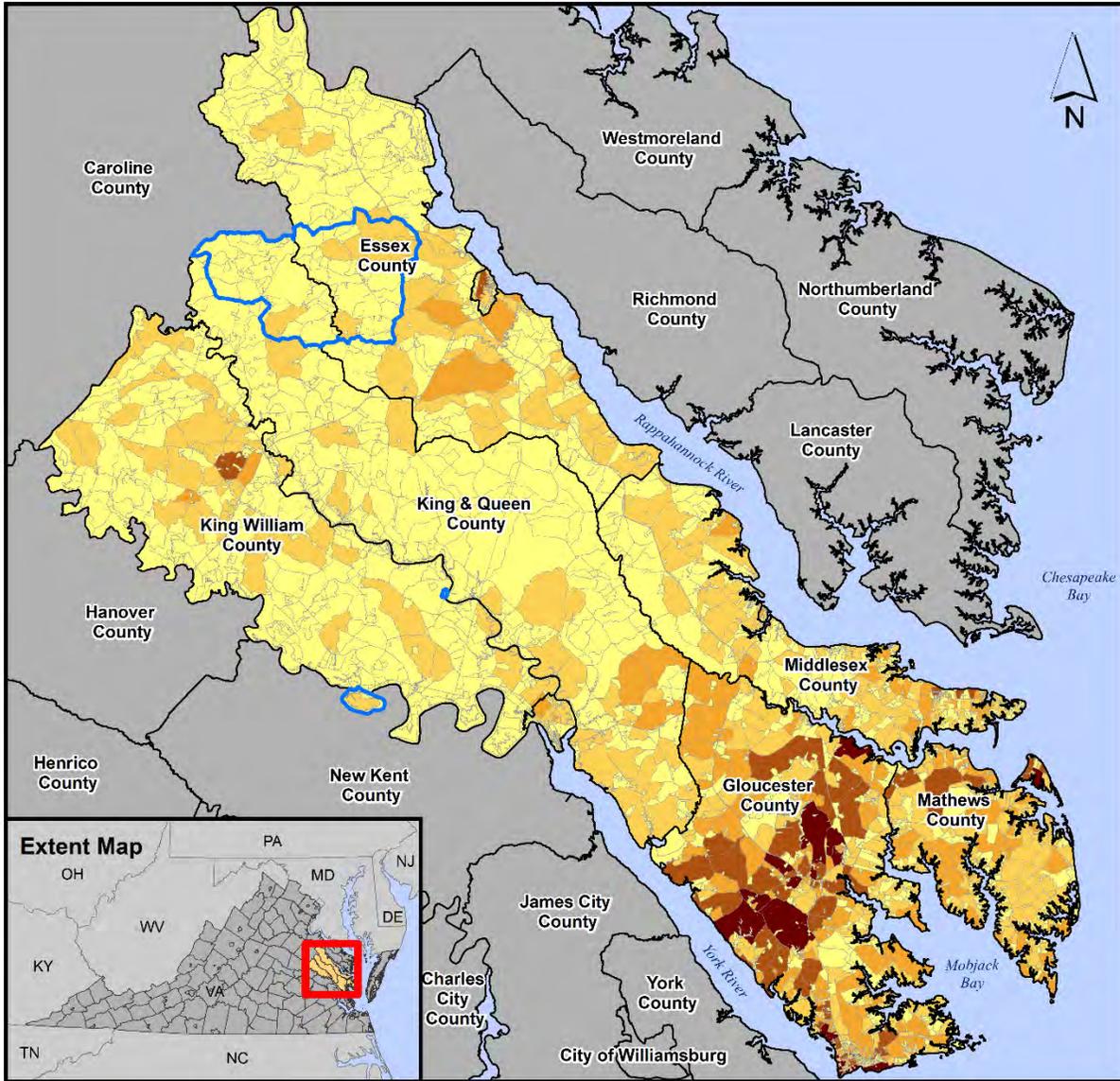
County	Total Exposure	Residential	Commercial	Industrial	Non-Profit	Education	Gov.	Agriculture	Annualized Losses
Essex	\$1,436,867	\$175.25	\$6.44	\$3.84	\$0.57	\$0.51	\$0.49	\$0.47	\$187.57
Gloucester	\$4,988,369	\$1,331.52	\$39.52	\$6.27	\$5.12	\$9.77	\$2.36	\$1.59	\$1,396.16
King and Queen	\$726,010	\$109.93	\$0.95	\$0.67	\$0.42	\$0.08	\$0.06	\$0.14	\$112.25
King William	\$2,131,234	\$186.68	\$3.99	\$2.55	\$0.85	\$0.37	\$0.67	\$0.47	\$195.57
Mathews	\$1,289,697	\$489.67	\$9.58	\$2.80	\$1.53	\$0.64	\$0.44	\$0.69	\$505.37
Middlesex	\$1,892,206	\$343.70	\$18.09	\$3.09	\$1.58	\$1.81	\$0.79	\$0.69	\$369.75
<b>Annualized Losses</b>		\$2,636.76	\$78.57	\$19.22	\$10.06	\$13.19	\$4.81	\$4.06	\$2,766.67
<b>% of Annualized Losses</b>		95%	3%	< 1%	< 1%	< 1%	< 1%	< 1%	Hazus (V4.2) results
<b>% of Exposure</b>		< 1%	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%	
<b>All values (except percentages) are in thousands of dollars</b>									

Figures 54 through 61 on the following pages show the total annualized losses mapped for the planning district and individual counties. The majority of damages occur to residential structures. Tables 62 and 63 summarize the annualized loss values by county. These values are broken down by building type and

general occupancy for comparison. Total exposure has been included as a reference point for damages. Wood structures account for seventy-four percent of the total annualized damages. As wood structures make up the majority of construction type in general stock building inventory this is in line with the source data. The next highest category of damage by construction type is seen in masonry structures representing approximately twenty-one-percent of the total annualized damages. This also aligns with masonry (brick or block) construction being the second most common building material type in the Middle Peninsula region.

Figure 54:

# HAZUS-MH Hurricane Module: Total Annualized Loss



**MIDDLE PENINSULA**  
**Dewberry**

**Projection:**  
 Virginia StatePlane South  
 North American Datum 1983

*Disclaimer: Uncertainties are inherent in any loss estimation methodology. The purpose of the analysis and data sets are to give general indication of areas that may be susceptible to hazards.*

**Legend:**

- Tribal Nations

**Annualized Loss by Census Block**

- < \$700
- \$700 - \$2,500
- \$2,500 - \$6,000
- \$6,000 - \$12,500
- \$12,500 - \$31,600

0 2 4 8 12 16 Miles

**Description:**  
 Direct Economic annualized loss was calculated using the probabilistic scenario. Annualized loss is defined as the expected value of loss in any one year.

**Data Sources:**  
 HAZUS-MH v4.2 Wind Model  
 HAZUS-MH v4.2 County Boundaries  
 Building Information - 2010 US Census Data

Figure 55:

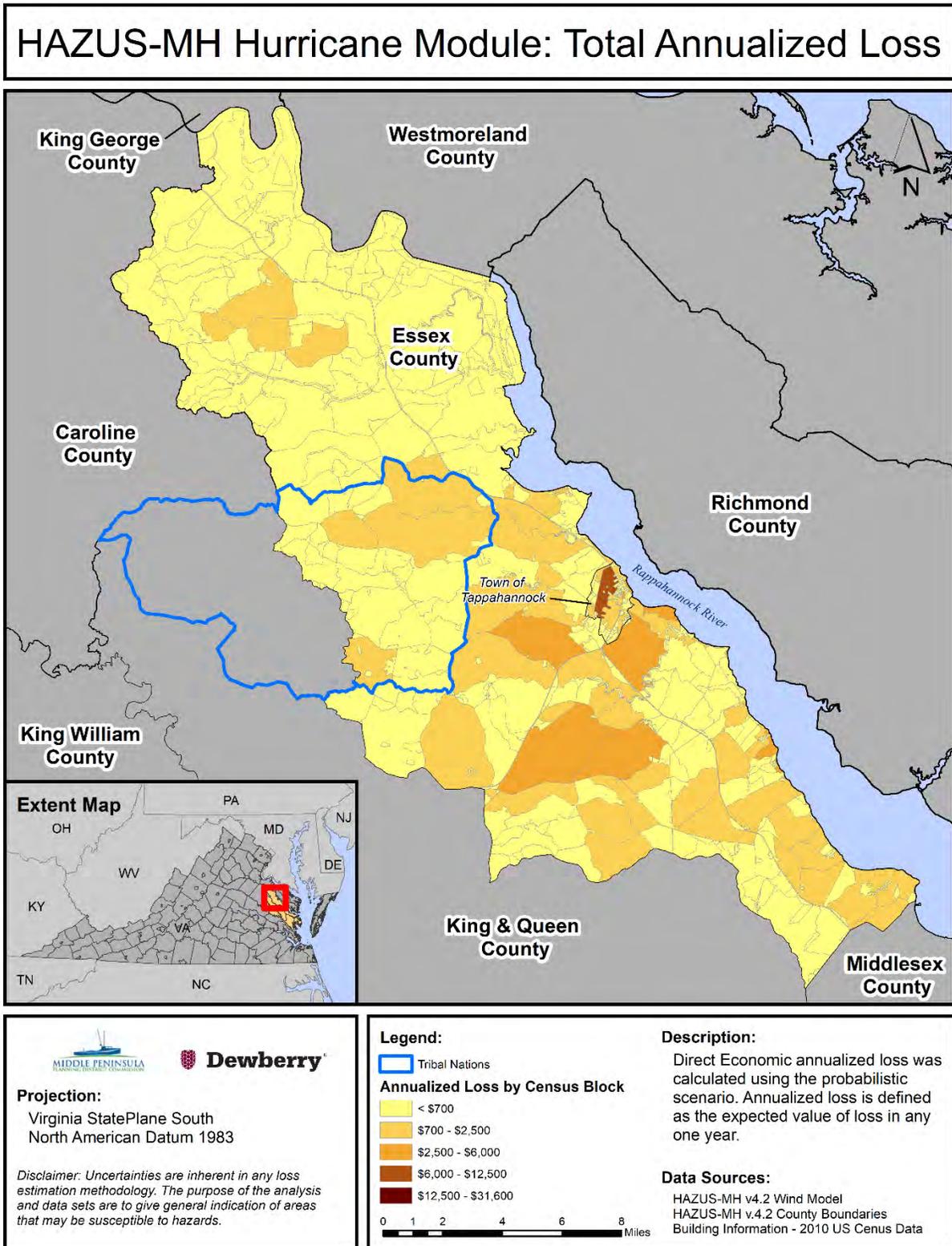
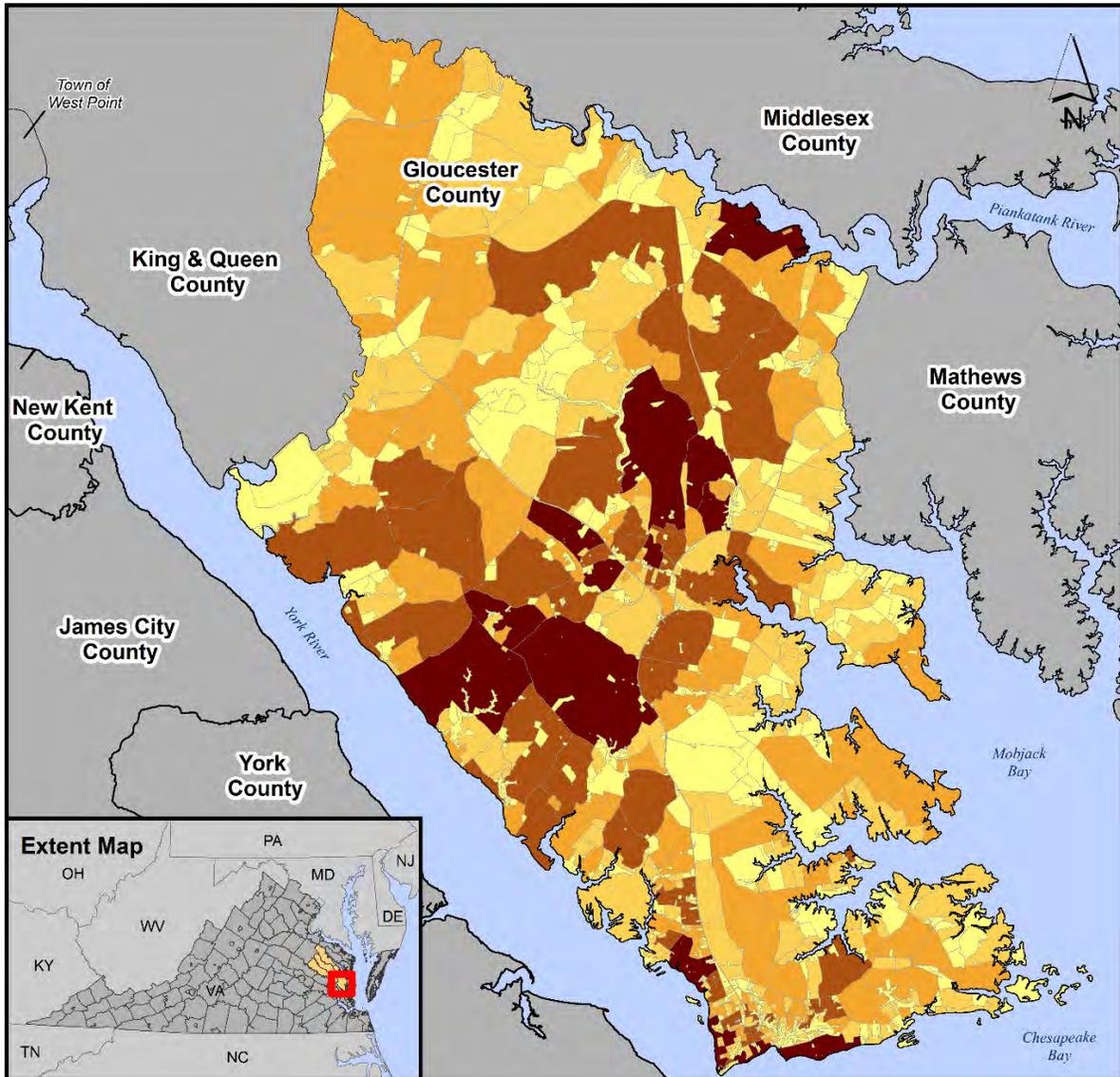


Figure 56:

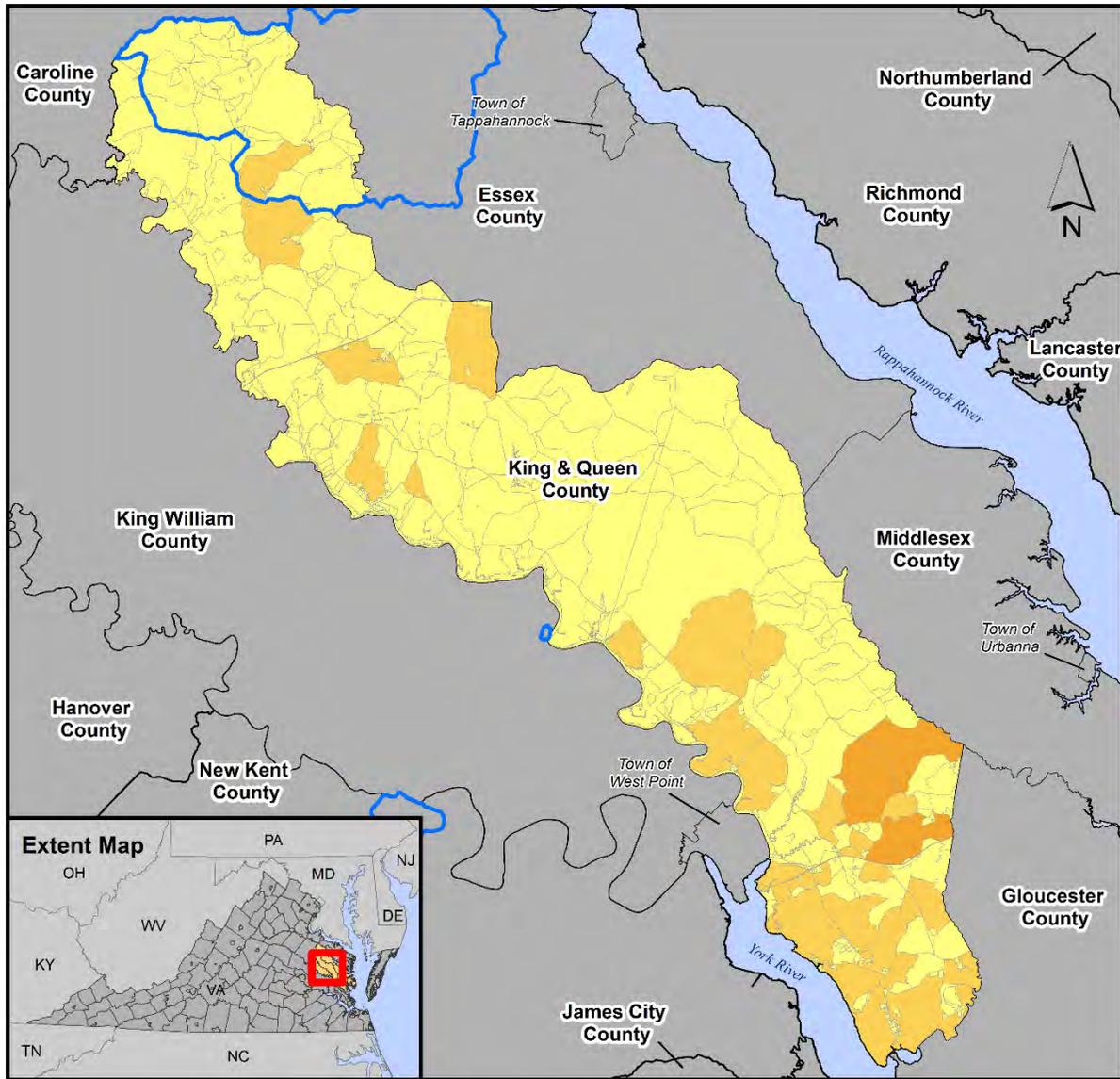
# HAZUS-MH Hurricane Module: Total Annualized Loss



 <p><b>Projection:</b> Virginia StatePlane South North American Datum 1983</p> <p><i>Disclaimer: Uncertainties are inherent in any loss estimation methodology. The purpose of the analysis and data sets are to give general indication of areas that may be susceptible to hazards.</i></p>	<p><b>Legend:</b></p> <ul style="list-style-type: none"> <li> Tribal Nations</li> <li><b>Annualized Loss by Census Block</b></li> <li> &lt; \$700</li> <li> \$700 - \$2,500</li> <li> \$2,500 - \$6,000</li> <li> \$6,000 - \$12,500</li> <li> \$12,500 - \$31,600</li> </ul> <p>0 0.5 1 2 3 4 Miles</p>	<p><b>Description:</b></p> <p>Direct Economic annualized loss was calculated using the probabilistic scenario. Annualized loss is defined as the expected value of loss in any one year.</p> <p><b>Data Sources:</b></p> <ul style="list-style-type: none"> <li>HAZUS-MH v4.2 Wind Model</li> <li>HAZUS-MH v4.2 County Boundaries</li> <li>Building Information - 2010 US Census Data</li> </ul>
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Figure 57:

# HAZUS-MH Hurricane Module: Total Annualized Loss

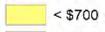





**Projection:**  
Virginia StatePlane South  
North American Datum 1983

*Disclaimer: Uncertainties are inherent in any loss estimation methodology. The purpose of the analysis and data sets are to give general indication of areas that may be susceptible to hazards.*

**Legend:**

-  Tribal Nations
- Annualized Loss by Census Block**
-  < \$700
-  \$700 - \$2,500
-  \$2,500 - \$6,000
-  \$6,000 - \$12,500
-  \$12,500 - \$31,600

0 1 2 4 6 8 Miles

**Description:**  
Direct Economic annualized loss was calculated using the probabilistic scenario. Annualized loss is defined as the expected value of loss in any one year.

**Data Sources:**  
HAZUS-MH v4.2 Wind Model  
HAZUS-MH v4.2 County Boundaries  
Building Information - 2010 US Census Data

Figure 58:

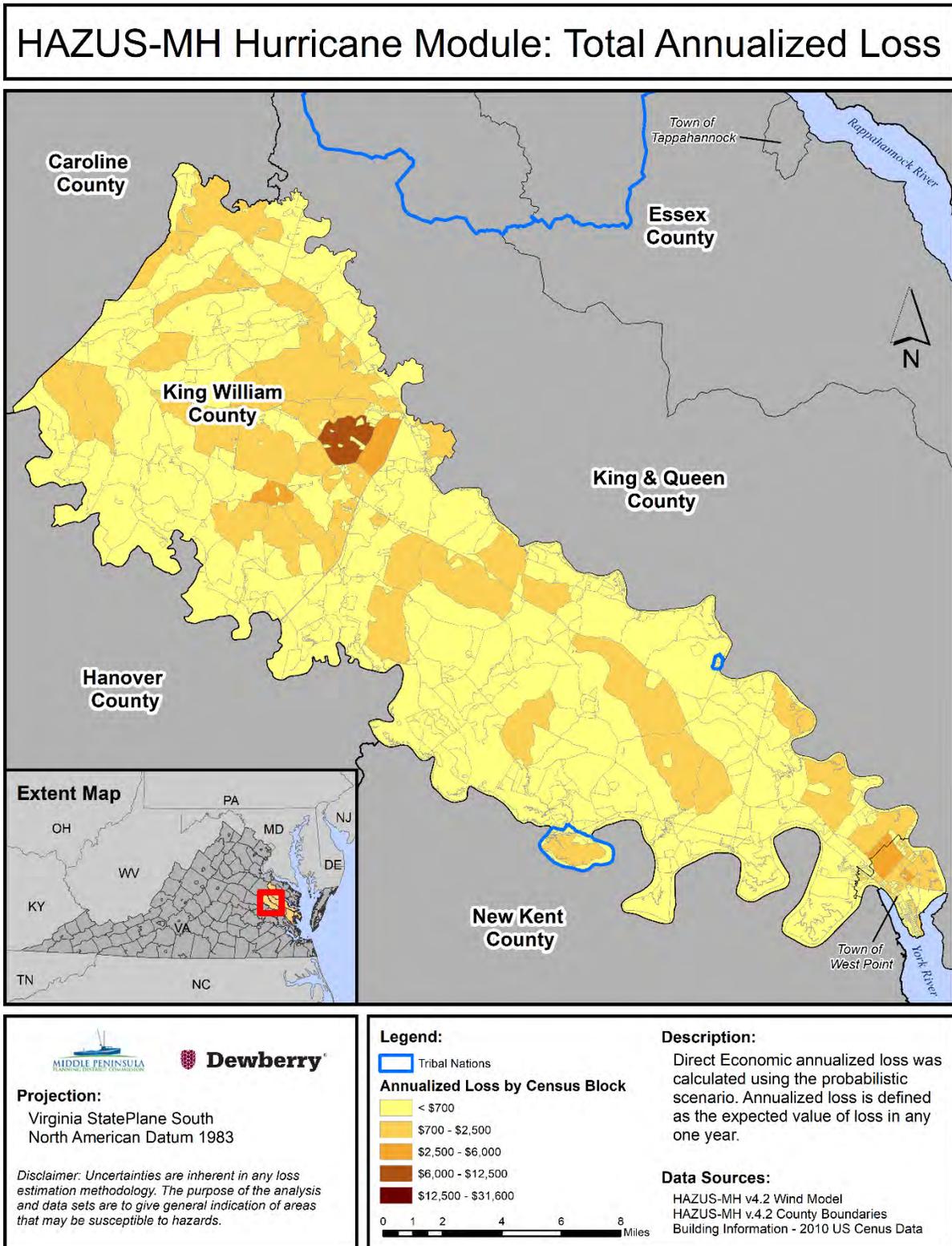


Figure 59:

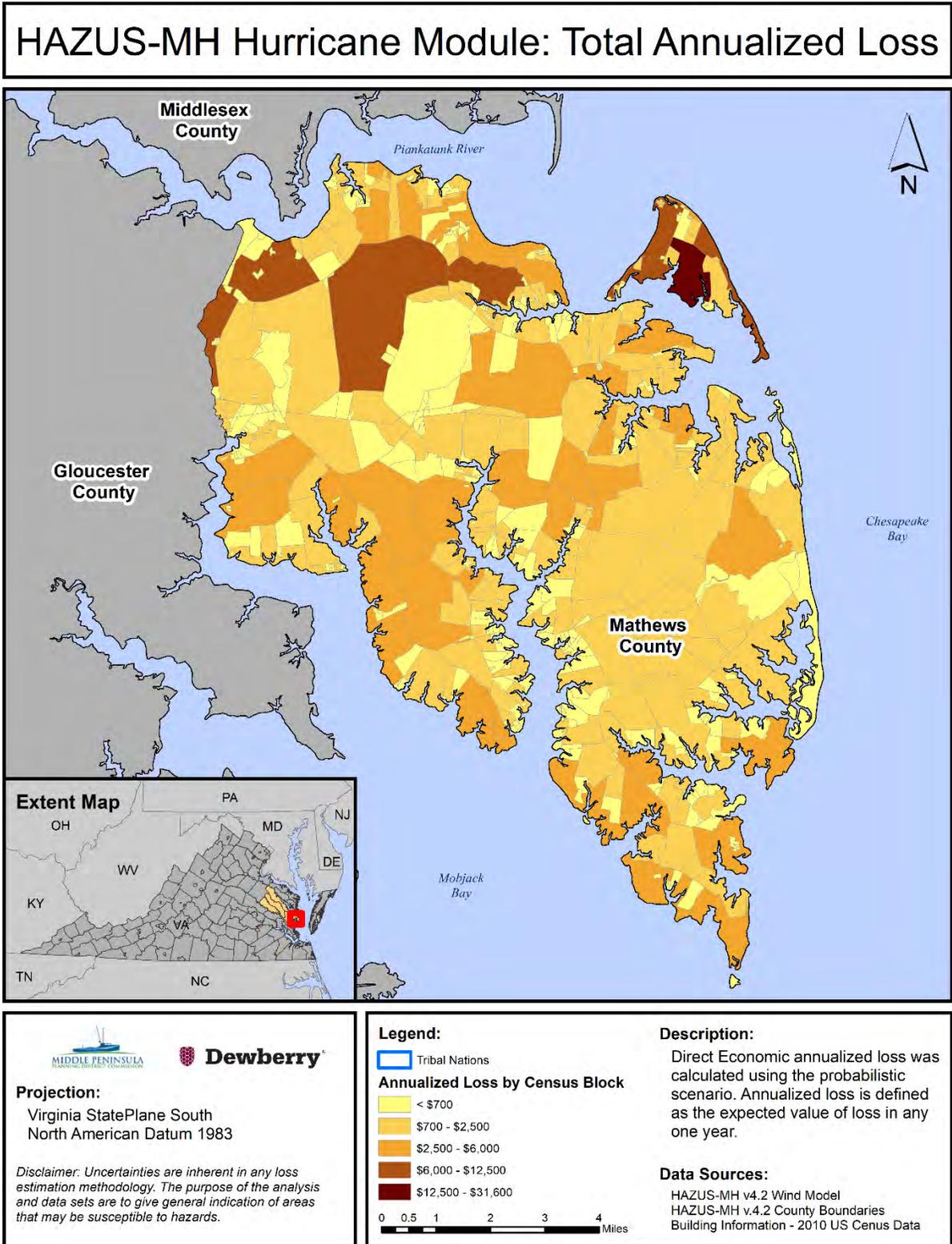
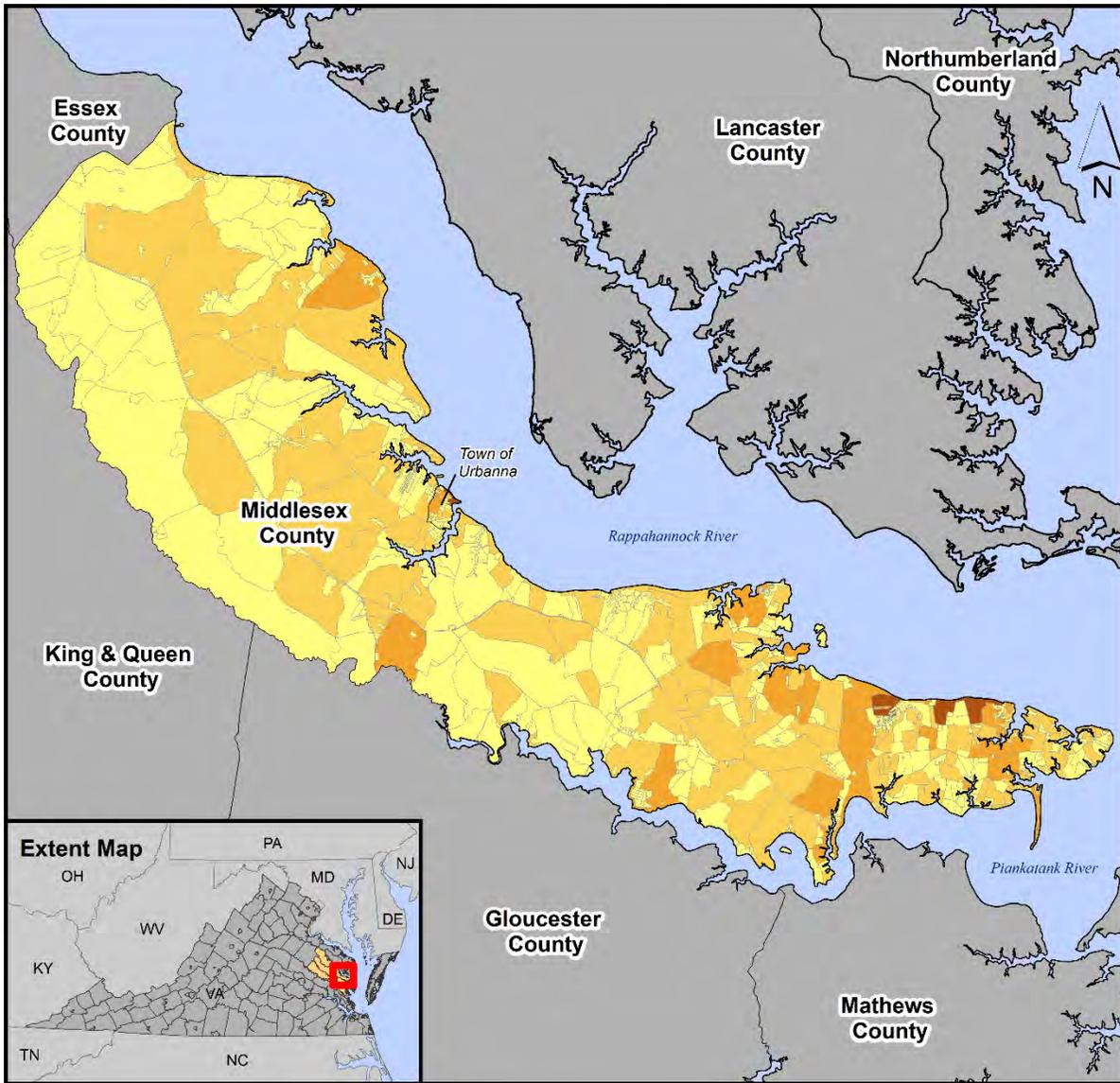


Figure 60:

# HAZUS-MH Hurricane Module: Total Annualized Loss






**Projection:**  
Virginia StatePlane South  
North American Datum 1983

*Disclaimer: Uncertainties are inherent in any loss estimation methodology. The purpose of the analysis and data sets are to give general indication of areas that may be susceptible to hazards.*

**Legend:**

-  Tribal Nations

**Annualized Loss by Census Block**

-  < \$700
-  \$700 - \$2,500
-  \$2,500 - \$6,000
-  \$6,000 - \$12,500
-  \$12,500 - \$31,600

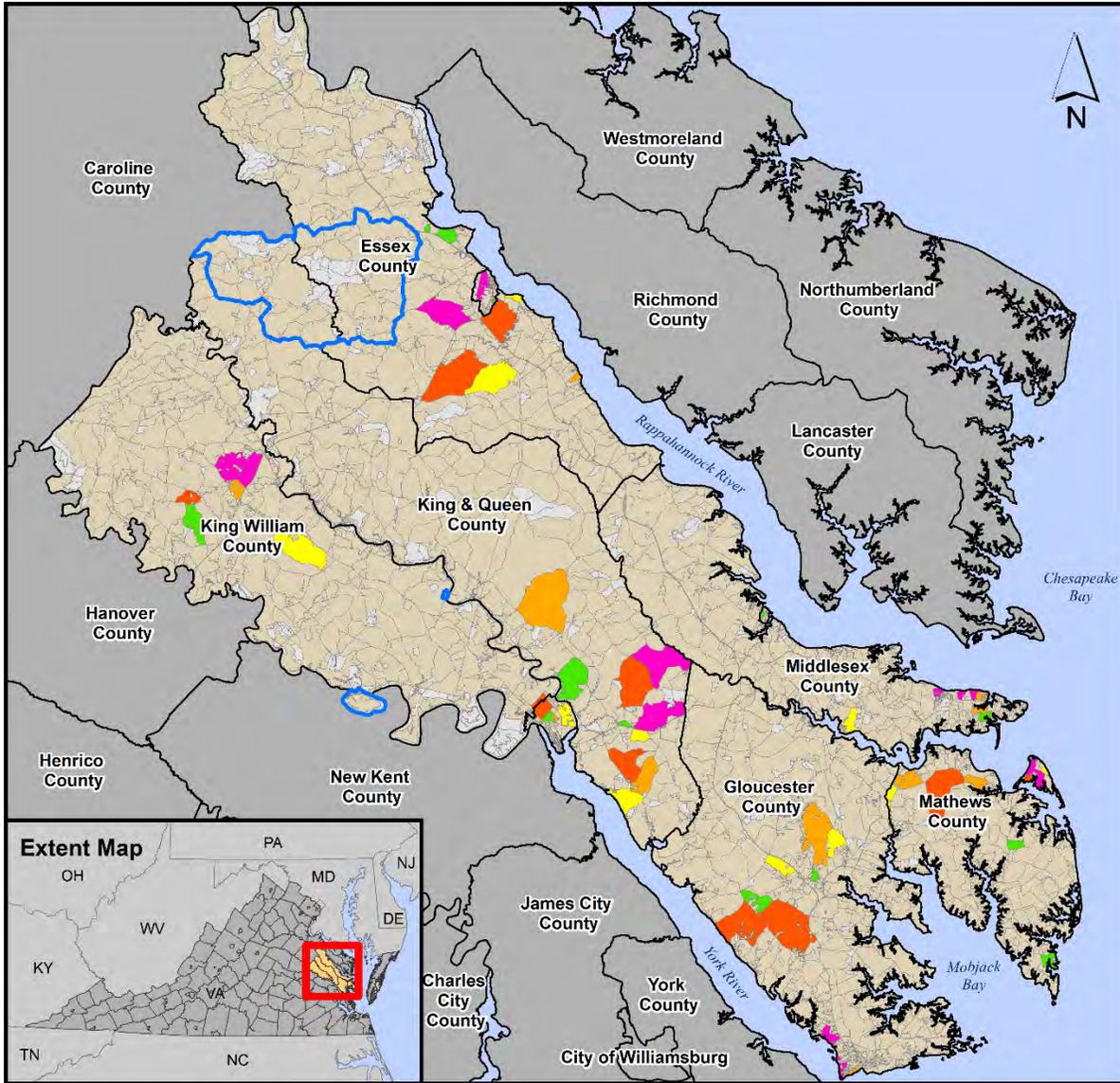
0 0.5 1 2 3 4 Miles

**Description:**  
Direct Economic annualized loss was calculated using the probabilistic scenario. Annualized loss is defined as the expected value of loss in any one year.

**Data Sources:**  
HAZUS-MH v4.2 Wind Model  
HAZUS-MH v4.2 County Boundaries  
Building Information - 2010 US Census Data

Figure 61:

HAZUS-MH Hurricane Module: Total Annualized Loss (Ranked)






**Projection:**  
Virginia StatePlane South  
North American Datum 1983

*Disclaimer: Uncertainties are inherent in any loss estimation methodology. The purpose of the analysis and data sets are to give general indication of areas that may be susceptible to hazards.*

**Legend:**

-  Tribal Nations
- Ranked Annualized Loss**
-  Rank 1 and 2
-  Rank 3 and 4
-  Rank 5 and 6
-  Rank 7 and 8
-  Rank 9 and 10
-  Unranked Annualized Losses
-  Annualized Loss is Zero

0 2 4 8 12 16 Miles

**Description:**  
The greatest annualized losses were ranked by census block for each county. The top ten were given a 'rank' of one to ten, then mapped in groups of two. The remaining census blocks were either unranked or possessed no annualized losses.

**Data Sources:**  
HAZUS-MH v4.2 Wind Model  
HAZUS-MH v4.2 County Boundaries  
Building Information - 2010 US Census Data

Fifty-percent of the Middle Peninsula region's annualized losses occur in Gloucester County. While losses are distributed throughout Gloucester County a few patterns of concentrated losses may be identified. Many of the census blocks exhibiting annualized losses of \$10,000 or greater follow along the State Route 17 corridor or are clustered around the Gloucester Courthouse. More specifically the majority of annualized losses align from Gloucester Courthouse to the York River bounded on the North by County 606 or Ark Road and the south by Nursery Lane, Haynes Pond, and Carter Creek – this area accounts for approximately \$230,000 (or approximately 16%) of expected annualized damages. On the northern side of Gloucester Courthouse, the area generally bounded in the west by Beech Swamp and Cow Creek in the east, and being traversed by Indian Road through the middle and extending north-east to the Piankatank River in the vicinity of Ferry Creek at Hell Neck – this area accounts for approximately \$200,000 (or approximately 14%) of expected annualized damages. Finally, those census blocks having the greatest expected annualized losses are in the vicinity of Hayes and Gloucester Point along the York River where as much as \$385,000 (or approximately 27% - and greater) of annualized damages are estimated.

Losses in Mathews County are also spread throughout the county with pockets of higher loss in the northern one-third of the county. Approximately \$231,000 (or 46%) of estimated annualized damages can be attributed to the northern one-third of the County; versus approximately \$157,000 (or 31%) in the center and \$115,000 (or 23%) in the southern one-third. Compared to Gloucester County, Mathews only has two (2) census blocks having expected annualized losses of \$10,000 or greater, versus eighteen (18) such blocks in Gloucester. Mathews County accounts for approximately \$507,000 (or 18%) of the total annualized losses in the planning district.

Middlesex County accounts for 13% of the total annualized losses. The greatest concentration of estimated annualized losses is in the lower-eastern portion of the County; Gray's Point Road and south-eastward. This south-eastern portion of the County includes approximately \$260,000 (or 70%) of the estimated damages for the County. Other concentrations of estimated damages are distributed between Saluda, Urbanna and Water View. Urbanna accounts for approximately 7% of the annualized losses at approximately \$25,700. Urbanna also includes two (2) census blocks within the top ten ranked blocks within the County accounting for \$12,400 or 48% of the losses in Urbanna.

Seven percent of the total annualized damages (\$196,000) for the region are attributed to King William County. King William exhibits four (4) primary areas where losses are concentrated. The first being the Town of West Point which can be attributed with twenty-nine percent (29%) of the damages within the County having annualized losses of \$56,000. Next, there are two (2) areas near both Aylett and Manquin on the northern side of US 360 (Richmond-Tappahannock Highway). These two areas combined account for annualized losses of \$30,000 or fifteen percent (15%). Last, the central portion of the County includes an area on either side of King William Road from West River Road in the north to Horse Landing Road in the south and accounting for roughly \$11,200 or six percent (6%) of annualized losses. The remainder of losses are distributed throughout the County with the greatest concentration of loss in the northwest quarter of the County. The Pamunkey Indian Reservation is estimated to have annualized losses of \$1,284 and the Mattaponi Reservation close to \$905; combined these two Indian Reservation losses account for approximately 1.1% of the annualized losses throughout the County.

Essex County accounts for 7% of the total annualized losses. The greatest concentration of potential annualized wind damage exists in the central portion of the County – including the Town of Tappahannock. This central area is traversed by three (3) of the primary roads being, US 360 (Richmond Highway), US 17 (Tidewater Trail) and Tappahannock Boulevard – running through the Town of Tappahannock. The combined annualized losses for this general area are approximately \$94,000 or fifty percent (50%) of the losses within the County. The Town of Tappahannock accounts for twenty-percent

(20%) of the damages in the County and an estimated \$37,200 in annualized damages. Two pockets of development along the Rappahannock River (one south of Tappahannock and the other on the north side) represent clusters of potential damages. The area to the south of Tappahannock exists in the vicinity of River Landing Road in the north and Mill Swamp Road in the south having potential damages of \$11,300 annually. The area north of Tappahannock is the vicinity near Woodside Country Club having potential damages of \$9,700 annually.

King and Queen County has the lowest annualized losses in the region, accounting for 4% of the total damages. Residential occupancy makes up the majority of the losses in the county. The southern one-third of the county, from roughly Dragon Run State Forest southward, has the greatest concentration of losses across the entire County accounting for nearly \$66,000 or 60% of the losses. The remaining 40% of potential losses are distributed through the remainder of the county to the north and west with approximately \$16,400 or 14% existing north of the Richmond-Tappahannock Highway and twenty-six percent (26%) distributed between the Richmond-Tappahannock Highway in the north to roughly Dragon Run State Forest in the south; note that this area includes locales such as Bruington, King and Queen Courthouse as well as Walkerton. The Rappahannock Tribe’s TDSA is estimated to have annualized losses of \$16,123, which is 0.58% of the Middle Peninsula total. Table 65 lists the Tribal Nations annual hurricane losses.

Table 64 lists the annualized losses for the Middle Peninsula Tribal Nations. Please note that the Upper Mattaponi is not represented in this data but is included in the county data. GIS boundaries were sourced from the "American Indian/Alaska Native/Native Hawaiian Areas" as identified in the 2020 TIGER/Line GIS data, which is publicly available from the U.S. Census Bureau’s website. (<https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html>). This website defines Reservation and TDSA areas as:

- *American Indian Reservations: The U.S. Census bureau’s boundary files for American Indian reservations are areas with boundaries established by treaty, statute, and/or executive or court order. The reservations and their boundaries are identified for the Census Bureau by the Bureau of Indian Affairs (BIA), an agency in the U.S. Department of the Interior, or by State governments.*
- *Tribal Designated Statistical Areas: the U.S. Census Bureau includes Tribal designated statistical areas that are geographic entities delineated by Federally and State-recognized tribes without a land base, that is, with no reservation or trust lands.*  
(<https://www2.census.gov/geo/pdfs/reference/GARM/Ch5GARM.pdf>):

It’s important to note that upon correspondences with the Tribes this data does not accurately reflect Tribal lands and will need to be updated for the next update.

**Table 64:** Tribal Nation based Hazus annualized losses.

Tribal Nation	Total Annualized Loss
<b>Mattaponi Indian Reservation</b>	\$905 (5%)
<b>Pamunkey Indian Reservation</b>	\$1,284 (7%)
<b>Rappahannock Tribe's TDSA</b>	\$16,123 (88%)
<b>Total Tribal Losses</b>	<b>\$18,312</b>

## Building Damage

Hazus calculates expected damage percentages for each probabilistic return period for wind damages. This represents the percentage of building square footage in each damage state. Five damage states have been specified in Hazus and are outlined in Table 65.

**Table 65:** Hazus damage state thresholds.

Damage State	Qualitative Damage Description
<b>None (Livable)</b>	Little or no visible damage from the outside. No broken windows, or failed roof deck. Minimal loss of roof over, with no or very limited water penetration.
<b>Minor (Livable)</b>	Maximum of one broken window, door or garage door. Moderate roof cover loss that can be covered to prevent additional water entering the building. Marks or dents on wall requiring painting or patching for repair.
<b>Moderate (Typically still livable)</b>	Major roof cover damage, moderate window breakage. Minor roof sheathing failure. Some resulting damage to interior of building from water.
<b>Severe (Typically non-livable but repairable)</b>	Major window damage or roof sheathing loss. Major roof cover loss. Extensive damage to interior from water.
<b>Destruction (Non-livable)</b>	Complete roof failure and/or, failure of wall frame. Loss of more than 50% of roof sheathing.
<b>Hazus V4.2 Technical Manual</b>	

### **Building Damage by Annual Chance Frequency (i.e., Multi-frequency Building Damages)**

- **10-percent-annual-chance** - Hazus estimates that about 1 building will have minor damage. No buildings (0) are expected to be at least moderately damaged, and no buildings (0) are expected to be completely destroyed during the 10-percent-annual-chance.
- **4-percent-annual-chance** - Hazus estimates that about 88 buildings will have minor damage. No buildings (0) are expected to be at least moderately damaged, and no buildings (0) are expected to be completely destroyed during the 5-percent-annual-chance.
- **2-percent-annual-chance** - Hazus estimates that about 4 buildings will be at least moderately damaged, and no buildings (0) are expected to be completely destroyed during the 2-percent-annual-chance.
- **1-percent-annual-chance** - Hazus estimates that about 36 buildings will be at least moderately damaged and five (5) buildings are expected to have severe damage – potentially another single (1) building may be expected to be completely destroyed during the 1-percent-annual-chance.
- **0.5-percent-annual-chance** - Hazus estimates that about 171 buildings will be at least moderately damaged, approximately 25 buildings are expected to be severely damaged, and two (2) buildings are expected to be completely destroyed during the 0.5-percent-annual-chance.
- **0.2-percent-annual-chance** - Hazus estimates that about 791 buildings will be at least moderately damaged, approximately 113 buildings are expected to be severely damaged, and twelve (12) buildings are expected to be completely destroyed during the 0.2-percent-annual-chance.
- **0.1-percent-annual-chance** - Hazus estimates that about 1,935 buildings will be at least moderately damaged, approximately 398 buildings are expected to be severely damaged, and 46 buildings are expected to be completely destroyed during the 0.1-percent-annual-chance.

Table 67 and Appendix G provide detailed information on the damage state percentages and number of buildings damaged for each of the probabilistic return periods.

The default data and parameters for each building stock category, have damages that are calculated based on the probabilities of the four different damage states of wind damage by building type. Damage is calculated as a function of peak gust wind speed. It should be noted that the results in Table 66 are based solely on the modeled direct economic loss for the study region with the simulated hurricane activity for each of the independent return periods. It is possible, that the results will not increase as logically expected by each return period. For example, with this methodology, it is possible to have the results of the 1-percent-annual-chance event show more dollar damage than the 0.2-percent-annual-chance event's result.

**Table 66:** Building damage by county.

Essex County	Average Damage State (%)					
	Return Period	None	Minor	Moderate	Severe	Destruction
10-percent-annual-chance Event	100.00%	-	-	-	-	-
5-percent-annual-chance Event	99.82%	0.18%	-	-	-	-
2-percent-annual-chance Event	99.72%	0.28%	-	-	-	-
1-percent-annual-chance Event	99.56%	0.44%	-	-	-	-
0.5-percent-annual-chance Event	98.73%	1.22%	0.05%	0.01%	-	-
0.2-percent-annual-chance Event	91.34%	7.41%	1.05%	0.18%	0.02%	0.02%
0.1-percent-annual-chance Event	89.45%	8.86%	1.42%	0.25%	0.03%	0.03%

King William County	Average Damage State (%)					
	Return Period	None	Minor	Moderate	Severe	Destruction
10-percent-annual-chance Event	100.00%	-	-	-	-	-
5-percent-annual-chance Event	99.83%	0.17%	-	-	-	-
2-percent-annual-chance Event	99.69%	0.31%	-	-	-	-
1-percent-annual-chance Event	99.55%	0.44%	-	-	-	-
0.5-percent-annual-chance Event	98.70%	1.24%	0.05%	0.01%	-	-
0.2-percent-annual-chance Event	91.47%	7.29%	1.04%	0.18%	0.02%	0.02%
0.1-percent-annual-chance Event	98.99%	0.96%	0.04%	0.01%	-	-

Gloucester County	Average Damage State (%)					
	Return Period	None	Minor	Moderate	Severe	Destruction
10-percent-annual-chance Event	99.98%	0.02%	-	-	-	-
5-percent-annual-chance Event	99.79%	0.21%	-	-	-	-
2-percent-annual-chance Event	99.29%	0.69%	0.02%	-	-	-
1-percent-annual-chance Event	97.83%	2.01%	0.14%	0.02%	-	-
0.5-percent-annual-chance Event	94.36%	4.92%	0.61%	0.11%	0.01%	0.01%
0.2-percent-annual-chance Event	90.64%	7.92%	1.22%	0.21%	0.02%	0.02%
0.1-percent-annual-chance Event	92.25%	6.63%	0.94%	0.17%	0.01%	0.01%

Mathews County	Average Damage State (%)					
	Return Period	None	Minor	Moderate	Severe	Destruction
10-percent-annual-chance Event	99.91%	0.09%	-	-	-	-
5-percent-annual-chance Event	99.81%	0.19%	-	-	-	-
2-percent-annual-chance Event	99.51%	0.49%	0.01%	-	-	-
1-percent-annual-chance Event	98.02%	1.86%	0.10%	0.02%	-	-
0.5-percent-annual-chance Event	95.19%	4.31%	0.43%	0.07%	0.01%	0.01%
0.2-percent-annual-chance Event	88.88%	9.19%	1.62%	0.28%	0.03%	0.03%
0.1-percent-annual-chance Event	61.41%	23.50%	11.63%	3.07%	0.39%	0.39%

King & Queen County	Average Damage State (%)				
	None	Minor	Moderate	Severe	Destruction
10-percent-annual-chance Event	100.00%	-	-	-	-
5-percent-annual-chance Event	99.83%	0.17%	-	-	-
2-percent-annual-chance Event	99.69%	0.31%	-	-	-
1-percent-annual-chance Event	99.45%	0.54%	0.01%	-	-
0.5-percent-annual-chance Event	98.32%	1.58%	0.09%	0.02%	-
0.2-percent-annual-chance Event	90.54%	7.97%	1.23%	0.24%	0.02%
0.1-percent-annual-chance Event	96.99%	2.76%	0.21%	0.04%	-

Middlesex County	Average Damage State (%)				
	None	Minor	Moderate	Severe	Destruction
10-percent-annual-chance Event	100.00%	-	-	-	-
5-percent-annual-chance Event	99.80%	0.20%	-	-	-
2-percent-annual-chance Event	99.57%	0.43%	-	-	-
1-percent-annual-chance Event	98.61%	1.33%	0.06%	0.01%	-
0.5-percent-annual-chance Event	96.36%	3.33%	0.26%	0.04%	-
0.2-percent-annual-chance Event	84.41%	12.42%	2.69%	0.42%	0.05%
0.1-percent-annual-chance Event	66.63%	20.24%	9.88%	2.92%	0.34%

## Debris Generation

Hazus estimates the amount of debris that will be generated by a hurricane. The model breaks the debris into three general categories: Brick/Wood, Reinforced Concrete/Steel, and Trees. Tree debris makes up the majority of tonnage generated in the hurricane analysis. Brick and wood debris make up the remainder, and a very small percentage (0.01%) associated with Concrete and Steel; i.e., not shown in Table. Table 67 summarizes, by return period, the total generated debris by Type.

**Table 67:** Hurricane debris generation.

Return Period	Total Debris (tons)	Tree Debris (tons)	% Tree Debris	Brick & Wood (tons)	% Brick and Wood
<b>10-percent-annual-chance Event</b>	1,620	1,620	100%	0	0.00%
<b>5-percent-annual-chance Event</b>	23,563	23,543	99.92%	20	0.08%
<b>2-percent-annual-chance Event</b>	71,500	70,986	99.28%	514	0.72%
<b>1-percent-annual-chance Event</b>	151,807	150,011	98.82%	1,796	1.18%
<b>0.5-percent-annual-chance Event</b>	324,883	320,453	98.64%	4,424	1.36%
<b>0.2-percent-annual-chance Event</b>	736,194	724,232	98.38%	11,882	1.61%
<b>0.1-percent-annual-chance Event</b>	699,604	676,766	96.74%	22,165	3.17%

## Essential Facilities

Essential facilities, including medical care facilities, emergency response facilities and schools, are those vital to emergency response and recovery following a disaster. School buildings are included in this category because of the key role they often play in sheltering people displaced from damaged homes. Generally, there are very few of each type of essential facilities in a census tract, making it easier to obtain site-specific information for each facility. Thus, damage and loss-of-function are evaluated on a building-by-building basis for this class of structures; even through the uncertainty in each such estimate is large<sup>6</sup>.

The Hazus essential facilities database includes default data for Medical Care Facilities, Emergency Response Facilities (fire stations, police stations, EOCs) and schools. Table 68 shows the functionality, by return period for each essential facility type. The region's essential facilities are able to remain functional for the 10-percent-, 5-percent-, and 1-percent-annual-chance recurrence interval. Functionality begins to decline at the 1-percent-annual-chance event. All of the facilities have zero functionality during the 0.1-percent-annual-chance event.

<sup>6</sup> Multi-hazard Loss Estimation Methodology Hurricane Model User Manual, HAZUS-MH V4.2, Chapter 1: Introduction, 1-6

**Table 68:** Essential facility functionality for specified return periods.

Return Period	Fire Stations	Hospitals	Police Stations	Schools
<b>10-percent-annual-chance Event</b>	100%	100%	100%	100%
<b>5-percent-annual-chance Event</b>	100%	100%	100%	100%
<b>2-percent-annual-chance Event</b>	100%	100%	100%	100%
<b>1-percent-annual-chance Event</b>	90%	100%	100%	92%
<b>0.5-percent-annual-chance Event</b>	70%	100%	91%	84%
<b>0.2-percent-annual-chance Event</b>	50%	62%	55%	40%
<b>0.1-percent-annual-chance Event</b>	0%	0%	0%	0%

**Potential Mitigation Actions:**

The potential mitigation actions noted are those that are Hazus-specific and would benefit refinement of Hazus analyses.

- In high damage Census blocks provide more information about acquiring for hurricane wind damage mitigation such as hurricane straps, hurricane storm window covers, and reduction of vegetation that becomes damaging storm debris during hurricane wind events.
- Perform Hurricane analysis for a known and historic storm that affected the Middle Peninsula region for comparative purposes.
- Refine and update data sets for GBS and essential facilities.
  - o Improvements in the future should aim to further refine the building stock. Notably, one improvement should include adding any new development that may not have been in the land use/land cover data; e.g., new housing developments, new construction, etc...
  - o Perform localized building-level assessments in known areas of loss and or areas subject to likely losses.
- Improve Data associated with the federally recognized tribes.

## Sea Level Rise Risk Analysis

The Hazus Flood Model analyzes both riverine and coastal flood hazards. Flood hazard within Hazus is defined by depth of flooding. Other contributing factors of damage include the duration and velocity of water in the floodplain. Other hazards associated with flooding that may contribute to flood losses include channel erosion and migration, sediment deposition, bridge scour, and the impact of flood-born debris. The Hazus Flood Model allows users to estimate flood losses primarily due to flood depth to the general building stock (GBS). While velocity is also considered, it is not a separate input parameter and is accounted within depth-damage functions (i.e., expected percent damage given an expected depth) for census blocks that are defined as either coastal or riverine influenced.

Flood-specific modeling was performed in this Plan revision to determine annualized flood loss. However, it is important to note that the Sea Level Rise analyses while similar is not 100% the same as the multi-frequency analyses performed and presented in the Flood Section; see Flood Analysis. This section will offer a basic amount of information to differentiate between the two report sections.

Coastal flood modeling typically includes identifying baseline tidal water levels and then computing additions or increases to water surface levels from various natural forces such as storm surge effects (i.e., water level increases as the result of a storm pushing landward) as well as other wave-related effects such as increased wave heights and the run-up of waves over the land as waves crash. Other factors of coastal storms play a part in estimating increased water surface levels such as shoreline and/or dune erosion. Consequently, each of the scenarios presented in the Flood Analysis section includes depth grids which are produced from modeling that considers increases to water surface levels from the various forces typical of coastal storm events – a.k.a. Storm Surge.

In contrast, the Hazus analysis performed for the Sea Level Rise (SLR) scenarios (this section) DO NOT include the use of depth grids that consist of storm surge. Rather, this Sea Level Rise section uses depth grids that 1.) Are depths from the current baseline tidal water levels (Mean Higher High Water or MHHW) and 2.) Includes the addition of the Intermediate-High (IMH) Scenario's 2060 sea level estimate, which is a 3.02-foot increase in water depth. The two depth grids were run through Hazus represent these two aforementioned scenarios developed by NOAA's Office for Coastal Management in August 2016. The IMH selected is also consistent with Governor Northam's November 2021 Executive Order 45 that approves to except NOAA's IMH scenario as the planning standard for Virginia state owned buildings.

Another factor to consider while viewing Maps and Tables is that the Base Scenario is essentially the average of the highest tide that is experienced on a daily basis over a long period of time. Typical there are two high tides in a given day, the MHHW represents the mean (or average) of the higher of the two tides as recorded over a period of record. The definition as provided by [NOAA – Tides & Currents](#) states, "The average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, comparison of simultaneous observations with a control tide station is made in order to derive the equivalent datum of the National Tidal Datum Epoch."<sup>7</sup> The tidal station within and used as reference for the water surface elevations in Middle Peninsula is the Gloucester Point Station.

### NOAA Sea Level Rise Scenarios and Depth Grid Information

SLR depth grids were pulled from NOAA's Sea Level Rise Viewer to perform the risk assessments across the Middle Peninsula planning district. These depth grids were able to be directly imported into the Hazus Flood model, which eliminated the need to pre-process any modeling or Geographic

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<sup>7</sup> NOAA – Tides & Currents ([http://tidesandcurrents.noaa.gov/datum\\_options.html](http://tidesandcurrents.noaa.gov/datum_options.html)), accessed April 22, 2015.

Information Systems (GIS) data. Generally-speaking, the creation of depth grids requires GIS data that represents an estimated water surface along with an associated ground surface. Thereafter, the difference between the two surfaces represents the estimated depth of flooding for a given location; i.e., water elevation less ground elevation equals depth; see Depth Grid Graphic in the Flood Analysis Section.

The data is available from Digital Coast, the NOAA-sponsored website developed to provide not only coastal data, but the tools, training, and information needed to use the provided data (see <http://coast.noaa.gov/slr/>). The following list offers an itemization and brief description(s) of the two scenarios:

- **Mean Higher High Water (MHHW)**
  - This is the average of the higher high water height of the highest tide recorded each tidal day at a given tide station observed over the National Tidal Datum Epoch. The closest tide station to Middle Peninsula is the Gloucester Point Station.
    - The National Tidal Datum Epoch is the specific 19-year period adopted by the National Ocean Service as the official time segment over which tide observations are taken and reduced to obtain mean values for a standard elevation defined by a certain phase of the tide, called tidal datums.
  - The MHHW at the Gloucester Point Station is 1.4 feet above mean sea level.
- **Intermediate-High (IMH) Scenario**
  - The IMH is based on an average of high-end, semi-empirical, global sea level rise projections (Grinsted et al., 2009; Horton et al., 2008; Jevrejeva et al., 2010; Vermeer and Rahmstorf, 2009).
  - From the NOAA-calculated IMH Scenario, the 2060 modeled sea level was chosen. This estimate is the MHHW scenario plus 3.02 feet.

### **Building Stock Economic Inventory**

Hazus general building stock is an inventory of the built environment that is at risk of damage by a hazard. Each respective type or sub-type of building in the following categories; residential, commercial, industrial, agricultural, religious, government, and education has risk based on the replacement value for buildings in that use category, the size and construction of these buildings, and the replacement cost to rebuild if the building is destroyed. For the damage calculations, Hazus assumes that all buildings are evenly distributed throughout a given census block and therefore damage is estimated as a percent and is weighted by the area of inundation at a given depth for a given census block. The methodology therefore, is known as an area-weighted methodology.

FEMA has initiated recent improvements to the area-weighted methodology by further refining the distribution of building square-footage to land areas characterized by development and removing land areas typical of non-developed land classes (e.g., forests, wetlands, etc...). This refinement is called dasymetric mapping and the current Plan modeling utilizes the FEMA dasymetric building stock. The following image shows a small example area in which the developed areas are pink:



Use of the new dasymetric data will typically reduce the total area subject to area-weighted loss estimations - particularly for those census blocks that have flood risk but no actual development within the floodplains. A more detailed explanation is included in the Flood Hazard Analysis section.

The same dasymetric building stock (i.e., square-footage inventory of buildings) that was utilized for the Flood Analysis was also used for Sea Level Rise. All building inventory statistics (i.e., building stock exposure by county or general building type) that were used for the Sea Level Rise Hazus scenarios are the same as defined in the Flood Analysis section. Please refer to the Flood Hazard Analysis section for building stock exposure by county.

Dynamics of exposure (and also loss) are dependent on a number of variables. A key variable, for example, includes the spatial accuracy (30-meter) of the land-use/land-cover data used to create the developed areas of the dasymetric building stock inventory. Another key variable includes the spatial accuracy (i.e., horizontal accuracy) and also the vertical accuracy of the topographic data used to delineate flood inundation areas. Therefore, detailed site analyses may be appropriate and necessary to further understand local dynamics. However, noting the regional nature of the risk assessments performed, a few tables for reference are provided of the Sea Level Rise scenarios to help better understand the dasymetric building stock that is 1.) Potentially exposed and 2.) May experience potential loss. Acreage of developed land intersecting the SLR scenarios is captured in Table 69. Figure 62 shows the dasymetric developed areas intersecting both the MHHW and the IMH Scenarios.

## SECTION 5: RISK ASSESSMENT ANALYSIS

**Table 69:** Acreage of dasymetric areas (30m developed areas) intersecting SLR scenarios.

MHHW Sea Level Rise Scenario			IMH Sea Level Rise Scenario		
Rank MHHW	County	Acreage of Dasymetric Developed Areas	Rank IMH	County	Acreage of Dasymetric Developed Areas
1	King William	2,720.84	1	King William	4,250.95
2	Essex	2,542.55	2	Essex	3,128.68
3	King and Queen	2,155.46	3	King and Queen	2,414.11
4	Gloucester	503.76	4	Gloucester	1,994.76
5	Middlesex	359.63	5	Mathews	1,634.87
6	Mathews	241.91	6	Middlesex	562.30
	<b>Total</b>	<b>8,524.14</b>		<b>Total</b>	<b>13,985.68</b>

Figure 62:

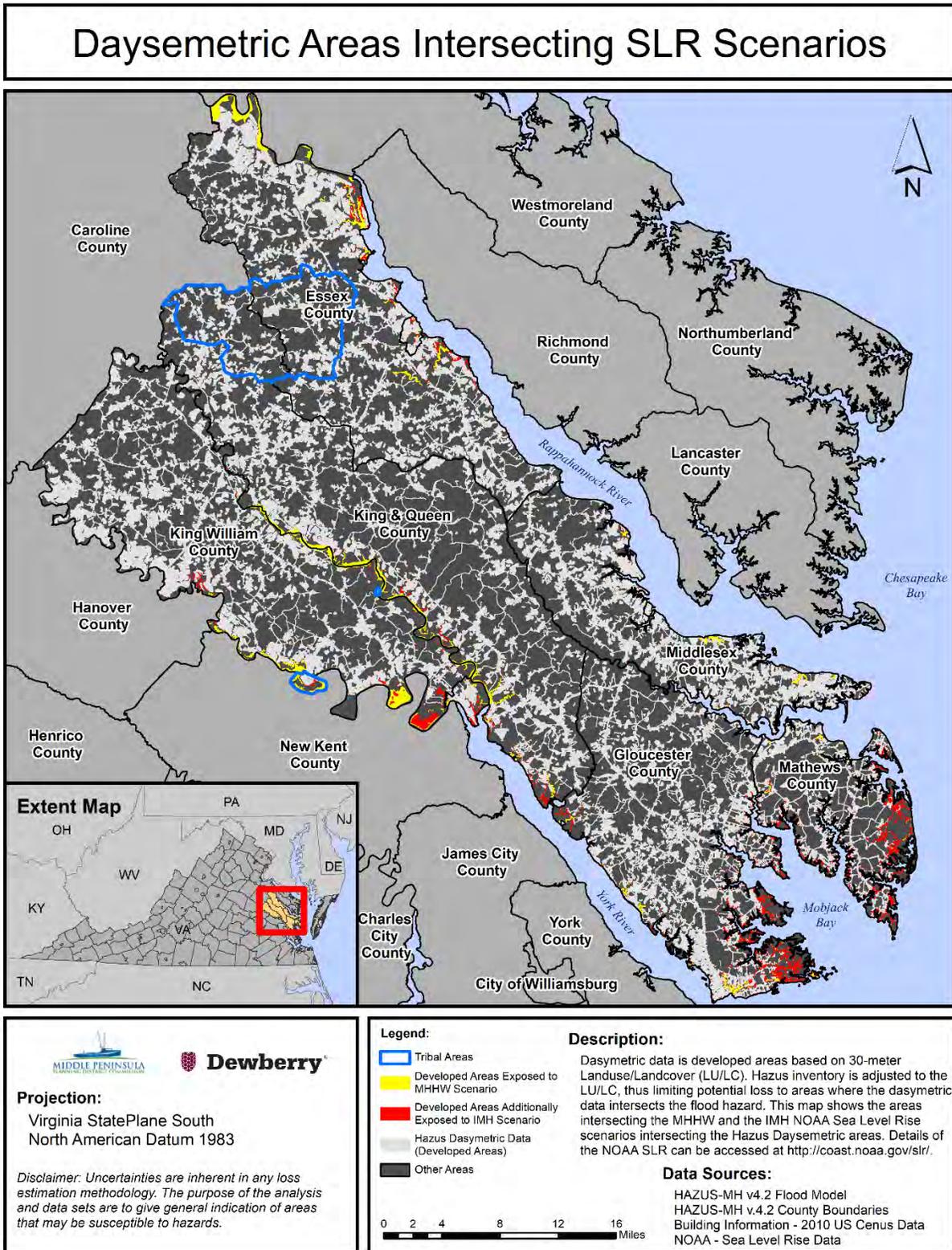


Table 70 and Table 71 show the Total Exposure in the Flood Hazard Area of the Hazus Dasymetric Data by General Occupancy Type for both of the Sea Level Rise scenarios.

**Table 70:** Exposed general occupancy by county – sea level rise MHHW scenario.

County	Residential	Commercial	Industrial	Agriculture	Religion	Govt.	Education	Total
Essex	\$4,828	\$710	\$101	\$14	\$44	\$0	\$70	\$5,767
Gloucester	\$16,424	\$1,623	\$369	\$30	\$194	\$16	\$142	\$18,797
King and Queen	\$834	\$1	\$128	\$0	\$1	\$0	\$0	\$964
King William	\$1,887	\$241	\$79	\$9	\$3	\$0	\$0	\$2,219
Mathews	\$18,105	\$960	\$213	\$89	\$94	\$30	\$41	\$19,532
Middlesex	\$25,276	\$1,182	\$320	\$28	\$290	\$16	\$21	\$27,133
<b>Total</b>	<b>\$67,354</b>	<b>\$4,718</b>	<b>\$1,210</b>	<b>\$169</b>	<b>\$626</b>	<b>\$62</b>	<b>\$274</b>	<b>\$74,413</b>
% of Total	91%	6%	2%	< 1%	< 1%	< 1%	< 1%	100%
<b>All values in Thousands of Dollars</b>								

**Table 71:** Exposed general occupancy by county – sea level rise IMH scenario.

County	Residential	Commercial	Industrial	Agriculture	Religion	Govt.	Education	Total
Essex	\$36,351	\$7,572	\$3,212	\$152	\$195	\$54	\$259	\$47,794
Gloucester	\$199,283	\$27,254	\$6,197	\$738	\$3,212	\$181	\$6,641	\$243,507
King and Queen	\$9,348	\$7	\$764	\$0	\$4	1	\$0	\$10,123
King William	\$27,743	\$3,640	\$1,017	\$34	\$459	\$165	\$48	\$33,107
Mathews	\$187,878	\$6,074	\$8,812	\$591	\$1,540	\$172	\$188	\$205,255
Middlesex	\$68,857	\$5,716	\$1,130	\$76	\$890	\$71	\$125	\$76,864
<b>Total</b>	<b>\$529,461</b>	<b>\$50,263</b>	<b>\$21,131</b>	<b>\$1,591</b>	<b>\$6,299</b>	<b>\$644</b>	<b>\$7,260</b>	<b>\$616,650</b>
% of Total	86%	8%	3%	< 1%	1%	< 1%	1%	100%
<b>All values in Thousands of Dollars</b>								

Users are encouraged to consider that while one County may have a greater area of developed land intersecting the SLR flood inundation, the square-footage and/or value of structures within the developed areas may have very different value estimates. Consequently, it can be seen that Middlesex County has a great deal of development in close proximity to the MHHW flood hazard – particularly in the Residential category (\$67.4 Million). However, as was mentioned earlier, the resolution or spatial accuracy of the 30-meter land-use/land-cover data used to create the dasymetric developed areas does not consider elevation. There are areas within the District that have development on high ground near flooding sources. Middlesex County has a number of these areas. This combination in conjunction with higher residential exposure (\$25.3 Million) shows Middlesex as more susceptible to the MHHW Sea Level Rise Scenario.

In contrast, development patterns in the eastern-most portion of Middlesex exhibits development that is set-back away from areas of open and tidal waters – thus exhibiting less exposure to the MHHW SLR Scenario. However, as water levels rise, as would be the case of the IMH Scenario, the development along the low-lying fringes of the coastal plain become more susceptible to the flood hazard and therefore includes a greater proportion of building inventory exposed to the potential rising water levels. The two most eastern counties of Gloucester and Mathews, while they do have development along tidal-influenced waters, they are not within the extent of the MHHW to the same degree as Middlesex, and therefore have less exposure to the MHHW scenario.

### **General Building Stock Loss Estimation**

Losses are presented similar to the Flood Analysis however, only the combined Total losses of all building categories are presented in an effort to keep the results as simple as possible for relative comparison to the more detailed multi-frequency flood analysis. To reiterate, the multi-frequency analysis (Flood Analysis) DOES include water surface levels that consider storm surge.

Hazus Level I flood model losses for the Middle Peninsula planning district from the MHHW SLR scenario are approximately \$8.9 Million US Dollars and the IMH 2060 scenario are approximately \$90.2 Million US Dollars which is a 90% increase in the expected total damages. Property or “capital stock” losses, which includes the values for building, content, and inventory, for the MHHW scenario accounts for 53.8% of the expected loss (\$4.8 Million) whereas the IMH 2060 scenario is estimated to be approximately \$37.8 Million or 41.9% of the expected loss. Business interruption, which includes relocation, income, rental and wage costs, for the MHHW scenario accounts for \$4.1 Million (46.2%) of the expected losses and the IMH 2060 scenario accounts for \$52.4 Million US Dollars (57.1%) of the losses.

Table 72 and Table 73 illustrate the expected losses broken down by county from the Sea Level Rise scenarios, while Table 74 breaks out the expected losses for the three Tribal Nations. Middlesex County, having the highest level of estimated exposure (\$26.092 Million US Dollars) within the MHHW scenario inundation area, does has the highest loss from the MHHW scenario at \$3.0 Million, which accounts for 33.6% of the MHHW losses for the Middle Peninsula<sup>8</sup>. Gloucester County is attributed with 29.8% of total losses at approximately \$2.7 Million, and Mathews County has losses of approximately \$2.3 Million or 25.4% of the total – followed by Essex (7.3%), King William (3%) and last King and Queen (0.1%). The relatively higher loss percentages attributed to Middlesex, Gloucester, and Mathews counties suggests that the distribution of development at-risk includes the low-lying coastal plains along the Chesapeake and Mobjack Bay as well as the York River.

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<sup>8</sup> Readers are reminded due to the regional nature of the analysis; detailed site analyses may be entirely appropriate and necessary to fully understand local dynamics. Especially in areas where development is in close proximity to flooding sources and also marked topographic elevation changes.

The IMH scenario also shows the greater combined losses in the down-east area however, Gloucester and Mathews account for the greatest combined losses (71.3%). Gloucester County has the highest loss from the IMH scenario at approximately \$39.0 Million US Dollars, accounting for 43.2% of the total losses for the Middle Peninsula. The IMH scenario shows Mathews County at approximately \$25.4 Million and ranked second (28.1%), followed by Middlesex County at approximately \$11.3 Million (12.5%), and then Essex (7.6%), King William (7.1%) and last King and Queen (1.5%). Again, the relatively higher loss percentages attributed to Gloucester and Mathews counties suggests that the distribution of development at-risk includes the low-lying coastal plains along the Chesapeake and Mobjack Bay as well as the York River. Figure 65 exemplifies the differences between the inundation extents of the MHHW and IMH scenarios; the mapping of the depth grids represented by red/orange areas are the increased inundation areas of the IMH scenario. Development in these areas would be susceptible to greater potential losses.

The flood model incorporates National Flood Insurance Program (NFIP) entry dates to distinguish Pre-FIRM and Post-FIRM data from the census blocks. Pre-FIRM buildings constructed prior to the initial FIRM are considered “pre-FIRM” and those constructed on or after the initial FIRM are considered “post-FIRM”. This distinction is important because post-FIRM buildings were built above the base flood elevation (BFE), which makes those buildings less susceptible to flooding. This results in different damage curves between pre- and post-FIRM buildings. If the different curves were not used for these two categories of structures, the results would be skewed and the loss estimates inaccurate. The results provided in this report show the combined total losses for both pre- and post-FIRM values combined.

**Table 72:** County based Hazus loss for both pre- and post-FIRM – sea level rise MHHW.

County	Building	Content	Inventory	Relocation	Income	Rental	Wage	Total
Essex	\$131	\$121	\$0	\$138	\$80	\$46	\$133	\$649
Gloucester	\$999	\$688	\$0	\$488	\$143	\$117	\$228	\$2,663
King and Queen	\$37	\$21	\$1	\$22	\$0	\$4	\$0	\$85
King William	\$59	\$43	\$0	\$40	\$50	\$11	\$65	\$268
Mathew	\$711	\$472	\$0	\$611	\$140	\$154	\$179	\$2,267
Middlesex	\$904	\$618	\$0	\$890	\$171	\$204	\$212	\$2,999
<b>Total</b>	<b>\$2,841</b>	<b>\$1,963</b>	<b>\$1</b>	<b>\$2,189</b>	<b>\$584</b>	<b>\$536</b>	<b>\$817</b>	<b>\$8,931</b>
<b>% of Total</b>	32%	22%	< 1%	25%	6%	6%	8%	100%
<b>All values in Thousands of Dollars</b>								

**Table 73:** County based Hazus loss for both pre- and post-FIRM – sea level rise IMH.

County	Building	Content	Inventory	Relocation	Income	Rental	Wage	Total
Essex	\$1,208	\$910	\$11	\$1,669	\$930	\$624	\$1,506	\$6,858
Gloucester	\$8,932	\$6,345	\$26	\$9,265	\$4,378	\$2,781	\$7,239	\$38,966
King and Queen	\$504	\$340	\$14	\$389	\$3	\$105	\$6	\$1,361
King William	\$1,125	\$1,162	\$8	\$972	\$816	\$555	\$1,761	\$6,399
Mathew	\$7,303	\$4,338	\$17	\$8,375	\$1,148	\$2,511	\$1,691	\$25,383
Middlesex	\$3,463	\$2,081	\$1	\$2,752	\$955	\$840	\$1,159	\$11,251
<b>Total</b>	<b>\$22,535</b>	<b>\$15,176</b>	<b>\$77</b>	<b>\$23,422</b>	<b>\$8,230</b>	<b>\$7,416</b>	<b>\$13,362</b>	<b>\$90,218</b>
% of Total	25%	16%	< 1%	26%	9%	8%	15%	100%
<b>All values in Thousands of Dollars</b>								

Table 74 lists the annualized losses for the Middle Peninsula Tribal Nations. Please note that this data does not include the Upper Mattaponi Tribe; however, the Upper Mattaponi data is included in the County estimations. GIS boundaries were sourced from the "American Indian/Alaska Native/Native Hawaiian Areas" as identified in the 2020 TIGER/Line GIS data, which is publicly available from the U.S. Census Bureau's website. (<https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html>). This website defines Reservation and TDSA areas as:

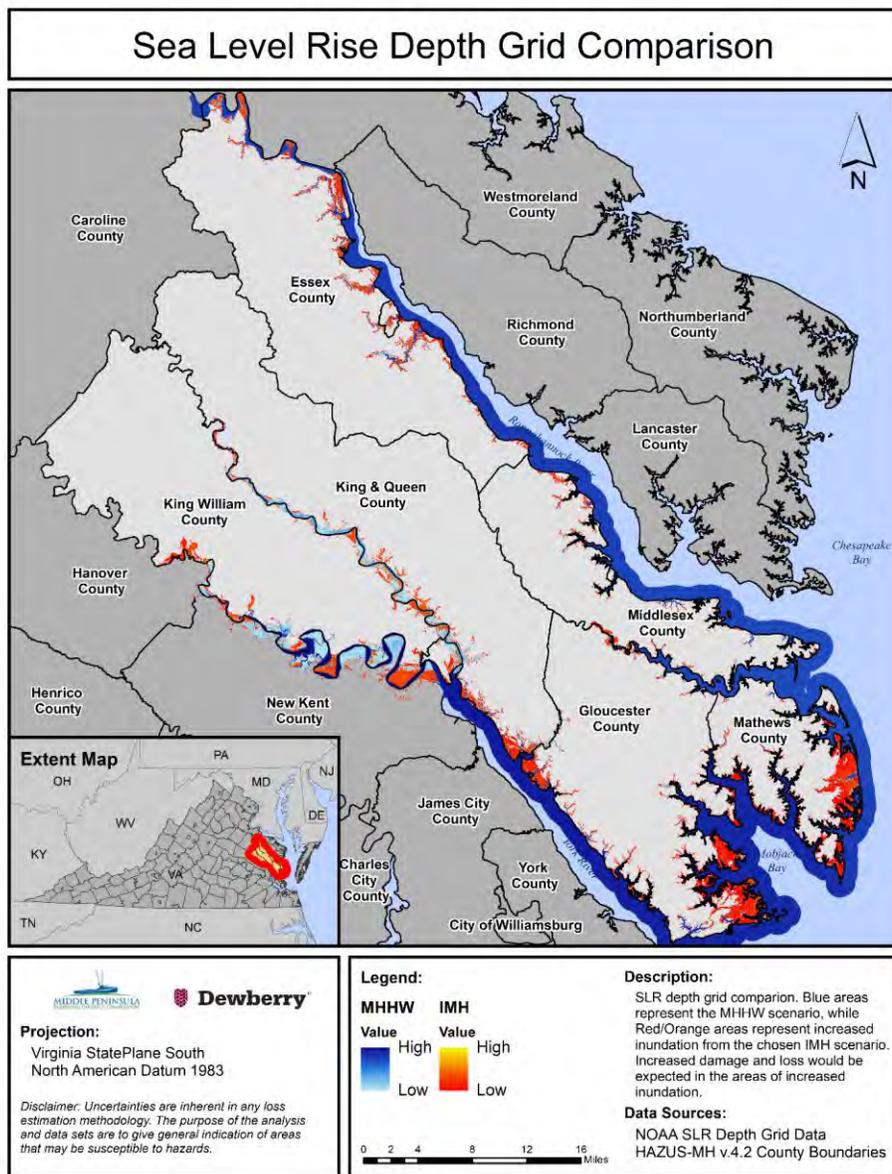
- *American Indian Reservations: The U.S. Census bureau's boundary files for American Indian reservations are areas with boundaries established by treaty, statute, and/or executive or court order. The reservations and their boundaries are identified for the Census Bureau by the Bureau of Indian Affairs (BIA), an agency in the U.S. Department of the Interior, or by State governments.*
- *Tribal Designated Statistical Areas: the U.S. Census Bureau includes Tribal designated statistical areas that are geographic entities delineated by Federally and State-recognized tribes without a land base, that is, with no reservation or trust lands.*  
(<https://www2.census.gov/geo/pdfs/reference/GARM/Ch5GARM.pdf>):

It's important to note that upon correspondences with the Tribes this data does not accurately reflect Tribal lands and will need to be updated for the next update.

**Table 74:** Tribal Nation based Hazus annualized losses.

Tribal Nation	MHHW Losses	IMH Losses
<b>Mattaponi Indian Reservation</b>	\$57,000 (100%)	\$90,000 (68%)
<b>Pamunkey Indian Reservation</b>	No Losses	\$42,000 (32%)
<b>Rappahannock Tribe's TDSA</b>	No Losses	No Losses
<b>Total Tribal Losses</b>	<b>\$57,000</b>	<b>\$132,000</b>

**Figure 63:**



Figures 64 through 73 on the following pages show the total losses for the planning district for both SLR scenarios and the Ranking of the top ten loss of census blocks (Ranked within each respective County). County-specific maps are shown with the IMH scenario.

Again, users of these maps are reminded that the scenarios shown in the following maps DO NOT include increases to water surface levels from the various natural forces typical of coastal storm events (e.g., Storm Surge). The following results are intended to offer perspective on potential damage/loss in the event that the MHHW surface was to increase by 3.02 feet.

Figure 64:

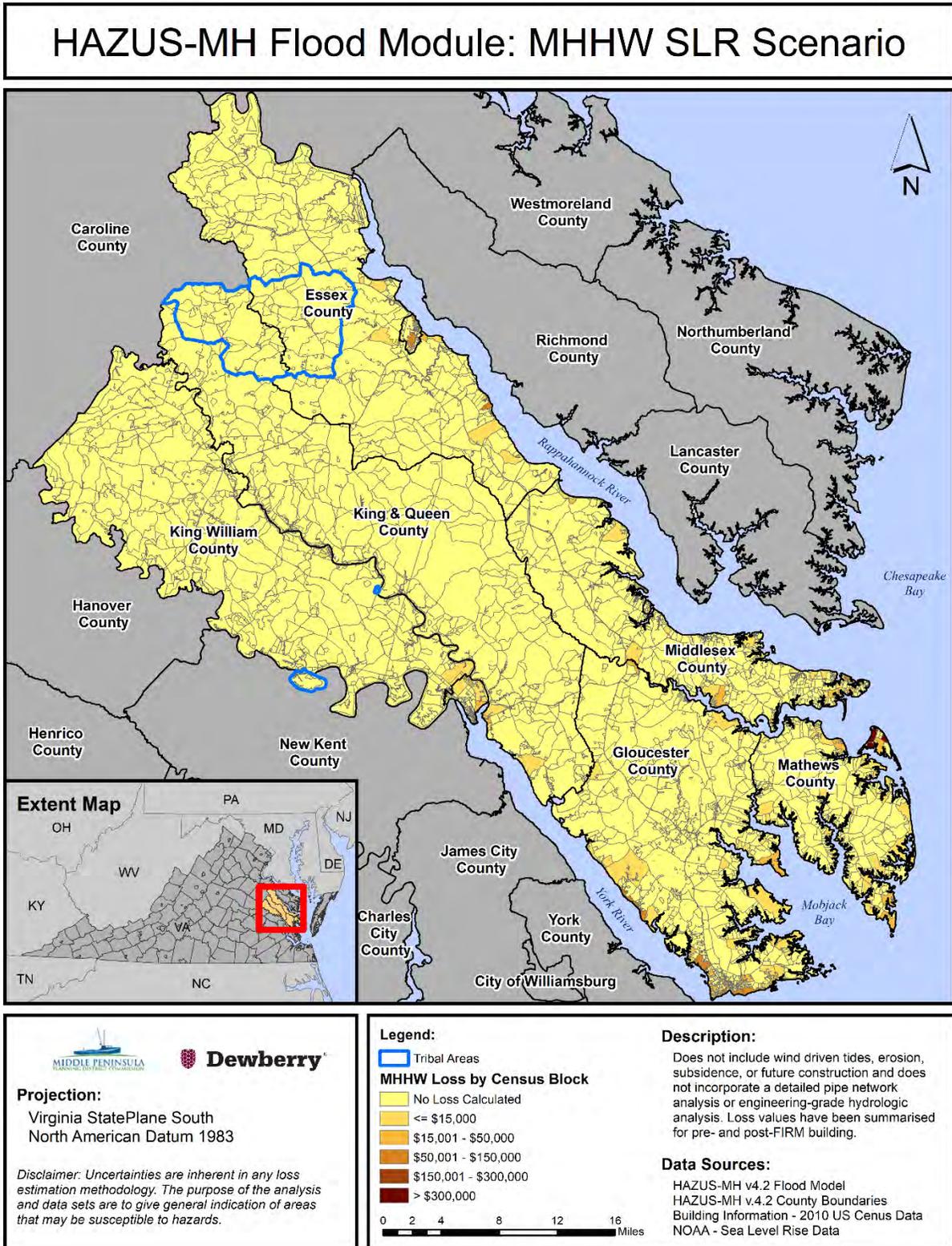


Figure 65:

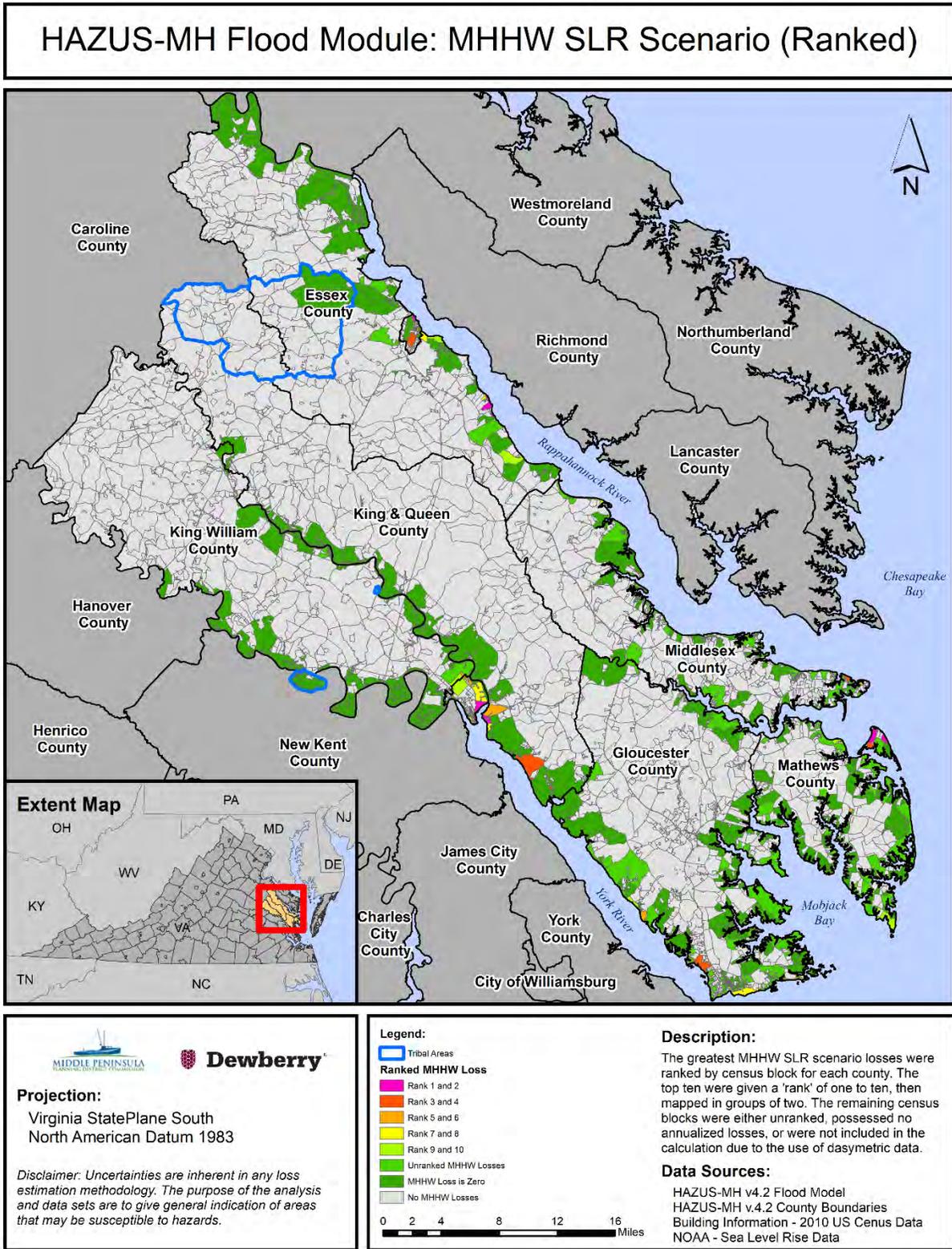


Figure 66:

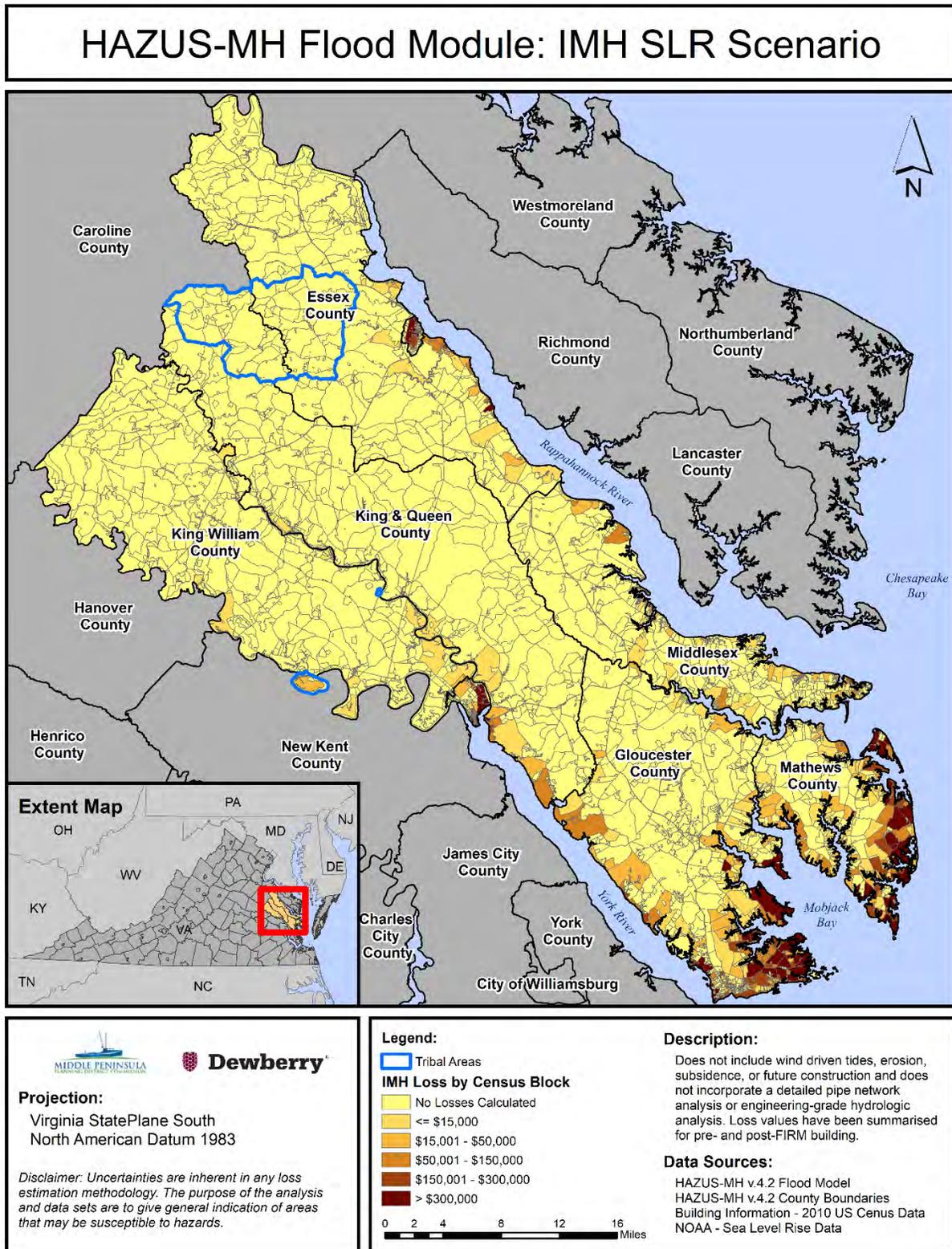


Figure 67:

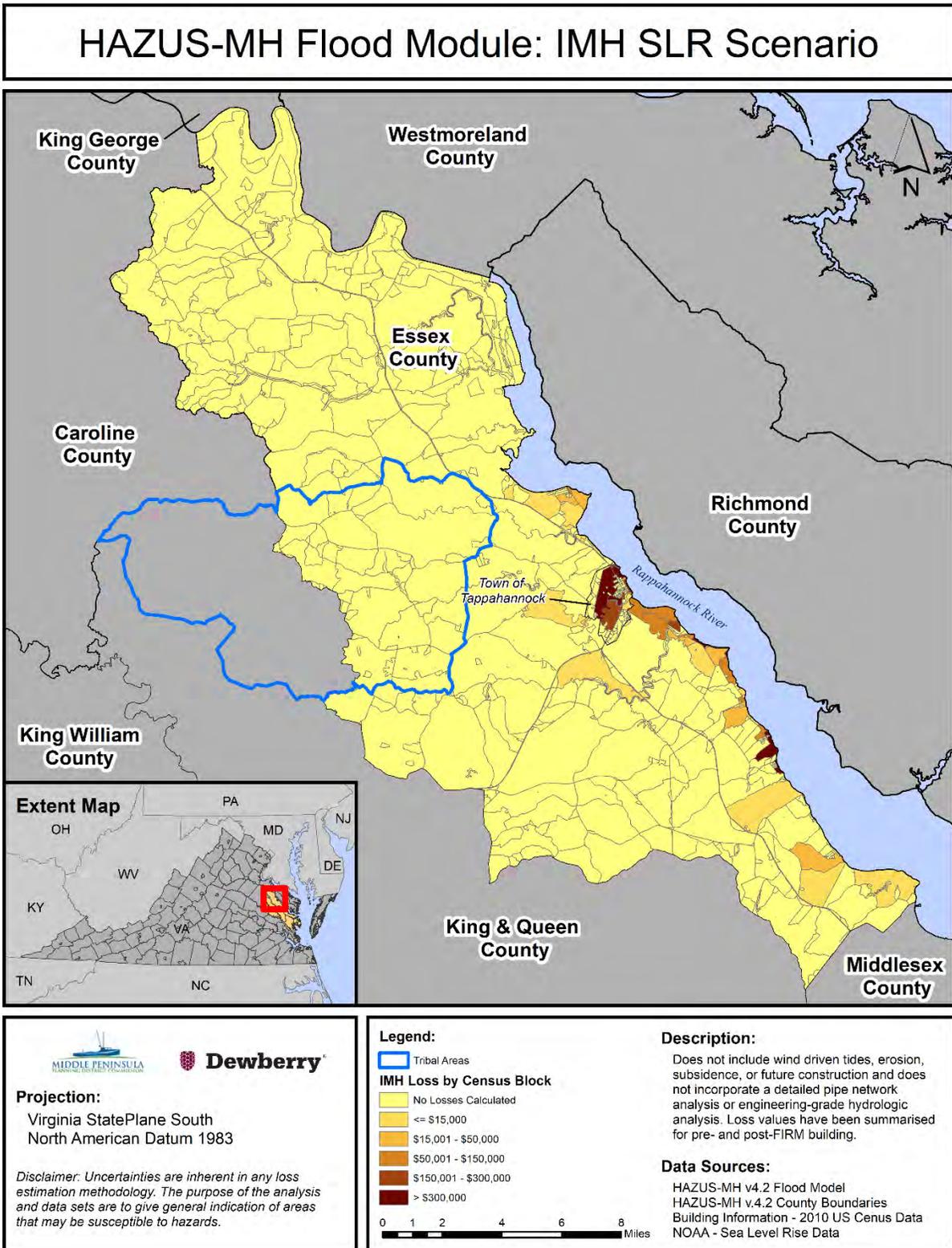


Figure 68:

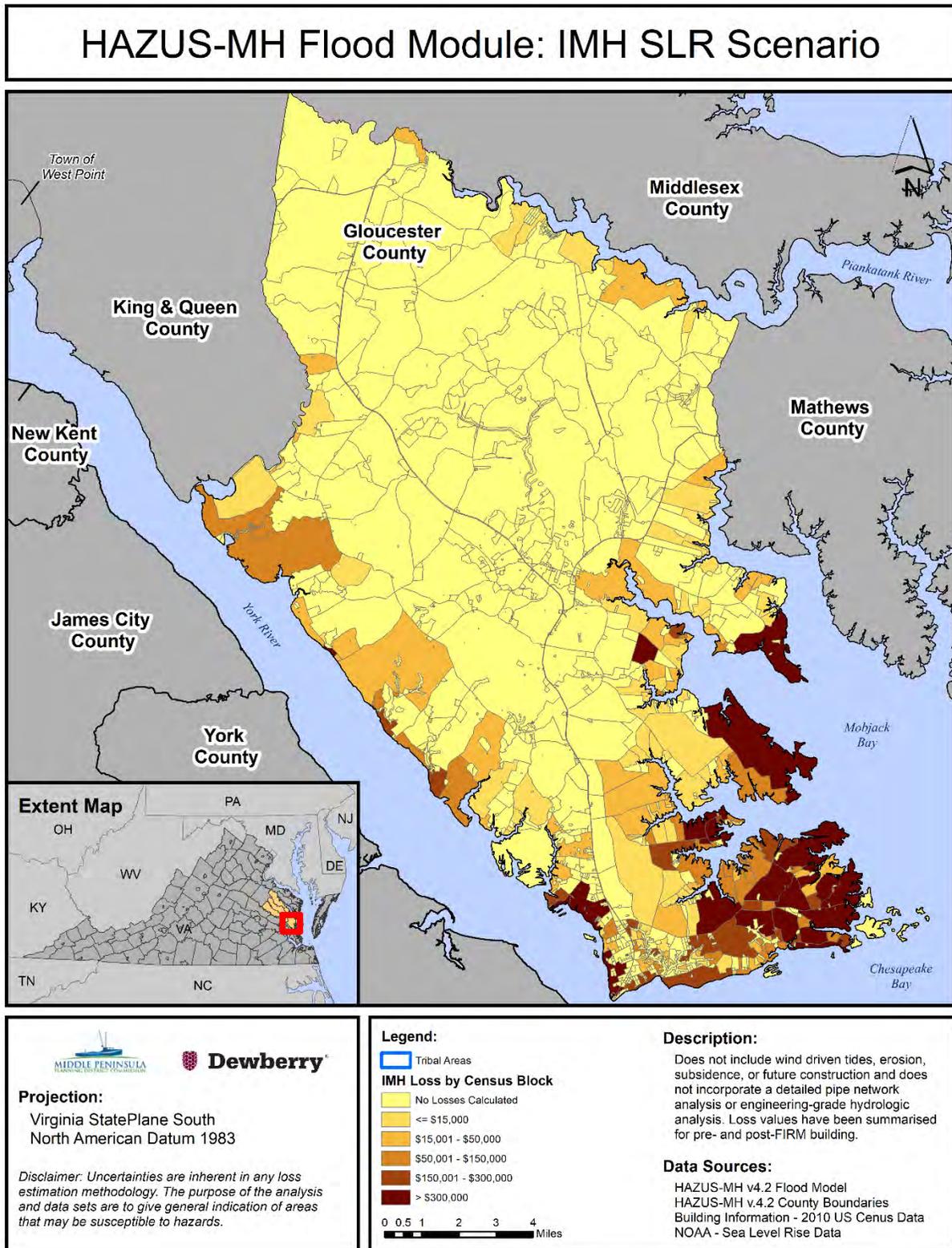


Figure 69:

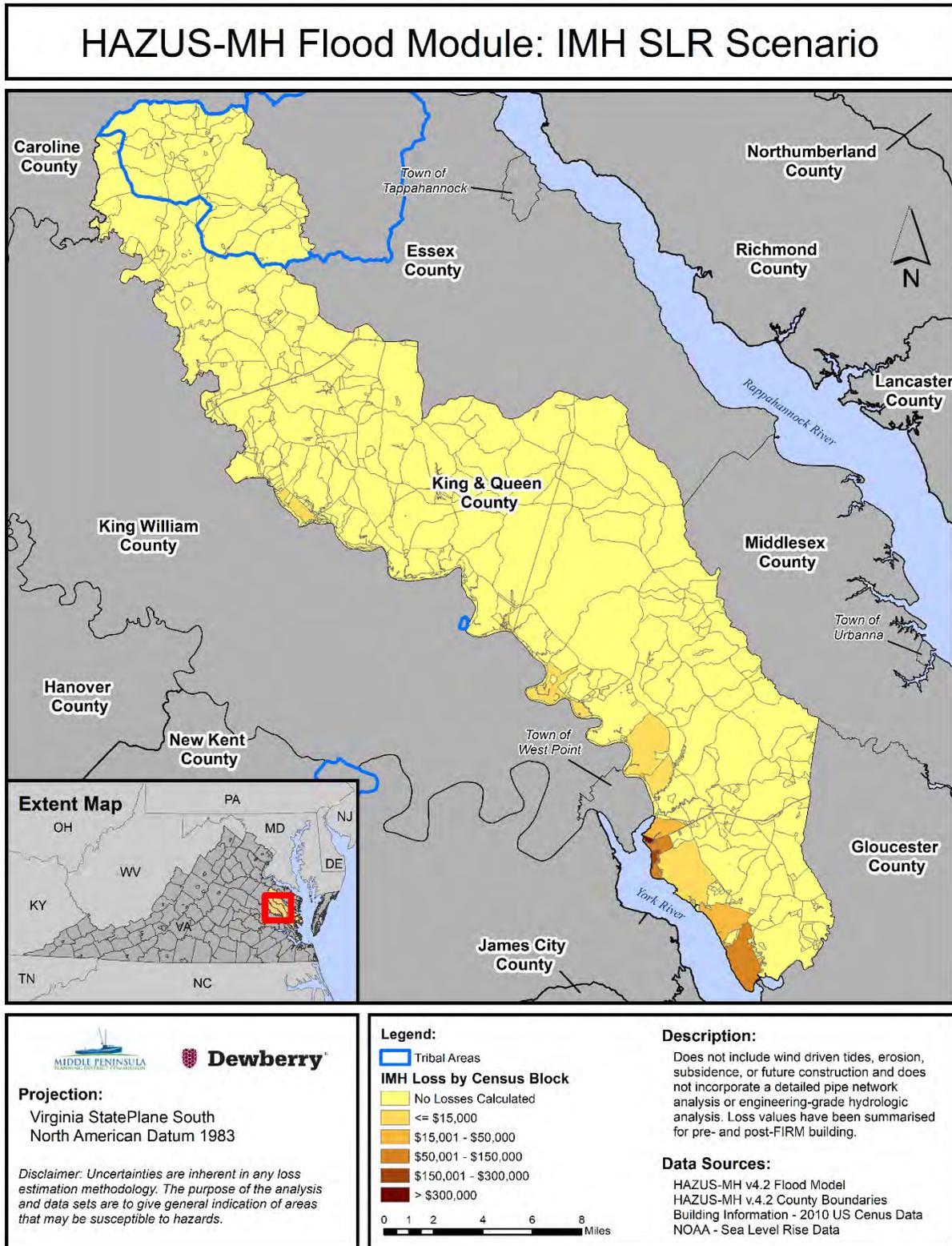


Figure 70:

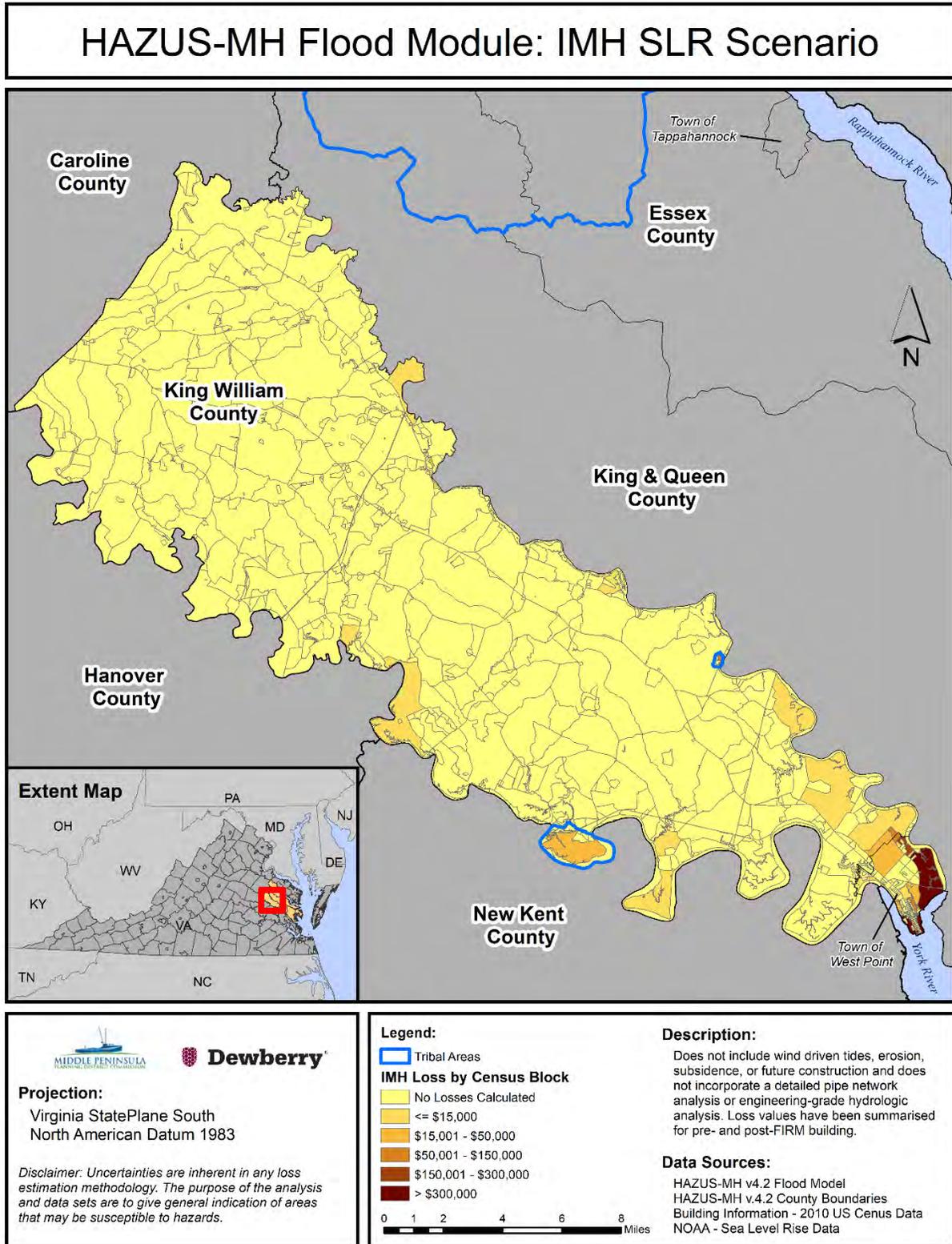


Figure 71:

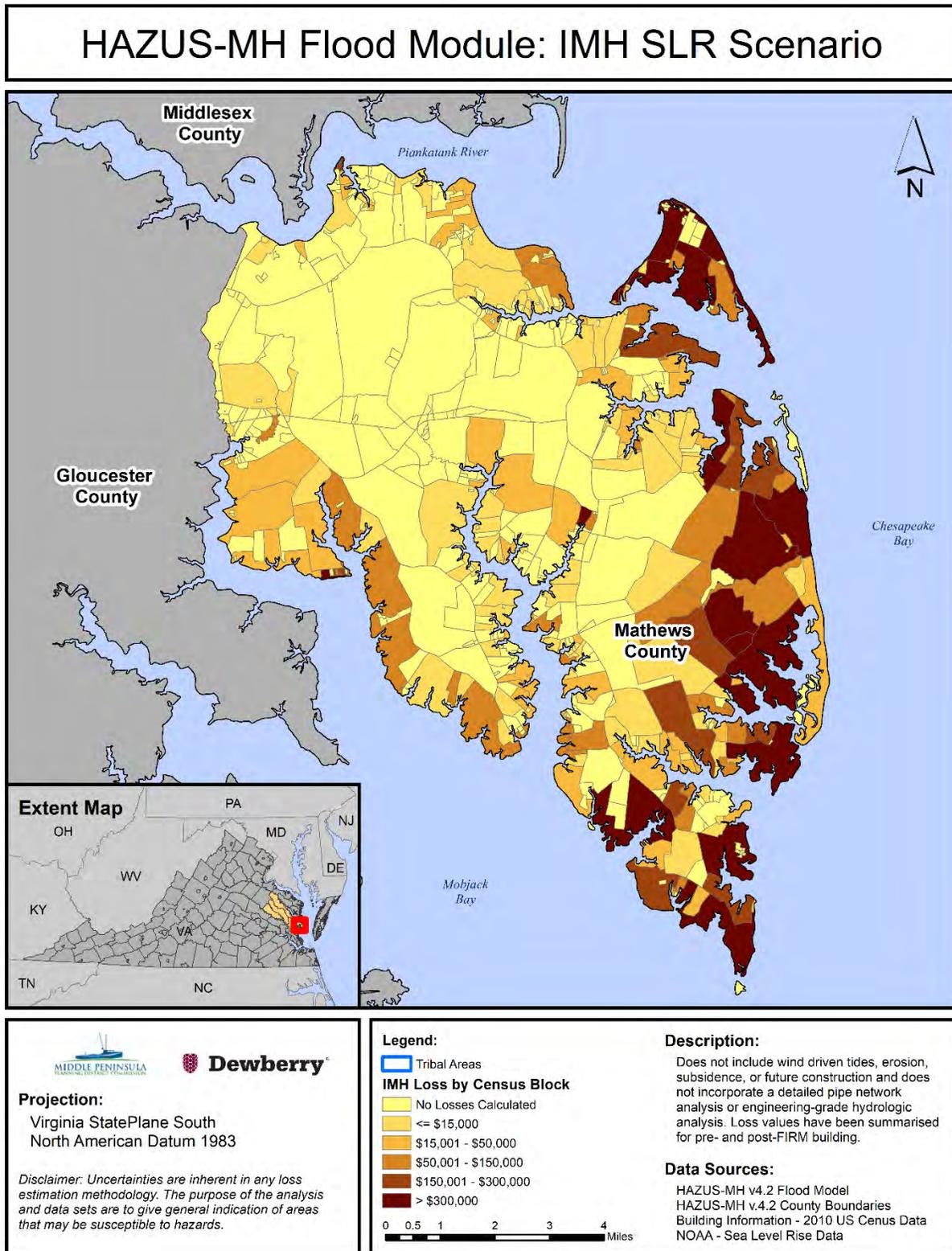


Figure 72:

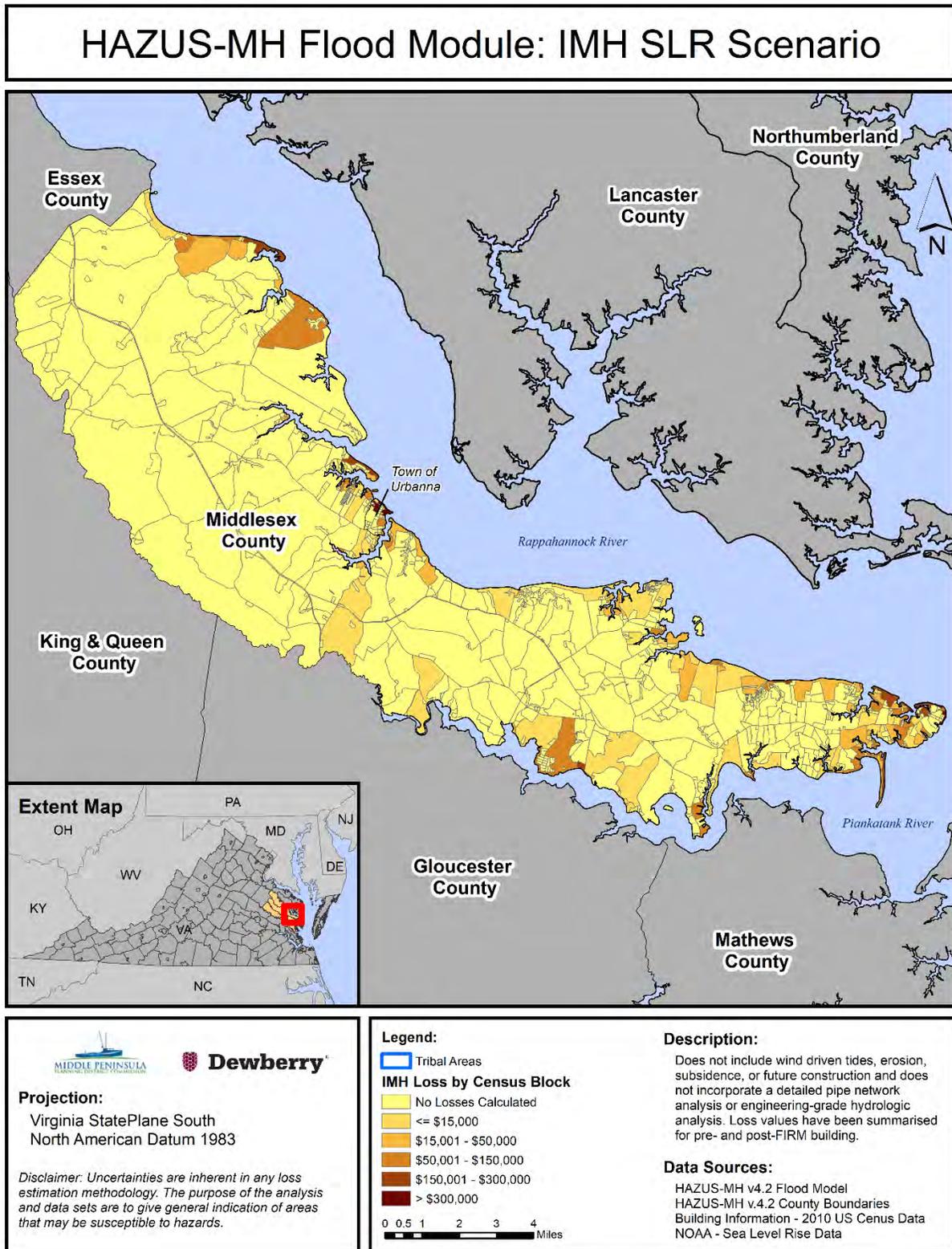
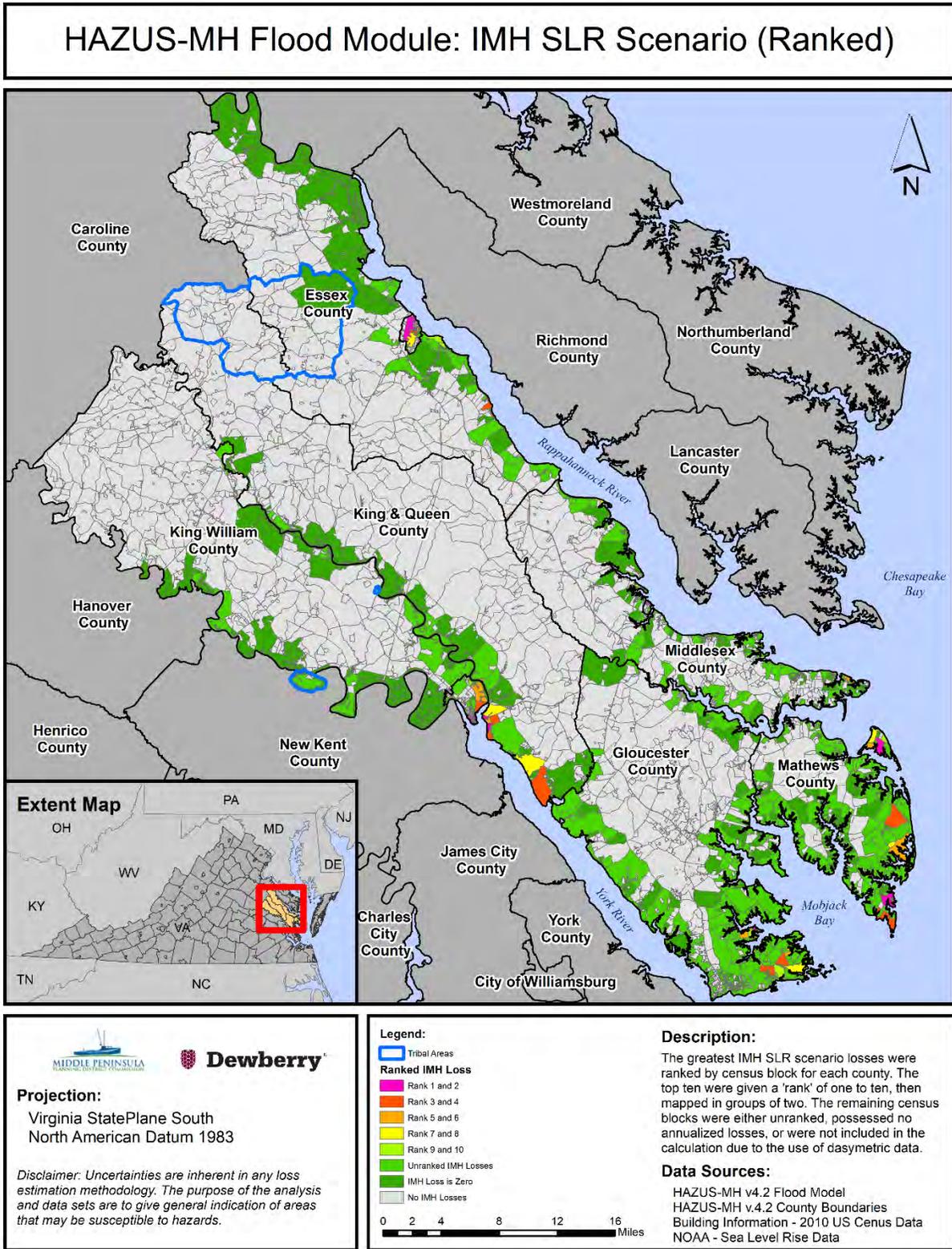


Figure 73:



**Table 75:** Hazus loss for both pre- and post- FIRM – MHHW and IMH scenarios.

Area	Scenario <sup>A</sup>	Total Loss	% Total	Building Loss	% Loss	Contents Loss	% Loss	Business <sup>B</sup> Interruption
Middle Peninsula Region	MHHW	\$8,931	100%	\$2,841	100%	\$1,963	100%	\$4,126
Middle Peninsula Region	IMH	\$90,218	100%	\$22,535	100%	\$15,176	100%	\$52,430
Essex County	MHHW	\$649	7%	\$131	5%	\$121	6%	\$397
Essex County	IMH	\$6,858	8%	\$1,208	5%	\$910	6%	\$4,729
Gloucester County	MHHW	\$2,663	30%	\$999	35%	\$688	35%	\$976
Gloucester County	IMH	\$38,966	43%	\$8,932	40%	\$6,345	42%	\$23,663
King and Queen County	MHHW	\$85	1%	\$37	1%	\$21	1%	\$26
King and Queen County	IMH	\$1,361	2%	\$504	2%	\$340	2%	\$503
King William County	MHHW	\$268	3%	\$59	2%	\$43	2%	\$166
King William County	IMH	\$6,399	7%	\$1,125	5%	\$1,162	7%	\$4,104
Mathews County	MHHW	\$2,267	25%	\$711	25%	\$472	25%	\$1,084
Mathews County	IMH	\$25,383	28%	\$7,303	32%	\$4,338	29%	\$13,725
Middlesex County	MHHW	\$2,999	34%	\$904	32%	\$618	31%	\$1,477
Middlesex County	IMH	\$11,251	12%	\$3,463	16%	\$2,081	14%	\$5,706

Data in Thousands of Dollars

Notes:

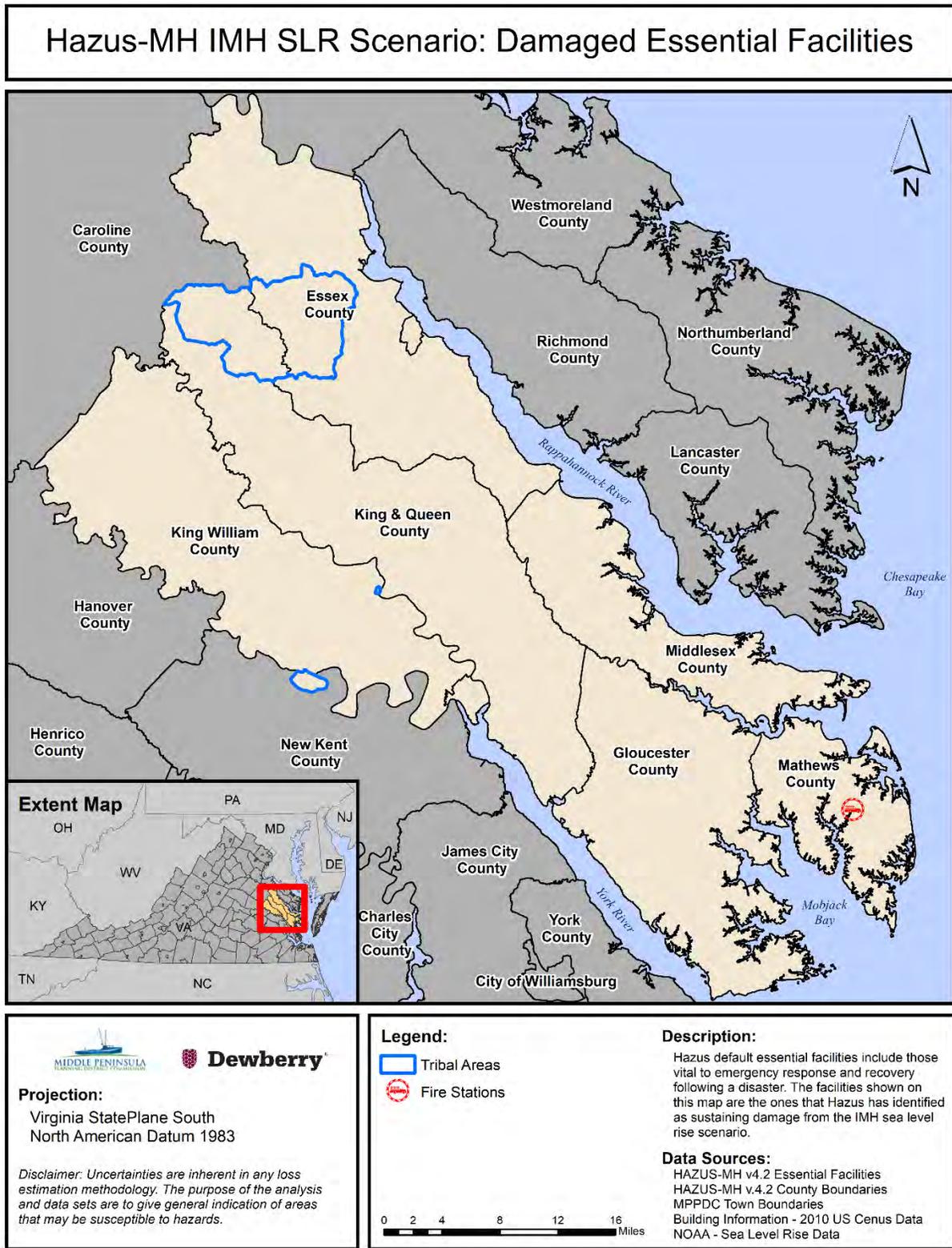
<sup>A</sup> Scenario does not include wind driven tides nor consider natural processes such as erosion, subsidence, or future construction and does not incorporate a detailed pipe network analysis or engineering-grade hydrologic analysis. Details of the SLR analysis performed by NOAA can be accessed at [http://coast.noaa.gov/digitalcoast/\\_pdf/SLRViewerFAQ.pdf](http://coast.noaa.gov/digitalcoast/_pdf/SLRViewerFAQ.pdf)

<sup>B</sup> Business Interruption = Relocation Cost + Income Loss + Rental Income Loss + Wage Loss

### **Essential Facilities and Loss Estimation**

The majority of the region's essential facilities are able to remain functional for both the MHHW and the IMH. Only one essential facility was affected, and only for the IMH. Figure 74 highlights the location of the facility that is damaged by the IMH 2060 scenario – thus experiencing estimated damage and loss. Table 76 lists the damaged essential facilities, the percent-annual-chance event that damaged the facility, it's building and contents losses, and the maximum time to full functionality.

Figure 74:



**Table 76:** Damages to essential facilities.

Name	City	Scenario	Flood Hazard	Building DmgPct	Building Losses	Contents DmgPct	Content Losses	MaxTime to Full Restoration
Mathews Volunteer Fire Department Incorporated Station I	Mathews	IMH	SLR	1.43%	\$36.02	1.64%	\$61.75	480

*Note: No essential facilities had any calculated damage for the MHHW scenario.*

### **Potential Mitigation Actions**

The potential mitigation actions noted are those that are Hazus-specific and would benefit refinement of Hazus analyses.

- Perform Hazus analyses based on the same data resources used to develop the inundation areas mapped in the report submitted to the Virginia General Assembly in January 2013 titled – RECURRENT FLOODING STUDY FOR TIDEWATER VIRGINIA by the Virginia Institute of Marine Science, Center for Coastal Resources Management at the College of William & Mary. This study appears to include the most widely accepted Sea Level Rise plus Storm Surge Scenario facing coastal Virginia. It would therefore be appropriate to consider 1.) The creation of depth grids from the study data and then 2.) Hazus Risk Assessment. It would also be beneficial to incorporate elements of the design storm into a combined Hazus Flood and Hurricane Scenario - in this manner benefits of the combined methodology can be realized – which includes methods to guard against over-counting or double-counting losses by simply adding damages from each respective Hazus model.
- Refine and update data sets for GBS and essential facilities.
  - Improvements in the future should aim to further refine the building stock. Notably, one improvement should include adding any new development that may not have been in the land use/land cover data; e.g., new housing developments, new construction, etc...
  - Perform localized building-level assessments in known areas of loss and or areas subject to likely losses.
- Improve Data associated with the federally recognized tribes.

## Section 6 - Capability Assessment

According to the FEMA Local Mitigation Planning Handbook, *Each community has a unique set of capabilities, including authorities, policies, programs, staff, funding another resources available to accomplish mitigation and reduce long-term vulnerability.* In an effort to assess these capabilities within each Middle Peninsula locality and tribe the regional planner worked with the LPT to gather the necessary information. To provide consistency amongst the localities, the regional planner provided each locality with a Capability Assessment Worksheet to fill out. This work sheet requested feedback on the primary types of capabilities for reducing long-term vulnerability including planning and regulatory, administrative, and technical, financial, and education and outreach.

While each locality and tribe have a variety of tools (i.e. authorities, polices, programs, staff, and funding sources) to implement mitigation goals, objectives, and strategies, each locality and tribe functions differently and therefore has a different capacity to implement tools. Below is a breakdown of the capabilities within in each jurisdiction as it relates to planning and regulatory, administrative, and technical, financial, and education and outreach.

**Planning and regulatory** capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Table 77 shows the types of plans within each Middle Peninsula locality and tribe. This table also identifies, in green, those plans that address hazards to some degree.

**Table 77:** This a summary table of the plans that are implemented within their locality. The green squares indicate that plans within the localities that address hazards.

Plans	Essex	Gloucester	King & Queen	King William	Mathews	Middlesex	Town of Tappahannock	Town of Urbanna	Town of West Point	Rappahannock Tribe	Upper Mattaponi Tribe
Comprehensive Plan	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Capital Improvements Plan	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No
Economic Development Plan	Yes	Yes	Yes	No	No	Yes	No	Yes	No	In-Progress	No
Local Emergency Operations Plan	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	In-Progress	No**
Continuity of Operations Plan		In Progress		No	In-Progress	Yes	No	No	Yes	In-Progress	No**
Transportation Plan	Yes	No	Yes	Yes	Yes	No	No	No	No	No	No
Stormwater Management Plan	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No
Community Wildfire Protection Plan		No	No	No	No	No	No	No	No	No	No
Other special plans (e.g. Brownfield's redevelopment, disaster recovery, coastal zone management, climate change adaptation)		Yes	Yes	No	No	No	No		No	No	No**

\*Note: Each locality and tribe had the opportunity to provide responses to available capabilities. Therefore, empty squares represent no response from the locality.

\*\*The Upper Mattaponi Tribe has recently hired an Emergency Management Coordinator and plans are started to meet this requirement. Also the UMT is in the process of developing a Climate Vulnerability Assessment.

<b>Table 78: ESSEX COUNTY</b>		
<b>Land Use Planning and Ordinances</b>	<b>Yes/No</b>	<b>1. Is the ordinance an effective measure for reducing hazard impacts? 2. Is the ordinances adequately administered and enforced?</b>
Zoning ordinance	Yes	1. Yes 2. Yes
Subdivision ordinance	Yes	1. Yes 2. Yes
Floodplain ordinance	Yes	1. Yes 2. Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)		1. Yes 2. Yes
Flood insurance rate maps	Yes	1. Yes 2. Yes
Acquisition of land for open space and public recreation uses	Yes	Landuse, parks and recreation

<b>Table 79: GLOUCESTER COUNTY</b>		
<b>Land Use Planning and Ordinances</b>	<b>Yes/No</b>	<b>1. Is the ordinance an effective measure for reducing hazard impacts? 2. Is the ordinances adequately administered and enforced?</b>
Zoning ordinance	Yes	1. Yes 2. Yes
Subdivision ordinance	Yes	1. Yes 2. Yes
Floodplain ordinance	Yes	1. Yes 2. Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes	1. Yes 2. Yes
Flood insurance rate maps	Yes	1. Yes 2. Yes
Acquisition of land for open space and public recreation uses	Yes	1. Yes 2. Yes
Other	Yes	1. Yes 2. Yes

<b>Table 80: KING &amp; QUEEN COUNTY</b>		
<b>Land Use Planning and Ordinances</b>	<b>Yes/No</b>	<b>1. Is the ordinance an effective measure for reducing hazard impacts? 2. Is the ordinances adequately administered and enforced?</b>
Zoning ordinance	Yes	1. Requires open space, flood elevation certificates, substantial setback requirements, etc. 2. yes
Subdivision ordinance	Yes	1. Allows for limited number of by-right divisions compared to surrounding jurisdictions. Site plan requirements. 2. Yes
Floodplain ordinance	Yes	1. Yes 2. Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes	1. Stormwater – limits development 2. Yes - DEQ
Flood insurance rate maps	Yes	1. Yes 2. Yes
Acquisition of land for open space and public recreation uses	Yes	Conservation Easements & DOF Public Forest

<b>Table 81: KING WILLIAM COUNTY</b>		
<b>Land Use Planning and Ordinances</b>	<b>Yes/No</b>	<b>1. Is the ordinance an effective measure for reducing hazard impacts? 2. Is the ordinances adequately administered and enforced?</b>
Zoning ordinance	Yes	Yes
Subdivision ordinance	Yes	
Floodplain ordinance	Yes	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes	Stormwater Ordinance Drought Ordinance
Flood insurance rate maps	Yes	
Acquisition of land for open space and public recreation uses	No	

<b>Table 82: MATHEWS COUNTY</b>		
<b>Land Use Planning and Ordinances</b>	<b>Yes/No</b>	<b>1. Is the ordinance an effective measure for reducing hazard impacts? 2. Is the ordinance adequately administered and enforced?</b>
Zoning ordinance	Yes	1. Yes 2. Yes
Subdivision ordinance	Yes	1. Yes 2. Yes
Floodplain ordinance	Yes	1. Yes 2. Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	No	
Flood insurance rate maps	Yes	1. Yes, effective date 12/09/14 2. Yes
Acquisition of land for open space and public recreation uses	Yes	Only through FEMA HMGP Grant funding
<b>How can these capabilities be expanded and improved to reduce risk?</b>		
<ul style="list-style-type: none"> <li>• The Comprehensive Plan will be reviewed this year and into 2016 for potential amendments to identify future land uses for flood prone areas of the county and to adopt ordinances /policies that will reduce risks from recurrent flooding.</li> <li>• We will consider land use tools such as increased setbacks and increased minimum lot sizes in the zoning ordinance and reducing the number of lots that can be created through subdivision of land to reduce development areas of land in the county subject to flooding.</li> <li>• We will consider tools such as Purchase of Development Rights and Transfer of Development Rights to be included in our County Code of Ordinances to provide incentives to property owners/developers to develop outside of flood prone areas.</li> <li>• We will review the Capital Improvements Plan to identify County-owned buildings/facilities that could be flood proofed or developed outside of Special Flood Hazard Areas.</li> <li>• The Floodplain Management Ordinance could be expanded to identify a freeboard requirement for elevation of structures above the base flood elevation (BFE).</li> </ul>		

<b>Table 83: MIDDLESEX COUNTY</b>		
<b>Land Use Planning and Ordinances</b>	<b>Yes/No</b>	<b>1. Is the ordinance an effective measure for reducing hazard impacts? 2. Is the ordinance adequately administered and enforced?</b>
Zoning ordinance	Yes	1. Yes 2. Yes
Subdivision ordinance	Yes	1. Yes 2. Yes
Floodplain ordinance	Yes	1. Yes 2. Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes	1. Yes 2. Yes
Flood insurance rate maps	Yes	1. Yes 2. Yes
Acquisition of land for open space and public recreation uses	No	

<b>Table 84: TOWN OF URBANNA</b>		
<b>Land Use Planning and Ordinances</b>	<b>Yes/No</b>	<b>Is the ordinance an effective measure for reducing hazard impacts? Is the ordinances adequately administered and enforced?</b>
Zoning ordinance	Yes	1. Yes 2. Yes
Subdivision ordinance	Yes	1. Yes 2. Yes
Floodplain ordinance	Yes	1. Yes 2. Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes	1. Yes 2. Yes
Flood insurance rate maps	Yes	1. Yes 2. Yes
Acquisition of land for open space and public recreation uses	No	N/A

<b>Table 85: TOWN OF TAPPAHANNOCK</b>		
<b>Land Use Planning and Ordinances</b>	<b>Yes/No</b>	<b>Is the ordinance an effective measure for reducing hazard impacts? Is the ordinances adequately administered and enforced?</b>
Zoning ordinance	Yes/2004	1. Yes 2. Yes
Subdivision ordinance	Yes/1999	1. Yes 2. Yes
Floodplain ordinance	Yes/2015	1. Yes 2. Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes/2011	1. Yes 2. Yes
Flood insurance rate maps	Yes/2015	1. Yes 2. Yes
Acquisition of land for open space and public recreation uses	Yes	1. Yes 2. Yes

<b>Table 86: TOWN OF WEST POINT</b>		
<b>Land Use Planning and Ordinances</b>	<b>Yes/No</b>	<b>Is the ordinance an effective measure for reducing hazard impacts? Is the ordinances adequately administered and enforced?</b>
Zoning ordinance	Yes	1. Yes 2. Yes
Subdivision ordinance	Yes	1. Yes 2. Yes
Floodplain ordinance	Yes	1. Yes 2. Yes
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	Yes	1. Yes 2. Yes
Flood insurance rate maps	Yes	1. Yes 2. Yes
Acquisition of land for open space and public recreation uses	Yes	1. Yes 2. Yes

<b>Table 87: RAPPAHANNOCK TRIBE</b>		
<b>Land Use Planning and Ordinances</b>	<b>Yes/No</b>	<b>Is the ordinance an effective measure for reducing hazard impacts? Is the ordinances adequately administered and enforced?</b>
Zoning ordinance	No	1. NA 2. NA
Subdivision ordinance	No	1. NA 2. NA
Floodplain ordinance	No	1. NA 2. NA
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	No	1. NA 2. NA
Flood insurance rate maps	No	1. NA 2. NA
Acquisition of land for open space and public recreation uses	No	1. NA 2. NA
<b>How can these capabilities be expanded and improved to reduce risk?</b>		
<p>The Rappahannock Tribal Center is in King &amp; Queen County. The Tribe operates within the program parameters and guidelines established by the four counties that make up our Rappahannock Tribe Service Area (RTSA) of King &amp; Queen, King William, Essex, and Caroline Counties.</p> <p>Although the Tribe currently and largely relies on the emergency services provided by our four-county emergency service agencies, the Rappahannock Tribe has recently launched its own Emergency Management department and is currently in the process of developing our preparedness plans and resources.</p>		

<b>Table 88: UPPER MATTAPONI TRIBE</b>		
<b>Land Use Planning and Ordinances</b>	<b>Yes/No</b>	<b>Is the ordinance an effective measure for reducing hazard impacts? Is the ordinances adequately administered and enforced?</b>
Zoning ordinance	No	1. NA 2. NA
Subdivision ordinance	No	1. NA 2. NA
Floodplain ordinance	No	1. NA 2. NA
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	No	1. NA 2. NA
Flood insurance rate maps	No	1. NA 2. NA
Acquisition of land for open space and public recreation uses	No	1. NA 2. NA
<b>How can these capabilities be expanded and improved to reduce risk?</b>		
<p>Currently in capacity building stage, need additional support to create planning and ordinances.</p>		

**Administrative and technical capabilities** include tools, staff and their skills that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without staff resources, enforcing policies, or conducting public outreach may be difficult. Table 89 below indicates whether Middle Peninsula localities and tribes have specific administrative and technical capabilities.

**Table 89:** This table indicates whether Middle Peninsula localities and tribes have specific administrative, staff, and technical capabilities.

Administration	Essex	Gloucester	King & Queen	King William	Mathews	Middlesex	Town of Tappahannock	Town of Urbanna	Town of West Point	Rappahannock Tribe	Upper Mattaponi Tribe
Planning Commission	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Mitigation Planning Committee	No	Yes	No	No	No	No	No	No	No	No	No
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes	Yes	Yes	No	Yes, Outfall Ditch Program	No	No	No	No	No	No
Mutual aid agreements	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
<b>Staff</b>											
Chief Building Official	Yes	Yes	Yes (Full-time)	Yes	Yes (Full-time)	Yes	Yes	Yes	Yes (Full-time)	No	No
Floodplain Administrator	Yes	Yes	Yes	Yes	Yes (Full-time)	Yes	Yes	Yes	Yes (Full-time)	No	No
Emergency Manager	Yes	Yes	Yes	Yes	Yes (Full-time)	Yes	Yes	Yes	Yes (Full-time)	Yes (full-time)	Yes (full-time)
Community Planner	Yes	Yes	Yes	Yes	Yes (Full-time)	No	Yes	Yes	Yes (Full-time)	No	No
Civil Engineer	No	Yes	No	No	No	No	No	No	Yes (part-time)	No	No
GIS Coordinator	No	Yes	Yes	Yes	Yes (Full-time)	Yes	No	Yes	Yes (Full-time)	No	No
Other				Yes	Yes (Full-time)						No
<b>Technical</b>											
Warning systems/services (Reverse 911, outdoor warning signals)		Yes		Yes	Yes	Yes	No	Yes	Yes	No	No
Hazard data and information	No	Yes				Yes	No	Yes	Yes	No	No
Grant Writing	Yes (Part-Time)	No	Yes (Part-Time)	Yes	Yes	Yes	No	Yes	Yes	Yes, one staff member working on Grants	No
Hazus analysis	No	No	No	No	No	No	No	Yes	Yes	No	No

\*Note: Each locality and Tribe had the opportunity to provide responses to available capabilities. Therefore, empty squares represent no response from the jurisdiction.

Essex County has tree trimming maintenance program with the local electric company helps to reduce risk of power outages. As for the Town of Tappahannock they have access to and benefit from the Chief Building Official, Floodplain Administrator, and Emergency Manger that is employed with Essex County.

Gloucester County identified that staffing within the County is not adequate to proactively enforce regulations, however all staff are trained on hazards and mitigation and that there is coordination between agencies, staff and committees. Gloucester County has a County Hazard Mitigation Committee that meets monthly and aggressively addresses homes in the flood risk zones with FEMA's Hazard Mitigation Grant Program (HMGP) to perform property elevations. The County also works with Dominion Energy for tree trimming maintenance program to reduce risk of power outages.

As the Town of Urbanna is a small coastal community, resources are limited and, in many cases, shared with the Middlesex County. While the Town of Urbanna has access to a Chief Building Official, Floodplain Administrator, Emergency Manger, and a GIS coordinator, Middlesex County employees these people. In addition, the Town of Urbanna benefits from Middlesex County's fire and emergency medical service mutual aid agreements as well as the County's Blackboard connect and Reverse 911 system. Urbanna's Economic Development Plan and Emergency Operations Plans are incorporated into the Middlesex County Plan.

King William County has adequate staffing throughout the county, but identified that the Chief Building Official, Floodplain Administrator, Community Planner, and GIS coordinator are not trained in hazards and mitigation. As for the Town of West Point, it operates separately from the County and only benefits from the King William County warning system in place. Therefore, the Town has full-time staffers, with the exception of the civil engineer, that help to adequately to enforce regulations, however the majority of them are not trained on hazards and mitigation (i.e., Chief Building Official, Floodplain administrator, Community planning and the GIS coordinator).

Mathews County identified that while County positions are filled full time positions Chief Building Official, and the Floodplain Administrator are not staffed adequately. There is more work than staff hours can handle. However, each staffer noted in the above table are trained on hazards and mitigation.

The Rappahannock Tribe operates within the program parameters and guidelines established by the four counties that make up our Rappahannock Tribe Service Area (RTSA) of King & Queen, King William, Essex, and Caroline Counties; however, since the Tribe became federally recognized the Tribe is working on developing programs, mutual aid agreements, and technical resources. The Tribe is currently researching Code Red, Everbridge, and other alert systems and seeking grant funding for such services.

The Upper Mattaponi Indian Tribe is currently in the capacity building stage, and actively working on hiring staff in various roles. The Tribe is investigating advanced hazard warning systems, and until a system can be implemented, tribal citizens can utilize the system utilized by their specific locality. The Tribe is also working on developing programs, ordinances, agreements, and technical resources.

In addition to locality specific capabilities, all Middle Peninsula localities are active members of the Middle Peninsula Planning District Commission (MPPDC). The MPPDC is a regional planning body that can assist localities in grant writing, technical assistance, and executing a project. Depending on the need of the locality or the region, MPPDC staff may assist. For instance, through this AHMP update MPPDC hired a planner to coordinate localities and Tribes to update the AHMP. In part, the Hazus analysis was conducted for all localities and the Tribal Designated Statistical Areas (TDSA), as defined by the US Census, associated with the three federally recognized tribes in the Middle Peninsula region to estimate

potential losses from hurricane winds, flooding and sea level rise. Please see Section 5 for the full Hazus analysis.

**Financial capabilities** address a jurisdiction's access to or eligibility to use the following funding resources for hazard mitigation. Table 90 below indicates the specific financial capabilities of the localities and tribes in the region.

**Table 90:** This table indicates whether Middle Peninsula localities and Tribes have specific financial capabilities.

Plans	Essex	Gloucester	King & Queen	King William	Mathews	Middlesex	Town of Tappahannock	Town of Urbanna	Town of West Point	Rappahannock Tribe	Upper Mattaponi Tribe
Capital Improvement Project funding	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes/ Eligible	No	Yes	Yes
Authority to levy taxes for specific purposes	No	Yes	Yes	Yes	No	No	No	No	No	No	
Fees for water, sewer, gas, or electric services	No	Yes	No	No	No	No	No	Yes- Water Only	No	No	No
Impact fees for new development	No	No	No	No	No	No	No	No	No	No	No
Storm water utility fee	No	Yes	No	No	No	No	No	No	No	No	No
Incur debt through general obligation bonds and /or special tax bonds	No	Yes	No	Yes	Yes	No	No	No	No	No	Yes
Incur debt through private activities	Yes	Yes	No	Yes	No	No	No	No	No	No	Yes
Community Development Block Grant	No	No		Yes	Yes	No	No	No	No	No	Yes
Other federal funding programs	No	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes, Researching options	Yes
State funding programs	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes, Researching options	Yes

\*Note: Each locality and Tribe had the opportunity to provide responses to available capabilities. Therefore, empty squares represent no response from the locality.

While some financial options are available to localities and tribes, there are some cases in which these resources may not be used to address mitigation. For instance, Essex County could use the CIP to fund mitigation however there is currently no dedicated funds for this effort. If there were CIP could be used for a variety of planning efforts and providing local grant incentives and hazard mitigation work on private properties. According to Gloucester County it has access to stormwater utility fees, incurred debt through general obligation bonds and /or special tax bonds, and debt through private activities and yet Gloucester County cannot utilize these resources specifically for mitigation purposes. For King William County those funding resources identified as “not being used in the past and therefore are not likely to be used in the future” include Authority to levy taxes for specific purposes and incurring debt through private activities. However, King William County also noted funding resources identified as “not being used in the past but could be in the future” to include capital improvement project funding, community development block grant, other funding programs, and state funded programs as well as incurring debt through general obligation bonds and/or special tax bonds.

The Town of Urbanna noted that while it has access to the community development block grants, other federal funding programs and state funding program these programs have not been used locally in the past and they have limited potential to be used in the future due to income eligibility.

Mathews County has utilized the Community Development Block Grant and received for a business District Revitalization project. While this project was not associated with hazard mitigation, Mathews County could use this funding for future hazard mitigation activities. In addition Mathews County has also received funding from the FEMA’s HMGP Program to elevate houses and acquire properties in Special Flood Hazard Areas. The County plans to apply for additional funding from FEMA to elevate houses and acquire properties when the opportunity is available.

The Upper Mattaponi Tribe identified that there is limited availability of funding for tribes. UMT hopes to be able improve financial capabilities to better mitigate against disasters. Also, federally recognized tribes have limited ability to utilize bond obligations.

**Education and Outreach** capabilities are education and outreach programs, campaigns, and methods already in place to implement mitigation activities and communicate hazard –related information. Table 91 below indicates whether Middle Peninsula localities and Tribes have specific education and outreach efforts.

**Table 91:** This table indicates whether Middle Peninsula localities have specific education and outreach efforts.

Plans	Essex	Gloucester	King & Queen	King William	Mathews	Middlesex	Town of Tappahannock	Town of Urbanna	Town of West Point	Rappahannock Tribe	Upper Mattaponi Tribe
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access, and functional needs populations, etc.	Yes	Yes	No	No	No	Yes	No	Yes	No	Yes	No
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No
Natural disaster or safety related school programs	Yes	Yes	Yes		Yes	Yes	No	Yes	No	No	No
StormReady certification	No	Yes (2014-recertification)	No	No	No	No	No	No	No	No	No
Firewise Communities certification	No	No	No	No	No	No	No	No	No	No	No
Public-private partnership initiatives addressing disaster-related issues	Yes	Yes	No	No	No	Yes	Yes	No	No	No	No

\*Note: Each locality and Tribe had the opportunity to provide responses to available capabilities. Therefore, empty squares represent no response from the locality.

Essex County has local employees that provide ongoing public education. The County also works with local schools to educate students about water issues, fire safety, and household hazard preparedness. In addition, the County hosts a Disaster Survivor Day each year to teach citizens how to prepare for disasters. The Town of Tappahannock is focused on-going public education regarding water quality and water conservation.

Gloucester County offers a variety of public outreach opportunities for their citizens. As participants in the FEMA CRS program, the County has developed a Program for Public Information (PPI) that includes on-going education about water issues, fire safety, household preparedness, environmental education, and hazards. The Emergency Manager provides this outreach and awareness. The County has developed a public-private partnership within the Gloucester Chamber of Commerce in order to host an annual preparedness symposium. The County's Community Emergency Response Team (CERT) performs outreach and education programs for Spring Storms, Hurricane Preparedness, Flood Program Awareness, and Winter Weather Preparedness. Additionally, the County has incorporated lightning safety in natural disaster and safety-related school programs.

Within Mathews County, the capability to provide education and outreach is limited, yet the school curriculum includes natural disaster and safety-related programs. The Building Official's web page has online information and community presentations regarding building codes and floodplain management.

In Middlesex County, public education is offered through the Office of Emergency Services. The Town of Urbanna has limited staff and funds, and therefore looks to Middlesex County for the majority of its public engagement efforts. However, the Town has a local citizens group, Friends of the Parks (501-3-C organization) that is very interested in resource protection and preservation. The organization is in its formative stages of development but has considerable potential to assist in public outreach.

King William County does not currently have an active public education program, but there is a program currently under development. As for the Town of West Point, they do not have education opportunities for citizens. Staff in West Point would need to be trained on hazard mitigation topics before providing outreach programs.

Over the course of 2022, the Upper Mattaponi Tribe is planning to improve public education and outreach to local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access, and functional needs populations.

On a regional level, the MPPDC launched the Fight the Flood Program in 2020. As this program works to connect private landowners facing rising flood waters with tools and funding to contract with specialized businesses who can help evaluate, design, and build mitigation solutions. As part of this program, the website Fight the Flood Program website offers educational material on flooding, flood insurance, and mitigation options.

### **Existing Mitigation Activities - Structural Projects**

#### **Gloucester County's Hurricane Recovery/Mitigation Projects**

Gloucester County offers a variety of public outreach opportunities for their citizens. As participants in the CRS program, the County has developed a Program for Public Information (PPI) that includes ongoing education about flooding. The PPI and its outreach efforts are managed by Gloucester's Floodplain Administrator in coordination with the Department of Community Engagement and Public Information (DCEPI). This includes participation in Flood Awareness week each March. The Department of Emergency Management also coordinates with DCEPI for outreach efforts related to fire safety, household preparedness, environmental education, and hazards. The County has developed a public-

private partnership within the Gloucester Chamber of Commerce to host an annual preparedness symposium. The County's Community Emergency Response Team (CERT) performs outreach and education programs for Spring Storms, Hurricane Preparedness, Flood Program Awareness, and Winter Weather Preparedness. Additionally, the County has incorporated lightning safety in natural disaster and safety related school programs.

Gloucester County also has an active and on-going hurricane residential recovery program in the Jenkins Creek and Guinea communities in the southern portion of the county. This is where the York River and Mobjack Bay meet the Chesapeake Bay. The county has successfully applied for and received grant funding from HUD/VDHCD as well as FEMA/VDEM to implement their multi-phased residential mitigation program.

Since 2004, Gloucester County has participated in eleven (11) Hazard Mitigation (HMGP) grants, one (1) Repetitive Flood Claim (RFC) grant, and one (1) Community Development Block Urgent Needs (CDBG) grant. Five HMGP grants are still active. Gloucester County has been very active in the mitigation scene receiving more than 25% of the Virginia's HMA allocations since 2005. All the grants were designed to both assist in the recovery from storm events and to help reduce the damages that could come from future events.

The 2006 CDBG Urgent Needs grant built or rehabilitated, on elevated foundations, 7 homes. The homes were all severe loss homes that were substantially damaged by Isabel. The work under this grant was completed in 2009. Under the FEMA Hazard Mitigation Assistance (HMA) program, the County has acquired 30 parcels and has funding to 2 more parcels under 4 FEMA acquisition grants. Each parcel was cleared of its structures and turned into permanent open space. The land was incorporated into an Open Space Plan. Most of the lots are now acting as natural buffers for the Guinea area. One is to be developed as a walking trail. The County continues to look at additional recreation options for the spaces as well. In all the County owns 82 acres acquired under the FEMA HMA grant.

The FEMA HMA grants have 85 funded elevations since 2004 with 60 on new foundations. Gloucester had 7 FEMA elevation grants and 1 FEMA RFC grant. Gloucester also had 4 owners have withdrawn and we are working on completing 21 elevations. All the current grant work should be complete by next summer (2017). The elevation work places the home on a new foundation that is at least two feet above the FEMA required base flood elevation level (Figures 75-80). Although most of the homes in the grants have been in Guinea area residents in Ware Neck, Harcum (Painkatank River), Glass, and Robins Neck have also participated in the program.

The work by the County has helped reduce its total number of repetitive and severe repetitive loss lists. Of the properties in the FEMA HMA grants, 3 acquired properties were identified as repetitive loss however none of them are severe repetitive loss properties. Sixteen on the elevated homes were repetitive loss properties, 4 of which are severe. All 7 CDBG homes were considered severe repetitive loss homes. In total we have mitigated nineteen repetitive loss properties and 11 severe repetitive loss homes. County's Building Office tracks and has completed all the AW-501 worksheets in order to report to FEMA the completed mitigation activities for these homes.

The total funds allocated by all the grants is just under \$12 million dollars. This includes just over \$8.5 million plus in federal funds and over \$2.5 million in state funds for the FEMA grants and \$750,000 in funds for the CDBG program.

Most recently, in July of 2015, Gloucester County received \$331,594 of HMGP funding, which is 34% of total state funding. This funding will be used to elevate 2 homes and will allow 2 properties to be

acquired. In both cases this will minimize the risk of future flooding to citizens. Gloucester County has joined into a partnership with the United States Geological Service (USGS) by installing a Tide Gage on the Severn River that is used to monitor flood conditions in the southeastern section of the County.



**Figure 75:** House in Hayes, Gloucester County - BEFORE elevation.



**Figure 76:** House in Hayes, Gloucester County - AFTER elevation.



**Figure 77:** House in Hayes, Gloucester County - BEFORE elevation.



**Figure 78:** House in Hayes, Gloucester County - AFTER elevation.



**Figure 79:** House in Hayes, Gloucester County - BEFORE elevation.



**Figure 80:** House in Hayes, Gloucester County - AFTER elevation.

## **Mathews County Mitigation Projects**

The following are a list of FEMA HMGP grants Mathews County has received for elevation of houses and acquisitions of properties over the past five (5) years.

### **Project Number SLR-2009-115-002**

This was a grant to elevate one house under a Severe Repetitive Loss Program funding the County received from FEMA. The total project budget for this elevation was \$207,942.00. This house elevation was advertised for bid, a contract was awarded, and the house was elevated above the Base Flood Elevation (BFE) for the Special Flood Hazard Area (SFHA) where the property is located. The property owner provided a ten (10) percent match of the contractor's bid amount using his funds. Ninety (90) percent of the cost for elevating the house was paid for out of the grant.

This house is on FEMA's Severe Repetitive Loss list.

### **Project Number SLR- 1987-008**

The county applied for funding after the remnants of Tropical Storm Ida damaged properties in Mathews in November 2009. The county was awarded funding in the amount of \$889,825 to acquire one property and elevate eight (8) houses. The County awarded contracts to elevate four (4) houses and the work has been completed. One property was acquired and there is one house remaining to be elevated. Three houses were not elevated because the eligible property owners chose not to participate in the grant program.

Three of the four houses that were elevated are on FEMA's Repetitive Loss list. The property that was acquired is on the list, and the one house remaining to be elevated is on the list.

### **Project Number HGMP-4042-002**

The County applied for funding subsequent to the Louisa Earthquake. The County was awarded funding in the amount of \$1,923,973 to elevate nine (9) homes and acquire three (3). All twelve (12) homes were located throughout the County, but primarily in the southern and western portions of the County that were most susceptible to flooding.

To date eight (8) homes have been elevated. One house was acquired. Three (3) property owners were removed from the grant program or decided not to participate.

### **Project Number HMGP – 4045 – 002**

The County applied for funding subsequent to the Tropical Storm Lee event. The County was awarded funding in the amount of \$1,122,865 to elevate nine (9) homes. All nine (9) homes are located throughout the County, but primarily in the eastern and southern portions of the County that are most susceptible to flooding. To date, three homes have been elevated. Five property owners are not participating in the grant program. Two houses that were elevated are on the Repetitive Loss List.

### **Project Number HMGP – 4092-002**

The County applied for funding subsequent to the Hurricane Sandy event. The County was awarded funding in the amount of \$1,774,360 to elevate eleven (11) homes and acquire one property. All twelve (12) homes were located throughout the County, but primarily in the eastern and southern portions of the County that were most susceptible to flooding. To date, three (3) homes have been elevated (Figures 81 and 82). Two homes have been awarded a

contract to be elevated and four homes are ready to be advertised for bid. One house is ready to be acquired. Two property owners are not participating in the grant program.

One house that was elevated is one the Repetitive Loss list and one house that is ready to be advertised for bid is on the list.



**Figure 81:** Photos of an elevated home in Moon, Va during (left) and after (right) (Mathews County, 2015).



**Figure 82:** Photos of an elevated home in Port Haywood during (left) and after (right) being elevated (Mathews County, 2015).

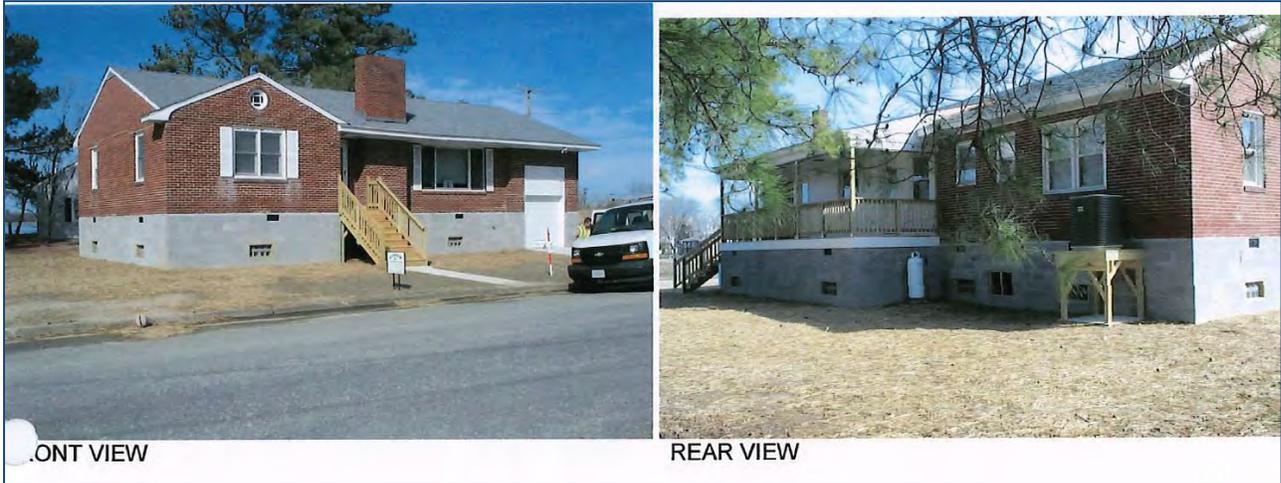
### **Town of West Point Hurricane Recovery/Mitigation Projects**

In March of 2010 the Town of West Point applied for funding through the Virginia Department of Emergency Management Hazard Mitigation Grant Program. The Town proposed a project to elevate a home on Kirby Street to base flood elevation plus 1 foot to relocate the home outside the 100-year flood plain. This would reduce flood risk from major storms (i.e. Hurricane Isabel) as well as minor nor'easters.

Upon receiving notice of funding in 2013, the Town requested bids to complete the elevation project. In 2015 the project was finally complete. Below are pictures of the house before and after elevation (Figure 83 and 84).



**Figure 83:** Photos of a home in the Town of West Point before being elevated.



**Figure 84:** Photos of a home in the Town of West Point after being elevated.

In conjunction with this elevated home, the Town of West Point received funding through the HMA to relocate the Public Works Building on 7<sup>th</sup> Street to King William Avenue due to repetitive flooding. This move created a more stable working environmental for employees.

Both the Kirby Street property and the Publics Works Building were on the repetitive loss list prior to mitigation action.

The Town of West Point also received funding through FEMA and VDEM to acquire multiple properties – including two properties on 1st Street, one property on 2<sup>nd</sup> Street, one property on Glass Island Road as well as one property on 5<sup>th</sup> street. The 5<sup>th</sup> Street property was on the repetitive loss list.

### **Observations from Existing Structural Mitigation Projects**

Due to the engineering and other technical aspects of structural mitigation projects as well as the limited number of county personnel available to undertake these new initiatives, Gloucester County has hired a consulting firm, Community Planning Partners, to assist them with their grant funding applications, project engineering/design as well as construction management of their multi-phased mitigation projects. Mathews County has hired the same consulting firm as Gloucester and have a total of 47 properties either they have mitigation using HMA funds or are in the process of mitigating.

To date no other Middle Peninsula locality has undertaken structural mitigation projects. However, 5 private property owners in the town of Urbanna, with their own financial resources, have rebuilt their homes that were damaged by flooding from Hurricane Isabel. These structures were rebuilt in accordance with the locality's floodplain regulations, and they were elevated by either being built on stilts or with block crawl spaces having the required vented openings in the foundation. When Middle Peninsula localities undertake future structural mitigation projects, it can be expected that they will continue to utilize the services of either consulting engineering firms or local agencies that have the technical capacity to undertake housing elevation projects.

The localities have the capacity to offer operational support services such as office space and some administrative support services in their role as the official FEMA grantee. Once again, project management will in all likelihood be a contracted service due to the dependency on grant funding and the technical complexity of elevating houses.

### **Rappahannock Tribe Mitigation Efforts**

Ongoing emergency management/recovery /mitigation project efforts by the Rappahannock Tribe include:

- The delivery emergency medical supplies, food, and medicine to home bound Tribal members
- PPE supplies are now available, and some have been distributed to Tribal members. The remaining supply on site and available to members. Staff members handle the requests for medical supplies, food, and medicine
- A newly hired Director of Emergency Management is reviewing the service area's hazards, key stakeholders, and available resources. The Director is meeting with regional, state, and federal emergency managers and hazard mitigation planners to support the development of the Rappahannock Tribe's Emergency Operation Plan (EOP). A complete interim key contact document was developed to facilitate communication, planning, and response coordination during disaster events. A more complete EOP is currently under development and is anticipated to be completed by October 1, 2021

The Rappahannock Tribe has constructed a new operations building to house the Emergency Management Department. The building is roughly 90% complete, but the Tribe is still waiting for contractors to finalize the build before being able to occupy the new facility. The Tribe has obtained Broadband Internet services and have upgraded phones to be used throughout the emergency management operations building. They have increased their phone call capacity from 2 simultaneous calls to the ability to handle up to 29 simultaneous calls.

The Director of Emergency Management has also identified and communicated to Tribal members the need to develop volunteer teams for emergency response staffing. Currently recruiting class instructors and interested volunteers participate in the following programs:

- CERT – Community Emergency Response Teams
- Welfare Check/Member Assistance – General assistance for Tribal Members
- Emergency Operations Center (EOC) – Coordination of disaster response
- Emergency Evacuation Center - Provide for the basic needs for 100 displaced persons
- Training in emergency care and emergency response - First Aid, CERT, EMTs

Finally, a Ford Explorer has been purchased and is in use by the Emergency Management Department. The vehicle is temporarily equipped by the Emergency Management Director's personal emergency response equipment. Plans include obtaining Tribal owned emergency equipment to outfit the vehicle.

### **Upper Mattaponi Tribe Existing Mitigation Efforts**

The Upper Mattaponi Indian Tribe has focused heavily on ensuring tribal citizens are prepared throughout the coronavirus pandemic. COVID-19 care packages have been distributed regularly over the last two years equipped with test kits and personal protective equipment.

The newly hired Emergency Management Coordinator is meeting with key stakeholders, including county, state, and federal emergency managers, and partners. Through these partnerships, the Emergency Management Coordinator is working on developing an official Tribal Emergency Operations Plan. Time-sensitive Emergency Response Plans have been created to respond to emergencies as they occur.

### **National Flood Insurance Program (NFIP)**

The AHMP Steering Committee was given an opportunity to share progress made on implementing the National Flood Insurance Program (NFIP) locally. Information was received through a spread sheet developed by FEMA. The questions inquire about actions taken within the communality with regards to floodplain identification and mapping, floodplain management, and flood insurance.

As all 9 Middle Peninsula jurisdictions participate in the NFIP as administered by FEMA, each jurisdiction has implemented local floodplain ordinances that include requirement that comply with the minimum FEMA – or in some case exceed the minimum requirements prescribed by FEMA. As seen in Section 7 of this plan update, 8 of the 9 Middle Peninsula jurisdictions have implemented Base Floor Elevation (BFE) regulations that require structures to be an additional 1' or over BFE. The 8 Middle Peninsula jurisdictions that require this more restrictive regulation are Essex, Gloucester, King William, King & Queen, and Middlesex Counties and the Towns of Urbanna, West Point, and Tappahannock.

Enforcement of the floodplain regulations are undertaken by the locality's Zoning Administrator and Building Official.

All 9 Middle Peninsula localities remain in full compliance with their floodplain and building code regulations as evidenced by their periodic reviews of their NFIP related activities by FEMA and VDCR evaluators.

For additional details about locality NFIP, please visit Appendix H.

### **Stormwater Management Ordinances**

During the 2012 General Assembly session, the Virginia General Assembly passed legislation (HB 1065) that requires localities throughout the state to develop, adopt, and implement local a Virginia Stormwater Management Program (VSMP) by July 1, 2014. This bill integrated elements of the Erosion and Sediment Control Act, the Stormwater Management Act, and the Chesapeake Bay Preservation Act so that these regulatory programs could be implemented in a consolidated and consistent manner, resulting in greater efficiencies (one-stop shopping) for those being regulated. However, in 2014, additional action by the General Assembly, with the passing of House Bill 1173/Senate Bill 423, localities were provided an “Opt-Out” option that would leave the administration of the VSMP to the Virginia Department of Environmental Quality (DEQ) instead of local administration. As a result, only Gloucester County has chosen to develop and administer a local VSMP. All other localities within the Middle Peninsula as decided to “opt-out” and have DEQ administer the program. While this is the status of the VSMP, the program is still influx as DEQ wants to relinquish administrative power and give it back to the localities.

Please see Appendix L for Gloucester County’s Stormwater Management Ordinance.

### **Future Mitigation Capabilities and Opportunities**

Local governing bodies are charged with protecting the health, safety, and welfare of its residents. The 6 Boards of Supervisors and the 3 Town Council are legally empowered to develop ordinances and policies to implement this charge based on sound and comprehensive review and analysis of flood mitigation proposals and strategies.

In general, the localities will continue to facilitate federal and state grant funded flood mitigation projects for private property owners with the understanding that the property owners will pay for all costs – construction and administration – that are not covered by grant funds.

Public infrastructure flood mitigation projects will be undertaken by the local governing bodies when they determine that the benefits outweigh the costs. Typically, these projects will be incorporated into the locality’s Capital Improvement Program and considered for funding by the governing body during their annual budget development and approval process.

## Section 7 - Review of Strategies from the 2016 Middle Peninsula All Hazards Mitigation Plan

As Middle Peninsula localities transition from the 2016 AHMP strategies into the 2021 AHMP strategies, it is critical to look at the progress made over the last 5 years to provide a clearer direction moving forward. Therefore, to capture the progress made by localities, the Regional Planner reviewed the 2016 Mitigation Strategies with the AHMP LPT and requested status updates on each 2016 mitigation strategy. Tables 91 to 99 record locality responses and strategy statuses. Please note that the shaded red boxes identify the completed strategies.

<b>2016 Strategy</b>	<b>2016 Priority</b>	<b>Status</b>	<b>Comment</b>
1.1.1	Moderate	On-going	The County Building Official administers the Floodplain Management Ordinance for current and new structures.
1.1.2	Moderate	On-going	Ch. 18 of the Floodplain Management Ordinance is being used to manage this.
1.1.5	Low	In-progress	Regional Hampton Road Evacuation Plan
1.1.6	Low	In-progress – will be completed 2017	Regional Hampton Road Evacuation Plan
1.1.8	High	On-going	Board of Supervisors reviewed this at their August 2021 meeting
1.1.9	Low	In-progress	Have not started.
1.1.10	Moderate	On-going	Elevation & Construction Standards are in Ch. 18 of county ordinances. The Floodplain Management Ordinance states Free Board as 1ft elevation BFE (Base Flood Elevation) and regulates this.
1.1.11	Moderate	On-going	Ch. 18 of the Floodplain Management Ordinance enforces this as well as the USBC.
1.1.13	Low	In-progress	There are no plans to promote at this time.
1.1.15	Moderate	On-going	Wetlands Board approvals for shoreline erosion control measures. Encourage citizens to participate in the Middle Peninsula Fight the Flood Program.
2.2.1	Low	On-going	Mutual aid contract is renewed once a year
2.2.2	Low	On-going	Mutual aid contract is renewed once a year
3.1.2	Low	Delayed	There are no plans to promote at this time.
3.1.3	Low	In-progress	Power company maintains their own rights-of-way
3.1.5	Moderate	On-going	Being discussed for the future.
3.1.6	Moderate	On-going	Being discussed for the future.
3.1.8	Moderate	On-going	Being discussed for the future.
3.2.1	Moderate	On-going	GIS coordinator incorporates this into county GIS maps
3.2.2	Low	On-going	Refine and update data sets when changes are made. Also, during the 2021 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2), but 2020 Census was not included.
4.1.1	Low	On-going	Will be utilized when plan is adopted

<b>2016 Strategy</b>	<b>2016 Priority</b>	<b>Status</b>	<b>Comments</b>
1.1.3	Low	Canceled	All pump stations are enclosed in small buildings and the pumps are above ground. The pump stations have power and flood alarms. There are no plans to relocate the stations at this time
1.1.5	Low	In-progress	Regional Hampton Road Evacuation plan
1.1.7	High	Delayed	Delayed because of VDOT
1.1.9	Low	Delayed	Delayed because of Essex County
1.1.10	Moderate	On-going	Elevation & Construction Standards are in Ch. 18 and the Floodplain Management Ordinance states Free Board, 1ft elevation BFE (Base Flood Elevation) and regulates this.
1.1.11	Moderate	On-going	Ch. 18 the Floodplain Management Ordinance enforces this as well as the USBC.
1.1.15	Moderate	In-Progress	Encourage citizens to participate in the Middle Peninsula Fight the Flood Program.
2.2.1	Low	On-going	Mutual aid contract is renewed once a year
2.2.2	Low	On-going	Mutual aid contract is renewed once a year
3.1.2	Low		There are no plans to promote at this time.
3.1.3	Low		Power company maintains their own rights-of-way
3.1.5	Moderate	On-going	Being discussed for the future.
3.1.6	Moderate	Not started	Being discussed for the future.
3.2.2	Low	In-progress	1. During the 2021 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2). 2..2020 Census was not included in HAZUS.
4.1.1	High	On-going	Adopted a Floodplain overlay district as a component of the County's zoning ordinance

<b>Table 93: Gloucester County – 2016 Mitigation Strategy Status</b>			
<b>2016 Strategy</b>	<b>2016 Priority</b>	<b>Status</b>	<b>Comments</b>
1.1.1	High	On-going	Gloucester has Hazard Mitigation Management Team consisting of various staff members to oversee FEMA grant projects. The Projects are managed by the Engineering Services Department. The majority of projects are residential elevations.
1.1.2	Low	On-going	Outreach efforts are conducted in general but no targeted efforts towards commercial water dependent buildings. These are a very small portion of the greater total of flood risk properties.
1.1.3	High	On-going	Grant applications have been submitted and declined in recent years for pump station relocation. BRIC, as a new program, may provide a path for funding.
1.1.4	Low	Canceled	At this time, the County does not participate in FEMA acquisitions.
1.1.5	Moderate	Not Started	VDOT's Responsibility
1.1.6	Moderate	Not Started	VDOT's Responsibility; The County regularly encourages VDOT to conduct flood resilient efforts on secondary roadways with significant flooding during nuisance tides.
1.1.7	Moderate	On-going	VDOT's Responsibility;
1.1.8	Moderate	On-going	DCR and FEMA regularly review Gloucester's ordinances in accordance with the CRS program. An upcoming review will occur this summer (2021) as part of an ordinance modification.
1.1.11	High	On-going	Gloucester's Building Inspection department regulates development in the floodplain in coordination with the Floodplain Administrator.
1.1.13	Moderate	On-going	Outreach has not been done due to lack of time/manpower.
1.1.15	Low	In-progress	Promotes public education and awareness through current floodplain management committee and through the Middle Peninsula Fight the Flood Program.
1.1.18	High	Completed	Created a GIS layer of data showing pond locations, size, inspection data, and dry hydrant information.
1.1.19	High	On-going	Mitigation strategies are regularly considered when updating plans/programs.
2.2.1	Moderate	Completed & On-going	In 2018 a formal MOA between Gloucester and other MPNN localities was established that provides for EOC & response support if local emergency exceeds local capacity. Formal mutual aid agreements are in place with some neighbor jurisdictions. Potentially additional agreements could be established. Would need to determine need.
2.2.2	Moderate	Completed & On-going	In 2018 a formal MOA between Gloucester and other MPNN localities was established that provides for EOC & response support if local emergency exceeds local capacity. Formal mutual aid agreements are in place with some neighbor jurisdictions. Potentially additional agreements could be established, but the need would have to be determined.
3.1.2	Moderate	On-going	
3.1.3	Moderate	On-going	Grid hardening projects have been underway over the last year through Gloucester, providing redundancy in power supply, also clearing rights of way in many areas.
3.1.4	Moderate	On-going	Gloucester community engagement and Emergency Management departments have been working with Hampton Roads PDC in efforts to promote the new <a href="#">Get Flood Fluent</a> website. Also know your zone info is regularly

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			sent to public. Additionally, encourage citizens to participate in the Middle Peninsula Fight the Flood Program.
3.1.5	High	On-going	<p>Gloucester County participates in the State's Flood Awareness Week through various media platforms.</p> <p>Gloucester County also send 'RLA' Letters to property owners within the CRS identified Repetitive Loss Areas (Well over 500 structures).</p> <p>Gloucester is working towards sending letters to all homeowners within the regulatory floodplain and SLOSH model Hurricane Zones to notify individuals of their flood zone and hurricane risks. This includes homes outside of the regulatory floodplain that could be flooded by a Cat. I hurricane.</p>
3.1.6	Moderate	On-going	Gloucester Volunteer Fire and Rescue also trained response personnel in ice rescue.
3.1.7	Moderate	On-going	New programs have been developed and implemented in partnership among Community Engagement, Public Information, and Flood Plain Manager.
3.1.8	Moderate	On-going	Work with Virginia Department of Forestry on public awareness on fire prevention every October.
3.2.2	Low	In-progress	<ol style="list-style-type: none"> <li>1. During the 2021 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2).</li> <li>2..2020 Census was not included in HAZUS.</li> </ol>
4.1.1	High	In-progress	Adopted a floodplain overlay district as a component of the County's zoning ordinance.

<b>Table 94: King and Queen County -2016 Mitigation Strategy Status</b>			
<b>2016 Strategy</b>	<b>2016 Priority</b>	<b>Status</b>	<b>Comments</b>
1.1.6	Moderate	On-going	Route 17 at Parkers Marina completed and now open. Road was raised.
1.1.8	Moderate	Every 2-years	
1.1.9	Low	Canceled	Lack of manpower and funding at the present time
1.1.10	Low	Completed	Adopted new FIRM maps May of 2016 and new code to include 2' of freeboard. Still require flood elevation certificates.
1.1.13	Moderate	On-going	Will continue to work with local TRSWD to obtain farm pond dams when needed.
1.1.15	Low	Completed May 2016	Adopted new FIRM maps May of 2016 and new code. VE flood zone has a higher construction requirement.
1.1.19	Low	Completed	Zoning & Planning has mitigation strategies for development in floodplains and/or RPA buffers with approved WQIA.
2.2.1	High	On-going	Mutual aid agreements exist between various VFDs, Intergovernmental agreements exist for sharing emergency management resources
2.2.2	High	On-going	Mutual aid agreements exist between various VFDs, Intergovernmental agreements exist for sharing emergency management resources
3.1.2	Moderate	Not Started	Roadways in VDOT system needs ditch cleanouts to prevent roadway flooding
3.1.3	Moderate	In-Progress	REC does a great job of this
3.1.4	Low	Completed 2015-2016	Held open house opportunities for the public when new FIRM maps are proposed for adoption. Notified the public via US Mail and/or public notice in the paper.
3.1.6	Moderate	Not started	
3.1.8	Moderate	On-going	
3.2.1	Moderate	Completed	New FIRM maps adopted May of 2016, provided GIS mapping online for public view/use, which includes flood mapping
3.2.2	Low	In-progress	1. During the 2021 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2). 2..2020 Census was not included in HAZUS.
4.1.1	High	In-Progress	Adopted a floodplain overlay district as a component of the County's zoning ordinance.

<b>Table 95: King William – 2016 Mitigation Strategy Status</b>			
<b>2016 Strategy</b>	<b>2016 Priority</b>	<b>Status</b>	<b>Comments</b>
1.1.1	Low	On-going	Structures would need to be constructed above the base flood elevation and no structures are permitted in the 100 ft. RPA.
1.1.4	Low	On-going	
1.1.5	High	On-going	Board of supervisors and VDOT
1.1.6	Moderate	On-going	Board of supervisors and VDOT
1.1.8	Moderate	In-Progress	Updating the ordinance; to be adopted in September 2021
1.1.9	High	In-Progress	Expected to be completed in 2022.
1.1.10	Low	Completed- Spring 2015	Adopted 1.5' freeboard
1.1.11	High	On-going	Any construction in the flood zone is required to meet all flood requirements of the building code, i.e. flood vents and elevation. A certificate of elevation is also required.
1.1.12	Low	On-going	
1.1.13	High	On-going	
1.1.15	Low	On-going	Building code and prohibit construction in wetlands
1.1.18	High	In-progress	GIS layer developed; Added stormwater BMP layer
1.1.19	High	In-progress	Changes are currently being made to the ordinance and the comprehensive plan.
2.2.1	High	Completed	Verbal mutual aid agreement with adjoining counties, dare
2.2.2	High	Completed	Verbal mutual aid agreement with adjoining counties, dare
3.1.2	High	Not started	
3.1.3	High	w/in 1 years	
3.1.4	High	Not started	Very little development around flood plains
3.1.5	High	Completed	Have information available in the planning dept.
3.1.6	High	In-Progress	Information to be provided on the county web-page. This is expected to be completed in November 2021.
3.1.7	Moderate	In-Progress	Provide a handout along with flood insurance information and ratings. Also, the Middle Peninsula Fight the Flood Program offers educational material to property owners. This is expected to be completed in 2022.
3.1.8	Moderate	In-Progress	On the county website and facebook during fire season, department of forestry
3.2.2	High	In-progress	1. During the 2021 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2). 2..2020 Census was not included in HAZUS.
4.1.1	High	In-progress	Revised Comprehensive. Plan; proposed to be completed and adopted in January 2022.

<b>Table 96: Town of West Point -2016 Mitigation Strategy Status</b>			
<b>2016 Strategy</b>	<b>2016 Priority</b>	<b>Status</b>	<b>Comments</b>
1.1.1	Moderate	On-going	The HMA application (made in 2010) to elevate a home in the Town of West Point was not funded by FEMA. Since the Towne has applied for funding over the last several years and since it takes a substantial amount of staff time to complete these applications this outcome is discouraging and applications for similar project may not be pursued in the future.
1.1.2	High	Annually	Building department reviews all plans to make sure they meet building code.
1.1.3	Moderate	Completed	Relocated public works building (ie. Second street Pump Station, Bagby Street and Mattaponi Ave Pump Station, and Thompson Avenue Pump Station at West Point Creek) to higher ground.
1.1.5	Low	Not Started	
1.1.7	Moderate	On-going	Town and HRSD continues to study these areas.
1.1.8	Moderate	Completed	Done by Charles Kline with Virginia Department of Conservation and Recreation in 2015.
1.1.9	Moderate	Completed	Completed with Mary Carson Stiff at Wetlands Watch in 2019.
1.1.11	Moderate	Ongoing	Review of zone and building applications
1.1.15	Low	Not Started	
2.2.1	High	Partially - Completed	In 2009, the Rappahannock Volunteer Firefighters Association signed a mutual agreement, but this only consists of a few volunteer departments within the locality (Appendix M). This is not a mutual aid agreement at the County/Town level.
2.2.2	High	Partially - Completed	In 2009, the Rappahannock Volunteer Firefighters Association signed a mutual agreement, but this only consists of a few volunteer departments within the locality (Appendix M). This is not a mutual aid agreement at the County/Town level.
3.1.2	Moderate	On-going	Directing the public to the Middle Peninsula Fight the Flood Program to improve chronic flooding problems.
3.1.3	Moderate	Not started	
3.1.4	Moderate	Completed	Directing citizens to the Middle Peninsula Fight the Flood Program
3.1.5	Moderate	Completed	Directing citizens to the Middle Peninsula Fight the Flood Program
3.1.6	Moderate	Not started	
3.1.7	Moderate	Not started	
3.2.1	Moderate	On-going	Received new GIS information from FEMA, updated as received from FEMA
3.2.2	Low	In-progress	1. During the 2021 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2). 2..2020 Census was not included in HAZUS.
4.1.1	High	On-going	Adopted a Floodplain overlay district as a component of the County's zoning ordinance

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<b>Table 97: Mathews County- 2016 Mitigation Strategy Status</b>			
<b>2016 Strategy</b>	<b>2016 Priority</b>	<b>Status</b>	<b>Comments</b>
1.1.1	High	In-progress/ ongoing	Four FEMA HMGP grants were awarded to the County for the elevation of houses for thirty-four repetitive loss properties and acquisition of three properties. The elevations and acquisitions in these four grants are in progress and are expected to be completed in 2017. Another FEMA HMGP grant for one severe repetitive loss property was used to elevate the house in 2014.
1.1.2	Moderate	Not started	Delayed because of lack of funding
1.1.3	Moderate	In progress	Provided additional shoreline stabilization material at the base of the New Point Comfort Lighthouse in Mathews County. Also, the County worked to retrofit the fire station in Mathews County to mitigate the impacts of flooding hazards. The fire station in Bohannon was relocated, the station in Gywnn's Island was retrofitted and currently the County is actively seeking real estate to relocate the Mathews Court House fire station.
1.1.4	Moderate	In-progress/ ongoing	FEMA HMGP funds have been used to acquire one repetitive loss property. Two others are in the process of being acquired
1.1.5	Low	On-going	VDOT's responsibility
1.1.6	Moderate	Not started	Delayed because of lack of VDOT funding
1.1.7	Low	On-going	VDOT's responsibility
1.1.8	Low	On-going	
1.1.9	Low	Not started	Delayed because of lack of staff to apply for inclusion and ongoing participation in the CRS Program.
1.1.10	Low	Delayed	Increased elevation requirements proposed for updated floodplain management ordinance, but not adopted. Potential to be addressed in the future.
1.1.11	High	In-progress/ ongoing	County's Building Official is enforcing adopted Floodplain Management Ordinance. Zoning amendments will be considered by the Planning Commission to address recurrent flooding after the five-year review of the Comprehensive Plan.
1.1.13	Moderate	Not started	No request has been made to the NRCS or Tidewater Soil and Water Conservation District for an inventory of farm pond dams.
1.1.15	Low	In-progress/ ongoing	The County's Wetlands Projects Coordinator and the Wetlands Board are promoting "Living Shorelines" as a shoreline erosion control method to property owners by utilizing information provided by VIMS and VMRC.
2.2.1	High	On-going	Currently participating in mutual aid no formal MOU's
2.2.2	High	On-going	Currently participating in mutual aid no formal MOU's
3.1.2	Moderate	In-progress/ ongoing	The County has contracted a third-party to clean outfall ditches experiencing drainage issue. Maintenance is periodically performed by VDOT on ditches within their right-of-way.
3.1.3	Low	Not started	No request has been made to Dominion Power for information or guidance about removing vegetation near power lines. Dominion does maintain certain vegetation clearances near major powerlines throughout the County without any request needed from the County
3.1.4	High	In-progress/ ongoing	Information is made regularly available through the County Website and various social media platforms
3.1.5	High	In-progress/ ongoing	The Department of Planning & Zoning continues to accept applications for the next possible round of FEMA HMGP funding.
3.1.6	Low	Not started	Delayed due to Lack of Staff and Funding

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3.1.7	High	In-progress/ ongoing	Department of Planning & Zoning staff provided this information to residents when the Comprehensive Plan was updated in 2010. On-going information has been provided to the Planning Commission regarding this topic in advance of the five-year review of the Comprehensive Plan.
3.1.8	Moderate	Not started	Delayed because of lack of staff
3.2.2	Low	In-progress	1. During the 2021 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2). 2..2020 Census was not included in HAZUS.
4.1.1	High	On-going	

<b>Table 98: Middlesex County -2016 Mitigation Strategy Status</b>			
<b>2016 Strategy</b>	<b>2016 Priority</b>	<b>Status</b>	<b>Comments</b>
1.1.1	Moderate	On-going	Managed by Staff on an on-going basis
1.1.2	Low	Not Started	Delayed because lack of staff; any concerns are forwarded to VDOT
1.1.4	Low	Not Started	
1.1.5	High	On-going	Continue to coordinate with VDOT and utilize plan as required.
1.1.6	Low	On-going	Continue to coordinate with VDOT
1.1.8	High	On-going	Active program; ordinance adopted.
1.1.9	Low	Not Started	Delayed because lack of staff
1.1.10	High	Completed	Floodplain Ordinance Adopted
1.1.11	High	On-going	Managed by staff on an on-going basis
1.1.13	Moderate	On-going	Managed by staff when required
1.1.15	High	On-going	Managed by staff and Wetland Board
1.1.18	High	Not Started	Delayed because of lack of staff
1.1.19	Moderate	On-going	Managed by staff as required
2.2.1	High	On-going	Middle Peninsula Emergency Management MOU
2.2.2	High	On-going	Middle Peninsula Emergency Management MOU
3.1.2	Moderate	On-going	This occurs as needed
3.1.3	Moderate	On-going	Managed by Staff on an as needed basis
3.1.4	High	On-going	Managed by staff during public education deliveries
3.1.5	High	On-going	This occurs as requested
3.1.6	Moderate	On-going	Managed by staff during public education deliveries
3.1.7	Moderate	Not Started	Reactionary only
3.1.8	Moderate	On-going	Managed by Staff during public education deliveries
3.2.1	Moderate	Completed	
3.2.2	Low	In-progress	During the 2021 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2) and 2010 Census was included in HAZUS. 2020 Census data will be used for the next AHMP update.
4.1.1	High	In-progress	Adopted a floodplain overlay district as a component of the County's zoning ordinance.

<b>Table 99: Town of Urbanna -2016 Mitigation Strategy Status</b>			
<b>2016 Strategy</b>	<b>2016 Priority</b>	<b>Status</b>	<b>Comments</b>
1.1.1	Low	On-going	Greatly increased freeboard requirements in new floodplain ordinance beyond minimum requirement.
1.1.2	Moderate	On-going	
1.1.9	Low	Not Started	
1.1.11	High	On-going	Enforcement of all floodplain/zoning/building regulations in flood zones is actively pursued on an on-going basis.
1.1.15	Low	On-going	Conducted jointly with Middlesex County
1.1.19	Moderate	On-going/In-progress	
2.2.1	High	Partially - Completed	In 2009, the Rappahannock Volunteer Firefighters Association signed a mutual agreement, but this only consists of a few volunteer departments within the locality (Appendix M). This is not a mutual aid agreement at the County/Town level
2.2.2	High	Partially - Completed	In 2009, the Rappahannock Volunteer Firefighters Association signed a mutual agreement, but this only consists of a few volunteer departments within the locality (Appendix M). This is not a mutual aid agreement at the County/Town level
3.1.2	Moderate	On-going	Educational materials periodically placed on web site to encourage maintenance.
3.1.3	Moderate	In-progress	Dominion Energy is currently replacing electrical lines/transformers to increase power for town and reduce power outages. New poles are also being installed.
3.1.6	Low	In-progress	Work with First Responder agencies to provide educational information.
3.1.7	Low	In-progress	Provide information on webpage and provide hand-outs. Also, direct citizens to the Middle Peninsula Fight the Flood Program.
3.2.2	Low	In-progress	1. During the 2015 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2). 2. 2020 Census data will be in the next HAZUS.
4.1.1	High	In-progress	Adopted a Floodplain overlay district as a component of the County's zoning ordinance

The following is a more descriptive version of the mitigation strategies that have been implemented by Middle Peninsula jurisdictions:

Strategies that have been completed since 2016 by the local governments under **Goal I: Prevent Future Hazard Related Losses** include the following:

1. Gloucester County created a GIS layer of data showing pond locations, size, inspection data, and dry hydrant information.
2. The Town of West Point relocated public works buildings (i.e. Second Street Pump Station, Bagby Street and Mattaponi Ave Pump Station, and Thompson Avenue Pump Station at West Point Creek) to higher ground. Additionally, Mathews County provided additional shoreline stabilization material at the base of the New Point Comfort Lighthouse and retrofitted the fire stations to mitigate the impacts of flooding hazards.
3. King & Queen County, Middlesex County, and Town of Urbanna adopted new code to include 2 feet of freeboard; King William County adopted 1.5 feet freeboard in Spring of 2015.
4. King & Queen County adopted the new FIRM maps in May of 2016.
5. Town of West Point worked with Virginia Department of Conservation and Recreation to have their floodplain ordinance reviewed.

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6. Town of West Point utilized the research completed by Wetlands Watch to investigate the FEMA Community Rating System Program. Based on findings the Town of West Point did not find participation in the CRS Program to be beneficial.
7. Mathews County and Town of West Point applied to receive funding through the FEMA HMGP. The Town of West Point application was not funded; however, 4 applications from Mathews were funded to elevate houses for 34 repetitive loss properties and the acquisition of three properties.
8. The development and launching of the Middle Peninsula Fight the Flood Program has become a regional resource for all Middle Peninsula localities and tribes to address flooding on private property and to provide financial resources to implement flood management solutions (i.e. nature-based solutions and living shorelines).

Strategies that have been completed by the local governments under **Goal 2: Improve Community Emergency Management Capability** include the following:

1. Each year the mutual aid agreements amongst all Middle Peninsula localities are renewed to coordinate the region's fire and emergency medical units to ensure a quick and efficient response to severe weather events.
2. Formalized mutual aid agreements amongst all Middle Peninsula localities to coordinate the region's fire units to ensure a quick and efficient response to wildfires has been continued.
3. Gloucester County formalized a MOA in 2018 with Middle Peninsula and Northern Neck localities that provides for EOC (Emergency Operations Center) and response support if local emergency exceeds local capacity.

A strategy that has been completed under **Goal 3: Increase Public Awareness of Vulnerability to Hazards** includes the following:

1. To improve the hazard assessment within the region, a HAZUS analysis was run with the 4.2 version software and 2010 Census data was used.
2. King & Queen County incorporated the digitized local floodplain maps into their GIS database after adoption by the board of supervisors.
3. Middlesex County informed community property owners about changes to the DFIRM/FIRM that would impact their insurance rates.
4. The development and launching of the Middle Peninsula Fight the Flood Program has become a regional information resource for all matters associated with flooding, insurance and flood management solutions (i.e. nature-based solutions and living shorelines).

### **Canceled Strategies**

To provide a quick snapshot of the canceled strategies, below are a list of the strategies and the localities that have canceled them.

- **Strategy I.1.3: Protect public buildings and public infrastructure from flood waters resulting from 100-year flood storm events.**

Town of Tappahannock canceled this strategy as the Town does not have current plans to protect public buildings and public infrastructure from flood waters. Currently all pump stations are enclosed in small buildings and the pumps are above foundation levels. The pump stations have power and flood alarms.

- **Strategy I.1.4: When elevating or flood proofing is not feasible for existing buildings threatened by flooding, land purchase and conversion to non-residential recreation/conservation land uses should be pursued by the locality or Tribe using FEMA Grant Funds.**

Gloucester County canceled this strategy since the County does not participate in FEMA acquisition program. The management of acquired land may cause additional costs to the County.

- **Strategy I.1.9: Investigate the FEMA Community Rating System (CRS) Program in the Middle Peninsula localities that are not currently participating in it, which can ensure a less flood hazard prone community and thereby lower flood insurance rates for its residents.**

King & Queen County canceled this strategy due to lack of manpower and funding. This strategy may be revisited in future AHMP updates.

## Completed Strategies

To provide a quick snapshot of the completed strategies, below are a list of the strategies and the localities that have completed them.

- **Strategy I.1.8: Review locality's compliance with the National Flood Insurance Program with a bi-annual review of their Floodplain Ordinance and any newly permitted activities in the 100-year floodplain.**

Based on the results of their compliance review with Virginia Department of Conservation and Recreation (DCR), locality officials responsible for managing the locality's floodplain program recommended amendments to the local Floodplain Ordinance and/or departmental policies/procedures as requested by compliance officials in a timely manner after the review.

**Strategy I.1.8 was completed by the following Middle Peninsula locality:**

### ***1. Town of West Point.***

- **Strategy I.1.9: Investigate the FEMA Community Rating System (CRS) Program in the Middle Peninsula localities that are not currently participating in it, which can ensure a less flood hazard prone community and thereby lower flood insurance rates for its residents.**

Localities determined the steps and resources needed to become a certified CRS Program Community.

**Strategy 1.1.9 was completed by following Middle Peninsula localities:**

**1. Town of West Point.**

- **Strategy 1.1.10: Investigate and implement increasing building elevation requirements for structures proposed in flood zones.**

Middle Peninsula localities are adversely affected by flood water surges from coastal storms to some extent - with decreasing severity as you move from the southeastern-most areas to the northwestern-most portions of the region.

Localities should consider adopting an ordinance to increase freeboard regulatory floodplain.

**Strategy 1.1.10 was completed by the following Middle Peninsula localities:**

- 1. King & Queen County,**
- 2. King William County, and**
- 3. Middlesex County.**

- **Strategy 1.1.15: Promote coastal construction techniques that will minimize soil erosion and shoreline damage caused by coastal storm surges**

Locality staff will work with engineers from the Virginia Marine Resources Commission (VMRC) and Virginia Institute of Marine Science Shoreline Studies Program to determine what coastal construction techniques can be used by waterfront property owners to lessen coastal erosion/flooding along the water's edge during severe storm events. Also, localities can encourage citizens to participate in the Middle Peninsula's Fight the Flood Program.

Additionally, as FEMA developed new Flood Insurance Rate Maps a new information layer was added called the Limit of Moderate Wave Action (LiMWA) that identifies the 1.5-foot wave height. With this new information communities and property owners can make more informed decision about reducing their coastal flood risk.

**Strategy 1.1.15 was completed by the following Middle Peninsula localities:**

**1. King & Queen County.**

- **Strategy 1.1.18: Create a GIS layer of data showing pond locations, their size, inspection data, and dry hydrant information to improve fire response.**

**Strategy 1.1.18 was completed by the following Middle Peninsula localities:**

**1. Gloucester County.**

- **Strategy 1.1.19: Integrate mitigation strategies into locality plans, policies, codes and programs across disciplines and departments.**

The localities worked to integrating mitigation strategies into regional, county, and/or town plans (i.e. Comprehensive Plan, Stormwater Management Plan, Water Supply Plan, etc), policies, codes (i.e. ordinances) and programs to help support hazard risk reduction.

**Strategy 1.1.19 was completed by the following Middle Peninsula localities:**

1. **King & Queen County.**

- **Strategy 3.1.4: Promote public education programs to ensure that property owners are fully informed about the flood hazards on the property that they own**

Each local and Tribal government will develop and post flood mitigation materials on the Emergency Services Section of their website. Posted information will include a list of the locality or Tribe's mitigation strategies and technical information that the local property owners can use to help alleviate flood damage to their properties.

**Strategy 3.1.4 was completed by the following Middle Peninsula localities:**

1. **King & Queen County, and**
2. **Town of West Point.**

- **Strategy 3.1.5: Develop a public education campaign for residents living in the 100-year floodplain, especially those living on FEMA's list of SRL and RL properties, listing methods for them to decrease flood damage including the availability of any FEMA grant funds for elevation or relocation projects.**

Technical information should specify design considerations for how to handle all household utility components in flood prone areas as well as breakaway walls and venting options that allow automatic entry and exit of flood waters.

**Strategy 3.1.5 was completed by the following Middle Peninsula localities:**

1. **Town of West Point.**

- **Strategy 3.2.1: Incorporate the newly digitized local floodplain maps into each County's GIS database after adoption by the local governing body, to the extent possible.**

Each county's GIS technician/consultant will incorporate the digitized floodplain map data into their system when a GIS system becomes available to the locality.

County planning/zoning officials will ensure that this floodplain data is readily available to property owners so that they are aware of the 100-year flood boundaries on their land.

**Strategy 3.2.1 was completed by the following Middle Peninsula localities:**

1. **King & Queen County, and**
2. **Middlesex County.**

- **Strategy 3.2.2: When the Natural Hazards Mitigation Plan is updated in the future, complete:**
  1. **HAZUS flood runs for the 1 sq. mi. threshold. In most cases, this will need to be done on priority stream reaches as the program does not run efficiently at this level.**
  2. **Re-run HAZUS for plan update to reflect 2010 census data.**

As part of the 2021 update, 2010 census data was reflected in the HAZUS and HAZUS was run using the latest software (Version 4.2).

**Strategy 3.2.2 was completed by the following Middle Peninsula localities:**

1. **Essex County,**
2. **Gloucester County,**
3. **King and Queen County,**
4. **King William County,**
5. **Mathews County,**
6. **Middlesex County,**
7. **Town of Tappahannock,**
8. **Town of Urbanna,**
9. **Town of West Point, and**
10. **Rappahannock Tribe.**

- **Strategy 4.1.1: All Natural Hazards: Adopt an Implementation Plan that includes one or more of the following:**

Adopted Floodplain Overlay District as a component of the County's Zoning Ordinance.

1. **Essex County,**
2. **Gloucester County,**
3. **King William County,**
4. **Mathews County,**
5. **Middlesex County,**
6. **Town of Tappahannock,**
7. **Town of Urbanna, and**
8. **Town of West Point.**

While Middle Peninsula Localities have worked to complete 2021 mitigation strategies within their jurisdiction to benefit the public and create a more hazard resilient community, each locality continues to work toward comprehensive hazard mitigation. The review of 2016 mitigation strategies highlights

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actions taken by localities, and it offers insight into what objectives, goals, and strategies that still need to be accomplished or worked on.

## Section 8 - New Mitigation Goals, Objectives, and Strategies

Taking into account the update of the hazard vulnerability assessment using the Kaiser Permanente methodology and the results of the recently completed HAZUS damage assessments, the LPT proposes new and/or updated mitigation strategies to reduce the region's risk to hazards affecting the Middle Peninsula. Please note that the strategies may not be numerical order since some strategies have been completed. The completed strategies can be found in Section 7 of this Plan.

### **Goal 1: Prevent future losses resulting from natural hazard events.**

**Objective 1.1: Provide protection for future development to the greatest extent possible.**

**Strategy 1.1.1: Reduce or eliminate flood damage to residential/business structures that are highly vulnerable for continual flood damage.**

**Strategy 1.1.1 will be undertaken by the following Middle Peninsula localities and Tribe:**

1. **Essex County,**
2. **Middlesex County,**
3. **Gloucester County,**
4. **Mathews County,**
5. **King William County,**
6. **Town of West Point,**
7. **Town of Urbanna,**
8. **Town of Tappahannock, and**
9. **Upper Mattaponi Tribe.**

If requested by citizen living in FEMA Repetitive Loss or Severe Repetitive Loss structure, the Middle Peninsula localities listed above will apply on behalf of the citizen for FEMA grant funds that lessen/eliminate flood damages. Project costs, including staff time, equipment, materials, construction activities, and administrative costs, are reimbursable by FEMA grant funds, but property owners who are benefitting directly from the flood mitigation project may need to provide matching funds.

Some of the localities listed above may want to undertake mitigation projects in one "neighborhood" at a time for consistency/uniformity in the community as well as for some economies-of-scale savings in some of our more rural low-lying areas. The Upper Mattaponi Tribe will work with homeowners that have identified problems and reconstruction projects will be investigated to determine eligibility for grant funding.

According to FEMA data as of 2020, the following is a summary of the number of Repetitive Loss and Severe Repetitive Loss Properties in each locality (Table 100). If the locality is not listed there are no Repetitive Loss or Severe Repetitive Loss Properties.

<b>Locality</b>	<b>Repetitive Loss Properties</b>	<b>Severe Repetitive Loss Properties</b>
Essex County	33	2
Gloucester County	155	18
King William	9	0
Mathews County	162	15
Middlesex County	37	2

Tappahannock	3	0
Urbanna	2	0
West Point	9	0

Please note that in 2020 the MPPDC launched a community Fight the Flood Program that connects property owners facing rising flood waters with tools and funding to contract with specialized businesses who can help evaluate, design, and build solutions. This program is intended to identify and advance flood mitigation activities in the region.

Properties to be mitigated will receive a higher priority ranking by the locality using the following criteria:

1. Severe Repetitive Loss Properties over Repetitive Loss Properties.
2. Willingness and ability of the property owner to pay for the non-FEMA grant funded portion of match of the project costs.
3. Higher benefit/cost ratio properties over lower benefit/cost ratio properties.
4. Projects that reduce flood risks to other nearby properties over those that don't.

### **Cost/Benefit Implications of Implementing Strategy I.1.1**

This strategy will have direct:

1. Benefits for private property owners by reducing/eliminating the severity of structural flood damage to their homes and businesses.
2. Benefits for private property owners with possible reductions in their future flood insurance premiums.
3. Benefits for FEMA by reducing the number of properties on the Repetitive Loss and Severe Repetitive Loss Lists and subsequent flood insurance claims.
4. Costs for private property owners who will directly benefit from the mitigation work on their property as well as by the federal government through expenditure of FEMA Hazard Mitigation Funds.

***Mitigation Strategy addresses the following hazards: hurricanes, winter weather, flooding, sea level rise, and summer storms.***

**Strategy I.1.2: Flood proof, to the greatest extent possible, existing water dependent commercial buildings against flooding, including surge velocities (ie. "wave runup"), to ensure continuity and viability of the seafood industry and other water dependent businesses.**

**Strategy I.1.2 will be undertaken by the following Middle Peninsula localities:**

1. **Essex County,**
2. **Middlesex County,**
3. **Gloucester County,**
4. **Mathews County,**
5. **Town of Urbanna, and**
6. **Town of West Point.**

Each locality listed above will work with the owners of water dependent commercial properties to communicate the full range of flood proofing techniques available to them to decrease their vulnerability to flood losses. For water dependent commercial properties in the Town of Urbanna, Middlesex County will help accomplish this task.

Each locality will advertise and conduct an annual workshop for contractors and property owners to provide instructions on how they can undertake specific flood proofing techniques on their buildings. Please note that in 2020 the Middle Peninsula Planning District Commission launched a community Fight the Flood Program that connects property owners facing rising flood waters with tools and funding to contract with specialized businesses who can help evaluate, design, and build solutions. Therefore, localities will utilize this program as an educational tool and resource to encourage flood proofing.

**Cost/Benefit Implications of Implementing Strategy I.1.2**

This strategy will have direct:

1. Benefits for private business owners by reducing/eliminating the severity of structural flood damage that will allow them to maintain the viability of the coastal seafood industry.
2. Benefits for private property owners with possible reductions in their future flood insurance premiums.
3. Benefits for FEMA by reducing the number of properties on the Repetitive Loss and Severe Repetitive Loss lists eligible for subsequent flood insurance claims.

**Mitigation Strategy addresses the following hazards: hurricanes, winter weather, sea level rise, flooding, and summer storms.**

**Strategy I.1.3: Protect public buildings and public infrastructure from flood waters resulting from 100-year flood storm events.**

**Strategy I.1.3 will be undertaken by the following Middle Peninsula localities and Tribe:**

1. Gloucester County,
2. Mathews County,
3. Town of West Point,
4. Town of Urbanna, and
5. Upper Mattaponi Tribe.

The Middle Peninsula localities, as well as other political subdivisions of the state providing public infrastructure in our region, including the Hampton Roads Sanitation District (HRSD), shall incorporate flood protection measures into their critical public buildings and public infrastructure if deemed feasible by local officials. The Upper Mattaponi Tribe will work to determine project eligibility for grant funding.

These flood protection measures should be incorporated into their local Capital Improvements Program (CIP) for funding consideration by the governing body during their annual budget development and approval process, if possible.

A list of the critical public buildings and public infrastructure within localities include the following:

- Flood proof and/or elevate the following public sewerage pump stations:

<b>Locality</b>	<b>Pump Station Name</b>
Gloucester County	Pump Station #11 and Pump Station #13, #15 and #17
Town of Urbanna	Town Marina
Town of West Point	Second Street Pump Station
Town of West Point	Bagby Street and Mattaponi Ave Pump Station
Town of West Point	Thompson Avenue Pump Station at West Point Creek

- Consider mitigation retrofit projects at fire stations in Mathews County at-
  - New Point
  - Mathews Court House

**Cost/Benefit Implications of Implementing Strategy I.1.3**

This strategy will have direct:

1. Benefits for local governments and the HRSD by reducing/eliminating flood damage to public sewage systems.
2. Benefits to the public by maintaining public health standards by reducing/eliminating sewage system overflows into public water bodies during severe weather events.
3. Costs to local governments/HRSD to design and construct waterproofing and stabilization improvements to local buildings/infrastructure.

***Mitigation Strategy addresses the following hazards: hurricanes, sea level rise, flooding, and summer storms.***

**Strategy I.1.4: When elevating or flood proofing is not feasible for existing buildings threatened by flooding, land purchase and conversion to non-residential recreation/conservation land uses should be pursued by the locality or Tribes using FEMA Grant Funds.**

**Strategy I.1.4 will be undertaken in the following Middle Peninsula localities and Tribes:**

1. Essex County,
2. King William County,
3. Mathews County,
4. Middlesex County,
5. Rappahannock Tribe, and
6. Upper Mattaponi Tribe.

**Cost/Benefit Implications of Implementing Strategy I.1.4**

This strategy will have direct:

1. Benefits for residential neighborhoods by reducing/eliminating storm construction debris that results from structures that are habitually damaged or destroyed by flood waters.
2. Benefits to the locality, Tribe, and general public by increasing vegetative buffering materials in storm surge zones when land is converted from residential use to conservation/preservation use.
3. Benefits for FEMA by reducing the number of properties on the Repetitive Loss and Severe Repetitive Loss lists and subsequent flood insurance claims.
4. Costs for localities and Tribes, including the maintenance of the property or properties acquired through this grant program.
5. Costs for FEMA through expenditure of Hazard Mitigation Funds for land use conversion program.

***Mitigation Strategy addresses the following hazards: hurricanes, flooding, and summer storms.***

**Strategy I.1.5: Improve/maintain main evacuation routes (Table I01) used by Middle Peninsula residents and Tidewater residents evacuating severe coastal weather events and add evacuation route insignia to public streets that are part of the hurricane evacuation route.**

**Strategy I.1.5 will be undertaken in the following Middle Peninsula localities using available grant funds:**

1. Essex County,
2. Gloucester County,
3. King William County,
4. King & Queen County,
5. Mathews County,
6. Middlesex County,
7. Town of Tappahannock, and
8. Town of West Point.

<b>Locality</b>	<b>Road Name/Location</b>
Essex/Tappahannock	Route 17 at June Parker Marina
King William County	King William Drive (Route 30) at Cypress Swamp at Olson's Pond
Gloucester County	Route 17 N
Mathews County	Route 14 to Rt 198 N to 17 N
Town of West Point	When Bridges are Closed due to Winds above 45 miles per hour: Route 30, however Rt 30 can close due to flooding at Cypress Swamp. When bridges are open: Rt 33 Wet to Route 64

**Cost/Benefit Implications of Implementing Strategy I.1.5**

This strategy will have direct:

1. Benefits for both public motorists and the VDOT Primary Road System by decreasing flooding and flood damage to the Middle Peninsula's primary hurricane evacuation routes.
2. Benefits to local resident and seasonal visitors to better visualize routes who may not be aware that the route exists.
3. Substantial costs in federal and state transportation construction funds to elevate Route 17 and Route 30.
4. Costs of producing and erecting the signs.

**Mitigation Strategy addresses the following hazards: hurricanes, sea level rise, and flooding.**

**Strategy I.1.6: Improve/maintain/reconstruct public roads that hinder the evacuation of Middle Peninsula and Tidewater residents fleeing flood waters from coastal storms.**

**Strategy I.1.6 will be undertaken in the following Middle Peninsula localities using available grant funds (i.e. VDOT and VDEM):**

1. Essex County,
2. Gloucester County,
3. King and Queen County,
4. King William County,
5. Middlesex County, and

## 6. Mathews County.

Route	Road Name	Location of Flooding
749	Kays Lane	at Root Swamp
721	Newtown Road	Near Bradley Farm Road
721	Newtown Road	Near Level Green Road
721	Newtown Road	Near Cedar Plane Road
721	Newtown Road	Near Glebe Road
623	Indian Neck Road	Near Rappahannock Culture Center
625	Poplar Hill Road	Nar Spring Cottage Road
628	Spring Cottage Road	Near Eastern View Road
628	Todds Bridge Road	Near Gunsmoke Lane
628	Pattie Swamp Road	At swamp
631	Fleets Mill Road	At Fleets Millpond
636	Minter Lane	At Walkerton Creek
631	Norwood Road	At Dickeys Swamp
620	Powcan Road	At Poor House Lane
634	Mt. Elba Road	At Flat Areas
620	Duck Pond Road	At Garnetts Creek
633	Mantua Road	At Garnetts Creek
617	Exol Road	At Exol Swamp
14	The Trail	At Truhart
614	Devils Three Jump Road	At Mt. Olive Road
613	Dabney Road	At Little Tastine Swamp
611	Tastine Road	At little tastine swamp
603	Lombardy Road	At Little Tastine Swamp
608	Clancie Road	At Bugan Villa Drive
601	Stratton Major Road	Near Union Prospect Baptist Church
601	Stratton Major Road	Near Union Road
644	Jonestown Road	At Meadow Swamp
605	Plain View Lane	At Guthrie Creek
601	Cherry Row Lane	At Guthrie Creek and swamp
666	Tuckers Road	entire Road including Tuckers R.P.
667	Wrights Dock Road	Entire road
640	Lyneville Road	At 36" cross-pipes
625	Bryds Mill	At cross-pipes
615	Union Hope Road	At Exol Swamp
604	Bryds Bridge Road	At Bryds Bridge
612	Lilly Pond Road	At Dragons Swamp Bridge
610	Dragonville Road	At Timber Brook Swamp
614	Rock Springs Road	At bridge
14	Buena Vista Road	At King & Queen/Gloucester County Line

Route	Road Name	Location
617	Island Farm Road	Piscataway Creek
646	Fort Lowery Lane	Rappahannock River
680	River Place	Rappahannock River

Route	Road Name	Location
636	VFW Road	Cypress Swamp
632	Mt. Olive-Cohoke Road	Intersection of Route 633
609	Smokey Road	Herring Creek
628	Dorrel Road	Herring Creek
1006	Thompson Avenue	West Point Creek
1003	Chelsea Road	West Point Creek to dead end
1130	Glass Island Road	Mattaponi River
1107	Kirby Street	1 <sup>st</sup> to 7 <sup>th</sup> Street
n/a	1 <sup>st</sup> to 7 <sup>th</sup> Street	Between Kirby Street and Pamunkey River
n/a	2 <sup>nd</sup> to 5 <sup>th</sup> Street	Between Lee Street and Mattaponi River

Route	Road Name	Location of Floodwaters
684	Starvation Road	From Big Oak Lane to ESM
662	Allmondsville Road	From Rt. 606 to Rt.618
618	Chappahosic Road	From Rt. 662 to Rt. 639
636	Brays Point Road	From Eagle Lane to ESM
1303	Carmines Island Road	From Gardner Lane to ESM
646	Jenkins Neck Road	Various spots from Owens Road to ESM
648	Maundys Creek Road	From Rt. 649 to ESM
649	Maryus Road	From Haywood Seafood Lane to ESM
652	Rowes Point Road	From 653 to ESM
649	Severn Wharf Road	Various spots from 653 to ESM
602	Burkes Pond Road	From Friendship Road to Burkes Mill Drive
623	Ware Neck Road	From Rt. 14 to Ware Point Road
3	John Clayton Memorial Highway	From Cow Creek to Crab Thicket Road
17	George Washington Memorial Hwy	From Woods Cross Road to Adner Road, and at the Gloucester / Middlesex line at Dragon Run
614	Corduroy Road	Robins Neck to dead end

Route	Road Name	Location
610	Marsh Hawk Road	From Rt. 614 to Rt. 611
600	Circle Drive	From Rt. 14 to Rt. 14
600	Light House Road	From Rt. 14 to ESM
611	Tabernacle Road	From Rt. 613 to Rt. 610
611	Tabernacle Road	From Rt. 610 to 609
609	Bethel Beach Road	From Rt. 610 to ESM
609	Bethel Beach Road	From Rt.614 to Rt. 611
643	Haven Beach Road	From Rt. 704 to ESM
633	Old Ferry Road	From Rt. 663 to Gwynn's Island Bridge
608	Potato Neck Road	From Rt. 649 to ESM
644	Bandy Ridge Road	From Rt. 611 to Rt. 614

Route	Road Name	Location
648	Montague Island Road	From Rt. 604 to ESM
651	Smokey Point	From Rt. 640 to Rt. 685
1103	Irma's Lane	From Rt. 33 to Rt. 1102
628	Mill Creek Road	From Rt. 702 to ESM

636	Timber Neck Road	From 643 to Rt. 659
604	Bayport Road	At Masons Mill Swamp
648	Montague Island Road	At Mud Creek
604	Nesting Road	At Mud Creek
610	Burchs Mill Road	At Burch Pond
606	Briery Swamp Road	At Briery Swamp
602	Wares Bridge Road	At Wares Bridge
602	Wares Bridge Road	At Briery Swamp
603	Farley Park Road	At New Dragon Bridge
618	Lovers Retreat Lane	At Dragon Run Swamp
602	Old Virginia Street	At LaGrange Creek/Hilliards Mill Pond
17	Tidewater Trail	Nickleberry Swamp
17	Tidewater Trail	At Dragon Swamp
616	Town Bridge Road	At Glebe Swamp
616	Town Bridge Road	At Town Bridge Swamp
629	Stormont Road	At My Lady Swamp
620	Philpot Road	At Healy's Mill Pond Swamp
625	Bob's Hole Road	At Mill Creek
624	Regent Road	At Mill Creek
622	Dirt Bridge Road	At Locklies Creek
625	Barracks Mill Road	At Barracks Mill Pond
33	General Puller Highway	At Conrad Pond/Wilton Creek
631	North End Road	At Sturgeon Creek
688/ 622/ 654/ 1113/33	All Stingray Point Roads	

### **Cost/Benefit Implications of Implementing Strategy I.1.6**

This strategy will have direct:

1. Benefits to residents who will be better able to safely leave their neighborhoods during evacuations when requested by emergency response officials.
2. Benefits to the longevity of the VDOT Secondary Road System as the state struggles to maintain their existing public road network from future flood damages.
3. Substantial costs in federal and state transportation construction funds to make roadway and drainage structure improvements to the many low-lying roads in the Middle Peninsula Region.

***Mitigation Strategy addresses the following hazards: hurricanes, sea level rise, flooding, and summer storms.***

### **Strategy I.1.7: Improve public roads that adversely affect critical public infrastructure in the floodplain.**

**Strategy I.1.7 will be undertaken in the following Middle Peninsula localities:**

1. **Gloucester County,**
2. **Mathews County,**
3. **Town of Tappahannock,**
4. **Town of Urbanna, and**
5. **Town of West Point.**

<b>Locality</b>	<b>Road Name/ Location</b>
Tappahannock	Newbill Drive
Town of West Point	Second Street
Town of West Point	Bagby Street and Mattaponi Ave
Town of West Point	Thompson Avenue at West Point Creek

Significant storm water runoff from the downtown Tappahannock Business District combined with storm surge activity from the adjacent Rappahannock River causes inundation and the undermining of Newbill Drive. The Town of West Point is focused on improving public roads where sewer pump stations are located in order to reduce flooding inundation that could impact how the pump functions. Within Gloucester County two segments of Route 17 – George Washington Memorial Highway are located in a special flood hazard area and are potentially affected by storm surge. The first is near the Court House area of the County and would be potentially inundated by a storm surge from a Category 1 hurricane. The second area is located at the southern end of the County and has potential to be inundated by a storm surge from a Category 3 or 4 hurricane. Improving these road segments could protect the public infrastructure located in the Court House Area, including government buildings as well as pump stations (#11 and #13). In addition to these two segments, all roads in Gloucester County used to access critical infrastructure are important and may be improved when needed.

**Cost/Benefit Implications of Implementing Strategy I.1.7**

This strategy will have direct:

1. Benefits to the residents of the Town of West Point that utilize the sewer pump stations. The pump station will remain fully functional during and after severe flooding events.
2. Capital costs to improve storm water drainage in order to avoid future damage to roadway and pump stations.

***Mitigation Strategy addresses the following hazards: hurricanes, sea level rise, flooding, winter storms, dam failure, and summer storms.***

**Strategy I.1.8: Review locality/Tribe’s compliance with the National Flood Insurance Program with a bi-annual review of their Floodplain Ordinance and any newly permitted activities in the 100-year floodplain.**

**Strategy I.1.8 will be undertaken in the following Middle Peninsula localities and Tribe:**

1. **Essex County,**
2. **Gloucester County,**
3. **King William County,**
4. **King & Queen County,**
5. **Middlesex County,**
6. **Town of Tappahannock, and**
7. **Upper Mattaponi Tribe.**

Based on the results of their compliance review with Virginia Department of Conservation and Recreation (DCR), locality officials responsible for managing the locality’s floodplain program will recommend amendments to the local Floodplain Ordinance and/or departmental policies/procedures as requested by compliance officials in a timely manner after the review. Additionally, as Gloucester

County is a part of FEMA's Community Rating System (CRS), the program conducts a 5-year cycle visit (audit) that includes a review of the ordinances.

#### **Cost/Benefit Implications of Implementing Strategy I.1.8**

This strategy will have direct:

1. Benefits to localities by regularly and systematically tracking development activity in the flood zones to enable timely and effective changes to the locality's Floodplain Ordinance and other associated local land development ordinances and regulations.
2. Minimal costs to locality since the review is done by staff at DCR and recommended changes are completed by the local government body after consultation with local government zoning and floodplain management employees.

***Mitigation Strategy addresses the following hazards: hurricanes, sea level rise, flooding, and summer storms.***

**Strategy I.1.9: Investigate the FEMA Community Rating System (CRS) Program in the Middle Peninsula localities that are not currently participating in it, which can ensure a less flood hazard prone community and thereby lower flood insurance rates for its residents.**

**Strategy I.1.9 will be undertaken in the following Middle Peninsula localities and Tribe:**

1. Essex County,
2. King William County,
3. Mathews County,
4. Middlesex County,
5. Town of Tappahannock,
6. Town of Urbanna,
7. Town of West Point, and
8. Upper Mattaponi Tribe.

With the exception of Gloucester County, which is already involved in the CRS Program, locality staff from the localities listed above and the Upper Mattaponi Tribe will determine the steps and resources needed to become a certified CRS Program Community.

Locality staff will take their findings to the County Administrator/Town Manager with a recommendation to either enter into the CRS Program, or not, based on the costs and benefits to its residents. The Upper Mattaponi Staff will take their findings to their Tribal Council.

#### **Cost/Benefit Implications of Implementing Strategy I.1.9**

This strategy will have direct:

1. Benefits to residents living in flood prone areas if the locality/Tribe adopts a CRS Program with lower property insurance rates.
2. Costs of dedicating additional staff time to develop, implement, and manage the CRS Program.

***Mitigation Strategy addresses the following hazards: hurricanes, sea level rise, flooding, dam failure, and summer storms.***

**Strategy I.1.10: Investigate and implement increasing building elevation requirements for structures proposed in flood zones.**

**Strategy I.1.10 will be undertaken in the following Middle Peninsula localities:**

1. Gloucester County,
2. Essex County,
3. Mathews County,
4. Town of Tappahannock, and
5. Town of West Point.

Middle Peninsula localities are adversely affected by flood water surges from coastal storms to some extent - with decreasing severity as you move from the southeastern-most areas to the northwestern-most portions of the region.

The Building/Zoning Officials in each of the localities should conduct a feasibility study focused on increasing the elevation requirements for proposed structures to be built in flood zones would lessen flood damage and lower flood insurance premiums for residents. The lower insurance premiums were analyzed in a 2006 FEMA-commissioned study entitled *Evaluation of the National Flood Insurance Program's Building Standards* ([www.fema.gov/library/viewRecord.do?id=2592](http://www.fema.gov/library/viewRecord.do?id=2592)). The feasibility study should be undertaken using local data sources including the latest FIRM data, FEMA Severe Repetitive Loss and Repetitive Loss Lists and known flood water depths from building permit files in the Building Department's records. Based on favorable findings localities should consider implementing increased freeboard.

In September 2010, Gloucester County updated their ordinances to require new structures to be constructed 2 feet above the Base Flood Elevation. Now in 2021, the locality is currently developing an ordinance revision that proposes 3 feet of freeboard in the regulatory floodplain.

#### **Cost/Benefit Implications of Implementing Strategy I.1.10**

This strategy will have direct:

1. Benefits of reduced flood insurance premiums for Middle Peninsula residents if the locality adopts more stringent regulations.
2. Benefit of lowering future flood insurance claims during severe flooding events if the locality implements greater freeboard requirements.
3. Costs of dedicating locality staff time in the Building/Zoning Departments to develop, implement, and manage the building elevation program.

***Mitigation Strategy addresses the following hazards: hurricanes, sea level rise, flooding, dam failure, and summer storms.***

**Strategy I.1.11 Continue to ensure that floodplain/zoning/building regulations in flood prone areas are strictly enforced to prevent non-compliant development and the need to invest in additional public infrastructure in these areas in the future.**

**Strategy I.1.11 will be undertaken in the following Middle Peninsula localities and Tribe:**

1. Essex County,
2. Gloucester County,
3. King William County,
4. King & Queen County
5. Mathews County

6. Middlesex County,
7. Town of Tappahannock,
8. Town of Urbanna,
9. Town of West Point, and
10. Upper Mattaponi Tribe.

Utilize location information gleaned from the FEMA-generated Severe Repetitive Loss List and the Repetitive Loss List as an additional source of data when locality officials guide local property owners about proposed construction/development projects in flood-prone areas. The Upper Mattaponi will review plans for new builds to ensure they are compliant with relevant regulations.

**Cost/Benefit Implications of Implementing Strategy I.1.11**

This strategy will have direct:

1. Benefits to local officials with being able to provide historical flood occurrence data to prospective homeowners/builders in flood prone areas.
2. Costs of dedicating locality staff time in the Planning/GIS Department to map these properties into the locality’s data base.

**Mitigation Strategy addresses the following hazards: hurricanes, sea level rise, flooding, dam failure, and summer storms.**

**Strategy I.1.12: Limit future development in inundation areas located below large water impoundments.**

**Strategy I.1.12 will be undertaken in the following Middle Peninsula locality and Tribe:**

1. King William County and
2. Upper Mattaponi Tribe

The impoundment with the greatest likelihood for adverse flooding impacts downstream from the dam includes the following:

Locality	Facility
King William County	Lake Anne- Located in Louisa County

King William County officials should request Dominion/Virginia Power to assist them with mapping those land areas in the county that are adversely impacted by flood waters from their periodic release of water from Lake Anna. Those maps could then be used by county officials for incorporation into future Comprehensive Plan updates as well as for creating perhaps a possible zoning ordinance overlay district showing periodic inundation areas where future development should be avoided.

The Upper Mattaponi Tribe will monitor plans for development in applicable areas.

**Cost/Benefit Implications of Implementing Strategy I.1.12**

This strategy will have direct:

1. Benefits to local officials with being able to guide future land use planning and development in these periodically affected properties.
2. Costs of dedicating locality staff time in the Planning/GIS Department to map these properties into the locality’s data base.

**Mitigation Strategy addresses the following hazards: coastal/shoreline erosion, sea level rise flooding, and dam failure.**

**Strategy I.1.13 Strongly encourage the USDA - Natural Resources Conservation Services staff, Virginia Department of Conservation and Recreation's Regional Dam Safety Engineer, and the Virginia Soil and Water Conservation District Office staff to ensure that farm pond dams remain structurally sound.**

**Strategy I.1.13 will be undertaken in the following Middle Peninsula localities and Tribe:**

- 1. Essex County,**
- 2. Gloucester County,**
- 3. King and Queen County,**
- 4. King William County,**
- 5. Mathews County,**
- 6. Middlesex County, and**
- 7. Upper Mattaponi Tribe.**

There is no organized database of farm pond dams in the Middle Peninsula. Since catastrophic failure of farm pond dams could have a hazardous flooding outcome for those living below them, it is critical that a database be developed by each locality to ensure emergency response actions and mitigation activities are undertaken.

The agencies listed above have a working knowledge within Middle Peninsula communities of where some of the larger dam structures may be located since they have a history of working with farmers on various farmland enhancement and subsidy projects.

For the USDA and the Virginia Soil and Water Conservation Districts King and Queen, King William and Essex Counties are served by an office in Tappahannock while Middlesex, Gloucester and Mathews Counties are served by these agencies located in Gloucester County. As for Virginia Department of Conservation and Recreation's there is one Regional Dam Safety Engineer that serves all Middle Peninsula.

A written request from the County Administrator/Emergency Services Coordinator in each of the six Middle Peninsula counties should be made to these two agencies requesting an inventory of all dams that they are aware of as well as any structural design/physical condition information that they may have about the dam.

This information will be used by County Planning Officials when they evaluate land development requests during the early planning stages of a proposed project.

#### **Cost/Benefit Implications of Implementing Strategy I.1.13**

This strategy will have direct:

1. Benefits to local officials with being able to locate and provide a vulnerability assessment of these structures for future emergency planning strategies.
2. Costs to the USDA and VSWCD agencies with the dedication of staff time and resources to gather and synthesize this data for local government use.

**Mitigation Strategy addresses the following hazards: dam failure.**

**Strategy I.1.15: Promote coastal construction techniques that will minimize soil erosion and shoreline damage caused by coastal storm surges.**

**Strategy I.1.15 will be undertaken in the following Middle Peninsula localities and Tribe:**

1. Essex County,
2. Gloucester County,
3. King William County,
4. Mathews County,
5. Middlesex County,
6. Town of Tappahannock,
7. Town of Urbanna,
8. Town of West Point, and
9. Upper Mattaponi Tribe.

Locality staff will work with engineers from the Virginia Marine Resources Commission (VMRC) and Virginia Institute of Marine Science Shoreline Studies Program to determine what coastal construction techniques can be used by waterfront property owners to lessen coastal erosion/flooding along the water's edge during severe storm events. Also, localities can encourage citizens to participate in the Middle Peninsula's Fight the Flood Program. This program connects property owners facing rising flood waters with tools and funding to contract with specialized businesses who can help evaluate, design, and build solutions. Additionally, this program focuses on the implementation of nature-based shoreline management solution (i.e. living shorelines, sills, sand nourishment, etc.). As part of the Fight the Flood Program the MPPDC offers a Living Shoreline Incentives program that provides grant and loan funds for the installation of living shorelines. Ultimately these programs provide on-going support to minimize soil erosion and shoreline damage.

Additionally, as FEMA developed new Flood Insurance Rate Maps a new information layer was added called the Limit of Moderate Wave Action (LiMWA) that identifies the 1.5-foot wave height. With this new information communities and property owners can make more informed decision about reducing their coastal flood risk.

#### **Cost/Benefit Implications of Implementing Strategy I.1.15**

This strategy will have direct:

1. Benefits to residents with waterfront property by providing design options that will lessen adverse impacts from flood waters resulting from storm surges.
2. Costs of dedicating locality staff time to work with VMRC, VIMS and MPPDC staff to develop best management design solutions that will mitigate soil erosion and other environmental damages.

**Mitigation Strategy addresses the following hazards: coastall/shoreline erosion, sea level rise and flooding**

**Strategy I.1.18: Create a GIS layer of data showing pond locations, their size, inspection data, and dry hydrant information to improve fire response.**

**Strategy I.1.18 will be undertaken in the following Middle Peninsula localities and Tribe:**

1. **King & Queen County,**
2. **Middlesex County,**
3. **King William County, and**
4. **Upper Mattaponi Tribe.**

#### **Cost/Benefit Implications of Implementing Strategy I.1.18**

This strategy will have direct:

1. Benefits to local fire departments by having a data base of water bodies and dry fire hydrant information when responding to fires.
2. Costs of GIS/Community Development staff time with data gathering, data input and data maintenance of the County's GIS system.

***Mitigation Strategy addresses the following hazards: wildfires, droughts, lightning, and HAZMAT***

#### **Strategy I.1.19: Integrate mitigation strategies into locality plans, policies, codes and programs across disciplines and departments.**

**Strategy I.1.19 will be undertaken in the following Middle Peninsula localities and Tribe:**

1. **Essex County,**
2. **Gloucester County,**
3. **King William County,**
4. **Mathews County,**
5. **Middlesex County,**
6. **Town of Tappahannock,**
7. **Town of Urbanna,**
8. **Town of West Point, and**
9. **Upper Mattaponi Tribe.**

The localities listed above will work to continue integrating mitigation strategies into regional, county, and/or town plans (i.e. Comprehensive Plan, Stormwater Management Plan, Water Supply Plan, etc), policies, codes (i.e. ordinances) and programs to help support hazard risk reduction. According to FEMA there are two primary ways to effectively accomplish Plan Integration:

1. Integrate natural hazard information and mitigation policies and principles into local planning mechanism and vice versa.
  - Include information on natural hazards (past events, potential impacts, and vulnerabilities).
  - Identify hazard-prone areas throughout the community.
  - Develop appropriate goals, objectives, policies, and projects.
2. Encourage collaborative planning and implementation and inter-agency coordination:
  - Involve key community officials who have the authority to execute policies and programs to reduce risk.
  - Collaborate across departments and agencies with key staff to help share knowledge and build relationships that are important to the successful implementation of mitigation activities.

The Upper Mattaponi Tribe will include mitigation strategies in plans and programs as they are created.

### **Cost/Benefit Implications of Implementing 1.1.19**

This Strategy will have direct:

1. Benefits to localities and the Upper Mattaponi Tribe will include enhanced risk reduction through improved coordination.
2. Benefits to localities will include better defined roles of locality staff (ie. planners, emergency managers, engineers, etc.) in improving disaster resiliency.
3. Cost is the staff time required to develop and integrate mitigation strategies into locality/tribal plans and policies.

***Mitigation Strategy addresses the following hazards: hurricanes, winter weather, tornadoes, coastal/shoreline erosion, sea level rise, flooding, wildfires, high winds/windstorms, dam failure, droughts, lightning, earthquakes, shrink/swell soils, extreme temperatures land subsidence/cracks, air quality, HAZMAT, and summer storms.***

**Objective 1.2: Provide protection for critical public facilities and essential services.**

**Objective 1.3: Middle Peninsula localities and Tribes will support implementation of structural and nonstructural mitigation activities to reduce exposure to natural and man-made hazards.**

**Strategy 1.3.1: Mitigation projects that will result in protection of public or private property from hazards. Eligible projects include, but are not limited to:**

- Acquisition of hazard prone properties,
- Mitigation reconstruction,
- Elevation of structures in flood prone areas,
- Implementation of nature-based solutions (i.e. living shorelines) to protect flood prone properties, reduce coastal erosion, and improve coastal resiliency,
- Minor structural flood control projects,
- Relocation of structures from hazard prone areas,
- Retrofitting of existing buildings and facilities,
- Retrofitting of existing buildings and facilities for shelters,
- Infrastructure protection measures,
- Storm water management improvements,
- Advanced warning systems and hazard gauging systems (weather radios, reverse-911, stream gauges, I-flows),
- Targeted hazard education, and
- Installation of generator connections for shelters.

**Strategy 1.3.1 will be undertaken in the following Middle Peninsula locality and Tribes:**

1. Gloucester County,
2. Rappahannock Tribe, and
3. Upper Mattaponi Tribe

As numerous buildings have experienced repetitive damage due to flooding and storm events these structures will be mitigated to reduce or eliminate the potential for damage associated with natural hazards. Gloucester County will also work to reduce vulnerabilities from 2 high hazard dams (ie. Beaverdam Reservoir and Cow Creek Mill Pond). Gloucester County will follow procedures within the Dam Emergency Action Plans to safeguard the lives and reduce damage to the property of citizens in

Gloucester County living and/or working along or near Cow Creek Mill Pond and Beaverdam Reservoir high risk dams.

The Upper Mattaponi Tribe will investigate project eligibility for grant funding. Also, the Upper Mattaponi Tribe will investigate communication systems for advanced and to purchase additional generators for tribal buildings are being developed.

### **Cost/Benefit Implications of Implementing Strategy 1.3.1**

This strategy will have direct:

1. Benefits to the private and public infrastructure by mitigating impacts and vulnerabilities from natural hazards.
2. Benefits to the general public through hazard education programs to prepare for impacts.
3. Benefits for FEMA by reducing the number of properties on the Repetitive Loss and Severe Repetitive Loss Lists and subsequent flood insurance claims.
4. Cost for localities and Tribes include retrofitting existing buildings and facilities, implementing advanced warning systems, maintenance of acquired hazard prone properties, installation of stormwater management practices, as well as deploying hazard education.
5. Costs for FEMA through expenditure of Hazard Mitigation Funds for home elevations and land acquisitions in flood prone areas.

***Mitigation Strategy addresses the following hazards: hurricanes, winter storms, tornadoes, coastal/shoreline erosion, sea level rise, flooding, wildfires, high winds/windstorms, dam failure, droughts, lightning, earthquakes, shrink/swell soils, extreme temperatures, land subsidence/karsts, air quality, HAZMAT, and summer storms.***

### **Goal 2: Improve community emergency management capabilities.**

**Objective 2.1: Improve the ability of the jurisdictional emergency managers to communicate with residents and businesses during and following natural hazard emergencies.**

**Objective 2.2: Improve communications between the emergency managers working in the Middle Peninsula jurisdictions and other nearby localities.**

**Strategy 2.2.1: Formalize mutual aid agreements to coordinate the region's fire and emergency medical units to ensure a quick and efficient response to severe weather events.**

**Strategy 2.2.1 will be undertaken in the following Middle Peninsula localities and Tribes:**

1. Essex County,
2. Gloucester County,
3. King and Queen County,
4. Mathews County,
5. Town of Tappahannock,
6. Town of Urbanna,
7. Town of West Point,
8. Rappahannock Tribe, and
9. Upper Mattaponi Tribe.

With these little-notice storm events, time is of the essence with the ability to provide life-saving aid to as many residents as possible quickly after the severe storms strike. Currently there is a mutual aid agreement amongst participants of the Rappahannock Volunteer Fire Association, which includes the following Middle Peninsula volunteer fire and rescue departments: Gloucester Volunteer Fire and Rescue, King William Volunteer Fire Department, Lower Middlesex Volunteer Fire, Mathews Volunteer Fire Department, Tappahannock Volunteer Fire Department, Upper Middlesex Volunteer Fire Department, West Point Volunteer Fire and Rescue, Middlesex Volunteer Fire Department, Lower King and Queen Volunteer Fire Department, and Central King and Queen Volunteer Fire Department. While this is inclusive of some fire and rescue departments within the Middle Peninsula, this is not inclusive of all and therefore cannot be labeled as complete.

### **Cost/Benefit Implications of Implementing Strategy 2.2.1**

This strategy will have direct:

1. Benefits for local fire and rescue units since having formalized agreements in place will help to coordinate the dispatching of first response units as needed when there may be limited supply and high demand for assistance.
2. Benefits for residents with coordinated emergency response services during these damaging and potentially life-threatening natural hazards.
3. Costs to implement the mutual aid agreements should be minimal for the jurisdiction with the dedication of a small amount of emergency management and legal staff time.

***Mitigation Strategy addresses the following hazards: hurricanes, winter storms, tornadoes, coastal/shoreline erosion, sea level rise, flooding, wildfires, high winds/windstorms, dam failure, droughts, lightning, earthquakes, shrink/swell soils, extreme temperatures, land subsidence/karsts, air quality, HAZMAT, , and summer storms.***

### **Strategy 2.2.2: Formalize mutual aid agreements to coordinate the region's fire units to ensure a quick and efficient response to wildfires.**

**Strategy 2.2.2 will be undertaken in the following Middle Peninsula localities:**

1. **Essex County,**
2. **Gloucester County,**
3. **King and Queen County,**
4. **King William County,**
5. **Mathews County,**
6. **Town of Tappahannock,**
7. **Town of Urbanna, and**
8. **Town of West Point.**

Since numerous wildfire sites can erupt in multiple locations when dry and windy conditions are present throughout the Middle Peninsula, a coordinated regional response by all fire departments serving the area is required to combat this natural hazard. Clearly written and uniform mutual aid agreements can insure a greater degree of a well-coordinated regional response to this natural hazard.

Currently there is a mutual aid agreement amongst participants of the Rappahannock Volunteer Fire Association, which includes the following Middle Peninsula volunteer fire and rescue departments: Gloucester Volunteer Fire and Rescue, King William Volunteer Fire Department, Lower Middlesex Volunteer Fire, Mathews Volunteer Fire Department, Tappahannock Volunteer Fire Department, Upper

Middlesex Volunteer Fire Department, West Point Volunteer Fire and Rescue, Middlesex Volunteer Fire Department, Lower King and Queen Volunteer Fire Department, and Central King and Queen Volunteer Fire Department. While this is inclusive of some fire and rescue department within Middle Peninsula localities, this is not inclusive of all and therefore cannot be labeled as complete. Please note that this strategy focuses on creating mutual aid agreements at the County level.

### **Cost/Benefit Implications of Implementing Strategy 2.2.2**

This strategy will have direct:

1. Benefits for local and nearby fire units since having formalized agreements in place will help to coordinate the dispatching of first response units as needed when there may be a limited supply and a high demand for assistance during times of multiple wildfires.
2. Benefits the residents with coordinated emergency response services during this damaging and potentially life-threatening natural hazard.
3. Costs to implement the mutual aid agreements should be minimal for the jurisdiction's emergency management and legal staff.

***Mitigation Strategy addresses the following hazards: wildfires.***

**Objective 2.3: Improve the ability of localities to communicate with the Virginia Emergency Operations Center during state and federally declared disasters.**

## **Goal 3: Increase the public's awareness and educational level of their vulnerabilities to natural hazards.**

**Objective 3.1: Provide information to residents and businesses about the types of natural hazards that they may be exposed to, where they are likely to occur and what they can do to better prepare for them or to avoid their adverse effects.**

**Strategy 3.1.2: Encourage private property owners to perform regular and routine maintenance of ditches and culverts in order to keep them free of debris, with a special emphasis on road sections where there are chronic flooding problems, including those listed earlier in the plan.**

**Strategy 3.1.2 will be undertaken in the following Middle Peninsula localities and Tribes:**

1. Essex County,
2. Gloucester County,
3. King and Queen County,
4. King William County,
5. Mathews County,
6. Middlesex County,
7. Town of Tappahannock,
8. Town of Urbanna,
9. Town of West Point,
10. Rappahannock Tribe, and
11. Upper Mattaponi Tribe.

As previously noted, there are many VDOT Secondary Roads that are inundated by flood waters during significant storm events. Oftentimes, the flooding occurs at low-lying sections of these roads where the drainage pipes and ditches have been partially or completely blocked by vegetative debris.

Property owners with road frontage should be actively encouraged by local Emergency Management staff, by developing a proactive public information program, to keep ditch lines free of vegetative debris which would lessen the flooding at these stressed road crossings and better allow for vehicles to evacuate during severe storm events.

### **Cost/Benefit Implications of Implementing Strategy 3.1.2**

This strategy will have direct:

1. Benefits for residents living in flood prone areas that will allow them safer evacuation and return routes during severe flooding events.
2. Costs for public information notifications via printed media, reverse 911 systems, County websites or e-mail messages.

***Mitigation Strategy addresses the following hazards: flooding, summer storms, hurricanes, and sea level rise.***

**Strategy 3.1.3: Encourage the two power companies operating in the Middle Peninsula Region to maintain system components, including power line rights-of-way, to minimize interruptions of the electrical power grid for severe weather.**

**Strategy 3.1.3 will be undertaken in the following Middle Peninsula localities:**

1. **Essex County**
2. **Gloucester County**
3. **King and Queen County,**
4. **King William County,**
5. **Mathews County,**
6. **Middlesex County,**
7. **Town of Tappahannock,**
8. **Town of Urbanna, and**
9. **Town of West Point.**

Local Emergency Service Coordinators will work closely with Community Relations/Education employees at Dominion/Virginia Power and Rappahannock Electric Cooperative to inform and guide to their customers about the importance of keeping trees and brush away from electric power lines on their property in order to decrease the possibility of storm damage to the power grid during severe rain/windstorm events.

Educational mailings, such as landscape design techniques as well as a list of plants to grow under power lines to promote attractive landscaping while protecting the power lines from damaging vegetative growth, could be developed by Dominion/Virginia Power and Rappahannock Electric Cooperative staff and mailed as insert with property owners' monthly electric bills.

### **Cost/Benefit Implications of Implementing Strategy 3.1.3**

This strategy will have direct:

1. Benefits local residents with more reliable electric services during severe weather events.

2. Benefits power companies with lower maintenance and repair costs for their rights-of-way and power system equipment.
3. Costs to the 2 power companies to produce and disseminate educational materials to their customers.

***Mitigation Strategy addresses the following hazards: hurricanes, winter storms, tornadoes, flooding coastal/shoreline erosion, high winds/windstorms, earthquakes, and summer storms.***

**Strategy 3.1.4: Promote public education programs to ensure that property owners are fully informed about the flood hazards on the property that they own.**

**Strategy 3.1.4 will be undertaken in the following Middle Peninsula localities and Tribes:**

1. Gloucester County,
2. King William County,
3. Mathews County,
4. Middlesex County,
5. Town of Urbanna,
6. Rappahannock Tribe, and
7. Upper Mattaponi Tribe.

Each local and Tribal government will develop and post flood mitigation materials on the Emergency Services Section of their website. Posted information will include a list of the locality or Tribe's mitigation strategies and technical information that the local property owners can use to help alleviate flood damage to their properties. In 2020 the MPPDC launched a community Fight the Flood Program that connects property owners facing rising flood waters with tools and funding to contract with specialized businesses who can help evaluate, design, and build solutions. This program aims to educate the public on flood mitigation options to mitigate for flooding on their property.

#### **Cost/Benefit Implications of Implementing Strategy 3.1.4**

This strategy will have direct:

1. Benefits local residents with property in the flood plain about measures they can take to lessen flood damages to their property.
2. Costs of dedicating emergency management and public information officer's staff time to developing and distributing mitigation information.

***Mitigation Strategy addresses the following hazards: hurricanes, winter storms, sea level rise, flooding, dam failure, and summer storms.***

**Strategy 3.1.5: Develop a public education campaign for residents living in the 100-year floodplain, especially those living on FEMA's list of SRL and RL properties, listing methods for them to decrease flood damage including the availability of any FEMA grant funds for elevation or relocation projects.**

**Strategy 3.1.5 will be undertaken in the following Middle Peninsula localities:**

1. Essex County,
2. Gloucester County,

3. **King & Queen County,**
4. **Mathews County,**
5. **Middlesex County, and**
6. **Town of Tappahannock.**

Technical information should specify design considerations for how to handle all household utility components in flood prone areas as well as breakaway walls and venting options that allow automatic entry and exit of flood waters. As part of the MPPDC Fight the Flood Program property owners facing rising flood waters are connected to resources, tools, and funding to identify and advance flood mitigation activities in the region.

#### **Cost/Benefit Implications of Implementing Strategy 3.1.5**

This strategy will have direct:

1. Benefits local residents with property in the flood plain about measures they can take to lessen flood damages to their property.
2. Costs of dedicating emergency management and public information officer's staff time to developing and distributing mitigation information.

***Mitigation Strategy addresses the following hazards: hurricanes, winter storms, sea level rise, flooding, and summer storms.***

**Strategy 3.1.6: Increase resident and emergency responder safety during severe winter ice storm events by developing a public education campaign to inform residents about the importance of keeping tree limbs away from their homes and electric lines.**

**Strategy 3.1.6 will be undertaken in the following Middle Peninsula localities and Tribes:**

1. **Essex County,**
2. **Gloucester County,**
3. **King and Queen County,**
4. **King William County,**
5. **Mathews County,**
6. **Middlesex County,**
7. **Town of Tappahannock,**
8. **Town of Urbanna,**
9. **Town of West Point,**
10. **Rappahannock Tribe, and**
11. **Upper Mattaponi Tribe.**

By decreasing the potential for structures to incur damage during ice storms, this will allow the structures to remain occupied thereby lessening the number of emergency responder calls to remove occupants from damaged homes during times when roads are dangerous and/or impassable. Localities and Tribes will work with utility companies within the region to educate the public.

#### **Cost/Benefit Implications of Implementing Strategy 3.1.6**

This strategy will have direct:

1. Benefits for residents since they will be able to stay in their undamaged homes with electric lines intact which will allow for quicker restoration of electric service after severe winter storms.

2. Benefits for first responders with fewer risky fire and rescue calls on ice covered roads during and after severe weather events.
3. Costs of dedicating emergency management and public information officer staff time to develop and distribute ice storm related mitigation information on the locality or Tribe's website and other social media sites.

***Mitigation Strategy addresses the following hazards: extreme temperatures, winter storms.***

**Strategy 3.1.7: Develop public information and inform property owners about the long range affects that sea level rise will have on low-lying property that they own.**

**Strategy 3.1.7 will be undertaken in the following Middle Peninsula localities and Tribe:**

1. Essex County,
2. Gloucester County,
3. King William County,
4. King & Queen County,
5. Mathews County,
6. Middlesex County,
7. Town of Urbanna,
8. Town of West Point, and
9. Upper Mattaponi Tribe.

The local governments noted above will provide information about the potential physical impacts of sea level rise on the Emergency Management Homepage of their jurisdictional website. Posted information will include areas in the locality that are expected to be affected, the time frame within which the impacts will be anticipated, the public infrastructure that may be impacted and what measures can be taken to mitigate future adverse impacts.

#### **Cost/Benefit Implications of Implementing Strategy 3.1.7**

This strategy will have direct:

1. Benefits for residents with property located in low lying areas about measures they can take to lessen future damages from this natural hazard.
2. Benefits to local governments with reduced damages to both public infrastructure and private property.
3. Cost in staff time to assemble, post and update website information on the locality's Emergency Management Homepage about sea level rise.

***Mitigation Strategy addresses the following hazards: sea level rise.***

**Strategy 3.1.8 Promote a public education program to ensure that property owners protect their property by decreasing flammable forest fuels surrounding homes located in wooded settings.**

**Strategy 3.1.8 will be undertaken in the following Middle Peninsula localities and Tribes:**

1. Essex County,
2. Gloucester County,

3. **King and Queen County,**
4. **King William County,**
5. **Mathews County,**
6. **Middlesex County, and**
7. **Rappahannock Tribe.**

Each of these local governments and Tribes will develop and post information about wildfire risks on the Emergency Management Homepage of their website. Posted information will include safety tips to minimize threats to homes/property that the Virginia Department of Forestry has developed and other existing wildfire reduction strategies that are available on related websites.

***Mitigation Strategy addresses the following hazards: wildfires and drought.***

### **Cost/Benefit Implications of Implementing Strategy 3.1.8**

This strategy will have direct:

1. Benefits for local residents with property located in wooded areas to lessen the potential for fire damage to their homes and property.
2. Benefits to local and state fire responders with fewer calls to save structures and rescue residents in perilous situations.
3. Cost in staff time to assemble, post and update website information on the locality or Tribal Emergency Management Homepage.

**Objective 3.2: Improve jurisdictional mapping capabilities to show the physical areas in their locality that may be affected by natural hazard events including storm surge areas from coastal storms.**

**Strategy 3.2.1: Incorporate the newly digitized local floodplain maps into each locality's GIS database after adoption by the local governing body, to the extent possible.**

**Strategy 3.2.1 will be undertaken in the following Middle Peninsula localities:**

1. **Essex County,**
2. **Mathews County,**
3. **Town of Tappahannock,**
4. **Town of Urbanna, and**
5. **Town of West Point.**

Each county's GIS technician/consultant will incorporate the digitized floodplain map data into their system when a GIS system becomes available to the locality.

County planning/zoning officials will ensure that this floodplain data is readily available to property owners so that they are aware of the 100-year flood boundaries on their land.

### **Cost/Benefit Implications of Implementing Strategy 3.2.1**

This strategy will have direct:

1. Benefits of more accurate flood plain data that will enable local officials to better guide development in flood prone areas.
2. Benefits for better data to incorporate into locality Comprehensive Plan Updates.

Costs of dedicating locality staff time in the GIS Department to incorporate the mapping products into the locality's IT system.

**Strategy 3.2.2: When the All-Hazards Mitigation Plan is updated in the future, localities will refine and update data sets for general building stock and essential facilities; that will feed into a Level 2 HAZUS Assessment.**

**Strategy 3.2.2 will be undertaken in the following Middle Peninsula localities:**

1. Essex County,
2. Gloucester County,
3. King and Queen County,
4. King William County,
5. Mathews County,
6. Middlesex County,
7. Town of Tappahannock,
8. Town of Urbanna, and
9. Town of West Point.

#### **Cost/Benefit Implications of Implementing Strategy 3.2.2**

This strategy will have direct:

1. Benefits to locality Zoning Administrators/Floodplain Managers/Building Officials with more precise costs when reviewing locality-wide mitigation projects and policies.
2. Costs to local government officials to contract with engineering firms to run HAZUS models since it is a more technically specific application than more localities in the Middle Peninsula can perform with their own staff capabilities.

***Mitigation Strategy addresses the following hazards: hurricanes, winter weather, tornadoes, coastal/shoreline erosion, sea level rise, wildfires, high winds/windstorms, dam failure, droughts, lightning, earthquakes, shrink/swell soils, extreme temperatures, land subsidence/karsts, landslides, air quality, HAZMAT, and summer storms.***

**Goal 4: Ensure that the strategies developed in this plan are incorporated into other local planning documents, ordinances, policies, and procedures.**

**Objective 4.1: Develop an Implementation Plan within the AHMP Update that identifies the locality employees/officials who will be responsible for implementing each strategy that they will undertake, the local regulatory tools that the jurisdiction will use to implement the strategies, the resources that will be needed and the time frame within which the strategy will be completed.**

**Strategy 4.1.1: All Hazards: Adopt an Implementation Plan that includes one or more of the following:**

1. Assigns locality officials/employees with the ability and authority to implement or cause to be implemented the mitigation strategies that they have agreed to in the update;
2. Determines a low, moderate, and high priority for each strategy in the locality;
3. Establishes realistic timeframes for completing each strategy.

4. Appoints a natural hazard mitigation advisory committee to work with the Board of Supervisors, Planning Commission and Planning Staff to monitor progress on adopted strategies and to suggest additional mitigation strategies within the five-year review period of the AHMP Update by 2022 and the update of the jurisdiction's next Comprehensive Plan.
5. Consider including the mitigation strategies in an Implementation Matrix as part of the jurisdiction's next Comprehensive Plan update.
6. Amend the locality's Zoning Ordinance and Subdivision Ordinance to include natural hazard mitigation strategies as they relate to land development requirements, policies, and procedures.
7. Submit capital projects to the Planning Commission/Board of Supervisors for their consideration when they review the locality's Capital Improvement Program (CIP).
8. Seeks funding from various state and federal agencies for mitigation strategies that require an infusion of funds beyond what the jurisdiction can provide.

**Strategy 4.1.1 will be undertaken in the following Middle Peninsula localities and Tribe:**

1. Essex County,
2. Gloucester County,
3. King William County,
4. King & Queen County,
5. Mathews County,
6. Middlesex County,
7. Town of Tappahannock,
8. Town of Urbanna,
9. Town of West Point, and
10. Upper Mattaponi Tribe.

#### **Cost/Benefit Implications of Implementing Strategy 4.1.1**

This strategy will have direct:

1. Benefits for the elected officials and locality staff since it gives them specific expectations with implementing the numerous strategies in the plan.
2. Costs to local governments have been kept within reason considering the limited financial resources and the many funding responsibilities that the rural Middle Peninsula jurisdictions face.

***Mitigation Strategy addresses the following hazards: hurricanes, winter weather, tornadoes, coastal/shoreline erosion, sea level rise, flooding, wildfires, high winds/windstorms, dam failure, droughts, lightning, earthquakes, shrink/swell soils, extreme temperatures, land subsidence/karsts, air quality, HAZMAT, and summer storms.***

## Section 9 – Implementation Plan

### Overview

The LPT assigned a **low, moderate, or high priority** to each of the strategies that have been proposed to lessen the adverse impacts from natural hazards in their respective communities. These priority ratings were assigned after reviewing the evaluation criteria listed at the beginning of Section 8 as well as their historical insight and knowledge of how their jurisdiction operates.

Strategies that were assigned a **higher priority** are ones that the LPT determined that their localities could implement:

1. in a timely manner,
2. with limited financial and staff resources, and
3. would reduce or eliminate losses to public infrastructure or private structures that have a history of damage from natural causes.

Strategies that were assigned a **moderate priority** are ones that the LPT determined that their localities could implement:

1. with a greater commitment of staff time,
2. a higher level of financial support from the locality, and
3. would increase public safety for a significant number of residents.

Strategies that were assigned a **low priority** are ones that LPT determined would:

1. require assistance from agencies/organizations outside of the direct control of the local government, and
2. have a lower potential to reduce or eliminate direct losses from natural hazards.

Please note that the Middle Peninsula localities and the federally recognized tribes used the above prioritization scale.

## Public Survey (continued)

The final section of the public survey that was open to Middle Peninsula citizens from March 1<sup>st</sup> to March 15<sup>th</sup>, focused on understanding prioritizing projects and mitigating hazards. Respondents believed that mitigation actions protecting critical facilities, protecting, and reducing damages to utilities, and protecting private property were very important. The least important mitigation actions identified by respondents were preventing development in hazard areas and promoting cooperation among public agencies, citizens, non-profit organizations, and businesses. Next, when asked what actions have been on their property to reduce the risk of hazards 98 respondents purchased homeowners/renters insurance policies, 74 respondents have removed dead/dying trees or vegetation, 66 respondents have an alternate power supply, 56 respondents purchased and placed easily accessible fire extinguishers, 24 respondents purchased flood insurance, 20 respondents flood proofed their home, 20 respondents gained an alternative water supply, 17 respondents installed retrofits (i.e.. high impact windows or doors to withstand high winds; fire resistant siding, roofing or window screens, storm doors), 4 respondents installed fire breaks around their home, and 11 respondents have taken other actions.

Respondents also provided input regarding incentives that might encourage mitigation actions on their property and the majority of respondents favored property tax breaks, State tax incentives, insurance premium discounts, and grant funding. Finally, when asked what types of mitigation projects local government agencies should focus on to reduce disruption of services and to strengthen the community, they ranked the following from be most favorable to least favorable:

- Retrofit infrastructure
- Work on improving the damage resistance of utilities
- Retrofit and strengthen essential facilities
- Inform property owners of ways can mitigate damage to their properties
- Replace inadequate or vulnerable bridges and causeways
- Assist vulnerable property owners with securing funding to mitigate impacts on their property(s)
- Provide better information about hazard risk and high-hazard areas
- Buyout flood prone properties and maintain as open space.

### Responsible Party

The local Emergency Services Coordinator/Emergency Manager (ESC/EM) will be the primary person responsible for implementing the strategies in this plan as adopted by their jurisdiction. The ESC/EM will need to work closely with the locality's Chief Administrative Officer (CAO) since many of the strategies will require Board of Supervisor or Town Council action.

Local governing body action will include implementation of new policies or ordinances as well as the possibility of amending existing ones. In addition, the governing body will need to approve grant applications for FEMA Hazard Mitigation Grant Funding and/or other funding sources.

The ESC/EM and CAO will need to work closely with the locality's Building, Planning and Zoning Department staff members as well as with FEMA and VDEM Disaster Mitigation staff in order to implement a successful and comprehensive hazards mitigation program.

Changes to the locality's zoning ordinance, comprehensive plan, building regulations and/or capital improvements programs can be anticipated. The CAO and ESC/EM in each locality will spearhead the effort to amend existing ordinances/policies or develop new ones to help implement mitigation strategies adopted for their locality in the MPAHMP update.

### **Communications**

The ESC/EM will develop and implement their county-wide hazards mitigation outreach and public awareness campaigns using local media and other proven informational outlets in their locality – including their county websites that includes additional information about their Emergency Services Department.

Each locality's website will list and briefly describe the mitigation strategies that they have adopted in this plan and the timeframes by which they plan to implement them. Additionally, the website will include technical information and diagrams that residents can use to implement low-cost/low-tech construction measures to lessen potential future losses from natural hazards. Table 108 to 117 list the strategies that each jurisdiction has committed to for the next 5 years.

**Table 108: Essex County - Locality Specific Plan of Action**

Strategy	Priority	Responsible Party	Funding Source	Status	Comment
1.1.1	Moderate	Zoning	FEMA/landowners	By request	
1.1.2	Low	Building	Local	Yearly	
1.1.4	Low	Planning/ESC	Federal	By request	
1.1.5	High	BOS/VDOT	VDOT	In-progress	Currently participate in the Regional Hampton Road Evacuation Plan
1.1.6	High	BOS/VDOT	VDOT	In-progress	Currently participate in the Regional Hampton Road Evacuation Plan
1.1.8	High	Planning	Local	On-going	
1.1.9	High	Building/Zoning	Local	In-progress	
1.1.10	Low	Building	Local	Did not adopt	
1.1.11	High	Zoning	Local	On-going	
1.1.13	High	ESC/Planning	Local	In-progress	
1.1.15	High	Building/Wetlands	Local	In-progress	
1.1.19	Moderate	ESC/Planning	Local	On-going	
2.2.1	High	ESC	Local	In-progress	Mutual aid contract is renewed once a year
2.2.2	High	ESC	Local	In-progress	Mutual aid contract is renewed once a year
3.1.2	Low	Planning/VDOT	Local	Not started	Delayed due to limited funding and manpower
3.1.3	High	ESC/power co	Local	In-progress	
3.1.5	Moderate	ESC/MPPDC	Local/Regional	In-progress	The County will encourage citizens to participate in the Middle Peninsula Fight the Flood Program.
3.1.6	High	ESC	Local	Ongoing & In-progress	
3.1.8	Low	ESC	Local	Ongoing	
3.2.1	High	Planning	Local	In-progress	
3.2.2	Low	ESC/Regional	State/Federal	In-progress	1. During the 2020 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2) 2. 2010 Census data was included in HAZUS. 2020 Census data will be used in the next AHMP update.
4.1.1	High	ESC	Local	In-progress	Adopted a floodplain overlay district as a component of the County's zoning ordinance.

**Table 109: Town of Tappahannock Locality Specific Plan of Action**

Strategy	Priority	Responsible Party	Funding Source	Status	Comments
1.1.1	Moderate	Zoning	FEMA/landowners	By request	
1.1.5	High	Town/County	VDOT	Delayed	Delayed because of VDOT; currently participate in the Regional Hampton Road Evacuation plan
1.1.7	High	Town	VDOT	Delayed	Delayed because of VDOT; currently participate in the Regional Hampton Road Evacuation plan
1.1.8	High	Planning	Local	On-going	
1.1.9	Low	Building/Zoning	Local	W/in 2 years	Delayed because of Essex County
1.1.10	Low	Building	Essex County	w/in 2 years	
1.1.11	Low	Zoning	Local	Not started	
1.1.15	Low	Building/Wetlands	Local	w/in 2 years	
1.1.19	Moderate	ESC/Planning	Local	On-going	
2.2.1	High	ESC	Local	In-progress	Mutual aid contract is renewed once a year
2.2.2	High	ESC	Local	In-progress	Mutual aid contract is renewed once a year
3.1.2	Moderate	ESC	n/a	On-going	
3.1.3	Moderate	ESC/power co	n/a	w/in 1 years	
3.1.5	Low	ESC/MPPDC	Local/Regional	In-progress	The Town will encourage citizens to participate in the Middle Peninsula Fight the Flood Program.
3.1.6	Low	ESC	Local	Not started	
3.2.1	High	Planning	Local	w/in 2 years	
3.2.2	Low	ESC	State/Federal	In-progress	1. During the 2020 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2) 2. 2010 Census data was included in HAZUS. 2020 Census data will be used in the next AHMP update.
4.1.1	High	ESC	Local	On-going	Adopted a floodplain overlay district as a component of the County's zoning ordinance.

**Table 110: Gloucester County Locality Specific Plan of Action.**

Strategy	Priority	Status	Plan to complete this strategy	Responsible Party	Funding Source	Schedule
I.1.1	Moderate	On-going	Continued progress on the strategy as part of the Hazard Mitigation Management Team combined with our Floodplain Management Committee and Program Public Information.	Hazard Mitigation Management Team and Floodplain Management Committee and Program Public Information	FEMA /Landowners	Strategy will be continual on an annual scheduled basis
I.1.2	Moderate	On-going	Same as above	Same as above	FEMA	Strategy will be continual on an annual scheduled basis
I.1.3	Moderate	On-going	Same as above	Engineering and Building & Grounds Departments	Federal grant	Strategy will be continual on an annual scheduled basis
I.1.4	High	On-going	Same as above	Engineering and Building & Grounds Departments	FEMA	Strategy will be continual on an annual scheduled basis as grants are available.
I.1.5	High	In-progress	Same as above	BOS/VDOT	VDOT	Strategy will be continual on an annual scheduled basis
I.1.6	High	On-going	Same as above	BOS/VDOT	VDOT	Strategy will be continual on an annual scheduled basis
I.1.7	Moderate	In-progress	Same as above	BOS/VDOT	VDOT	Strategy will be continual on an annual scheduled basis
I.1.8	Moderate	On-going	Same as above	Building Inspections and Planning & Zoning Departments	Local	Strategy will be continual on a bi-annual scheduled basis
I.1.10	Moderate	On-going	Same as above	Building Inspections and Planning & Zoning Departments	Local	Strategy will be continual on an annual scheduled basis
I.1.11	High	On-going	Same as above	Building Inspections and Planning & Zoning Departments	Local	Strategy will be continual on an annual scheduled basis
I.1.13	Moderate	On-going	Same as above	BOS/ Environmental Programs /Extension Service	Local	Strategy will be continual on an annual scheduled basis and updated on a regular basis.
I.1.15	Moderate	On-going	Continued progress on the strategy as part of the Hazard Mitigation Management Team combined with our Floodplain Management Committee and Program Public Information.	Wetlands Board Environmental Programs	Local	Strategy will be continual on an annual scheduled basis
I.1.18	Moderate	In-progress	Same as above	DIT / GIS	Local	Strategy will be continual on an annual scheduled basis
I.1.19	Moderate	In-progress	Same as above	BOS, Building Inspections, Planning & Zoning Departments, VDOT	Local	Strategy will be continual on an annual scheduled basis and revised when plans are reviewed
I.1.20	Moderate	In-progress	Same as above	Emergency Management, Hazard Mitigation Management Team & Floodplain Management Committee and Dam Owners	Local/Dam Owners	EAP for the Cow Creek Dam has recently been approved in 2021. Gloucester is currently working with a consultant to

						hold listening session and engagement exercises to better understand the impacts of Beaver Creek Dam.
1.3.1	High	In-progress	Same as above	Emergency Management, Hazard Mitigation Management Team and Floodplain Management Committee, Building Inspections and Planning & Zoning Departments	Local	
2.2.1	High	In-progress	Same as above	Emergency Management	Local	Strategy will be continual on an annual scheduled basis
2.2.2	High	In-progress	Same as above	Emergency Management	Local	Strategy will be continual on an annual scheduled basis
3.1.2	Moderate	On-going	Same as above	VDOT, Floodplain Management Committee and Program Public Information	VDOT & Local grants	Strategy will be continual on an annual scheduled basis and upgraded when VDOT make road improvements as approved by BOS.
3.1.3	Low	On-going	Same as above	Emergency Management, Hazard Mitigation Management Team and Floodplain Management Committee and Program Public Information	Dominion Power	Strategy will be continual on an annual scheduled basis as contract requires by Dominion Power.
3.1.4	Moderate	On-going	Same as above	Same as above	Program Public Information	Strategy will be continual on an annual scheduled basis
3.1.5	High	On-going	Same as above	Emergency Management, Hazard Mitigation Management Team and Floodplain Management Committee and Program Public Information	Program Public Information	Strategy will be continual on an annual scheduled basis and will apply for grants to fund PPI. Additionally, the County will encourage citizens to participate in the Middle Peninsula Fight the Flood Program.
3.1.6	Moderate	On-going	Same as above	Emergency Management, Dominion Power	Dominion Power	Strategy will be continual on an annual scheduled basis
3.1.7	Low	On-going	Same as above	Middle Peninsula Planning District Commission	MPPDC	Strategy will be continual on an annual scheduled basis as part of PDC funding
3.1.8	Moderate	On-going	Same as above	Emergency Management, US Forestry Service, and Volunteer Fire Departments	USFS	Strategy will be continual on an annual scheduled basis and will seek grant opportunities.
3.2.2	Low	In-progress	Same as above	Middle Peninsula Planning District Commission	MPPDC	Strategy will be continual as the AHMP is scheduled for review 2021
4.1.1	High	In-progress	Same as above	Emergency Management and BOS	local	Strategy will be continual as the AHMP is scheduled for review 2021

SECTION 9: IMPLEMENTATION PLAN

**Table III: King and Queen County - Locality Specific Plan of Action**

Strategy	Priority	Responsible Party	Funding Source	Status	Comments
1.1.5	Low	VDOT	VDOT	On-going	VDOT managed plan for bridge and traffic flow.
1.1.6	Moderate	BOS/VDOT	VDOT	On-going	Route 17 at Parkers Marina completed and now open. Road was raised. Also, items referred to VDOT as identified
1.1.8	Moderate	Zoning	Local	Every 2-years	Program reviewed by FEMA
1.1.11	Moderate	Building/Zoning	Local	On-going	
1.1.13	Moderate	ESC/Planning	VDOT	w/in 2-years	
1.1.15	Low	Building/Zoning	Local	On-going	Adopted new FIRM maps May of 2016 and new code. VE flood zone has a higher construction requirement. Also, promote public education and awareness through current floodplain management committee and through the Middle Peninsula Fight the Flood Program.
1.1.18	Moderate	Zoning	Local	On-going	Data updated on an as needed bases as dry hydrants are removed or added and new GIS data is provided, including new aerial imagery.
1.2.1	Low	ESC/CAO	Local	On-going	
2.2.1	High	ESC	Local	On-going	Currently participate in mutual aid, no formal MOU's
2.2.2	High	ESC	Local	On-going	Currently participate in mutual aid, no formal MOU's
3.1.2	Moderate	ESC	VDOT	Not Started	Roadways in VDOT system needs ditch cleanouts to prevent roadway flooding
3.1.3	Moderate	ESC/power co	Power Co.	In-Progress	REC does a great job of this
3.1.5	Low	ESC/MPPDC	Grant	On-going	The County will rely on the MPPDC for education campaigns for residents living in the 100-year floodplain. The MPPDC launched the Fight the Flood Program to engage residents impacted by flooding.
3.1.6	Moderate	ESC	n/a	Not started	
3.1.7	Low	MPPDC	Regional	Not Started	Rely on MPPDC for educational programs; FTF Program
3.1.8	Moderate	ESC	n/a	On-going	
3.2.2	Low	ESC	Local	In-Progress	On-going through GIS
4.1.1	High	ESC	Local	In-Progress	Adopted a floodplain overlay district as a component of the County's zoning ordinance.

**Table 112: King William County - Locality Specific Plan of Action**

Strategy	Priority	Responsible Party	Funding Source	Status	Comments
1.1.5	High	BOS/VDOT	VDOT	On-going	
1.1.6	Moderate	BOS/VDOT	VDOT	On-going	
1.1.12	Low	Zoning	Local	On-going	
1.1.13	Moderate	ESC/Planning	Local	Delayed	Delayed due to lack of funding and interest in this topic.
1.1.15	Low	Building/Wetlands	Local	On-going	
1.1.16	Moderate	Community Development	Local	Not Started	Delayed due to lack of funding
1.1.18	Low	GIS/Community Development	Local	On-going	GIS layer developed; Added stormwater BMP layer
1.1.19	Moderate	Community Development	Local	On-going	
2.2.1	High	ESC	Local	On-going	Currently participate in mutual aid, no formal MOU's
2.2.2	High	ESC	Local	On-going	Currently participate in mutual aid, no formal MOU's
3.1.2	Moderate	ESC	n/a	Not started	
3.1.3	Moderate	ESC/power co	n/a	w/in 1 years	
3.1.4	Moderate	ESC	n/a	Not started	Very little development around flood plains
3.1.5	Low	MPPDC	Regional	Not started	Very little development around flood plains; However, the County will rely on the MPPDC for education campaigns for residents living in the 100-year floodplain. The MPPDC launched the Fight the Flood Program to engage residents impacted by flooding.
3.1.6	Low	ESC	n/a	w/in 2 years	
3.1.7	Low	ESC/Community Development	Local	Not Started	Threat level of sea rise limited in this community.
3.1.8	Moderate	ESC	n/a	Not started	
3.2.2	Low	ESC	n/a	In-progress	1. During the 2020 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2) 2. 2010 Census data was included in HAZUS. 2020 Census data will be used in the next AHMP update.
4.1.1	High	ESC	Local	In-progress	Adopted a floodplain overlay district as a component of the County's zoning ordinance.

**Table 113: Town of West Point - Locality Specific Plan of Action**

Strategy	Priority	Responsible Party	Funding Source	Status	Comments
1.1.1	Moderate	Planning	FEMA/land owners	Canceled	Have applied for funding over the last years and denied.
1.1.2	High	Building	Local	On-going	
1.1.3	Moderate	Planning	HRSD/Local	Completed	Relocated public works building to higher ground
1.1.5	Low	Planning	Regional	Not Started	
1.1.7	Moderate	VDOT/HRSD/Local	VDOT/HRSD/Local	On-going	Continue to evaluate status of roads
1.1.9	Moderate	Building/Zoning	Local	Not started	
1.1.10	Low	Building/Zoning	Local	On-going/ Completed	
1.1.11	Moderate	Zoning	Local	Ongoing	Review of zone and building applications
1.1.15	Low	Building/Wetlands	Local	In-progress	Encourage citizens to participate in the Middle Peninsula Fight the Flood Program.
1.1.19	Low	Planning	Local	Not Started	Plan to work on techniques
2.2.1	High	Regional	Regional	On-going	Currently participate in mutual aid, no formal MOU's
2.2.2	High	Regional	Regional	On-going	Currently participate in mutual aid, no formal MOU's
3.1.2	Moderate	ESC	King William	On-going	King William Dispatch has the capability of doing this for the Town, if needed
3.1.3	Low	ESC/power co	n/a	Not started	
3.1.6	Moderate	ESC	Local	Not started	Work on public education through social media
3.1.7	Low	ESC	n/a	Not started	Work on public education through social media
3.2.1	High	Planning	n/a	On-going	Updated GIS information as received from FEMA
3.2.2	Low	ESC	Local	In-progress	1. During the 2020 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2) 2. 2010 Census data was included in HAZUS. 2020 Census data will be used in the next AHMP update.
4.1.1	High	ESC	Local	In-progress	Adopted a Floodplain overlay district as a component of the Town's zoning ordinance

**Table 114: Mathews County - Locality Specific Plan of Action**

Strategy	Priority	Responsible Party	Funding Source	Status	Comments
1.1.1	High	Zoning	FEMA/landowners	In-progress/ ongoing	Four FEMA HMGP grants were awarded to the County for the elevation of houses for thirty-four repetitive loss properties and acquisition of three properties. The elevations and acquisitions in these four grants are in progress and are expected to be completed in 2017. Another FEMA HMGP grant for one severe repetitive loss property was used to elevate the house in 2014.
1.1.2	Low	Public Works	Local	Not Started	Delayed because of lack of funding
1.1.3	Moderate	Public Works	Local	Not Started	Delayed because of lack of funding
1.1.4	High	Town/County	VDOT	In-progress/ ongoing	FEMA HMGP funds were used to acquire five properties.
1.1.5	High	County	VDOT	Not Started	Recently added to this mitigation strategy
1.1.6	Low	County	VDOT	Not Started	Delayed because of lack of VDOT funding
1.1.8	High	Local/VDCR	Building/Zoning	Not Started	Delayed because of lack of VDOT funding
1.1.9	Low	Building/Zoning	Local	Not started	CRS was investigated by the previous Building Official. Board of Supervisors was not interested in joining at that time.
1.1.10	High	Building	Essex County	Delayed	Increased elevation requirements proposed for updated floodplain management ordinance, but not adopted. Potential to be addressed in the future.
1.1.11	High	Zoning	Local	In-progress/ ongoing	County's Building Official is enforcing adopted Floodplain Management Ordinance. Zoning amendments will be considered by the Planning Commission to address recurrent flooding after the five-year review of the Comprehensive Plan.
1.1.13	Low	Building/Wetlands	Local	Not started	No request has been made to the NRCS or Tidewater Soil and Water Conservation District for an inventory of farm pond dams.
1.1.15	Moderate	Building/Wetlands	Local	In-progress/ ongoing	The County's Wetlands Projects Coordinator and the Wetlands Board are promoting "Living Shorelines" as a shoreline erosion control method to property owners by utilizing information provided by VIMS and VMRC.
1.1.19	Moderate	Building/Zoning	Local	In-progress/ ongoing	Mitigation strategies will be included in the 5-year review of the Mathews County Comprehensive Plan by integrating natural hazard information and identifying hazard prone areas within the community.
2.2.1	High	ESC	Local	On-going	Formal MOA with regional partners.
2.2.2	High	ESC	Local	On-going	Formal MOA with regional partners.
3.1.2	Moderate	ESC	n/a	In-progress/ ongoing	The County encourages property owners to participate in its Outfall Ditch Maintenance Program. Local VDOT maintenance crews periodically clean ditches in their right-of-way. A Ditching Committee comprised of County residents was also formed to address this problem.
3.1.3	Low	ESC/power co	n/a	Not started	No request has been made to Dominion Power for information and guidance about the importance of keeping trees and brush away from power lines.

3.1.4	High	ESC	n/a	In-progress/ ongoing	The County's Building Official regularly posts information on the County's website regarding flood hazards.
3.1.5	High	ESC	n/a	In-progress/ ongoing	The County's Building Official and the Department of Planning & Zoning inform residents about FEMA HMGP grants to elevate their houses or acquire properties. Additionally, the County will encourage citizens to participate in the Middle Peninsula Fight the Flood Program.
3.1.6	Low	ESC	n/a	Not started	Delayed because of lack of staff
3.1.7	High	ESC	local	In-progress/ ongoing	Department of Planning & Zoning staff provided this information to residents when the Comprehensive Plan was updated in 2010. On-going information has been provided to the Planning Commission regarding this topic in advance of the five-year review of the Comprehensive Plan.
3.1.8	Low	Public Works	Local	Not started	Delayed because of lack of staff
3.2.1	High	Zoning	Local	In-progress/ ongoing	Current FEMA flood zone maps are incorporated to our County's Online GIS.
3.2.2	Low	ESC	n/a	In-progress	1. During the 2020 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2) 2. 2010 Census data was included in HAZUS. 2020 Census data will be used in the next AHMP update.
4.1.1	High	Building/Zoning/ESC	Local	Ongoing	Implement plans that address one or more of the eight

**Table 115: Middlesex County - Locality Specific Plan of Action**

Strategy	Priority	Responsible Party	Funding Source	Status	Comments
1.1.1	High	Zoning	FEMA/land owners	On-going	Managed by Staff on an on-going basis
1.1.2	Low	Building	Local	Not Started	Delayed because lack of staff; any concerns are forwarded to VDOT
1.1.4	Low	Building	FEMA	Not Started	Lack of staff to implement strategy
1.1.5	High	ESC/VDOT	Local	On-going	Utilize MP Evacuation Plan and Coordinate with VDOT
1.1.6	Low	BOS/VDOT	VDOT	On-going	Managed by VDOT
1.1.8	High	Zoning	VDOT	On-going	Active program; Ordinance recently readopted
1.1.9	Low	Building/Zoning	Local	Not Started	Delayed because lack of staff
1.1.11	High	Zoning	Local	On-going	Managed by staff on an on-going basis
1.1.13	Moderate	ESC/Planning		On-going	Coordinate with USDA Staff when required
1.1.15	High	Building/Wetlands	Local	On-going	Managed by Staff on an on-going basis
1.1.18	High	ES/GIS	Local	Not Started	Delayed because lack of staff
1.1.19	Moderate	BOS/Zoning/ES	Local	On-going	Coordinated by staff as required
1.2.1	Low	ESC/CAO	Local	Not Started	
2.2.1	High	ESC	Local	On-going	MP Emergency Management MOU
2.2.2	High	ESC	Local	On-going	MP Emergency Management MOU
3.1.2	Low	ESC	n/a	On-going	This occurs as needed; Public information via social media and handout material
3.1.3	Moderate	ESC/power co	n/a	On-going	Managed by Staff on an as needed basis; Continue to coordinate with power company
3.1.4	High	ESC	n/a	On-going	Managed by staff during public education deliveries; Public information via presentation, social media, and handout material
3.1.5	Low	ESC	n/a	On-going	This occurs as requested, <i>Public information via presentation, social media and handout material.</i> Additionally, the County will encourage citizens to participate in the Middle Peninsula Fight the Flood Program.
3.1.6	High	ESC	n/a	On-going	Managed by staff during public education deliveries; Public information via presentation, social media, and handout material
3.1.7	Low	ESC	Local	Not Started	Reactionary only; Public information social media and handout material
3.1.8	High	ESC	n/a	On-going	Managed by Staff during public education deliveries; Public information via presentation, social media, and handout material
3.2.2	Low	ESC	n/a	In-progress	Continue to update and file TIER II Reports.
4.1.1	High	ESC	Local	In-progress	Adopted a floodplain overlay district as a component of the County's zoning ordinance.

**Table 116: Town of Urbanna - Locality Specific Plan of Action**

Strategy	Priority	Responsible Party	Funding Source	Status	Comments
1.1.1	High	Zoning	FEMA/landowners	On-going	Greatly increased freeboard requirements in new floodplain ordinance beyond minimum requirement.
1.1.2	High	Building	Local	On-going	
1.1.3 (newly added strategy)	Moderate	Zoning/HRSD	Local	On-going	Replacing & relocating old sewage pumping stations with modern, more efficient systems and at better locations. Planting appropriate vegetation to shore up shoreline.
1.1.7 (newly added strategy)	Moderate	VDOT	VDOT/Local	On-going	Continue working with VDOT insisting they provide proper service for their roads. Work with property owners to have them take proper care of their drainage areas adjacent to the road.
1.1.9	Moderate	Building/Zoning	VDOT	Not Started	
1.1.11	High	Zoning	Local	On-going	Enforcement of all floodplain/zoning/building regulations in flood zones is actively pursued on an on-going basis.
1.1.15	High	Building/Wetlands	Local	On-going	Conducted jointly with Middlesex County
1.1.19	Moderate	Town/MPPDC	Local	On-going/In-progress	The Town and MPPDC integrates plans and policies when the opportunity arises.
2.2.1	High	ESC	Local	On-going	Currently participate in mutual aid, no formal MOU's
2.2.2	High	ESC	Local	On-going	Currently participate in mutual aid, no formal MOU's
3.1.2	Low	ESC	n/a	On-going	Educational materials periodically placed on web site to encourage maintenance.
3.1.3	Low	ESC/power co	n/a	On-going	Town encourages Dominion line maintenance at every opportunity.
3.1.4	Low	Town/MPPDC	Local/Regional	In-Progress	Direct citizens to the Middle Peninsula Fight the Flood Program
3.1.6	Low	ESC	n/a	Delayed	Manpower constraints
3.1.7	Moderate	ESC	Local	In-progress	Materials are being developed for distribution
3.2.1	Moderate	Zoning/GIS	n/a	n/a	See Middlesex County
3.2.2	Low	ESC	n/a	In-progress	1. During the 2020 HAZUS completed by Dewberry the newest version of HAZUS software (version 4.2) 2. 2010 Census data was included in HAZUS. 2020 Census data will be used in the next AHMP update.
4.1.1	High	ESC	Local	In-progress	Adopted a Floodplain overlay district as a component of the County's zoning ordinance

**Table 117: Rappahannock Tribe - Specific Plan of Action**

Strategy	Priority	Responsible Party	Funding Source	Status	Comments
1.1.4	Low		FEMA Grants	Not Started	Will consider as needs are identified
1.3.1	Low	Director of Emergency Management	Grants	In-progress	<ul style="list-style-type: none"> <li>• After funding secured, purchase Weather radios for Tribal Members. Subscribe to Alerting system for delivering information to members and area residents. Obtain generator for operations building.</li> <li>• Advanced warning systems (weather radios, reverse-911, Code Red type alerts) are being researched</li> <li>• Generator will be added to Operations building</li> </ul>
2.2.1	Moderate	Director of Emergency Management	Grants	In-Progress	<ul style="list-style-type: none"> <li>• Identify who has what resources in area as well as what capabilities we have. Obtain Mutual Aid Agreements covering the Rappahannock Tribal Service Area</li> <li>• The Rappahannock Tribe has plans on providing a 100-bed shelter</li> </ul>
3.1.2	Low	Director of Emergency Management	Property Owner	Not Started	As problems areas are identified, property owners will be contacted and encouraged to perform required maintenance
3.1.4	Low	Director of Emergency Management	Grants	Not Started	As problems areas are identified, property owners will be contacted informed
3.1.6	Low	Director of Emergency Management	Grants	Not Started	Once we can locate and hire an Emergency Communications Coordinator, we will begin this and other public education programs
3.1.8	Low	Emergency Communications Coordinator	Grants	Not Started	Once we can locate and hire an Emergency Communications Coordinator, we will begin this and other public education programs

<b>Table 118: Upper Mattaponi Tribe – Specific Plan of Action.</b>					
<b>Strategy</b>	<b>Priority</b>	<b>Responsible Party</b>	<b>Funding Source</b>	<b>Status</b>	<b>Comment</b>
1.1.1	Low	Emergency Management	Grants	Not Started	As problems are identified by homeowners, reconstruction of properties will be investigated to determine eligibility for grant funding.
1.1.3	Low	Emergency Management	Grants	Not Started	As problems are identified, reconstruction of properties will be investigated to determine edibility for grant funding.
1.1.4	Low	Environmental Protection	Grants	Not Started	As problems are identified, conversion of properties will be investigated to determine eligibility for grant funding.
1.1.8	Low	Environmental Protection	Grants	Not Started	Conduct a bi-annual review of NFIP compliance
1.1.9	Low	Environmental Protection	Grants	Not Started	Investigate the FEMA CRS Program and how it can be implemented at UMIT
1.1.11	Low	Environmental Protection	Grants	Not Started	Review plans for new builds to ensure they are compliant in relevant regulations
1.1.12	Low	Environmental Protection	Grants	Not Started	Monitor plans for development in applicable areas
1.1.13	Low	Environmental Protection	Grants	Not Started	Begin partnerships with applicable agencies
1.1.15	Low	Environmental Protection	Grants	Not Started	Promote techniques when construction is occurring
1.1.18	Low	Environmental Protection	Grants	Not Started	Add data when GIS maps are created
1.1.19	Low	All Staff	Grants	Not Started	<ul style="list-style-type: none"> <li>• Include mitigation strategies as plans and programs are being created</li> <li>• The Tribe is currently in the capacity building stage, and many plans and procedures are currently being developed.</li> </ul>
1.3.1	Low	Emergency Management/Tribal Administrator	Grants	Not Started	<ul style="list-style-type: none"> <li>• As problems are identified by homeowners, retrofitting of properties will be investigated to determine eligibility for grant funding.</li> <li>• Communication systems for advanced warning are being investigated</li> <li>• Plans to purchase additional generators for tribal buildings are being developed</li> </ul>
2.2.1	Low	Emergency Management/ Tribal Administrator Legal	Grants	Not Started	Partner with local counties to develop MOUs for tribal service areas
3.1.2	Low	Emergency Management	Grants	On-going	<ul style="list-style-type: none"> <li>• Create and distribute homeowner and renter flyer on proper home maintenance</li> <li>• Post reminders on home maintenance during storms</li> <li>• Encourage homeowners to maintain standard of care of their properties</li> </ul>
3.1.4	Low	Emergency Management	Grants	Not Started	<ul style="list-style-type: none"> <li>• Create and distribute homeowner and renter flyer on proper home maintenance</li> <li>• Post reminders on home maintenance during storms</li> <li>• Encourage homeowners to maintain standard of care on their properties</li> </ul>
3.1.6	Low	Emergency Management	Grants	Not Started	<ul style="list-style-type: none"> <li>• Create and distribute homeowner and renter flyer on proper home maintenance</li> <li>• Post reminders on home maintenance during storms</li> </ul>

**SECTION 9: IMPLEMENTATION PLAN**

					<ul style="list-style-type: none"> <li>• Encourage homeowners to maintain standard of care on their properties</li> </ul>
3.1.7	Low	Emergency Management/ Environmental Protection	Grants	Not Started	Create and distribute homeowner and renter flyer on long-term effects of sea level rise
4.1.1	Low	Emergency Management	Grants	Not Started	<ul style="list-style-type: none"> <li>• Establish Hazard Mitigation Planning Committee to assign strategies and develop timeline for action steps</li> <li>• Research and apply for grants as able to assist in emergency management and hazard mitigation</li> </ul>

### **Local Plan Coordination and Integration**

During this update the AHMP Steering added strategy 1.1.19 that focuses on integrating mitigation strategies into locality plans, policies, codes and programs across disciplines and departments. Here are examples of how Middle Peninsula localities are working toward this goal:

**Essex County** has developed zoning, subdivision, and floodplain ordinances that effectively reduce hazard impacts. Additionally, they have adopted flood insurance rate maps and have acquired land for open space and public recreation uses that assist in reducing hazard impacts.

**Gloucester County** is currently developing a Continuity of Operations Plan and has developed zoning, subdivision, floodplain, and natural hazard specific ordinances that effectively reduce hazard impacts. Additionally, they have adopted flood insurance rate maps and they have acquired land for open space and public recreation. The County has referenced the AHMP in the Comprehensive Plan, Floodplain Management Plan as well as the Open Space Management Plan. In conjunction with County plans, they have also adopted ordinances (zoning, subdivision, floodplain, and natural hazard) as well as flood insurance rate maps and have acquired land for open space and public recreates uses that assist in reducing hazard impacts.

**King and Queen County** has developed zoning, subdivision, floodplain, and natural hazard specific (ie. stormwater) ordinances that effectively reduce hazard impacts. Additionally, they have adopted flood insurance rate maps and they have acquired land for open space and public recreation (ie. conservation easements and Department of Forestry public forests) uses that assist in reducing hazard impacts.

**King William County** has included references to hazard mitigation in a variety of plans including the County Comprehensive Plan and the Local emergency Operations Plan. Additionally, King William County adopted ordinances (zoning, subdivision, floodplain, and natural hazard) as well as flood insurance rate maps that assist in reducing hazard impacts.

**Mathews County** adopted their Comprehensive Plan 2030 in January 2011 it has since been updated in 2017 and is currently being updated now that includes a chapter on hazard mitigation. Other plans that address hazards include the Capital Improvements Plan (Adopted in 2020), Local Emergency Operations Plan (Adopted December 2019), and the Transportation Plan. Additionally, Mathews County adopted ordinances (zoning, subdivision, floodplain, and natural hazard) as well as flood insurance rate maps and acquired land for open space through FEMA HMGP grant funding that assist in reducing hazard impacts.

**Middlesex County** has developed zoning, subdivision, and floodplain ordinances that effectively reduce hazard impacts. Additionally, they have adopted flood insurance rate maps to assist in reducing hazard impacts.

The **Upper Mattaponi Tribe** is currently in a capacity building stage, and existing plans, studies, reports, and technical information is limited. The plan takes into considerations all existing plans; however, as more plans are officially developed, they will be able to be used for future iterations.

In conjunction with integrating hazards and mitigation into local policies and plans, Middle Peninsula localities are interested in public involvement and several localities have specifically identified additional public participation steps to explore over the next five years:

- King William County- The County has established an All-Hazards Emergency Planning Committee to ensure that the public is involved.
- Gloucester County- The public will be involved with natural hazard planning through the Local Emergency Planning Committee (LEPC) and the Floodplain Management Committee (FMC). Both groups are open to the public and speak to hazard identification and mitigation strategies. Copies of The Plan will be made available at both County Public Libraries. Additionally, Gloucester County offers a variety of public outreach opportunities for their citizens. As participants in the CRS program the County has developed a Program for Public Information (PPI) that includes ongoing education about flooding.
- Town of Tappahannock – The Town will utilize monthly Town Council meetings to engage the public on hazard and mitigation topics.
- Mathews County- County will, from time to time, include pertinent information and opportunities for input on our website [www.mathewscountyva.gov](http://www.mathewscountyva.gov).
- King and Queen County- Copies of the AHMP will be made available at the Public Library. Comments from the public will be encouraged with a submission procedure outlined. The plan will be discussed at open public Board of Supervisors meetings when up for review. References to the Plan will be on the County’s future Emergency Services Web Page.

## Section 10 - Plan Adoption

The participating Middle Peninsula Localities held a public informational session during one of their regularly scheduled local governing board/council meetings seeking adoption of the plan. The federally recognized Tribes also presented this plan to their Tribal Governments for adoption.

After these informational sessions, the 12 governing bodies adopted the AHMP update by resolution on the dates noted below:

<b>Locality</b>	<b>Date of Adoption</b>
Essex County	April 12, 2022
Town of Tappahannock	May 9, 2022
Gloucester County	April 19, 2022
King and Queen County	May 9, 2022
King William County	May 23, 2022
Town of West Point	April 25, 2022
Mathews	April 26, 2022
Middlesex County	May 3, 2022
Town of Urbanna	May 14, 2022
<b>Tribe</b>	<b>Date of Adoption</b>
Pamunkey Tribe	September 1, 2022
Rappahannock Tribe	July 11, 2022
Upper Mattaponi Tribe	June 29, 2022

Resolutions from localities and tribes adopting the AHMP update are included in Appendix N.

## **Section II - Plan Maintenance**

The annual monitoring, evaluating, and updating of the AHMP shall be a collaborative effort between the MPPDC and participating localities and tribes.

The first annual evaluation of the AHMP will be completed on the 1-year anniversary date, or close to the anniversary date, of FEMA's approval of the plan. MPPDC staff will reach out to LPT members (Locality and Tribal representatives) who actively participated in the development of the AHMP with an explanation of needed information and mitigation strategy status updates for the annual maintenance of the plan. For consistency purposes, a list of questions will be posed to the localities and tribes to focus the annual update. Questions presented to the LPT will include, but will not be limited to:

- Report any major disasters or hazard events.
- Document any new risk information or hazard data gathered.
- Review mitigation strategies and update progress on mitigation actions and noting new actions or project that were recently identified, funded, or underway. A table of mitigation strategies will be provided.
- Address needs required to implement mitigation strategy such as training, data, or funding.
- Review opportunities for integrating data and actions from the AHMP into other plans and programs.
- Identify any challenges where technical assistance from the State or FEMA Region 3 would be helpful.

Copies of the plan sections will be sent to points of contacts and changes will be directly made to the document in "red or blue text", when requested. If substantial changes are needed or if the jurisdiction wants the MPPDC to gather and update the requested information, the MPPDC will partner with jurisdiction at a burden rate of pay.

Upon completion of plan maintenance requests, MPPDC staff will inform regional partners of the AHMP updates. Additionally, MPPDC staff will post updates to the AHMP on the MPPDC website ([www.mppdc.com](http://www.mppdc.com)).

### **The 2026 AHMP Update**

Due to the limited jurisdictional staff and funds, it can be anticipated that the 9 Middle Peninsula localities and Tribes will undertake the 2026 update as a regional planning project; however, it is important to mention that if funding becomes available, the Upper Mattaponi Tribe has expressed interest in developing a standalone hazard mitigation plan. It can also be anticipated that MPPDC participating localities will ask MPPDC staff to seek funding from FEMA for this joint project. With or without partial FEMA grant funding, the update will be undertaken and completed within the 5-year mandated federal requirement.

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**Appendix A -**  
Signed Memorandum of Understandings

**Middle Peninsula PDC Hazards Mitigation Plan Update**

**Service Agreement between**

**The Middle Peninsula Planning District Commission (MPPDC) and**

***Essex County, Virginia (the County or Town) for the***

***Virginia Department of Emergency Management (VDEM)***

**“Middle Peninsula PDC Hazards Mitigation Plan Update”**

**Grant Number FEMA-DR-4401-VA-003**

**THIS SERVICE AGREEMENT** (the “Agreement”) dated this 28 day of December, 2020.

**BETWEEN:**

Essex County, Virginia of 202 S. Church Lane, Tappahannock, VA 22560  
(The “Client”)  
AND

Middle Peninsula Planning District Commission of 125 Bowden Street, Saluda, Virginia 23149  
(The “Contractor”)

**BACKGROUND:**

- A. The Client is of the opinion that the Contractor has the necessary qualifications, experience, and abilities to provide services to the Client.
- B. The Contractor is agreeable to providing such services to the Client on the terms and conditions set out in this Agreement.
- C. The Client recognizes the utility of a standard agreement to be used by member localities to ensure that mandates such as the Middle Peninsula multi-jurisdictional hazard mitigation plan are developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction’s policies, programs and authorities; and that it is an accurate reflection of the community’s values.

**IN CONSIDERATION OF** the matters described above and of the mutual benefits and obligations set forth in this Agreement, the receipt of sufficiency of which consideration is hereby acknowledged, the Client and the Contractor (individually the “Party” and collectively the “Parties” to this Agreement) agree as follows:

**Services Provided**

1. The Client hereby agrees to engage the Contractor to provide the Client with services (the “Services”) necessary to update the regional Middle Peninsula PDC Hazard Mitigation Plan as described in Appendix A Project Scope of Work in accordance with:
  - 44 CFR Ch. 1 Section 201.6, Part a, which indicates that a local government MUST have a mitigation plan approved in order to receive HMGP project grants

## Middle Peninsula PDC Hazards Mitigation Plan Update

- and in order to apply for and receive mitigation project grants under all other mitigation grant programs.
- Disaster Mitigation Act of 2000 (“DMA 2K”), which is a key component of the Federal government’s commitment to reduce damages to private and public property through mitigation activities. This legislation established the Pre-Disaster Mitigation (“PDM”) Program and created requirements for the Post-Disaster Hazard Mitigation Grant Program (“HMGP”). This key piece of federal legislation is known as Public Law 106-390.
  - DMA 2K, which requires local governments to develop and submit mitigation plans to qualify for PDM and HMGP funds. The Act requires that the plan demonstrate “the jurisdiction’s commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.”.
2. The Contractor recommends that the Client consult with legal counsel concerning questions related to the requirements of Disaster Mitigation Act of 2000 and 44 CFR Ch. 1 Section 201.6 and other related sections.

### Term of Agreement

3. The term of this Agreement (the “Term”) will begin on the date this Agreement is signed by both Parties and will remain in full force and effect until either FEMA approves the update to the Middle Peninsula PDC Hazard Mitigation Plan or by VDEM contract end date of October 12, 2022. The term of this Agreement may be extended with the written consent of the Parties. The Agreement may be terminated by either Party with 30 days written notice given to the other Party.
4. In the event that the Client breaches this Agreement, the Client shall remain liable to the Contractor for the costs of all services both rendered and agreed upon as set forth in paragraph 5 and 6 below. In the event that the Contractor breaches this Agreement, the Contractor will return to the Client any and all unspent monies received from the Client as set forth in Paragraph 5 and 6 below. The Parties acknowledge that no other damages, fees, or penalties shall be due one from the other as the result of any act or omission of either Party.

### Performance

5. The Parties agree to fully cooperate and to do everything necessary to ensure that the terms of this Agreement take effect including the execution of additional documents should the need arise.

### Compensation

**Middle Peninsula PDC Hazards Mitigation Plan Update**

6. For the services rendered by the Contractor as required by this Agreement, the Client will provide the following compensation as described below (as specifically applicable to Client locality, rounded up for ease).

Locality Share to be Split between all: \$6,803

Essex	\$972
Gloucester	\$972
King and Queen	\$972
King William	\$972
Mathews	\$972
Middlesex	\$972
Urbanna	\$324
Tappahannock	\$324
West Point	\$324
<b>Total</b>	<b>\$6, 804</b> (rounded up for ease)

2 Year Federal Grant	Fema Funding	State Match Provided Non Fed Share	Local Share split between localities	Per County Match/Share	Per Town Match Share
\$ 142,863	\$ 108,848	\$ 27,212	\$ 6,803	\$ 972	\$ 324
			Year 1	\$ 486	\$ 162
			Year 2	\$ 486	\$ 162

All Such compensation shall be subject to appropriation by the Client.

7. The Contractor will invoice the Client for two annual payments of: **County \$486 or Town \$162 (as applicable)**.
8. Project updates will be provided in the Middle Peninsula Planning District Commission monthly meeting packets.
9. In the event that a change order is requested, beyond the scope of services outlined in this Agreement, the Client will be charged on an hourly basis according to the approved Commission budget subject to the applicable provisions referenced in Dispute Resolution below (see section 20c). Appearances at local meetings, answering of telephonic questions and private meetings will be deemed change orders in the discretion of the Contractor provided such has been disclosed in writing, in advance to the Client.

Upon completion of the Services, a presentation will be made by the Contractor, at the request of the Client, at one local meeting of the Client's choice without additional compensation.

**Reimbursement of Expenses**

10. The Contractor will not be reimbursed for any expenses incurred in connection with this Agreement.

**Employment Discrimination by Contractor Prohibited**

11. a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
  - b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
  - c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
12. The Contractor will include the provisions of the foregoing paragraphs a, b and c in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

**Drug-Free Workplace**

13. The Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

## Middle Peninsula PDC Hazards Mitigation Plan Update

14. For the purposes of this section, “*drug-free workplace*” means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

### **Employment of Illegal Aliens**

15. The Contractor agrees that it does not and shall not during the performance of this Agreement knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

### **Ownership of Intellectual Property**

16. All information gathered during this project will remain public, unless prohibited from disclosure or exempted from required disclosure in accordance with state and federal law.

### **Capacity**

17. In providing the Services under this Agreement, it is expressly agreed that the Contractor is acting as an independent contractor and not as an employee. The Contractor and the Client acknowledge that this Agreement does not create a partnership or joint venture between them.

### **Notice**

18. All notices, requests, demands or other communications required or permitted by the terms of this Agreement will be given in writing and delivered to the Parties of this Agreement as follows:

- a. Michael Lombardo, County Administrator  
Essex County, Virginia  
202 S. Church Lane, P.O Box 1079  
Tappahannock, VA 22560
- b. Middle Peninsula Planning District Commission  
125 Bowden Street  
Saluda, VA 23149

Or to such other address as any Party may from time to time notify the other.

**Additional Clauses**

19. This Agreement has been reviewed and approved via recorded vote of the Essex County Board of Supervisors.

**Dispute Resolution**

20. In the event a dispute arises out of or in connection with this Agreement, the Parties will attempt to resolve the dispute through friendly consultation.

- a. Once a final deliverable has been submitted by Contractor and approved by FEMA, the Contractor shall be deemed to have completed all services required under this Agreement.
- b. Once the scope of work has been completed and/or the product has received any necessary approvals, any changes made by the Client to the final product is “at its own risk”. The Client assumes all responsibility for any modification, deviation, or change initiated outside of the agreed to scope of work.
- c. The Contractor has no contractual responsibility to advocate for, coordinate, or administer any local modifications beyond the services agreed to by the Contractor in accordance with the terms of this Agreement.
  - The Client may request an addendum to the contract for specific changes. The Contractor may consider the request from the Client and, if willing to perform the requested work, shall provide a response including a new cost estimate for consideration. Any addendum shall be authorized by the [Name of County/Town] [Board of Supervisors/Town Council] by Resolution outlining such changes to the Services.

**Modification of Agreement**

21. Any amendment or modification of this Agreement or additional obligation assumed by either Party in connection with this Agreement will only be binding if evidenced in writing signed by each Party or an authorized representative of each Party.

**Time of the Essence**

22. Time is the essence in this Agreement. No extension or variation of this Agreement will operate as a waiver of this provision.

**Middle Peninsula PDC Hazards Mitigation Plan Update**

**Assignment**

23. The Contractor shall not voluntarily or by operation of law assign or otherwise transfer its obligations under this Agreement without the prior written consent of the Client.

**Entire Agreement**

24. It is agreed that there is no representation, warranty, collateral agreement, or condition affecting this Agreement except as expressly provided in this Agreement.

**Governing Law**

25. It is the intention of the Parties to this Agreement that this Agreement and the performance under this Agreement, and all suits and special proceedings under this Agreement, be construed in accordance with and governed, to the exclusion of the law of any other forum, by the laws of the Commonwealth of Virginia, without regard to the jurisdiction in which any action or special proceeding may be instituted.

**Severability**

26. In the event that any of the provisions of this Agreement are held to be invalid or unenforceable in whole or in part, all other provisions will nevertheless continue to be valid and enforceable with the invalid or unenforceable parts severed from the remainder of the Agreement.

**Waiver**

27. The waiver by either Party of a breach, default, delay, or omission of any of the provisions of this Agreement by the other Party will not be construed as a waiver of any subsequent breach of the same or the provisions.

**IN WITNESS WHEREOF** the Parties have duly affixed their signatures under land and seal on this 28th day of December, 2020.

Essex County, Virginia (Client)

Per:  (SEAL)  
County Administrator

Middle Peninsula Planning District Commission (Contractor)

Per:  (SEAL)  
Executive Director

**Appendix A:**

**Proposed Project Scope of Work**

The Middle Peninsula Planning District Commission (MPPDC) will update the 2016 Middle Peninsula All Hazards Mitigation Plan (AHMP) with the help of a Local Planning Team. Membership will be nominated by counties, towns, and other stakeholders (i.e.. Tribes, chamber of commerce, state agencies, the public, etc) in the Middle Peninsula. The plan will address several natural hazards, including but limited to hurricanes, winter storms, tornadoes, coastal flooding, coastal/shoreline erosion, sea level rise, winter storms, wildfire, riverine flooding, wind, dam failures, drought, lightning, earthquakes, shrink-swell soils, extreme cold, extreme heat, landslides, land subsidence/karst, and tsunami.

The project includes the following components:

1. Planning Process
2. Risk Assessment
3. Hazard Mitigation Strategy
4. Hazard Mitigation Plan Maintenance Process
5. Hazard Mitigation Plan Adoption and Approval

**Planning Team Responsibilities**

Representatives on the Planning Team from participating jurisdictions must engage in the following planning process, including, but not limited to:

- Develop the Work Program and Schedule with the Planning Team
- Organize and attend regular meetings (virtual and/or in person) of the Planning Team. Attendance will be documented in the PDC monthly meeting packet.
- Assist the Planning Team with developing and conducting an outreach strategy to involve other planning team members, stakeholders, and the public, as appropriate to represent their Jurisdiction.
- Identify community resources available to support the planning effort, including meeting spaces, facilitators, and media outlets.
- Provide data and feedback to develop the risk assessment and mitigation strategy, including a specific mitigation action plan for their Jurisdiction.
- Submit the draft plan to their Jurisdiction for review.
- Work with the Planning Team to incorporate all their Jurisdiction’s comments into the draft plan.
- Submit the draft plan to their respective governing body for consideration and adoption.
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

**Local Adoption**

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

To be eligible for HMGP project grants (grants for a locality after a disaster), a local government must have a mitigation plan. Approval includes adoption by the participating jurisdictions.

### **Timeframe of Grant**

This agreement and grant will be in effect from the date of signature by all parties, and will remain in effect through the duration of this project. Once a final deliverable has been submitted to and approved by the Client and the mandating entity, the Contractor shall be deemed to have completed all services required under this Agreement. The agreement may be terminated prior to that time by any Participating Jurisdiction by giving 30 days written notice.

Appendix B- Award Notices

JEFFREY D. STERN, Ph.D.  
State Coordinator

CURTIS C. BROWN  
Chief Deputy State Coordinator/  
Chief Diversity and Inclusion Officer



JOHN WORTHON  
Deputy State Coordinator - Disaster Services

ANDRES ALVAREZ  
Deputy State Coordinator - Mission Support

COMMONWEALTH OF VIRGINIA  
Department of Emergency Management

3711 Farrer Court, Suite 220  
North Chesapeake, Virginia 23226  
TEL 804-567-7800 TDD 804-574-5477 FAX 804-272-2046

June 3, 2020

Mr. Lewis Lawrence,  
Executive Director -Middle Peninsula Planning District Commission  
Saluda Professional Center  
125 Bowden Street  
Saluda, Virginia 23149

RE: Middle Peninsula PDC Hazard Mitigation Plan Update  
FEMA-4401-DR-VA-003

Dear Mr. Lawrence:

I am pleased to notify you that the Federal Emergency Management Agency (FEMA) has approved the project titled "Middle Peninsula PDC Hazard Mitigation Plan Update." The funds have been obligated through the Hazard Mitigation Grant Program. Attached you will find the grant award package. Please read all documents carefully prior to initiating your project. As funded, the federal share is 75 percent of the total project costs.

Your project cannot begin until the authorized agent has signed the grant award package. No reimbursements will be made until the award package is signed and received by the Virginia Department of Emergency Management. Please sign the attached grant agreement and scan and email it to Debbie Messmer, state hazard mitigation officer. Congratulations on the approval of this project. If you have questions regarding this award or the implementation of your project, please contact Debbie Messmer at (804) 267-7732 or by e-mail at [debbie.messmer@vdfem.virginia.gov](mailto:debbie.messmer@vdfem.virginia.gov).

Sincerely,

Curtis C. Brown  
Alternate Governor's Authorized Representative

Enclosures

CCB/RSC/djm

*Saving lives through effective emergency management and homeland security.*  
"A Ready Virginia is a Safer Virginia."

# Middle Peninsula PDC Hazards Mitigation Plan Update

U.S. Department of Homeland Security  
Region III  
One Independence Mall, Sixth Floor  
Philadelphia, PA 19106-5412



## FEMA

April 30, 2020

Jeffrey D. Stern, Ph.D.  
Governor's Authorized Representative  
Virginia Department of Emergency Management  
9711 Farrar Court  
Richmond, Virginia 23236-5713

**Re: Project Approval  
Hazard Mitigation Grant Program (HEMGP)  
FEMA-4401-DR-VA-0013**

Dear Dr. Stern:

I am pleased to inform you that the project application, Middle Peninsula Planning District Commission Mitigation Plan Update 7% Project, submitted under FEMA-DR-4401-VA-0013, has been approved.

The total amount for this project is \$142,863 with a federal share of \$108,848 (\$102,945 for project costs and \$6,903 for subrecipient management costs), and a non-federal share of \$34,015; the federal share should be available in the SMARTLINK system. A copy of the Obligation Report is enclosed for your files.

The Period of Performance for this project ends on October 15, 2022. All grant award activities must be incurred during the performance period. The final product of this grant must be a FEMA approved plan. When submitting the updated plan, allow sufficient time for review, revision, and adoption.

Please provide this office with a Quarterly Progress Report thirty days after the end of each Federal fiscal year quarter.

FEMA DR-4411-013

Page 2

If you have any questions concerning this project, please contact John Schickler, FEMA Region III Mitigation Project Officer at (267) 319-6322.

Sincerely,

APRIL D

CUMMINGS

April Cummings

Mitigation Division Director

Officially approved by FEMA D  
CLASSIFIED  
Date: 20200403 09:17:54  
User:

cc: Debbie Messmer, State Hazard Mitigation Officer  
Reginae Frederique, Grants Division Director



NOV 19 2020

**Gloucester County  
Administrator's Office**

Telephone 804-693-4042

6489 Main Street, Gloucester, Virginia 23061

Fax 804-693-6004

November 10, 2020

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

Dear Lewie,

The Gloucester County Board of Supervisors authorized the execution of the service agreement for the Middle Peninsula Planning District Commission Hazards Mitigation Plan Update at its November 4, 2020 meeting. Enclosed is a copy of the executed service agreement for your records. I am appointing the County staff members listed below to serve as Gloucester's representatives on the Middle Peninsula All Hazards Planning Team.

Brett Major  
Emergency Management Coordinator  
7478 Justice Drive  
Gloucester VA 23061  
804-693-2116  
Email: [bamajor@gloucesterva.info](mailto:bamajor@gloucesterva.info)

Brent Payne  
Director of Engineering Services  
6515 Main Street  
Gloucester VA 23061  
804-693-1245  
Email: [bpayne@gloucesterva.info](mailto:bpayne@gloucesterva.info)

Please let me know if you have any questions about these appointments.

Sincerely,

J. Brent Fedors  
County Administrator

JBF:tc  
Enclosure

cc: Brett Major, Emergency Management Coordinator  
Brent Payne, Director of Engineering Services

**Middle Peninsula PDC Hazards Mitigation Plan Update**

**Service Agreement between  
The Middle Peninsula Planning District Commission (MPPDC) and  
Gloucester County for the  
Virginia Department of Emergency Management (VDEM)  
“Middle Peninsula PDC Hazards Mitigation Plan Update”  
Grant Number FEMA-DR-4401-VA-003**

**THIS SERVICE AGREEMENT** (the “Agreement”) dated this 6<sup>TH</sup> day of November 2020.

**BETWEEN:**

Gloucester County, 6489 Main Street, Gloucester, VA 23061  
(The “Client”)

AND

Middle Peninsula Planning District Commission of 125 Bowden Street, Saluda, Virginia 23149  
(The “Contractor”)

**BACKGROUND:**

- A. The Client is of the opinion that the Contractor has the necessary qualifications, experience, and abilities to provide services to the Client.
- B. The Contractor is agreeable to providing such services to the Client on the terms and conditions set out in this Agreement.
- C. The Client recognizes the utility of a standard agreement to be used by member localities to ensure that mandates such as the Middle Peninsula multi-jurisdictional hazard mitigation plan are developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction’s policies, programs and authorities; and that it is an accurate reflection of the community’s values.

**IN CONSIDERATION OF** the matters described above and of the mutual benefits and obligations set forth in this Agreement, the receipt of sufficiency of which consideration is hereby acknowledged, the Client and the Contractor (individually the “Party” and collectively the “Parties” to this Agreement) agree as follows:

**Services Provided**

- 1. The Client hereby agrees to engage the Contractor to provide the Client with services (the “Services”) necessary to update the regional Middle Peninsula PDC Hazard Mitigation Plan as described in Appendix A Project Scope of Work in accordance with:

## Middle Peninsula PDC Hazards Mitigation Plan Update

- 44 CFR Ch. 1 Section 201.6, Part a, which indicates that a local government MUST have a mitigation plan approved in order to receive HMGP project grants and in order to apply for and receive mitigation project grants under all other mitigation grant programs.
  - Disaster Mitigation Act of 2000 (“DMA 2K”), which is a key component of the Federal government’s commitment to reduce damages to private and public property through mitigation activities. This legislation established the Pre-Disaster Mitigation (“PDM”) Program and created requirements for the Post-Disaster Hazard Mitigation Grant Program (“HMGP”). This key piece of federal legislation is known as Public Law 106-390.
  - DMA 2K, which requires local governments to develop and submit mitigation plans to qualify for PDM and HMGP funds. The Act requires that the plan demonstrate “the jurisdiction’s commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.”.
2. The Contractor recommends that the Client consult with legal counsel concerning questions related to the requirements of Disaster Mitigation Act of 2000 and 44 CFR Ch. 1 Section 201.6 and other related sections.

### **Term of Agreement**

3. The term of this Agreement (the “Term”) will begin on the date this Agreement is signed by both Parties and will remain in full force and effect until either FEMA approves the update to the Middle Peninsula PDC Hazard Mitigation Plan or by VDEM contract end date of October 12, 2022. The term of this Agreement may be extended with the written consent of the Parties. The Agreement may be terminated by either Party with 30 days written notice given to the other Party.
4. In the event that the Client breaches this Agreement, the Client shall remain liable to the Contractor for the costs of all services both rendered and agreed upon as set forth in paragraph 5 and 6 below. In the event that the Contractor breaches this Agreement, the Contractor will return to the Client any and all unspent monies received from the Client as set forth in Paragraph 5 and 6 below. The Parties acknowledge that no other damages, fees, or penalties shall be due one from the other as the result of any act or omission of either Party.

### **Performance**

**Middle Peninsula PDC Hazards Mitigation Plan Update**

5. The Parties agree to fully cooperate and to do everything necessary to ensure that the terms of this Agreement take effect including the execution of additional documents should the need arise.

**Compensation**

6. For the services rendered by the Contractor as required by this Agreement, the Client will provide the following compensation as described below (as specifically applicable to Client locality, rounded up for ease).

Locality Share to be Split between all: \$6,803

Essex	\$972
Gloucester	\$972
King and Queen	\$972
King William	\$972
Mathews	\$972
Middlesex	\$972
Urbanna	\$324
Tappahannock	\$324
<u>West Point</u>	<u>\$324</u>
<b>Total</b>	<b>\$6, 804 (rounded up for ease)</b>

2 Year Federal Grant	Fema Funding	State Match Provided Non Fed Share	Local Share split between localities	Per County Match/Share	Per Town Match Share
\$ 142,863	\$ 108,848	\$ 27,212	\$ 6,803	\$ 972	\$ 324
			Year 1	\$ 486	\$ 162
			Year 2	\$ 486	\$ 162

All Such compensation shall be subject to appropriation by the Client.

7. The Contractor will invoice the Client for two annual payments of: **County \$486 or Town \$162 (as applicable).**
8. Project updates will be provided in the Middle Peninsula Planning District Commission monthly meeting packets.
9. In the event that a change order is requested, beyond the scope of services outlined in this Agreement, the Client will be charged on an hourly basis according to the approved Commission budget subject to the applicable provisions referenced in Dispute Resolution below (see section 20c). Appearances at local meetings, answering of telephonic questions and private meetings will be deemed change orders

## Middle Peninsula PDC Hazards Mitigation Plan Update

in the discretion of the Contractor provided such has been disclosed in writing, in advance to the Client.

Upon completion of the Services, a presentation will be made by the Contractor, at the request of the Client, at one local meeting of the Client's choice without additional compensation.

### **Reimbursement of Expenses**

10. The Contractor will not be reimbursed for any expenses incurred in connection with this Agreement.

### **Employment Discrimination by Contractor Prohibited**

11. a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
  - b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
  - c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
12. The Contractor will include the provisions of the foregoing paragraphs a, b and c in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

### **Drug-Free Workplace**

13. The Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

## Middle Peninsula PDC Hazards Mitigation Plan Update

14. For the purposes of this section, "*drug-free workplace*" means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

### **Employment of Illegal Aliens**

15. The Contractor agrees that it does not and shall not during the performance of this Agreement knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

### **Ownership of Intellectual Property**

16. All information gathered during this project will remain public, unless prohibited from disclosure or exempted from required disclosure in accordance with state and federal law.

### **Capacity**

17. In providing the Services under this Agreement, it is expressly agreed that the Contractor is acting as an independent contractor and not as an employee. The Contractor and the Client acknowledge that this Agreement does not create a partnership or joint venture between them.

### **Notice**

18. All notices, requests, demands or other communications required or permitted by the terms of this Agreement will be given in writing and delivered to the Parties of this Agreement as follows:
- a. County Administrator  
Gloucester County  
6489 Main Street  
Gloucester, VA 23061
  - b. Middle Peninsula Planning District Commission  
125 Bowden Street  
Saluda, VA 23149

Or to such other address as any Party may from time to time notify the other.

**Additional Clauses**

19. This Agreement has been reviewed and approved via recorded vote of the Gloucester County Board of Supervisors.

**Dispute Resolution**

20. In the event a dispute arises out of or in connection with this Agreement, the Parties will attempt to resolve the dispute through friendly consultation.

- a. Once a final deliverable has been submitted by Contractor and approved by FEMA, the Contractor shall be deemed to have completed all services required under this Agreement.
- b. Once the scope of work has been completed and/or the product has received any necessary approvals, any changes made by the Client to the final product is “at its own risk”. The Client assumes all responsibility for any modification, deviation, or change initiated outside of the agreed to scope of work.
- c. The Contractor has no contractual responsibility to advocate for, coordinate, or administer any local modifications beyond the services agreed to by the Contractor in accordance with the terms of this Agreement.
  - The Client may request an addendum to the contract for specific changes. The Contractor may consider the request from the Client and, if willing to perform the requested work, shall provide a response including a new cost estimate for consideration. Any addendum shall be authorized by the [Name of County/Town] [Board of Supervisors/Town Council] by Resolution outlining such changes to the Services.

**Modification of Agreement**

21. Any amendment or modification of this Agreement or additional obligation assumed by either Party in connection with this Agreement will only be binding if evidenced in writing signed by each Party or an authorized representative of each Party.

**Time of the Essence**

22. Time is the essence in this Agreement. No extension or variation of this Agreement will operate as a waiver of this provision.

**Middle Peninsula PDC Hazards Mitigation Plan Update**

**Assignment**

23. The Contractor shall not voluntarily or by operation of law assign or otherwise transfer its obligations under this Agreement without the prior written consent of the Client.

**Entire Agreement**

24. It is agreed that there is no representation, warranty, collateral agreement, or condition affecting this Agreement except as expressly provided in this Agreement.

**Governing Law**

25. It is the intention of the Parties to this Agreement that this Agreement and the performance under this Agreement, and all suits and special proceedings under this Agreement, be construed in accordance with and governed, to the exclusion of the law of any other forum, by the laws of the Commonwealth of Virginia, without regard to the jurisdiction in which any action or special proceeding may be instituted.

**Severability**

26. In the event that any of the provisions of this Agreement are held to be invalid or unenforceable in whole or in part, all other provisions will nevertheless continue to be valid and enforceable with the invalid or unenforceable parts severed from the remainder of the Agreement.

**Waiver**

27. The waiver by either Party of a breach, default, delay, or omission of any of the provisions of this Agreement by the other Party will not be construed as a waiver of any subsequent breach of the same or the provisions.

IN WITNESS WHEREOF the Parties have duly affixed their signatures under land and seal on this ~~11/9/20~~ SIXTH day of NOVEMBER, 2020.

Approved as to form:

Edwin M. [Signature]  
Gloucester County Attorney

Gloucester County (Client)  
Per: [Signature] (SEAL)  
Chairperson / Agent CA

Middle Peninsula Planning District Commission (Contractor)

Per: [Signature] (SEAL)  
Lewis L Lawrence  
Executive Director

## Appendix A:

### Proposed Project Scope of Work

The Middle Peninsula Planning District Commission (MPPDC) will update the 2016 Middle Peninsula All Hazards Mitigation Plan (AHMP) with the help of a Local Planning Team. Membership will be nominated by counties, towns, and other stakeholders (i.e., Tribes, chamber of commerce, state agencies, the public, etc) in the Middle Peninsula. The plan will address several natural hazards, including but limited to hurricanes, winter storms, tornadoes, coastal flooding, coastal/shoreline erosion, sea level rise, winter storms, wildfire, riverine flooding, wind, dam failures, drought, lightning, earthquakes, shrink-swell soils, extreme cold, extreme heat, landslides, land subsidence/karst, and tsunami.

The project includes the following components:

1. Planning Process
2. Risk Assessment
3. Hazard Mitigation Strategy
4. Hazard Mitigation Plan Maintenance Process
5. Hazard Mitigation Plan Adoption and Approval

### Planning Team Responsibilities

Representatives on the Planning Team from participating jurisdictions must engage in the following planning process, including, but not limited to:

- Develop the Work Program and Schedule with the Planning Team
- Organize and attend regular meetings (virtual and/or in person) of the Planning Team. Attendance will be documented in the PDC monthly meeting packet.
- Assist the Planning Team with developing and conducting an outreach strategy to involve other planning team members, stakeholders, and the public, as appropriate to represent their Jurisdiction.
- Identify community resources available to support the planning effort, including meeting spaces, facilitators, and media outlets.
- Provide data and feedback to develop the risk assessment and mitigation strategy, including a specific mitigation action plan for their Jurisdiction.
- Submit the draft plan to their Jurisdiction for review.
- Work with the Planning Team to incorporate all their Jurisdiction's comments into the draft plan.
- Submit the draft plan to their respective governing body for consideration and adoption.
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

### Local Adoption

## Middle Peninsula PDC Hazards Mitigation Plan Update

To be eligible for HMGP project grants (grants for a locality after a disaster), a local government must have a mitigation plan. Approval includes adoption by the participating jurisdictions.

### **Timeframe of Grant**

This agreement and grant will be in effect from the date of signature by all parties, and will remain in effect through the duration of this project. Once a final deliverable has been submitted to and approved by the Client and the mandating entity, the Contractor shall be deemed to have completed all services required under this Agreement. The agreement may be terminated prior to that time by any Participating Jurisdiction by giving 30 days written notice.

# Middle Peninsula PDC Hazards Mitigation Plan Update

## Appendix B- Award Notices

JEFFREY D. STERN, Ph.D.  
State Coordinator

CURTIS C. BROWN  
Chief Deputy State Coordinator/  
Chief Diversity and Inclusion Officer



JOHN NORTHON  
Deputy State Coordinator – Disaster Services

ANDRES ALVAREZ  
Deputy State Coordinator – Mission Support

### COMMONWEALTH OF VIRGINIA

*Department of Emergency Management*

9711 Farrar Court, Suite 200  
North Chesterfield, Virginia 23236  
TEL 804.267.7600 TDD 804.674.2417 FAX 804.272.2046

June 3, 2020

Mr. Lewis Lawrence,  
Executive Director -Middle Peninsula Planning District Commission  
Saluda Professional Center  
125 Bowden Street  
Saluda, Virginia 23149

RE: Middle Peninsula PDC Hazard Mitigation Plan Update  
FEMA-4401-DR-VA-003

Dear Mr. Lawrence:

I am pleased to notify you that the Federal Emergency Management Agency (FEMA) has approved the project titled "Middle Peninsula PDC Hazard Mitigation Plan Update." The funds have been obligated through the Hazard Mitigation Grant Program. Attached you will find the grant award package. Please read all documents carefully prior to initiating your project. As funded, the federal share is 75 percent of the total project costs.

Your project cannot begin until the authorized agent has signed the grant award package. No reimbursements will be made until the award package is signed and received by the Virginia Department of Emergency Management. Please sign the attached grant agreement and scan and email it to Debbie Messmer, state hazard mitigation officer. Congratulations on the approval of this project. If you have questions regarding this award or the implementation of your project, please contact Debbie Messmer at (804) 267-7732 or by e-mail at [debbie.messmer@vdem.virginia.gov](mailto:debbie.messmer@vdem.virginia.gov).

Sincerely,

Handwritten signature of Curtis C. Brown in black ink.

Curtis C. Brown  
Alternate Governor's Authorized Representative

Enclosures

CCB/RSC/djm

*Saving lives through effective emergency management and homeland security.  
"A Ready Virginia is a Resilient Virginia"*

# Middle Peninsula PDC Hazards Mitigation Plan Update

U.S. Department of Homeland  
Security  
Region III  
One Independence Mall, Sixth Floor  
815 Chestnut Street  
Philadelphia, PA 19106-4404



## FEMA

April 30, 2020

Jeffrey D. Stern, Ph.D.  
Governor's Authorized Representative  
Virginia Department of Emergency Management  
9711 Farrar Court  
Richmond, Virginia 23236-3713

**Re: Project Approval  
Hazard Mitigation Grant Program (HMGP)  
FEMA-4401-DR-VA-003**

Dear Dr. Stern:

I am pleased to inform you that the project application, Middle Peninsula Planning District Commission Mitigation Plan Update 7% Project, submitted under FEMA-DR-4401-VA-003, has been approved.

The total amount for this project is \$142,863 with a federal share of \$108,848 (\$102,045 for project costs and \$6,803 for subrecipient management costs), and a non-federal share of \$34,015; the federal share should be available in the SMARTLINK system. A copy of the Obligation Report is enclosed for your files.

The Period of Performance for this project ends on October 15, 2022. All grant award activities must be incurred during the performance period. The final product of this grant must be a FEMA approved plan. When submitting the updated plan, allow sufficient time for review, revision, and adoption.

Please provide this office with a Quarterly Progress Report thirty days after the end of each Federal fiscal year quarter.

FEMA DR-4401-013  
Page 2

If you have any questions concerning this project, please contact John Schriener, FEMA Region III Mitigation Project Officer at (267) 319-6322.

Sincerely,

APRIL D  
CUMMINGS

April Cummings  
Mitigation Division Director

Digitally signed by APRIL D  
CUMMINGS  
Date: 2020.04.30 10:17:51  
+0400

cc: Debbie Messner, State Hazard Mitigation Officer  
Regeane Frederique, Grants Division Director

# **Middle Peninsula PDC Hazards Mitigation Plan Update**

**Service Agreement between  
The Middle Peninsula Planning District Commission (MPPDC) and  
King and Queen County for the  
Virginia Department of Emergency Management (VDEM)  
“Middle Peninsula PDC Hazards Mitigation Plan Update”  
Grant Number FEMA-DR-4401-VA-003**

**THIS SERVICE AGREEMENT** (the “Agreement”) dated this 30th of November, 2020.

**BETWEEN:**

King and Queen County, PO Box 177 King and Queen CH,  
(The “Client”)  
AND

Middle Peninsula Planning District Commission of 125 Bowden Street, Saluda, Virginia 23149  
(The “Contractor”)

**BACKGROUND:**

- A. The Client is of the opinion that the Contractor has the necessary qualifications, experience, and abilities to provide services to the Client.
- B. The Contractor is agreeable to providing such services to the Client on the terms and conditions set out in this Agreement.
- C. The Client recognizes the utility of a standard agreement to be used by member localities to ensure that mandates such as the Middle Peninsula multi-jurisdictional hazard mitigation plan are developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction’s policies, programs and authorities; and that it is an accurate reflection of the community’s values.

**IN CONSIDERATION OF** the matters described above and of the mutual benefits and obligations set forth in this Agreement, the receipt of sufficiency of which consideration is hereby acknowledged, the Client and the Contractor (individually the “Party” and collectively the “Parties” to this Agreement) agree as follows:

**Services Provided**

- 1. The Client hereby agrees to engage the Contractor to provide the Client with services (the “Services”) necessary to update the regional Middle Peninsula PDC Hazard Mitigation Plan as described in Appendix A Project Scope of Work in accordance with:
  - 44 CFR Ch. 1 Section 201.6, Part a, which indicates that a local government **MUST** have a mitigation plan approved in order to receive HMGP project grants

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

and in order to apply for and receive mitigation project grants under all other mitigation grant programs.

- Disaster Mitigation Act of 2000 (“DMA 2K”), which is a key component of the Federal government’s commitment to reduce damages to private and public property through mitigation activities. This legislation established the Pre-Disaster Mitigation (“PDM”) Program and created requirements for the Post-Disaster Hazard Mitigation Grant Program (“HMGP”). This key piece of federal legislation is known as Public Law 106-390.
  - DMA 2K, which requires local governments to develop and submit mitigation plans to qualify for PDM and HMGP funds. The Act requires that the plan demonstrate “the jurisdiction’s commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.”.
2. The Contractor recommends that the Client consult with legal counsel concerning questions related to the requirements of Disaster Mitigation Act of 2000 and 44 CFR Ch. 1 Section 201.6 and other related sections.

### **Term of Agreement**

3. The term of this Agreement (the “Term”) will begin on the date this Agreement is signed by both Parties and will remain in full force and effect until either FEMA approves the update to the Middle Peninsula PDC Hazard Mitigation Plan or by VDEM contract end date of October 12, 2022. The term of this Agreement may be extended with the written consent of the Parties. The Agreement may be terminated by either Party with 30 days written notice given to the other Party.
4. In the event that the Client breaches this Agreement, the Client shall remain liable to the Contractor for the costs of all services both rendered and agreed upon as set forth in paragraph 5 and 6 below. In the event that the Contractor breaches this Agreement, the Contractor will return to the Client any and all unspent monies received from the Client as set forth in Paragraph 5 and 6 below. The Parties acknowledge that no other damages, fees, or penalties shall be due one from the other as the result of any act or omission of either Party.

### **Performance**

5. The Parties agree to fully cooperate and to do everything necessary to ensure that the terms of this Agreement take effect including the execution of additional documents should the need arise.

### **Compensation**

## Middle Peninsula PDC Hazards Mitigation Plan Update

6. For the services rendered by the Contractor as required by this Agreement, the Client will provide the following compensation as described below (as specifically applicable to Client locality, rounded up for ease).

Locality Share to be Split between all: \$6,803

Essex	\$972
Gloucester	\$972
King and Queen	\$972
King William	\$972
Mathews	\$972
Middlesex	\$972
Urbanna	\$324
Tappahannock	\$324
West Point	\$324
<b>Total</b>	<b>\$6,804</b> (rounded up for ease)

2 Year Federal Grant	Fema Funding	State Match Provided Non Fed Share	Local Share split between localities	Per County Match/Share	Per Town Match Share
\$ 142,863	\$ 108,848	\$ 27,212	\$ 6,803	\$ 972	\$ 324
			Year 1	\$ 486	\$ 162
			Year 2	\$ 486	\$ 162

All Such compensation shall be subject to appropriation by the Client.

7. The Contractor will invoice the Client for two annual payments of: **County \$486 or Town \$162 (as applicable)**.
8. Project updates will be provided in the Middle Peninsula Planning District Commission monthly meeting packets.
9. In the event that a change order is requested, beyond the scope of services outlined in this Agreement, the Client will be charged on an hourly basis according to the approved Commission budget subject to the applicable provisions referenced in Dispute Resolution below (see section 20c). Appearances at local meetings, answering of telephonic questions and private meetings will be deemed change orders in the discretion of the Contractor provided such has been disclosed in writing, in advance to the Client.

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

Upon completion of the Services, a presentation will be made by the Contractor, at the request of the Client, at one local meeting of the Client's choice without additional compensation.

### **Reimbursement of Expenses**

10. The Contractor will not be reimbursed for any expenses incurred in connection with this Agreement.

### **Employment Discrimination by Contractor Prohibited**

11. a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
  - b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
  - c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
12. The Contractor will include the provisions of the foregoing paragraphs a, b and c in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

### **Drug-Free Workplace**

13. The Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

14. For the purposes of this section, “*drug-free workplace*” means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

### **Employment of Illegal Aliens**

15. The Contractor agrees that it does not and shall not during the performance of this Agreement knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

### **Ownership of Intellectual Property**

16. All information gathered during this project will remain public, unless prohibited from disclosure or exempted from required disclosure in accordance with state and federal law.

### **Capacity**

17. In providing the Services under this Agreement, it is expressly agreed that the Contractor is acting as an independent contractor and not as an employee. The Contractor and the Client acknowledge that this Agreement does not create a partnership or joint venture between them.

### **Notice**

18. All notices, requests, demands or other communications required or permitted by the terms of this Agreement will be given in writing and delivered to the Parties of this Agreement as follows:
- a. County Administrator  
King and Queen County  
PO Box 177  
King and Queen CH, 23085
  - b. Middle Peninsula Planning District Commission  
125 Bowden Street  
Saluda, VA 23149

Or to such other address as any Party may from time to time notify the other.

### **Additional Clauses**

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

19. This Agreement has been reviewed and approved via recorded vote of the King and Queen County Board of Supervisors.

### **Dispute Resolution**

20. In the event a dispute arises out of or in connection with this Agreement, the Parties will attempt to resolve the dispute through friendly consultation.

- a. Once a final deliverable has been submitted by Contractor and approved by FEMA, the Contractor shall be deemed to have completed all services required under this Agreement.
- b. Once the scope of work has been completed and/or the product has received any necessary approvals, any changes made by the Client to the final product is “at its own risk”. The Client assumes all responsibility for any modification, deviation, or change initiated outside of the agreed to scope of work.
- c. The Contractor has no contractual responsibility to advocate for, coordinate, or administer any local modifications beyond the services agreed to by the Contractor in accordance with the terms of this Agreement.
  - The Client may request an addendum to the contract for specific changes. The Contractor may consider the request from the Client and, if willing to perform the requested work, shall provide a response including a new cost estimate for consideration. Any addendum shall be authorized by the [Name of County/Town] [Board of Supervisors/Town Council] by Resolution outlining such changes to the Services.

### **Modification of Agreement**

21. Any amendment or modification of this Agreement or additional obligation assumed by either Party in connection with this Agreement will only be binding if evidenced in writing signed by each Party or an authorized representative of each Party.

### **Time of the Essence**

22. Time is the essence in this Agreement. No extension or variation of this Agreement will operate as a waiver of this provision.

### **Assignment**

**Middle Peninsula PDC Hazards Mitigation Plan Update**

23. The Contractor shall not voluntarily or by operation of law assign or otherwise transfer its obligations under this Agreement without the prior written consent of the Client.

**Entire Agreement**

24. It is agreed that there is no representation, warranty, collateral agreement, or condition affecting this Agreement except as expressly provided in this Agreement.

**Governing Law**

25. It is the intention of the Parties to this Agreement that this Agreement and the performance under this Agreement, and all suits and special proceedings under this Agreement, be construed in accordance with and governed, to the exclusion of the law of any other forum, by the laws of the Commonwealth of Virginia, without regard to the jurisdiction in which any action or special proceeding may be instituted.

**Severability**

26. In the event that any of the provisions of this Agreement are held to be invalid or unenforceable in whole or in part, all other provisions will nevertheless continue to be valid and enforceable with the invalid or unenforceable parts severed from the remainder of the Agreement.

**Waiver**

27. The waiver by either Party of a breach, default, delay, or omission of any of the provisions of this Agreement by the other Party will not be construed as a waiver of any subsequent breach of the same or the provisions.

**IN WITNESS WHEREOF** the Parties have duly affixed their signatures under land and seal on this 30th day of November, 2020.

King and Queen County

Per:  (SEAL)  
Chairperson / Agent

Middle Peninsula Planning District Commission (Contractor)

Per:  (SEAL)  
Lewis L Lawrence  
Executive Director

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

### **Appendix A:**

#### **Proposed Project Scope of Work**

The Middle Peninsula Planning District Commission (MPPDC) will update the 2016 Middle Peninsula All Hazards Mitigation Plan (AHMP) with the help of a Local Planning Team. Membership will be nominated by counties, towns, and other stakeholders (i.e., Tribes, chamber of commerce, state agencies, the public, etc) in the Middle Peninsula. The plan will address several natural hazards, including but limited to hurricanes, winter storms, tornadoes, coastal flooding, coastal/shoreline erosion, sea level rise, winter storms, wildfire, riverine flooding, wind, dam failures, drought, lightning, earthquakes, shrink-swell soils, extreme cold, extreme heat, landslides, land subsidence/karst, and tsunamis.

The project includes the following components:

1. Planning Process
2. Risk Assessment
3. Hazard Mitigation Strategy
4. Hazard Mitigation Plan Maintenance Process
5. Hazard Mitigation Plan Adoption and Approval

#### **Planning Team Responsibilities**

Representatives on the Planning Team from participating jurisdictions must engage in the following planning process, including, but not limited to:

- Develop the Work Program and Schedule with the Planning Team
- Organize and attend regular meetings (virtual and/or in person) of the Planning Team. Attendance will be documented in the PDC monthly meeting packet.
- Assist the Planning Team with developing and conducting an outreach strategy to involve other planning team members, stakeholders, and the public, as appropriate to represent their Jurisdiction.
- Identify community resources available to support the planning effort, including meeting spaces, facilitators, and media outlets.
- Provide data and feedback to develop the risk assessment and mitigation strategy, including a specific mitigation action plan for their Jurisdiction.
- Submit the draft plan to their Jurisdiction for review.
- Work with the Planning Team to incorporate all their Jurisdiction's comments into the draft plan.
- Submit the draft plan to their respective governing body for consideration and adoption.
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

#### **Local Adoption**

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

To be eligible for HMGP project grants (grants for a locality after a disaster), a local government must have a mitigation plan. Approval includes adoption by the participating jurisdictions.

### **Timeframe of Grant**

This agreement and grant will be in effect from the date of signature by all parties, and will remain in effect through the duration of this project. Once a final deliverable has been submitted to and approved by the Client and the mandating entity, the Contractor shall be deemed to have completed all services required under this Agreement. The agreement may be terminated prior to that time by any Participating Jurisdiction by giving 30 days written notice.

# Middle Peninsula PDC Hazards Mitigation Plan Update

## Appendix B- Award Notices

JEFFREY D. STERN, Ph.D.  
State Coordinator

CURTIS C. BROWN  
Chief Deputy State Coordinator/  
Chief Diversity and Inclusion Officer



JOHN NORTHON  
Deputy State Coordinator – Disaster Services

ANDRES ALVAREZ  
Deputy State Coordinator – Mission Support

### COMMONWEALTH OF VIRGINIA

#### Department of Emergency Management

9711 Farrar Court, Suite 200  
North Chesterfield, Virginia 23236  
TEL 804.267.7600 TDD 804.674.2417 FAX 804.272.2046

June 3, 2020

Mr. Lewis Lawrence,  
Executive Director -Middle Peninsula Planning District Commission  
Saluda Professional Center  
125 Bowden Street  
Saluda, Virginia 23149

RE: Middle Peninsula PDC Hazard Mitigation Plan Update  
FEMA-4401-DR-VA-003

Dear Mr. Lawrence:

I am pleased to notify you that the Federal Emergency Management Agency (FEMA) has approved the project titled "Middle Peninsula PDC Hazard Mitigation Plan Update." The funds have been obligated through the Hazard Mitigation Grant Program. Attached you will find the grant award package. Please read all documents carefully prior to initiating your project. As funded, the federal share is 75 percent of the total project costs.

Your project cannot begin until the authorized agent has signed the grant award package. No reimbursements will be made until the award package is signed and received by the Virginia Department of Emergency Management. Please sign the attached grant agreement and scan and email it to Debbie Messmer, state hazard mitigation officer. Congratulations on the approval of this project. If you have questions regarding this award or the implementation of your project, please contact Debbie Messmer at (804) 267-7732 or by e-mail at [debbie.messmer@vdem.virginia.gov](mailto:debbie.messmer@vdem.virginia.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Curtis C. Brown".

Curtis C. Brown  
Alternate Governor's Authorized Representative

Enclosures

CCB/RSC/djm

*Saving lives through effective emergency management and homeland security.  
"A Ready Virginia is a Resilient Virginia."*

# Middle Peninsula PDC Hazards Mitigation Plan Update

U.S. Department of Homeland  
Security  
Region III  
One Independence Mall, Sixth Floor  
615 Chestnut Street  
Philadelphia, PA 19106-4404



## FEMA

April 30, 2020

Jeffrey D. Stern, Ph.D.  
Governor's Authorized Representative  
Virginia Department of Emergency Management  
9711 Farrar Court  
Richmond, Virginia 23236-3713

**Re: Project Approval  
Hazard Mitigation Grant Program (HMGP)  
FEMA-4401-DR-VA-003**

Dear Dr. Stern:

I am pleased to inform you that the project application, Middle Peninsula Planning District Commission Mitigation Plan Update 7% Project, submitted under FEMA-DR-4401-VA-003, has been approved.

The total amount for this project is \$142,863 with a federal share of \$108,848 (\$102,045 for project costs and \$6,803 for subrecipient management costs), and a non-federal share of \$34,015; the federal share should be available in the SMARTLINK system. A copy of the Obligation Report is enclosed for your files.

The Period of Performance for this project ends on October 15, 2022. All grant award activities must be incurred during the performance period. The final product of this grant must be a FEMA approved plan. When submitting the updated plan, allow sufficient time for review, revision, and adoption.

Please provide this office with a Quarterly Progress Report thirty days after the end of each Federal fiscal year quarter

FEMA DR-4411-013  
Page 2

If you have any questions concerning this project, please contact John Schmierer, FEMA Region III Mitigation Project Officer at (267) 319-6322.

Sincerely,

APRIL D  
CUMMINGS

April Cummings  
Mitigation Division Director

Digitally signed by APRIL D  
CUMMINGS  
Date: 2020.04.30 20:17:51  
+0400

cc: Debbie Messmer, State Hazard Mitigation Officer  
Regeane Frederique, Grants Division Director

**Middle Peninsula PDC Hazards Mitigation Plan Update**

**Service Agreement between  
The Middle Peninsula Planning District Commission (MPPDC) and  
King William County for the  
Virginia Department of Emergency Management (VDEM)  
“Middle Peninsula PDC Hazards Mitigation Plan Update”  
Grant Number FEMA-DR-4401-VA-003**

**THIS SERVICE AGREEMENT** (the “Agreement”) dated this 16 day of November, 2020.

**BETWEEN:**

King William County, 180 Horse Landing Road #4, King William, Virginia 23086  
(The “Client”)

AND

Middle Peninsula Planning District Commission of 125 Bowden Street, Saluda, Virginia 23149  
(The “Contractor”)

**BACKGROUND:**

- A. The Client is of the opinion that the Contractor has the necessary qualifications, experience, and abilities to provide services to the Client.
- B. The Contractor is agreeable to providing such services to the Client on the terms and conditions set out in this Agreement.
- C. The Client recognizes the utility of a standard agreement to be used by member localities to ensure that mandates such as the Middle Peninsula multi-jurisdictional hazard mitigation plan are developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction’s policies, programs and authorities; and that it is an accurate reflection of the community’s values.

**IN CONSIDERATION OF** the matters described above and of the mutual benefits and obligations set forth in this Agreement, the receipt of sufficiency of which consideration is hereby acknowledged, the Client and the Contractor (individually the “Party” and collectively the “Parties” to this Agreement) agree as follows:

**Services Provided**

1. The Client hereby agrees to engage the Contractor to provide the Client with services (the “Services”) necessary to update the regional Middle Peninsula PDC Hazard Mitigation Plan as described in Appendix A Project Scope of Work in accordance with:
  - 44 CFR Ch. 1 Section 201.6, Part a, which indicates that a local government MUST have a mitigation plan approved in order to receive HMGP project grants

## Middle Peninsula PDC Hazards Mitigation Plan Update

and in order to apply for and receive mitigation project grants under all other mitigation grant programs.

- Disaster Mitigation Act of 2000 (“DMA 2K”), which is a key component of the Federal government’s commitment to reduce damages to private and public property through mitigation activities. This legislation established the Pre-Disaster Mitigation (“PDM”) Program and created requirements for the Post-Disaster Hazard Mitigation Grant Program (“HMGP”). This key piece of federal legislation is known as Public Law 106-390.
  - DMA 2K, which requires local governments to develop and submit mitigation plans to qualify for PDM and HMGP funds. The Act requires that the plan demonstrate “the jurisdiction’s commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.”.
2. The Contractor recommends that the Client consult with legal counsel concerning questions related to the requirements of Disaster Mitigation Act of 2000 and 44 CFR Ch. 1 Section 201.6 and other related sections.

### **Term of Agreement**

3. The term of this Agreement (the “Term”) will begin on the date this Agreement is signed by both Parties and will remain in full force and effect until either FEMA approves the update to the Middle Peninsula PDC Hazard Mitigation Plan or by VDEM contract end date of October 12, 2022. The term of this Agreement may be extended with the written consent of the Parties. The Agreement may be terminated by either Party with 30 days written notice given to the other Party.
4. In the event that the Client breaches this Agreement, the Client shall remain liable to the Contractor for the costs of all services both rendered and agreed upon as set forth in paragraph 5 and 6 below. In the event that the Contractor breaches this Agreement, the Contractor will return to the Client any and all unspent monies received from the Client as set forth in Paragraph 5 and 6 below. The Parties acknowledge that no other damages, fees, or penalties shall be due one from the other as the result of any act or omission of either Party.

### **Performance**

5. The Parties agree to fully cooperate and to do everything necessary to ensure that the terms of this Agreement take effect including the execution of additional documents should the need arise.

**Middle Peninsula PDC Hazards Mitigation Plan Update**

**Compensation**

6. For the services rendered by the Contractor as required by this Agreement, the Client will provide the following compensation as described below (as specifically applicable to Client locality, rounded up for ease).

Locality Share to be Split between all: \$6,803

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<b>Total</b>	<b>\$6, 804</b> (rounded up for ease)

2 Year Federal Grant	Fema Funding	State Match Provided Non Fed Share	Local Share split between localities	Per County Match/Share	Per Town Match Share
\$ 142,863	\$ 108,848	\$ 27,212	\$ 6,803	\$ 972	\$ 324
			Year 1	\$ 486	\$ 162
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All Such compensation shall be subject to appropriation by the Client.

7. The Contractor will invoice the Client for two annual payments of: **County \$486 or Town \$162 (as applicable).**
8. Project updates will be provided in the Middle Peninsula Planning District Commission monthly meeting packets.
9. In the event that a change order is requested, beyond the scope of services outlined in this Agreement, the Client will be charged on an hourly basis according to the approved Commission budget subject to the applicable provisions referenced in Dispute Resolution below (see section 20c). Appearances at local meetings, answering of telephonic questions and private meetings will be deemed change orders in the discretion of the Contractor provided such has been disclosed in writing, in advance to the Client.

## Middle Peninsula PDC Hazards Mitigation Plan Update

Upon completion of the Services, a presentation will be made by the Contractor, at the request of the Client, at one local meeting of the Client's choice without additional compensation.

### **Reimbursement of Expenses**

10. The Contractor will not be reimbursed for any expenses incurred in connection with this Agreement.

### **Employment Discrimination by Contractor Prohibited**

11. a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
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12. The Contractor will include the provisions of the foregoing paragraphs a, b and c in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

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13. The Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

## Middle Peninsula PDC Hazards Mitigation Plan Update

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15. The Contractor agrees that it does not and shall not during the performance of this Agreement knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

### **Ownership of Intellectual Property**

16. All information gathered during this project will remain public, unless prohibited from disclosure or exempted from required disclosure in accordance with state and federal law.

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17. In providing the Services under this Agreement, it is expressly agreed that the Contractor is acting as an independent contractor and not as an employee. The Contractor and the Client acknowledge that this Agreement does not create a partnership or joint venture between them.

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18. All notices, requests, demands or other communications required or permitted by the terms of this Agreement will be given in writing and delivered to the Parties of this Agreement as follows:

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King William County  
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King William, VA 23086
- b. Middle Peninsula Planning District Commission  
125 Bowden Street  
Saluda, VA 23149

Or to such other address as any Party may from time to time notify the other.

## Middle Peninsula PDC Hazards Mitigation Plan Update

### Additional Clauses

19. This Agreement has been reviewed and approved via recorded vote of the King William County Board of Supervisors.

### Dispute Resolution

20. In the event a dispute arises out of or in connection with this Agreement, the Parties will attempt to resolve the dispute through friendly consultation.

- a. Once a final deliverable has been submitted by Contractor and approved by FEMA, the Contractor shall be deemed to have completed all services required under this Agreement.
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22. Time is the essence in this Agreement. No extension or variation of this Agreement will operate as a waiver of this provision.

**Middle Peninsula PDC Hazards Mitigation Plan Update**

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25. It is the intention of the Parties to this Agreement that this Agreement and the performance under this Agreement, and all suits and special proceedings under this Agreement, be construed in accordance with and governed, to the exclusion of the law of any other forum, by the laws of the Commonwealth of Virginia, without regard to the jurisdiction in which any action or special proceeding may be instituted.

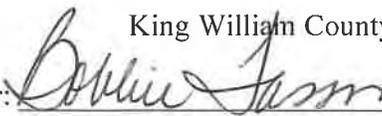
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**Waiver**

27. The waiver by either Party of a breach, default, delay, or omission of any of the provisions of this Agreement by the other Party will not be construed as a waiver of any subsequent breach of the same or the provisions.

IN WITNESS WHEREOF the Parties have duly affixed their signatures under land and seal on this 16 day of November, 2020.

King William County (Client)  
Per:  (SEAL)  
Chairperson / Agent

Middle Peninsula Planning District Commission (Contractor)  
Per:  (SEAL)  
Executive Director

### Appendix A:

#### Proposed Project Scope of Work

The Middle Peninsula Planning District Commission (MPPDC) will update the 2016 Middle Peninsula All Hazards Mitigation Plan (AHMP) with the help of a Local Planning Team. Membership will be nominated by counties, towns, and other stakeholders (i.e., Tribes, chamber of commerce, state agencies, the public, etc) in the Middle Peninsula. The plan will address several natural hazards, including but limited to hurricanes, winter storms, tornadoes, coastal flooding, coastal/shoreline erosion, sea level rise, winter storms, wildfire, riverine flooding, wind, dam failures, drought, lightning, earthquakes, shrink-swell soils, extreme cold, extreme heat, landslides, land subsidence/karst, and tsunamis.

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5. Hazard Mitigation Plan Adoption and Approval

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- Submit the draft plan to their respective governing body for consideration and adoption.
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

## Middle Peninsula PDC Hazards Mitigation Plan Update

### Local Adoption

To be eligible for HMGP project grants (grants for a locality after a disaster), a local government must have a mitigation plan. Approval includes adoption by the participating jurisdictions.

### Timeframe of Grant

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# Middle Peninsula PDC Hazards Mitigation Plan Update

## Appendix B- Award Notices

JEFFREY D. STERN, Ph.D.  
State Coordinator

CURTIS C. BROWN  
Chief Deputy State Coordinator/  
Chief Diversity and Inclusion Officer



JOHN NORTON  
Deputy State Coordinator – Disaster Services

ANDRES ALVAREZ  
Deputy State Coordinator – Mission Support

### COMMONWEALTH OF VIRGINIA

#### Department of Emergency Management

9711 Farrar Court, Suite 200  
North Chesterfield, Virginia 23236  
TEL 804.267.7600 TDD 804.674.2417 FAX 804.272.2046

June 3, 2020

Mr. Lewis Lawrence,  
Executive Director -Middle Peninsula Planning District Commission  
Saluda Professional Center  
125 Bowden Street  
Saluda, Virginia 23149

RE: Middle Peninsula PDC Hazard Mitigation Plan Update  
FEMA-4401-DR-VA-003

Dear Mr. Lawrence:

I am pleased to notify you that the Federal Emergency Management Agency (FEMA) has approved the project titled "Middle Peninsula PDC Hazard Mitigation Plan Update." The funds have been obligated through the Hazard Mitigation Grant Program. Attached you will find the grant award package. Please read all documents carefully prior to initiating your project. As funded, the federal share is 75 percent of the total project costs.

Your project cannot begin until the authorized agent has signed the grant award package. No reimbursements will be made until the award package is signed and received by the Virginia Department of Emergency Management. Please sign the attached grant agreement and scan and email it to Debbie Messmer, state hazard mitigation officer. Congratulations on the approval of this project. If you have questions regarding this award or the implementation of your project, please contact Debbie Messmer at (804) 267-7732 or by e-mail at [debbie.messmer@vdem.virginia.gov](mailto:debbie.messmer@vdem.virginia.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Curtis C. Brown".

Curtis C. Brown  
Alternate Governor's Authorized Representative

Enclosures

CCB/RSC/djm

*Saving lives through effective emergency management and homeland security.  
"A Ready Virginia is a Resilient Virginia."*



## Middle Peninsula PDC Hazards Mitigation Plan Update

U.S. Department of Homeland  
Security  
Region III  
One Independence Mall, Sixth Floor  
615 Chestnut Street  
Philadelphia, PA 19106-4404



# FEMA

April 30, 2020

Jeffrey D. Stern, Ph.D.  
Governor's Authorized Representative  
Virginia Department of Emergency Management  
9711 Farrar Court  
Richmond, Virginia 23236-3713

**Re: Project Approval  
Hazard Mitigation Grant Program (HMGP)  
FEMA-4401-DR-VA-003**

Dear Dr. Stern:

I am pleased to inform you that the project application, Middle Peninsula Planning District Commission Mitigation Plan Update 7% Project, submitted under FEMA-DR-4401-VA-003, has been approved.

The total amount for this project is \$142,863 with a federal share of \$108,848 (\$102,045 for project costs and \$6,803 for subrecipient management costs), and a non-federal share of \$34,015; the federal share should be available in the SMARTLINK system. A copy of the Obligation Report is enclosed for your files.

The Period of Performance for this project ends on October 15, 2022. All grant award activities must be incurred during the performance period. The final product of this grant must be a FEMA approved plan. When submitting the updated plan, allow sufficient time for review, revision, and adoption.

Please provide this office with a Quarterly Progress Report thirty days after the end of each Federal fiscal year quarter

FEMA DR-4411-013  
Page 2

If you have any questions concerning this project, please contact John Schmierer, FEMA Region III Mitigation Project Officer at (267) 319-6322.

Sincerely,

APRIL D  
CUMMINGS

April Cummings  
Mitigation Division Director

Digitally signed by APRIL D  
CUMMINGS  
Date: 2020.04.30 20:17:13  
+0400

cc: Debbie Messmer, State Hazard Mitigation Officer  
Regeane Frederique, Grants Division Director



**Middle Peninsula PDC Hazards Mitigation Plan Update**

**Service Agreement between  
The Middle Peninsula Planning District Commission (MPPDC) and  
Mathews County (the County) for the  
Virginia Department of Emergency Management (VDEM)  
“Middle Peninsula PDC Hazards Mitigation Plan Update”  
Grant Number FEMA-DR-4401-VA-003**

**THIS SERVICE AGREEMENT** (the “Agreement”) dated this 17<sup>th</sup> day of November, 2020.

**BETWEEN:**

Mathews County of 50 Brickbat Road, Mathews, Virginia 23109  
(The “Client”)

AND

Middle Peninsula Planning District Commission of 125 Bowden Street, Saluda, Virginia 23149  
(The “Contractor”)

**BACKGROUND:**

- A. The Client is of the opinion that the Contractor has the necessary qualifications, experience, and abilities to provide services to the Client.
- B. The Contractor is agreeable to providing such services to the Client on the terms and conditions set out in this Agreement.
- C. The Client recognizes the utility of a standard agreement to be used by member localities to ensure that mandates such as the Middle Peninsula multi-jurisdictional hazard mitigation plan are developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction’s policies, programs and authorities; and that it is an accurate reflection of the community’s values.

**IN CONSIDERATION OF** the matters described above and of the mutual benefits and obligations set forth in this Agreement, the receipt of sufficiency of which consideration is hereby acknowledged, the Client and the Contractor (individually the “Party” and collectively the “Parties” to this Agreement) agree as follows:

**Services Provided**

- 1. The Client hereby agrees to engage the Contractor to provide the Client with services (the “Services”) necessary to update the regional Middle Peninsula PDC Hazard Mitigation Plan as described in Appendix A Project Scope of Work in accordance with:
  - 44 CFR Ch. 1 Section 201.6, Part a, which indicates that a local government MUST have a mitigation plan approved in order to receive HMGP project grants

## Middle Peninsula PDC Hazards Mitigation Plan Update

and in order to apply for and receive mitigation project grants under all other mitigation grant programs.

- Disaster Mitigation Act of 2000 (“DMA 2K”), which is a key component of the Federal government’s commitment to reduce damages to private and public property through mitigation activities. This legislation established the Pre-Disaster Mitigation (“PDM”) Program and created requirements for the Post-Disaster Hazard Mitigation Grant Program (“HMGP”). This key piece of federal legislation is known as Public Law 106-390.
  - DMA 2K, which requires local governments to develop and submit mitigation plans to qualify for PDM and HMGP funds. The Act requires that the plan demonstrate “the jurisdiction’s commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.”.
2. The Contractor recommends that the Client consult with legal counsel concerning questions related to the requirements of Disaster Mitigation Act of 2000 and 44 CFR Ch. 1 Section 201.6 and other related sections.

### **Term of Agreement**

3. The term of this Agreement (the “Term”) will begin on the date this Agreement is signed by both Parties and will remain in full force and effect until either FEMA approves the update to the Middle Peninsula PDC Hazard Mitigation Plan or by VDEM contract end date of October 12, 2022. The term of this Agreement may be extended with the written consent of the Parties. The Agreement may be terminated by either Party with 30 days written notice given to the other Party.
4. In the event that the Client breaches this Agreement, the Client shall remain liable to the Contractor for the costs of all services both rendered and agreed upon as set forth in paragraph 5 and 6 below. In the event that the Contractor breaches this Agreement, the Contractor will return to the Client any and all unspent monies received from the Client as set forth in Paragraph 5 and 6 below. The Parties acknowledge that no other damages, fees, or penalties shall be due one from the other as the result of any act or omission of either Party.

### **Performance**

5. The Parties agree to fully cooperate and to do everything necessary to ensure that the terms of this Agreement take effect including the execution of additional documents should the need arise.

**Middle Peninsula PDC Hazards Mitigation Plan Update**

**Compensation**

6. For the services rendered by the Contractor as required by this Agreement, the Client will provide the following compensation as described below (as specifically applicable to Client locality, rounded up for ease).

Locality Share to be Split between all: \$6,803

Essex	\$972
Gloucester	\$972
King and Queen	\$972
King William	\$972
Mathews	\$972
Middlesex	\$972
Urbanna	\$324
Tappahannock	\$324
West Point	\$324
<b>Total</b>	<b>\$6,804 (rounded up for ease)</b>

2 Year Federal Grant	Fema Funding	State Match Provided Non Fed Share	Local Share split between localities	Per County Match/Share	Per Town Match Share
\$ 142,863	\$ 108,848	\$ 27,212	\$ 6,803	\$ 972	\$ 324
			Year 1	\$ 486	\$ 162
			Year 2	\$ 486	\$ 162

All Such compensation shall be subject to appropriation by the Client.

7. The Contractor will invoice the Client for two annual payments of: **County \$486 or Town \$162 (as applicable)**.
8. Project updates will be provided in the Middle Peninsula Planning District Commission monthly meeting packets.
9. In the event that a change order is requested, beyond the scope of services outlined in this Agreement, the Client will be charged on an hourly basis according to the approved Commission budget subject to the applicable provisions referenced in Dispute Resolution below (see section 20c). Appearances at local meetings, answering of telephonic questions and private meetings will be deemed change orders in the discretion of the Contractor provided such has been disclosed in writing, in advance to the Client.

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

Upon completion of the Services, a presentation will be made by the Contractor, at the request of the Client, at one local meeting of the Client's choice without additional compensation.

### **Reimbursement of Expenses**

10. The Contractor will not be reimbursed for any expenses incurred in connection with this Agreement.

### **Employment Discrimination by Contractor Prohibited**

11. a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
  - b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
  - c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
12. The Contractor will include the provisions of the foregoing paragraphs a, b and c in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

### **Drug-Free Workplace**

13. The Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

## Middle Peninsula PDC Hazards Mitigation Plan Update

14. For the purposes of this section, “*drug-free workplace*” means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

### **Employment of Illegal Aliens**

15. The Contractor agrees that it does not and shall not during the performance of this Agreement knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

### **Ownership of Intellectual Property**

16. All information gathered during this project will remain public, unless prohibited from disclosure or exempted from required disclosure in accordance with state and federal law.

### **Capacity**

17. In providing the Services under this Agreement, it is expressly agreed that the Contractor is acting as an independent contractor and not as an employee. The Contractor and the Client acknowledge that this Agreement does not create a partnership or joint venture between them.

### **Notice**

18. All notices, requests, demands or other communications required or permitted by the terms of this Agreement will be given in writing and delivered to the Parties of this Agreement as follows:

- a. County Administrator  
Mathews County  
P.O. Box 839  
Mathews, VA 23109
- b. Middle Peninsula Planning District Commission  
125 Bowden Street  
Saluda, VA 23149

Or to such other address as any Party may from time to time notify the other.

## Middle Peninsula PDC Hazards Mitigation Plan Update

### Additional Clauses

19. This Agreement has been reviewed and approved via recorded vote of the Mathews County Board of Supervisors.

### Dispute Resolution

20. In the event a dispute arises out of or in connection with this Agreement, the Parties will attempt to resolve the dispute through friendly consultation.

- a. Once a final deliverable has been submitted by Contractor and approved by FEMA, the Contractor shall be deemed to have completed all services required under this Agreement.
- b. Once the scope of work has been completed and/or the product has received any necessary approvals, any changes made by the Client to the final product is “at its own risk”. The Client assumes all responsibility for any modification, deviation, or change initiated outside of the agreed to scope of work.
- c. The Contractor has no contractual responsibility to advocate for, coordinate, or administer any local modifications beyond the services agreed to by the Contractor in accordance with the terms of this Agreement.
  - The Client may request an addendum to the contract for specific changes. The Contractor may consider the request from the Client and, if willing to perform the requested work, shall provide a response including a new cost estimate for consideration. Any addendum shall be authorized by the [Name of County/Town] [Board of Supervisors/Town Council] by Resolution outlining such changes to the Services.

### Modification of Agreement

21. Any amendment or modification of this Agreement or additional obligation assumed by either Party in connection with this Agreement will only be binding if evidenced in writing signed by each Party or an authorized representative of each Party.

### Time of the Essence

22. Time is the essence in this Agreement. No extension or variation of this Agreement will operate as a waiver of this provision.

**Middle Peninsula PDC Hazards Mitigation Plan Update**

**Assignment**

23. The Contractor shall not voluntarily or by operation of law assign or otherwise transfer its obligations under this Agreement without the prior written consent of the Client.

**Entire Agreement**

24. It is agreed that there is no representation, warranty, collateral agreement, or condition affecting this Agreement except as expressly provided in this Agreement.

**Governing Law**

25. It is the intention of the Parties to this Agreement that this Agreement and the performance under this Agreement, and all suits and special proceedings under this Agreement, be construed in accordance with and governed, to the exclusion of the law of any other forum, by the laws of the Commonwealth of Virginia, without regard to the jurisdiction in which any action or special proceeding may be instituted.

**Severability**

26. In the event that any of the provisions of this Agreement are held to be invalid or unenforceable in whole or in part, all other provisions will nevertheless continue to be valid and enforceable with the invalid or unenforceable parts severed from the remainder of the Agreement.

**Waiver**

27. The waiver by either Party of a breach, default, delay, or omission of any of the provisions of this Agreement by the other Party will not be construed as a waiver of any subsequent breach of the same or the provisions.

IN WITNESS WHEREOF the Parties have duly affixed their signatures under land and seal on this 17<sup>th</sup> day of November, 2020.

Mathews County (Client)

Per: Amy Dubois (SEAL)  
Chairperson / Agent

Middle Peninsula Planning District Commission (Contractor)

  
Per: Lewis L Lawrence (SEAL)  
Executive Director

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

### **Appendix A:**

#### **Proposed Project Scope of Work**

The Middle Peninsula Planning District Commission (MPPDC) will update the 2016 Middle Peninsula All Hazards Mitigation Plan (AHMP) with the help of a Local Planning Team. Membership will be nominated by counties, towns, and other stakeholders (i.e., Tribes, chamber of commerce, state agencies, the public, etc) in the Middle Peninsula. The plan will address several natural hazards, including but limited to hurricanes, winter storms, tornadoes, coastal flooding, coastal/shoreline erosion, sea level rise, winter storms, wildfire, riverine flooding, wind, dam failures, drought, lightning, earthquakes, shrink-swell soils, extreme cold, extreme heat, landslides, land subsidence/karst, and tsunamis.

The project includes the following components:

1. Planning Process
2. Risk Assessment
3. Hazard Mitigation Strategy
4. Hazard Mitigation Plan Maintenance Process
5. Hazard Mitigation Plan Adoption and Approval

#### **Planning Team Responsibilities**

Representatives on the Planning Team from participating jurisdictions must engage in the following planning process, including, but not limited to:

- Develop the Work Program and Schedule with the Planning Team
- Organize and attend regular meetings (virtual and/or in person) of the Planning Team. Attendance will be documented in the PDC monthly meeting packet.
- Assist the Planning Team with developing and conducting an outreach strategy to involve other planning team members, stakeholders, and the public, as appropriate to represent their Jurisdiction.
- Identify community resources available to support the planning effort, including meeting spaces, facilitators, and media outlets.
- Provide data and feedback to develop the risk assessment and mitigation strategy, including a specific mitigation action plan for their Jurisdiction.
- Submit the draft plan to their Jurisdiction for review.
- Work with the Planning Team to incorporate all their Jurisdiction's comments into the draft plan.
- Submit the draft plan to their respective governing body for consideration and adoption.
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

## Middle Peninsula PDC Hazards Mitigation Plan Update

### Local Adoption

To be eligible for HMGP project grants (grants for a locality after a disaster), a local government must have a mitigation plan. Approval includes adoption by the participating jurisdictions.

### Timeframe of Grant

This agreement and grant will be in effect from the date of signature by all parties and will remain in effect through the duration of this project. Once a final deliverable has been submitted to and approved by the Client and the mandating entity, the Contractor shall be deemed to have completed all services required under this Agreement. The agreement may be terminated prior to that time by any Participating Jurisdiction by giving 30 days written notice.

## Middle Peninsula PDC Hazards Mitigation Plan Update

### Appendix B- Award Notices

JEFFREY D. STERN, Ph.D.  
State Coordinator

CURTIS C. BROWN  
Chief Deputy State Coordinator/  
Chief Diversity and Inclusion Officer



JOHN NORTHON  
Deputy State Coordinator – Disaster Services

ANDRES ALVAREZ  
Deputy State Coordinator – Mission Support

### COMMONWEALTH OF VIRGINIA

Department of Emergency Management

9711 Farrar Court, Suite 200

North Chesterfield, Virginia 23236

TEL 804.267.7600 TDD 804.674.2417 FAX 804.272.2046

June 3, 2020

Mr. Lewis Lawrence,  
Executive Director –Middle Peninsula Planning District Commission  
Saluda Professional Center  
125 Bowden Street  
Saluda, Virginia 23149

RE: Middle Peninsula PDC Hazard Mitigation Plan Update  
FEMA-4401-DR-VA-003

Dear Mr. Lawrence:

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Sincerely,

Curtis C. Brown  
Alternate Governor's Authorized Representative

Enclosures

CCB/RSC/djm

*Saving lives through effective emergency management and homeland security.  
"A Ready Virginia is a Resilient Virginia."*

## Middle Peninsula PDC Hazards Mitigation Plan Update

U.S. Department of Homeland  
Security  
Region III  
One Independence Mall, Sixth Floor  
615 Chestnut Street  
Philadelphia, PA 19106-4404



# FEMA

April 30, 2020

Jeffrey D. Stern, Ph.D.  
Governor's Authorized Representative  
Virginia Department of Emergency Management  
9711 Farrar Court  
Richmond, Virginia 23236-3713

**Re: Project Approval  
Hazard Mitigation Grant Program (HMGP)  
FEMA-4401-DR-VA-003**

Dear Dr. Stern:

I am pleased to inform you that the project application, Middle Peninsula Planning District Commission Mitigation Plan Update 7% Project, submitted under FEMA-DR-4401-VA-003, has been approved.

The total amount for this project is \$142,863 with a federal share of \$108,848 (\$102,045 for project costs and \$6,803 for subrecipient management costs), and a non-federal share of \$34,015; the federal share should be available in the SMARTLINK system. A copy of the Obligation Report is enclosed for your files.

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Please provide this office with a Quarterly Progress Report thirty days after the end of each Federal fiscal year quarter

FEMA DR-4411-013  
Page 2

If you have any questions concerning this project, please contact John Schmierer, FEMA Region III Mitigation Project Officer at (267) 319-6322.

Sincerely,

**APRIL D  
CUMMINGS**

April Cummings  
Mitigation Division Director

Digitally signed by APRIL D  
CUMMINGS  
Date: 2020.04.30 10:17:51  
-0400

cc: Debbie Messmer, State Hazard Mitigation Officer  
Regeane Frederique, Grants Division Director

**Middle Peninsula PDC Hazards Mitigation Plan Update**

**Service Agreement between  
The Middle Peninsula Planning District Commission (MPPDC)  
and Middlesex County (the County or Town) for the  
Virginia Department of Emergency Management (VDEM)  
“Middle Peninsula PDC Hazards Mitigation Plan Update”  
Grant Number FEMA-DR-4401-VA-003**

**THIS SERVICE AGREEMENT** (the “Agreement”) dated this 1<sup>st</sup> day of December 2020.

**BETWEEN:**

Middlesex County of 877 General Puller Highway, Saluda, Virginia 23149  
(The “Client”)

AND

Middle Peninsula Planning District Commission of 125 Bowden Street, Saluda, Virginia 23149  
(The “Contractor”)

**BACKGROUND:**

- A. The Client is of the opinion that the Contractor has the necessary qualifications, experience, and abilities to provide services to the Client.
- B. The Contractor is agreeable to providing such services to the Client on the terms and conditions set out in this Agreement.
- C. The Client recognizes the utility of a standard agreement to be used by member localities to ensure that mandates such as the Middle Peninsula multi-jurisdictional hazard mitigation plan are developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction’s policies, programs and authorities; and that it is an accurate reflection of the community’s values.

**IN CONSIDERATION OF** the matters described above and of the mutual benefits and obligations set forth in this Agreement, the receipt of sufficiency of which consideration is hereby acknowledged, the Client and the Contractor (individually the “Party” and collectively the “Parties” to this Agreement) agree as follows:

**Services Provided**

1. The Client hereby agrees to engage the Contractor to provide the Client with services (the “Services”) necessary to update the regional Middle Peninsula PDC Hazard Mitigation Plan as described in Appendix A Project Scope of Work in accordance with:
  - 44 CFR Ch. 1 Section 201.6, Part a, which indicates that a local government MUST have a mitigation plan approved in order to receive HMGP project grants

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

and in order to apply for and receive mitigation project grants under all other mitigation grant programs.

- Disaster Mitigation Act of 2000 (“DMA 2K”), which is a key component of the Federal government’s commitment to reduce damages to private and public property through mitigation activities. This legislation established the Pre-Disaster Mitigation (“PDM”) Program and created requirements for the Post-Disaster Hazard Mitigation Grant Program (“HMGP”). This key piece of federal legislation is known as Public Law 106-390.
  - DMA 2K, which requires local governments to develop and submit mitigation plans to qualify for PDM and HMGP funds. The Act requires that the plan demonstrate “the jurisdiction’s commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.”
2. The Contractor recommends that the Client consult with legal counsel concerning questions related to the requirements of Disaster Mitigation Act of 2000 and 44 CFR Ch. 1 Section 201.6 and other related sections.

### **Term of Agreement**

3. The term of this Agreement (the “Term”) will begin on the date this Agreement is signed by both Parties and will remain in full force and effect until either FEMA approves the update to the Middle Peninsula PDC Hazard Mitigation Plan or by VDEM contract end date of October 12, 2022. The term of this Agreement may be extended with the written consent of the Parties. The Agreement may be terminated by either Party with 30 days written notice given to the other Party.
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### **Performance**

5. The Parties agree to fully cooperate and to do everything necessary to ensure that the terms of this Agreement take effect including the execution of additional documents should the need arise.

### **Compensation**

## Middle Peninsula PDC Hazards Mitigation Plan Update

6. For the services rendered by the Contractor as required by this Agreement, the Client will provide the following compensation as described below (as specifically applicable to Client locality, rounded up for ease).

Locality Share to be Split between all: \$6,803

Essex	\$972
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2 Year Federal Grant	Fema Funding	State Match Provided Non Fed Share	Local Share split between localities	Per County Match/Share	Per Town Match Share
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			Year 1	\$ 486	\$ 162
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All Such compensation shall be subject to appropriation by the Client.

7. The Contractor will invoice the Client for two annual payments of: **County \$486 or Town \$162 (as applicable).**
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## **Middle Peninsula PDC Hazards Mitigation Plan Update**

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## **Middle Peninsula PDC Hazards Mitigation Plan Update**

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877 General Puller Highway  
Saluda, Virginia 23149
  
- b. Middle Peninsula Planning District Commission  
125 Bowden Street  
Saluda, VA 23149

Or to such other address as any Party may from time to time notify the other.

### **Additional Clauses**

## Middle Peninsula PDC Hazards Mitigation Plan Update

19. This Agreement has been reviewed and approved via recorded vote of the Middlesex County Board of Supervisors.

### Dispute Resolution

20. In the event a dispute arises out of or in connection with this Agreement, the Parties will attempt to resolve the dispute through friendly consultation.
- a. Once a final deliverable has been submitted by Contractor and approved by FEMA, the Contractor shall be deemed to have completed all services required under this Agreement.
  - b. Once the scope of work has been completed and/or the product has received any necessary approvals, any changes made by the Client to the final product is “at its own risk”. The Client assumes all responsibility for any modification, deviation, or change initiated outside of the agreed to scope of work.
  - c. The Contractor has no contractual responsibility to advocate for, coordinate, or administer any local modifications beyond the services agreed to by the Contractor in accordance with the terms of this Agreement.
    - The Client may request an addendum to the contract for specific changes. The Contractor may consider the request from the Client and, if willing to perform the requested work, shall provide a response including a new cost estimate for consideration. Any addendum shall be authorized by the [Name of County/Town] [Board of Supervisors/Town Council] by Resolution outlining such changes to the Services.

### Modification of Agreement

21. Any amendment or modification of this Agreement or additional obligation assumed by either Party in connection with this Agreement will only be binding if evidenced in writing signed by each Party or an authorized representative of each Party.

### Time of the Essence

22. Time is the essence in this Agreement. No extension or variation of this Agreement will operate as a waiver of this provision.

### Assignment

**Middle Peninsula PDC Hazards Mitigation Plan Update**

23. The Contractor shall not voluntarily or by operation of law assign or otherwise transfer its obligations under this Agreement without the prior written consent of the Client.

**Entire Agreement**

24. It is agreed that there is no representation, warranty, collateral agreement, or condition affecting this Agreement except as expressly provided in this Agreement.

**Governing Law**

25. It is the intention of the Parties to this Agreement that this Agreement and the performance under this Agreement, and all suits and special proceedings under this Agreement, be construed in accordance with and governed, to the exclusion of the law of any other forum, by the laws of the Commonwealth of Virginia, without regard to the jurisdiction in which any action or special proceeding may be instituted.

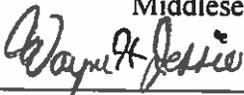
**Severability**

26. In the event that any of the provisions of this Agreement are held to be invalid or unenforceable in whole or in part, all other provisions will nevertheless continue to be valid and enforceable with the invalid or unenforceable parts severed from the remainder of the Agreement.

**Waiver**

27. The waiver by either Party of a breach, default, delay, or omission of any of the provisions of this Agreement by the other Party will not be construed as a waiver of any subsequent breach of the same or the provisions.

**IN WITNESS WHEREOF** the Parties have duly affixed their signatures under land and seal on this 1<sup>st</sup> day of December 2020.

Middlesex County (Client)  
Per:  (SEAL)  
Chairperson / Agent

Middle Peninsula Planning District Commission (Contractor)  
Per:  (SEAL)  
Executive Director

### Appendix A:

#### **Proposed Project Scope of Work**

The Middle Peninsula Planning District Commission (MPPDC) will update the 2016 Middle Peninsula All Hazards Mitigation Plan (AHMP) with the help of a Local Planning Team. Membership will be nominated by counties, towns, and other stakeholders (i.e., Tribes, chamber of commerce, state agencies, the public, etc) in the Middle Peninsula. The plan will address several natural hazards, including but limited to hurricanes, winter storms, tornadoes, coastal flooding, coastal/shoreline erosion, sea level rise, winter storms, wildfire, riverine flooding, wind, dam failures, drought, lightning, earthquakes, shrink-swell soils, extreme cold, extreme heat, landslides, land subsidence/karst, and tsunami.

The project includes the following components:

1. Planning Process
2. Risk Assessment
3. Hazard Mitigation Strategy
4. Hazard Mitigation Plan Maintenance Process
5. Hazard Mitigation Plan Adoption and Approval

#### **Planning Team Responsibilities**

Representatives on the Planning Team from participating jurisdictions must engage in the following planning process, including, but not limited to:

- Develop the Work Program and Schedule with the Planning Team
- Organize and attend regular meetings (virtual and/or in person) of the Planning Team. Attendance will be documented in the PDC monthly meeting packet.
- Assist the Planning Team with developing and conducting an outreach strategy to involve other planning team members, stakeholders, and the public, as appropriate to represent their Jurisdiction.
- Identify community resources available to support the planning effort, including meeting spaces, facilitators, and media outlets.
- Provide data and feedback to develop the risk assessment and mitigation strategy, including a specific mitigation action plan for their Jurisdiction.
- Submit the draft plan to their Jurisdiction for review.
- Work with the Planning Team to incorporate all their Jurisdiction's comments into the draft plan.
- Submit the draft plan to their respective governing body for consideration and adoption.
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

#### **Local Adoption**

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

To be eligible for HMGP project grants (grants for a locality after a disaster), a local government must have a mitigation plan. Approval includes adoption by the participating jurisdictions.

### **Timeframe of Grant**

This agreement and grant will be in effect from the date of signature by all parties, and will remain in effect through the duration of this project. Once a final deliverable has been submitted to and approved by the Client and the mandating entity, the Contractor shall be deemed to have completed all services required under this Agreement. The agreement may be terminated prior to that time by any Participating Jurisdiction by giving 30 days written notice.

**Service Agreement between  
The Middle Peninsula Planning District Commission (MPPDC) and  
*Town of Tappahannock* (the County or Town) for the  
Virginia Department of Emergency Management (VDEM)  
“Middle Peninsula PDC Hazards Mitigation Plan Update”  
Grant Number FEMA-DR-4401-VA-003**

**THIS SERVICE AGREEMENT** (the “Agreement”) dated this   17th   day of   Dec.  , 2020.

**BETWEEN:**

*Town of Tappahannock of 915 Church Lane, Tappahannock, Virginia 22560*  
(The “Client”)

AND

Middle Peninsula Planning District Commission of 125 Bowden Street, Saluda, Virginia 23149  
(The “Contractor”)

**BACKGROUND:**

- A. The Client is of the opinion that the Contractor has the necessary qualifications, experience, and abilities to provide services to the Client.
- B. The Contractor is agreeable to providing such services to the Client on the terms and conditions set out in this Agreement.
- C. The Client recognizes the utility of a standard agreement to be used by member localities to ensure that mandates such as the Middle Peninsula multi-jurisdictional hazard mitigation plan are developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction’s policies, programs and authorities; and that it is an accurate reflection of the community’s values.

**IN CONSIDERATION OF** the matters described above and of the mutual benefits and obligations set forth in this Agreement, the receipt of sufficiency of which consideration is hereby acknowledged, the Client and the Contractor (individually the “Party” and collectively the “Parties” to this Agreement) agree as follows:

**Services Provided**

1. The Client hereby agrees to engage the Contractor to provide the Client with services (the “Services”) necessary to update the regional Middle Peninsula PDC Hazard Mitigation Plan as described in Appendix A Project Scope of Work in accordance with:
  - 44 CFR Ch. 1 Section 201.6, Part a, which indicates that a local government **MUST** have a mitigation plan approved in order to receive HMGP project grants

and in order to apply for and receive mitigation project grants under all other mitigation grant programs.

- Disaster Mitigation Act of 2000 (“DMA 2K”), which is a key component of the Federal government’s commitment to reduce damages to private and public property through mitigation activities. This legislation established the Pre-Disaster Mitigation (“PDM”) Program and created requirements for the Post-Disaster Hazard Mitigation Grant Program (“HMGP”). This key piece of federal legislation is known as Public Law 106-390.
  - DMA 2K, which requires local governments to develop and submit mitigation plans to qualify for PDM and HMGP funds. The Act requires that the plan demonstrate “the jurisdiction’s commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.”.
2. The Contractor recommends that the Client consult with legal counsel concerning questions related to the requirements of Disaster Mitigation Act of 2000 and 44 CFR Ch. 1 Section 201.6 and other related sections.

### **Term of Agreement**

3. The term of this Agreement (the “Term”) will begin on the date this Agreement is signed by both Parties and will remain in full force and effect until either FEMA approves the update to the Middle Peninsula PDC Hazard Mitigation Plan or by VDEM contract end date of October 12, 2022. The term of this Agreement may be extended with the written consent of the Parties. The Agreement may be terminated by either Party with 30 days written notice given to the other Party.
4. In the event that the Client breaches this Agreement, the Client shall remain liable to the Contractor for the costs of all services both rendered and agreed upon as set forth in paragraph 5 and 6 below. In the event that the Contractor breaches this Agreement, the Contractor will return to the Client any and all unspent monies received from the Client as set forth in Paragraph 5 and 6 below. The Parties acknowledge that no other damages, fees, or penalties shall be due one from the other as the result of any act or omission of either Party.

### **Performance**

5. The Parties agree to fully cooperate and to do everything necessary to ensure that the terms of this Agreement take effect including the execution of additional documents should the need arise.

### **Compensation**

- For the services rendered by the Contractor as required by this Agreement, the Client will provide the following compensation as described below (as specifically applicable to Client locality, rounded up for ease).

Locality Share to be Split between all: \$6,803

Essex	\$972
Gloucester	\$972
King and Queen	\$972
King William	\$972
Mathews	\$972
Middlesex	\$972
Urbanna	\$324
Tappahannock	\$324
West Point	\$324
<b>Total</b>	<b>\$6,804</b> (rounded up for ease)

2 Year Federal Grant	Fema Funding	State Match Provided Non Fed Share	Local Share split between localities	Per County Match/Share	Per Town Match Share
\$ 142,863	\$ 108,848	\$ 27,212	\$ 6,803	\$ 972	\$ 324
			Year 1	\$ 486	\$ 162
			Year 2	\$ 486	\$ 162

All Such compensation shall be subject to appropriation by the Client.

- The Contractor will invoice the Client for two annual payments of: **County \$486 or Town \$162 (as applicable)**.
- Project updates will be provided in the Middle Peninsula Planning District Commission monthly meeting packets.
- In the event that a change order is requested, beyond the scope of services outlined in this Agreement, the Client will be charged on an hourly basis according to the approved Commission budget subject to the applicable provisions referenced in Dispute Resolution below (see section 20c). Appearances at local meetings, answering of telephonic questions and private meetings will be deemed change orders in the discretion of the Contractor provided such has been disclosed in writing, in advance to the Client.

Upon completion of the Services, a presentation will be made by the Contractor, at the request of the Client, at one local meeting of the Client's choice without additional compensation.

### **Reimbursement of Expenses**

10. The Contractor will not be reimbursed for any expenses incurred in connection with this Agreement.

### **Employment Discrimination by Contractor Prohibited**

11. a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
  - b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
  - c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
12. The Contractor will include the provisions of the foregoing paragraphs a, b and c in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

### **Drug-Free Workplace**

13. The Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

14. For the purposes of this section, “*drug-free workplace*” means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

### **Employment of Illegal Aliens**

15. The Contractor agrees that it does not and shall not during the performance of this Agreement knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

### **Ownership of Intellectual Property**

16. All information gathered during this project will remain public, unless prohibited from disclosure or exempted from required disclosure in accordance with state and federal law.

### **Capacity**

17. In providing the Services under this Agreement, it is expressly agreed that the Contractor is acting as an independent contractor and not as an employee. The Contractor and the Client acknowledge that this Agreement does not create a partnership or joint venture between them.

### **Notice**

18. All notices, requests, demands or other communications required or permitted by the terms of this Agreement will be given in writing and delivered to the Parties of this Agreement as follows:

- a. Eric S. Pollitt – Town Manager  
Town of Tappahannock  
915 Church Lane  
Tappahannock, Virginia 22560
- b. Middle Peninsula Planning District Commission  
125 Bowden Street  
Saluda, VA 23149

Or to such other address as any Party may from time to time notify the other.

### **Additional Clauses**

19. This Agreement has been reviewed and approved via recorded vote of the Town of Tappahannock Town Council.

### **Dispute Resolution**

20. In the event a dispute arises out of or in connection with this Agreement, the Parties will attempt to resolve the dispute through friendly consultation.

- a. Once a final deliverable has been submitted by Contractor and approved by FEMA, the Contractor shall be deemed to have completed all services required under this Agreement.
- b. Once the scope of work has been completed and/or the product has received any necessary approvals, any changes made by the Client to the final product is “at its own risk”. The Client assumes all responsibility for any modification, deviation, or change initiated outside of the agreed to scope of work.
- c. The Contractor has no contractual responsibility to advocate for, coordinate, or administer any local modifications beyond the services agreed to by the Contractor in accordance with the terms of this Agreement.
  - The Client may request an addendum to the contract for specific changes. The Contractor may consider the request from the Client and, if willing to perform the requested work, shall provide a response including a new cost estimate for consideration. Any addendum shall be authorized by the [Name of County/Town] [Board of Supervisors/Town Council] by Resolution outlining such changes to the Services.

### **Modification of Agreement**

21. Any amendment or modification of this Agreement or additional obligation assumed by either Party in connection with this Agreement will only be binding if evidenced in writing signed by each Party or an authorized representative of each Party.

### **Time of the Essence**

22. Time is the essence in this Agreement. No extension or variation of this Agreement will operate as a waiver of this provision.

### **Assignment**

**Middle Peninsula PDC Hazards Mitigation Plan Update**

23. The Contractor shall not voluntarily or by operation of law assign or otherwise transfer its obligations under this Agreement without the prior written consent of the Client.

**Entire Agreement**

24. It is agreed that there is no representation, warranty, collateral agreement, or condition affecting this Agreement except as expressly provided in this Agreement.

**Governing Law**

25. It is the intention of the Parties to this Agreement that this Agreement and the performance under this Agreement, and all suits and special proceedings under this Agreement, be construed in accordance with and governed, to the exclusion of the law of any other forum, by the laws of the Commonwealth of Virginia, without regard to the jurisdiction in which any action or special proceeding may be instituted.

**Severability**

26. In the event that any of the provisions of this Agreement are held to be invalid or unenforceable in whole or in part, all other provisions will nevertheless continue to be valid and enforceable with the invalid or unenforceable parts severed from the remainder of the Agreement.

**Waiver**

27. The waiver by either Party of a breach, default, delay, or omission of any of the provisions of this Agreement by the other Party will not be construed as a waiver of any subsequent breach of the same or the provisions.

**IN WITNESS WHEREOF** the Parties have duly affixed their signatures under land and seal on this 17th day of December, 2020.

Town of Tappahannock (Client)  
  
Per: Eric S. Pollitt (SEAL)  
Chairperson / Agent

Middle Peninsula Planning District Commission (Contractor)  
  
Per: Lewis L Lawrence (SEAL)  
Executive Director

## **Appendix A:**

### **Proposed Project Scope of Work**

The Middle Peninsula Planning District Commission (MPPDC) will update the 2016 Middle Peninsula All Hazards Mitigation Plan (AHMP) with the help of a Local Planning Team. Membership will be nominated by counties, towns, and other stakeholders (i.e., Tribes, chamber of commerce, state agencies, the public, etc) in the Middle Peninsula. The plan will address several natural hazards, including but limited to hurricanes, winter storms, tornadoes, coastal flooding, coastal/shoreline erosion, sea level rise, winter storms, wildfire, riverine flooding, wind, dam failures, drought, lightning, earthquakes, shrink-swell soils, extreme cold, extreme heat, landslides, land subsidence/karst, and tsunamis.

The project includes the following components:

1. Planning Process
2. Risk Assessment
3. Hazard Mitigation Strategy
4. Hazard Mitigation Plan Maintenance Process
5. Hazard Mitigation Plan Adoption and Approval

### **Planning Team Responsibilities**

Representatives on the Planning Team from participating jurisdictions must engage in the following planning process, including, but not limited to:

- Develop the Work Program and Schedule with the Planning Team
- Organize and attend regular meetings (virtual and/or in person) of the Planning Team. Attendance will be documented in the PDC monthly meeting packet.
- Assist the Planning Team with developing and conducting an outreach strategy to involve other planning team members, stakeholders, and the public, as appropriate to represent their Jurisdiction.
- Identify community resources available to support the planning effort, including meeting spaces, facilitators, and media outlets.
- Provide data and feedback to develop the risk assessment and mitigation strategy, including a specific mitigation action plan for their Jurisdiction.
- Submit the draft plan to their Jurisdiction for review.
- Work with the Planning Team to incorporate all their Jurisdiction's comments into the draft plan.
- Submit the draft plan to their respective governing body for consideration and adoption.
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

### **Local Adoption**

To be eligible for HMGP project grants (grants for a locality after a disaster), a local government must have a mitigation plan. Approval includes adoption by the participating jurisdictions.

### **Timeframe of Grant**

This agreement and grant will be in effect from the date of signature by all parties, and will remain in effect through the duration of this project. Once a final deliverable has been submitted to and approved by the Client and the mandating entity, the Contractor shall be deemed to have completed all services required under this Agreement. The agreement may be terminated prior to that time by any Participating Jurisdiction by giving 30 days written notice.

## Appendix B- Award Notices

JEFFREY D. STERN, Ph.D.  
State Coordinator

CURTIS C. BROWN  
Chief Deputy State Coordinator/  
Chief Diversity and Inclusion Officer



JOHN NORTON  
Deputy State Coordinator – Disaster Services

ANDRES ALVAREZ  
Deputy State Coordinator – Mission Support

### COMMONWEALTH OF VIRGINIA

#### Department of Emergency Management

9711 Farrar Court, Suite 200  
North Chesterfield, Virginia 23236  
TEL 804.267.7600 TDD 804.674.2417 FAX 804.272.2046

June 3, 2020

Mr. Lewis Lawrence,  
Executive Director -Middle Peninsula Planning District Commission  
Saluda Professional Center  
125 Bowden Street  
Saluda, Virginia 23149

RE: Middle Peninsula PDC Hazard Mitigation Plan Update  
FEMA-4401-DR-VA-003

Dear Mr. Lawrence:

I am pleased to notify you that the Federal Emergency Management Agency (FEMA) has approved the project titled "Middle Peninsula PDC Hazard Mitigation Plan Update." The funds have been obligated through the Hazard Mitigation Grant Program. Attached you will find the grant award package. Please read all documents carefully prior to initiating your project. As funded, the federal share is 75 percent of the total project costs.

Your project cannot begin until the authorized agent has signed the grant award package. No reimbursements will be made until the award package is signed and received by the Virginia Department of Emergency Management. Please sign the attached grant agreement and scan and email it to Debbie Messmer, state hazard mitigation officer. Congratulations on the approval of this project. If you have questions regarding this award or the implementation of your project, please contact Debbie Messmer at (804) 267-7732 or by e-mail at [debbie.messmer@vdem.virginia.gov](mailto:debbie.messmer@vdem.virginia.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Curtis C. Brown".

Curtis C. Brown  
Alternate Governor's Authorized Representative

Enclosures

CCB/RSC/djm

*Saving lives through effective emergency management and homeland security.  
"A Ready Virginia is a Resilient Virginia."*

U.S. Department of Homeland  
Security  
Regan III  
One Independence Mall, Sixth Floor  
615 Chestnut Street  
Philadelphia, PA 19106-4404



**FEMA**

April 30, 2020

Jeffrey D. Stern, Ph.D.  
Governor's Authorized Representative  
Virginia Department of Emergency Management  
9711 Farrar Court  
Richmond, Virginia 23236-3713

**Re: Project Approval  
Hazard Mitigation Grant Program (HMGP)  
FEMA-4401-DR-VA-003**

Dear Dr. Stern:

I am pleased to inform you that the project application, Middle Peninsula Planning District Commission Mitigation Plan Update 7% Project, submitted under FEMA-DR-4401-VA-003, has been approved.

The total amount for this project is \$142,863 with a federal share of \$108,848 (\$102,045 for project costs and \$6,803 for subrecipient management costs), and a non-federal share of \$34,015; the federal share should be available in the SMARTLINK system. A copy of the Obligation Report is enclosed for your files.

The Period of Performance for this project ends on October 15, 2022. All grant award activities must be incurred during the performance period. The final product of this grant must be a FEMA approved plan. When submitting the updated plan, allow sufficient time for review, revision, and adoption.

Please provide this office with a Quarterly Progress Report thirty days after the end of each Federal fiscal year quarter.

FEMA DR-4401-013  
Page 2

If you have any questions concerning this project, please contact John Schmierer, FEMA Region III Mitigation Project Officer at (267) 319-6322.

Sincerely,

**APRIL D  
CUMMINGS**

April Cummings  
Mitigation Division Director

Digitally signed by APRIL D  
CUMMINGS  
Date: 2020.04.30 10:13:44  
-0400

cc: Debbie Messmer, State Hazard Mitigation Officer  
Regéane Frédérique, Grants Division Director

# Middle Peninsula PDC Hazards Mitigation Plan Update

**Service Agreement between  
The Middle Peninsula Planning District Commission (MPPDC) and  
The Town of West Point (the County or Town) for the  
Virginia Department of Emergency Management (VDEM)  
“Middle Peninsula PDC Hazards Mitigation Plan Update”  
Grant Number FEMA-DR-4401-VA-003**

**THIS SERVICE AGREEMENT** (the “Agreement”) dated this 20<sup>th</sup> day of November, 2020.

**BETWEEN:**

Town of West Point of P.O. Box 152, West Point, VA 23181  
(The “Client”)

AND

Middle Peninsula Planning District Commission of 125 Bowden Street, Saluda, Virginia 23149  
(The “Contractor”)

**BACKGROUND:**

- A. The Client is of the opinion that the Contractor has the necessary qualifications, experience, and abilities to provide services to the Client.
- B. The Contractor is agreeable to providing such services to the Client on the terms and conditions set out in this Agreement.
- C. The Client recognizes the utility of a standard agreement to be used by member localities to ensure that mandates such as the Middle Peninsula multi-jurisdictional hazard mitigation plan are developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction’s policies, programs and authorities; and that it is an accurate reflection of the community’s values.

**IN CONSIDERATION OF** the matters described above and of the mutual benefits and obligations set forth in this Agreement, the receipt of sufficiency of which consideration is hereby acknowledged, the Client and the Contractor (individually the “Party” and collectively the “Parties” to this Agreement) agree as follows:

**Services Provided**

1. The Client hereby agrees to engage the Contractor to provide the Client with services (the “Services”) necessary to update the regional Middle Peninsula PDC Hazard Mitigation Plan as described in Appendix A Project Scope of Work in accordance with:
  - 44 CFR Ch. 1 Section 201.6, Part a, which indicates that a local government MUST have a mitigation plan approved in order to receive HMGP project grants

## Middle Peninsula PDC Hazards Mitigation Plan Update

and in order to apply for and receive mitigation project grants under all other mitigation grant programs.

- Disaster Mitigation Act of 2000 (“DMA 2K”), which is a key component of the Federal government’s commitment to reduce damages to private and public property through mitigation activities. This legislation established the Pre-Disaster Mitigation (“PDM”) Program and created requirements for the Post-Disaster Hazard Mitigation Grant Program (“HMGP”). This key piece of federal legislation is known as Public Law 106-390.
  - DMA 2K, which requires local governments to develop and submit mitigation plans to qualify for PDM and HMGP funds. The Act requires that the plan demonstrate “the jurisdiction’s commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.”.
2. The Contractor recommends that the Client consult with legal counsel concerning questions related to the requirements of Disaster Mitigation Act of 2000 and 44 CFR Ch. 1 Section 201.6 and other related sections.

### **Term of Agreement**

3. The term of this Agreement (the “Term”) will begin on the date this Agreement is signed by both Parties and will remain in full force and effect until either FEMA approves the update to the Middle Peninsula PDC Hazard Mitigation Plan or by VDEM contract end date of October 12, 2022. The term of this Agreement may be extended with the written consent of the Parties. The Agreement may be terminated by either Party with 30 days written notice given to the other Party.
4. In the event that the Client breaches this Agreement, the Client shall remain liable to the Contractor for the costs of all services both rendered and agreed upon as set forth in paragraph 5 and 6 below. In the event that the Contractor breaches this Agreement, the Contractor will return to the Client any and all unspent monies received from the Client as set forth in Paragraph 5 and 6 below. The Parties acknowledge that no other damages, fees, or penalties shall be due one from the other as the result of any act or omission of either Party.

### **Performance**

5. The Parties agree to fully cooperate and to do everything necessary to ensure that the terms of this Agreement take effect including the execution of additional documents should the need arise.

## Middle Peninsula PDC Hazards Mitigation Plan Update

### Compensation

6. For the services rendered by the Contractor as required by this Agreement, the Client will provide the following compensation as described below (as specifically applicable to Client locality, rounded up for ease).

Locality Share to be Split between all: \$6,803

Essex	\$972
Gloucester	\$972
King and Queen	\$972
King William	\$972
Mathews	\$972
Middlesex	\$972
Urbanna	\$324
Tappahannock	\$324
West Point	\$324
<b>Total</b>	<b>\$6,804</b> (rounded up for ease)

2 Year Federal Grant	Fema Funding	State Match Provided Non Fed Share	Local Share split between localities	Per County Match/Share	Per Town Match Share
\$ 142,863	\$ 108,848	\$ 27,212	\$ 6,803	\$ 972	\$ 324
			Year 1	\$ 486	\$ 162
			Year 2	\$ 486	\$ 162

All Such compensation shall be subject to appropriation by the Client.

7. The Contractor will invoice the Client for two annual payments of: **County \$486 or Town \$162 (as applicable).**
8. Project updates will be provided in the Middle Peninsula Planning District Commission monthly meeting packets.
9. In the event that a change order is requested, beyond the scope of services outlined in this Agreement, the Client will be charged on an hourly basis according to the approved Commission budget subject to the applicable provisions referenced in Dispute Resolution below (see section 20c). Appearances at local meetings, answering of telephonic questions and private meetings will be deemed change orders in the discretion of the Contractor provided such has been disclosed in writing, in advance to the Client.

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

Upon completion of the Services, a presentation will be made by the Contractor, at the request of the Client, at one local meeting of the Client's choice without additional compensation.

### **Reimbursement of Expenses**

10. The Contractor will not be reimbursed for any expenses incurred in connection with this Agreement.

### **Employment Discrimination by Contractor Prohibited**

11. a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
  - b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
  - c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
12. The Contractor will include the provisions of the foregoing paragraphs a, b and c in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

### **Drug-Free Workplace**

13. The Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

## Middle Peninsula PDC Hazards Mitigation Plan Update

14. For the purposes of this section, “*drug-free workplace*” means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

### **Employment of Illegal Aliens**

15. The Contractor agrees that it does not and shall not during the performance of this Agreement knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

### **Ownership of Intellectual Property**

16. All information gathered during this project will remain public, unless prohibited from disclosure or exempted from required disclosure in accordance with state and federal law.

### **Capacity**

17. In providing the Services under this Agreement, it is expressly agreed that the Contractor is acting as an independent contractor and not as an employee. The Contractor and the Client acknowledge that this Agreement does not create a partnership or joint venture between them.

### **Notice**

18. All notices, requests, demands or other communications required or permitted by the terms of this Agreement will be given in writing and delivered to the Parties of this Agreement as follows:
- a. Town Manager  
Town of West Point  
P.O. Box 152  
West Point, VA 23181
  - b. Middle Peninsula Planning District Commission  
125 Bowden Street  
Saluda, VA 23149

Or to such other address as any Party may from time to time notify the other.

## Middle Peninsula PDC Hazards Mitigation Plan Update

### Additional Clauses

19. This Agreement has been reviewed and approved via recorded vote of the West Point Town Council on November 19, 2020.

### Dispute Resolution

20. In the event a dispute arises out of or in connection with this Agreement, the Parties will attempt to resolve the dispute through friendly consultation.

- a. Once a final deliverable has been submitted by Contractor and approved by FEMA, the Contractor shall be deemed to have completed all services required under this Agreement.
- b. Once the scope of work has been completed and/or the product has received any necessary approvals, any changes made by the Client to the final product is “at its own risk”. The Client assumes all responsibility for any modification, deviation, or change initiated outside of the agreed to scope of work.
- c. The Contractor has no contractual responsibility to advocate for, coordinate, or administer any local modifications beyond the services agreed to by the Contractor in accordance with the terms of this Agreement.
  - The Client may request an addendum to the contract for specific changes. The Contractor may consider the request from the Client and, if willing to perform the requested work, shall provide a response including a new cost estimate for consideration. Any addendum shall be authorized by the West Point Town Council by Resolution outlining such changes to the Services.

### Modification of Agreement

21. Any amendment or modification of this Agreement or additional obligation assumed by either Party in connection with this Agreement will only be binding if evidenced in writing signed by each Party or an authorized representative of each Party.

### Time of the Essence

22. Time is the essence in this Agreement. No extension or variation of this Agreement will operate as a waiver of this provision.

## Middle Peninsula PDC Hazards Mitigation Plan Update

### Assignment

23. The Contractor shall not voluntarily or by operation of law assign or otherwise transfer its obligations under this Agreement without the prior written consent of the Client.

### Entire Agreement

24. It is agreed that there is no representation, warranty, collateral agreement, or condition affecting this Agreement except as expressly provided in this Agreement.

### Governing Law

25. It is the intention of the Parties to this Agreement that this Agreement and the performance under this Agreement, and all suits and special proceedings under this Agreement, be construed in accordance with and governed, to the exclusion of the law of any other forum, by the laws of the Commonwealth of Virginia, without regard to the jurisdiction in which any action or special proceeding may be instituted.

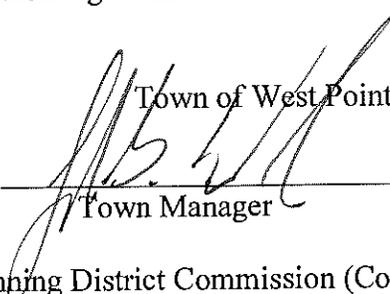
### Severability

26. In the event that any of the provisions of this Agreement are held to be invalid or unenforceable in whole or in part, all other provisions will nevertheless continue to be valid and enforceable with the invalid or unenforceable parts severed from the remainder of the Agreement.

### Waiver

27. The waiver by either Party of a breach, default, delay, or omission of any of the provisions of this Agreement by the other Party will not be construed as a waiver of any subsequent breach of the same or the provisions.

**IN WITNESS WHEREOF** the Parties have duly affixed their signatures under land and seal on this 20<sup>th</sup> day of November, 2020.

Per:  Town of West Point (Client)  
(SEAL)  
Town Manager

Middle Peninsula Planning District Commission (Contractor)

Per:  Lewis L. Lawrence (SEAL)  
Executive Director

## Middle Peninsula PDC Hazards Mitigation Plan Update

### Appendix A:

#### **Proposed Project Scope of Work**

The Middle Peninsula Planning District Commission (MPPDC) will update the 2016 Middle Peninsula All Hazards Mitigation Plan (AHMP) with the help of a Local Planning Team. Membership will be nominated by counties, towns, and other stakeholders (i.e., Tribes, chamber of commerce, state agencies, the public, etc) in the Middle Peninsula. The plan will address several natural hazards, including but limited to hurricanes, winter storms, tornadoes, coastal flooding, coastal/shoreline erosion, sea level rise, winter storms, wildfire, riverine flooding, wind, dam failures, drought, lightning, earthquakes, shrink-swell soils, extreme cold, extreme heat, landslides, land subsidence/karst, and tsunami.

The project includes the following components:

1. Planning Process
2. Risk Assessment
3. Hazard Mitigation Strategy
4. Hazard Mitigation Plan Maintenance Process
5. Hazard Mitigation Plan Adoption and Approval

#### **Planning Team Responsibilities**

Representatives on the Planning Team from participating jurisdictions must engage in the following planning process, including, but not limited to:

- Develop the Work Program and Schedule with the Planning Team
- Organize and attend regular meetings (virtual and/or in person) of the Planning Team. Attendance will be documented in the PDC monthly meeting packet.
- Assist the Planning Team with developing and conducting an outreach strategy to involve other planning team members, stakeholders, and the public, as appropriate to represent their Jurisdiction.
- Identify community resources available to support the planning effort, including meeting spaces, facilitators, and media outlets.
- Provide data and feedback to develop the risk assessment and mitigation strategy, including a specific mitigation action plan for their Jurisdiction.
- Submit the draft plan to their Jurisdiction for review.
- Work with the Planning Team to incorporate all their Jurisdiction's comments into the draft plan.
- Submit the draft plan to their respective governing body for consideration and adoption.
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

#### **Local Adoption**

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

To be eligible for HMGP project grants (grants for a locality after a disaster), a local government must have a mitigation plan. Approval includes adoption by the participating jurisdictions.

### **Timeframe of Grant**

This agreement and grant will be in effect from the date of signature by all parties, and will remain in effect through the duration of this project. Once a final deliverable has been submitted to and approved by the Client and the mandating entity, the Contractor shall be deemed to have completed all services required under this Agreement. The agreement may be terminated prior to that time by any Participating Jurisdiction by giving 30 days written notice.

# Middle Peninsula PDC Hazards Mitigation Plan Update

## Appendix B- Award Notices

JEFFREY D. STERN, Ph.D.  
State Coordinator

CURTIS C. BROWN  
Chief Deputy State Coordinator/  
Chief Diversity and Inclusion Officer



JOHN NORTON  
Deputy State Coordinator – Disaster Services

ANDRES ALVAREZ  
Deputy State Coordinator – Mitigation Support

### COMMONWEALTH OF VIRGINIA

#### Department of Emergency Management

9711 Farrar Court, Suite 200  
North Chesterfield, Virginia 23236  
TEL 804.267.7600 TDD 804.674.2417 FAX 804.272.2046

June 3, 2020

Mr. Lewis Lawrence,  
Executive Director - Middle Peninsula Planning District Commission  
Saluda Professional Center  
125 Bowden Street  
Saluda, Virginia 23149

RE: Middle Peninsula PDC Hazard Mitigation Plan Update  
FEMA-4401-DR-VA-003

Dear Mr. Lawrence:

I am pleased to notify you that the Federal Emergency Management Agency (FEMA) has approved the project titled "Middle Peninsula PDC Hazard Mitigation Plan Update." The funds have been obligated through the Hazard Mitigation Grant Program. Attached you will find the grant award package. Please read all documents carefully prior to initiating your project. As funded, the federal share is 75 percent of the total project costs.

Your project cannot begin until the authorized agent has signed the grant award package. No reimbursements will be made until the award package is signed and received by the Virginia Department of Emergency Management. Please sign the attached grant agreement and scan and email it to Debbie Messmer, state hazard mitigation officer. Congratulations on the approval of this project. If you have questions regarding this award or the implementation of your project, please contact Debbie Messmer at (804) 267-7732 or by e-mail at [debbie.messmer@vdem.virginia.gov](mailto:debbie.messmer@vdem.virginia.gov).

Sincerely,

Handwritten signature of Curtis C. Brown.

Curtis C. Brown  
Alternate Governor's Authorized Representative

Enclosures

CCB/RSC/djm

*Saving lives through effective emergency management and homeland security.  
"A Ready Virginia Is a Resilient Virginia."*

# Middle Peninsula PDC Hazards Mitigation Plan Update

U.S. Department of Homeland  
Security  
Region III  
One Independence Mall, Sixth Floor  
615 Chestnut Street  
Philadelphia, PA 19106-6094



## FEMA

April 30, 2020

Jeffrey D. Stern, Ph.D.  
Governor's Authorized Representative  
Virginia Department of Emergency Management  
9711 Farrar Court  
Richmond, Virginia 23236-3713

Re: **Project Approval**  
**Hazard Mitigation Grant Program (HMGP)**  
**FEMA-4401-DR-VA-003**

Dear Dr. Stern:

I am pleased to inform you that the project application, Middle Peninsula Planning District Commission Mitigation Plan Update 7% Project, submitted under FEMA-DR-4401-VA-003, has been approved.

The total amount for this project is \$142,863 with a federal share of \$108,848 (\$102,045 for project costs and \$6,803 for subrecipient management costs), and a non-federal share of \$34,015; the federal share should be available in the SMARTLINK system. A copy of the Obligation Report is enclosed for your files.

The Period of Performance for this project ends on October 15, 2022. All grant award activities must be incurred during the performance period. The final product of this grant must be a FEMA approved plan. When submitting the updated plan, allow sufficient time for review, revision, and adoption.

Please provide this office with a Quarterly Progress Report thirty days after the end of each Federal fiscal year quarter.

FEMA DR-4411-013  
Page 2

If you have any questions concerning this project, please contact John Schmierer, FEMA Region III Mitigation Project Officer at (267) 319-6322.

Sincerely,

APRIL D  
CUMMINGS

April Cummings  
Mitigation Division Director

Digitally signed by APRIL D  
CUMMINGS  
Date: 2020.04.30 17:53  
+100

cc: Debbie Mossmer, State Hazard Mitigation Officer  
Regeane Frederique, Grants Division Director

**Middle Peninsula PDC Hazards Mitigation Plan Update**

**Service Agreement between  
The Middle Peninsula Planning District Commission (MPPDC) and  
Town of Urbanna for the  
Virginia Department of Emergency Management (VDEM)  
“Middle Peninsula PDC Hazards Mitigation Plan Update”  
Grant Number FEMA-DR-4401-VA-003**

**THIS SERVICE AGREEMENT** (the “Agreement”) dated this 17th day of December, 2020.

**BETWEEN:**

Town of Urbanna of 45 Cross Street Urbanna, Virginia 23175  
(The “Client”)

AND

Middle Peninsula Planning District Commission of 125 Bowden Street, Saluda, Virginia 23149  
(The “Contractor”)

**BACKGROUND:**

- A. The Client is of the opinion that the Contractor has the necessary qualifications, experience, and abilities to provide services to the Client.
- B. The Contractor is agreeable to providing such services to the Client on the terms and conditions set out in this Agreement.
- C. The Client recognizes the utility of a standard agreement to be used by member localities to ensure that mandates such as the Middle Peninsula multi-jurisdictional hazard mitigation plan are developed in accordance with Title 44 of the Federal Code of Regulations (CFR) Part 201.6; that the planning process is conducted in an open manner involving community stakeholders; that it is consistent with each participating jurisdiction’s policies, programs and authorities; and that it is an accurate reflection of the community’s values.

**IN CONSIDERATION OF** the matters described above and of the mutual benefits and obligations set forth in this Agreement, the receipt of sufficiency of which consideration is hereby acknowledged, the Client and the Contractor (individually the “Party” and collectively the “Parties” to this Agreement) agree as follows:

**Services Provided**

1. The Client hereby agrees to engage the Contractor to provide the Client with services (the “Services”) necessary to update the regional Middle Peninsula PDC Hazard Mitigation Plan as described in Appendix A Project Scope of Work in accordance with:
  - 44 CFR Ch. 1 Section 201.6, Part a, which indicates that a local government MUST have a mitigation plan approved in order to receive HMGP project grants

## Middle Peninsula PDC Hazards Mitigation Plan Update

and in order to apply for and receive mitigation project grants under all other mitigation grant programs.

- Disaster Mitigation Act of 2000 (“DMA 2K”), which is a key component of the Federal government’s commitment to reduce damages to private and public property through mitigation activities. This legislation established the Pre-Disaster Mitigation (“PDM”) Program and created requirements for the Post-Disaster Hazard Mitigation Grant Program (“HMGP”). This key piece of federal legislation is known as Public Law 106-390.
  - DMA 2K, which requires local governments to develop and submit mitigation plans to qualify for PDM and HMGP funds. The Act requires that the plan demonstrate “the jurisdiction’s commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards.”.
2. The Contractor recommends that the Client consult with legal counsel concerning questions related to the requirements of Disaster Mitigation Act of 2000 and 44 CFR Ch. 1 Section 201.6 and other related sections.

### **Term of Agreement**

3. The term of this Agreement (the “Term”) will begin on the date this Agreement is signed by both Parties and will remain in full force and effect until either FEMA approves the update to the Middle Peninsula PDC Hazard Mitigation Plan or by VDEM contract end date of October 12, 2022. The term of this Agreement may be extended with the written consent of the Parties. The Agreement may be terminated by either Party with 30 days written notice given to the other Party.
4. In the event that the Client breaches this Agreement, the Client shall remain liable to the Contractor for the costs of all services both rendered and agreed upon as set forth in paragraph 5 and 6 below. In the event that the Contractor breaches this Agreement, the Contractor will return to the Client any and all unspent monies received from the Client as set forth in Paragraph 5 and 6 below. The Parties acknowledge that no other damages, fees, or penalties shall be due one from the other as the result of any act or omission of either Party.

### **Performance**

5. The Parties agree to fully cooperate and to do everything necessary to ensure that the terms of this Agreement take effect including the execution of additional documents should the need arise.

### **Compensation**

## Middle Peninsula PDC Hazards Mitigation Plan Update

6. For the services rendered by the Contractor as required by this Agreement, the Client will provide the following compensation as described below (as specifically applicable to Client locality, rounded up for ease).

Locality Share to be Split between all: \$6,803

Essex	\$972
Gloucester	\$972
King and Queen	\$972
King William	\$972
Mathews	\$972
Middlesex	\$972
Urbanna	\$324
Tappahannock	\$324
West Point	\$324
<b>Total</b>	<b>\$6,804</b> (rounded up for ease)

2 Year Federal Grant	Fema Funding	State Match Provided Non Fed Share	Local Share split between localities	Per County Match/Share	Per Town Match Share
\$ 142,863	\$ 108,848	\$ 27,212	\$ 6,803	\$ 972	\$ 324
			Year 1	\$ 486	\$ 162
			Year 2	\$ 486	\$ 162

All Such compensation shall be subject to appropriation by the Client.

7. The Contractor will invoice the Client for two annual payments of: **County \$486 or Town \$162 (as applicable).**
8. Project updates will be provided in the Middle Peninsula Planning District Commission monthly meeting packets.
9. In the event that a change order is requested, beyond the scope of services outlined in this Agreement, the Client will be charged on an hourly basis according to the approved Commission budget subject to the applicable provisions referenced in Dispute Resolution below (see section 20c). Appearances at local meetings, answering of telephonic questions and private meetings will be deemed change orders in the discretion of the Contractor provided such has been disclosed in writing, in advance to the Client.

## Middle Peninsula PDC Hazards Mitigation Plan Update

Upon completion of the Services, a presentation will be made by the Contractor, at the request of the Client, at one local meeting of the Client's choice without additional compensation.

### **Reimbursement of Expenses**

10. The Contractor will not be reimbursed for any expenses incurred in connection with this Agreement.

### **Employment Discrimination by Contractor Prohibited**

11. a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.
  - b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.
  - c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.
12. The Contractor will include the provisions of the foregoing paragraphs a, b and c in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

### **Drug-Free Workplace**

13. The Contractor agrees to (i) provide a drug-free workplace for the Contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

## Middle Peninsula PDC Hazards Mitigation Plan Update

14. For the purposes of this section, "*drug-free workplace*" means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

### **Employment of Illegal Aliens**

15. The Contractor agrees that it does not and shall not during the performance of this Agreement knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

### **Ownership of Intellectual Property**

16. All information gathered during this project will remain public, unless prohibited from disclosure or exempted from required disclosure in accordance with state and federal law.

### **Capacity**

17. In providing the Services under this Agreement, it is expressly agreed that the Contractor is acting as an independent contractor and not as an employee. The Contractor and the Client acknowledge that this Agreement does not create a partnership or joint venture between them.

### **Notice**

18. All notices, requests, demands or other communications required or permitted by the terms of this Agreement will be given in writing and delivered to the Parties of this Agreement as follows:

- a. Town Administrator  
Town of Urbanna  
P.O. Box 179  
Urbanna, Virginia 23175
- b. Middle Peninsula Planning District Commission  
125 Bowden Street  
Saluda, VA 23149

Or to such other address as any Party may from time to time notify the other.

### **Additional Clauses**

## Middle Peninsula PDC Hazards Mitigation Plan Update

19. This Agreement has been reviewed and approved via recorded vote of the Town of Urbanna Town Council.

### **Dispute Resolution**

20. In the event a dispute arises out of or in connection with this Agreement, the Parties will attempt to resolve the dispute through friendly consultation.
- a. Once a final deliverable has been submitted by Contractor and approved by FEMA, the Contractor shall be deemed to have completed all services required under this Agreement.
  - b. Once the scope of work has been completed and/or the product has received any necessary approvals, any changes made by the Client to the final product is "at its own risk". The Client assumes all responsibility for any modification, deviation, or change initiated outside of the agreed to scope of work.
  - c. The Contractor has no contractual responsibility to advocate for, coordinate, or administer any local modifications beyond the services agreed to by the Contractor in accordance with the terms of this Agreement.
    - The Client may request an addendum to the contract for specific changes. The Contractor may consider the request from the Client and, if willing to perform the requested work, shall provide a response including a new cost estimate for consideration. Any addendum shall be authorized by the [Name of County/Town] [Board of Supervisors/Town Council] by Resolution outlining such changes to the Services.

### **Modification of Agreement**

21. Any amendment or modification of this Agreement or additional obligation assumed by either Party in connection with this Agreement will only be binding if evidenced in writing signed by each Party or an authorized representative of each Party.

### **Time of the Essence**

22. Time is the essence in this Agreement. No extension or variation of this Agreement will operate as a waiver of this provision.

### **Assignment**

**Middle Peninsula PDC Hazards Mitigation Plan Update**

23. The Contractor shall not voluntarily or by operation of law assign or otherwise transfer its obligations under this Agreement without the prior written consent of the Client.

**Entire Agreement**

24. It is agreed that there is no representation, warranty, collateral agreement, or condition affecting this Agreement except as expressly provided in this Agreement.

**Governing Law**

25. It is the intention of the Parties to this Agreement that this Agreement and the performance under this Agreement, and all suits and special proceedings under this Agreement, be construed in accordance with and governed, to the exclusion of the law of any other forum, by the laws of the Commonwealth of Virginia, without regard to the jurisdiction in which any action or special proceeding may be instituted.

**Severability**

26. In the event that any of the provisions of this Agreement are held to be invalid or unenforceable in whole or in part, all other provisions will nevertheless continue to be valid and enforceable with the invalid or unenforceable parts severed from the remainder of the Agreement.

**Waiver**

27. The waiver by either Party of a breach, default, delay, or omission of any of the provisions of this Agreement by the other Party will not be construed as a waiver of any subsequent breach of the same or the provisions.

**IN WITNESS WHEREOF** the Parties have duly affixed their signatures under land and seal on this 10th day of December, 2020.

Town of Urbanna (Client)

Per: Holly Gailey (SEAL)  
Chairperson / Agent

Middle Peninsula Planning District Commission (Contractor)

Per: Lewis L Lawrence (SEAL)  
Executive Director

### Appendix A:

#### **Proposed Project Scope of Work**

The Middle Peninsula Planning District Commission (MPPDC) will update the 2016 Middle Peninsula All Hazards Mitigation Plan (AHMP) with the help of a Local Planning Team. Membership will be nominated by counties, towns, and other stakeholders (i.e., Tribes, chamber of commerce, state agencies, the public, etc) in the Middle Peninsula. The plan will address several natural hazards, including but limited to hurricanes, winter storms, tornadoes, coastal flooding, coastal/shoreline erosion, sea level rise, winter storms, wildfire, riverine flooding, wind, dam failures, drought, lightning, earthquakes, shrink-swell soils, extreme cold, extreme heat, landslides, land subsidence/karst, and tsunamis.

The project includes the following components:

1. Planning Process
2. Risk Assessment
3. Hazard Mitigation Strategy
4. Hazard Mitigation Plan Maintenance Process
5. Hazard Mitigation Plan Adoption and Approval

#### **Planning Team Responsibilities**

Representatives on the Planning Team from participating jurisdictions must engage in the following planning process, including, but not limited to:

- Develop the Work Program and Schedule with the Planning Team
- Organize and attend regular meetings (virtual and/or in person) of the Planning Team. Attendance will be documented in the PDC monthly meeting packet.
- Assist the Planning Team with developing and conducting an outreach strategy to involve other planning team members, stakeholders, and the public, as appropriate to represent their Jurisdiction.
- Identify community resources available to support the planning effort, including meeting spaces, facilitators, and media outlets.
- Provide data and feedback to develop the risk assessment and mitigation strategy, including a specific mitigation action plan for their Jurisdiction.
- Submit the draft plan to their Jurisdiction for review.
- Work with the Planning Team to incorporate all their Jurisdiction's comments into the draft plan.
- Submit the draft plan to their respective governing body for consideration and adoption.
- After adoption, coordinate a process to monitor, evaluate, and work toward plan implementation.

#### **Local Adoption**

## **Middle Peninsula PDC Hazards Mitigation Plan Update**

To be eligible for HMGP project grants (grants for a locality after a disaster), a local government must have a mitigation plan. Approval includes adoption by the participating jurisdictions.

### **Timeframe of Grant**

This agreement and grant will be in effect from the date of signature by all parties, and will remain in effect through the duration of this project. Once a final deliverable has been submitted to and approved by the Client and the mandating entity, the Contractor shall be deemed to have completed all services required under this Agreement. The agreement may be terminated prior to that time by any Participating Jurisdiction by giving 30 days written notice.

# Middle Peninsula PDC Hazards Mitigation Plan Update

## Appendix B- Award Notices

JEFFREY D. STERN, Ph.D.  
State Coordinator

CURTIS C. BROWN  
Chief Deputy State Coordinator/  
Chief Diversity and Inclusion Officer



JOHN NORTON  
Deputy State Coordinator – Disaster Services

ANDRES ALVAREZ  
Deputy State Coordinator – Mission Support

### COMMONWEALTH OF VIRGINIA

#### Department of Emergency Management

9711 Farrar Court, Suite 200  
North Chesterfield, Virginia 23236  
TEL 804.267.7600 TDD 804.674.2417 FAX 804.272.2046

June 3, 2020

Mr. Lewis Lawrence,  
Executive Director -Middle Peninsula Planning District Commission  
Saluda Professional Center  
125 Bowden Street  
Saluda, Virginia 23149

RE: Middle Peninsula PDC Hazard Mitigation Plan Update  
FEMA-4401-DR-VA-003

Dear Mr. Lawrence:

I am pleased to notify you that the Federal Emergency Management Agency (FEMA) has approved the project titled "Middle Peninsula PDC Hazard Mitigation Plan Update." The funds have been obligated through the Hazard Mitigation Grant Program. Attached you will find the grant award package. Please read all documents carefully prior to initiating your project. As funded, the federal share is 75 percent of the total project costs.

Your project cannot begin until the authorized agent has signed the grant award package. No reimbursements will be made until the award package is signed and received by the Virginia Department of Emergency Management. Please sign the attached grant agreement and scan and email it to Debbie Messmer, state hazard mitigation officer. Congratulations on the approval of this project. If you have questions regarding this award or the implementation of your project, please contact Debbie Messmer at (804) 267-7732 or by e-mail at [debbie.messmer@vdem.virginia.gov](mailto:debbie.messmer@vdem.virginia.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Curtis C. Brown".

Curtis C. Brown  
Alternate Governor's Authorized Representative

Enclosures

CCB/RSC/djm

*Saving lives through effective emergency management and homeland security.  
"A Ready Virginia is a Resilient Virginia."*

# Middle Peninsula PDC Hazards Mitigation Plan Update

U.S. Department of Homeland  
Security  
Region III  
One Independence Mall, Sixth Floor  
615 Chestnut Street  
Philadelphia, PA 19106-4404



**FEMA**

April 30, 2020

Jeffrey D. Stern, Ph.D.  
Governor's Authorized Representative  
Virginia Department of Emergency Management  
9711 Farrar Court  
Richmond, Virginia 23236-3713

**Re: Project Approval  
Hazard Mitigation Grant Program (HMGP)  
FEMA-4401-DR-VA-003**

Dear Dr. Stern:

I am pleased to inform you that the project application, Middle Peninsula Planning District Commission Mitigation Plan Update 7% Project, submitted under FEMA-DR-4401-VA-003, has been approved.

The total amount for this project is \$142,863 with a federal share of \$108,848 (\$102,045 for project costs and \$6,803 for subrecipient management costs), and a non-federal share of \$34,015; the federal share should be available in the SMARTLINK system. A copy of the Obligation Report is enclosed for your files.

The Period of Performance for this project ends on October 15, 2022. All grant award activities must be incurred during the performance period. The final product of this grant must be a FEMA approved plan. When submitting the updated plan, allow sufficient time for review, revision, and adoption.

Please provide this office with a Quarterly Progress Report thirty days after the end of each Federal fiscal year quarter

FEMA DR-4411-013  
Page 2

If you have any questions concerning this project, please contact John Schmierer, FEMA Region III Mitigation Project Officer at (267) 319-6322.

Sincerely,

APRIL D  
CUMMINGS

April Cummings  
Mitigation Division Director

Digitally signed by APRIL D  
CUMMINGS  
Date: 2020.04.30 20:17:51  
+0400

cc: Debbie Messmer, State Hazard Mitigation Officer  
Regeane Frederique, Grants Division Director

**Appendix B –**  
List of Local Planning Team

## AHMP Planning Team

### Locality Representatives

#### **KING WILLIAM**

Steve Hudgins  
Deputy County Administrator  
[shudgins@kingwilliamcounty.us](mailto:shudgins@kingwilliamcounty.us)  
804-769-4990

Sherry Graham  
Director of Planning  
[Sgraham@kingwilliamcounty.us](mailto:Sgraham@kingwilliamcounty.us)  
804-769-4978

#### **GLOUCESTER**

Brent Payne  
Engineering Services Director  
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#### **KING & QUEEN**

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[dsprouse@kingandqueenco.net](mailto:dsprouse@kingandqueenco.net)

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#### **ESSEX**

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#### **TOWN OF WEST POINT**

Holly McGowan  
Director of Community Development  
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(804) 843-3563

John Edwards  
Town Manager  
[jedwards@west-point.va.us](mailto:jedwards@west-point.va.us)  
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#### **TOWN OF TAPPAHANNOCK**

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[epollitt@tappahannock-va.gov](mailto:epollitt@tappahannock-va.gov)

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Zoning Administrator  
[fsanders@tapptown.com](mailto:fsanders@tapptown.com)

#### **TOWN OF URBANNA**

Garth Wheeler  
Town Administrator  
[g.wheeler@urbannava.gov](mailto:g.wheeler@urbannava.gov)  
804-758-2613

## Other Planning Team Members

### **Department of Conservation and Recreation**

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### **VDOT – Saluda Residency**

Joyce McGowan  
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[joyce.mcgowan@vdot.virginia.gov](mailto:joyce.mcgowan@vdot.virginia.gov)

### **VDH Three Rivers**

Matt Carpentier  
Emergency Planner  
[matthew.carpentier@vdh.virginia.gov](mailto:matthew.carpentier@vdh.virginia.gov)

### **National Weather Service (Wakefield):**

Eric Seymour  
Warning Coordination Meteorologist  
[Eric.seymour@noaa.gov](mailto:Eric.seymour@noaa.gov)

### **US Corps of Engineers:**

Flood Plain Management Division  
[floodplainManagement@usace.army.mil](mailto:floodplainManagement@usace.army.mil)

### **VOF**

Ken Sterner  
Senior Forester  
[ken.sterner@dof.virginia.gov](mailto:ken.sterner@dof.virginia.gov)

### **Pamunkey Tribe (Banks of Pamunkey River – 1200 acres)**

Chief Robert Gray  
[Robert.Gray@pamunkey.org](mailto:Robert.Gray@pamunkey.org)

### **Rappahannock Tribe (King & Queen County – 132 acres)**

Chief G. Anne Richardson  
[arichardson@rappahannocktribe.org](mailto:arichardson@rappahannocktribe.org)

Pat Morris  
Tribe’s grant writer and strategic planning assistant  
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Steven L. Nelson,  
Director Emergency Management  
Rappahannock Tribe  
Direct: 804-533-5588  
[snelson@rappahannocktribe.org](mailto:snelson@rappahannocktribe.org)

### **Upper Mattaponi (King William Count – 32 acres)**

Chief: W. Frank Adams  
[wfrankadams@verizon.net](mailto:wfrankadams@verizon.net)

### **VDEM Staff**

Harrison Bresee  
Chief Regional Coordinator – Region 5  
[Harrison.bresee@vdem.virginia.gov](mailto:Harrison.bresee@vdem.virginia.gov)

Amanda Weaver  
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Alexander Krupp  
Hazard Mitigation Grants Administrator  
[alexander.krupp@vdem.virginia.gov](mailto:alexander.krupp@vdem.virginia.gov)

### **Other**

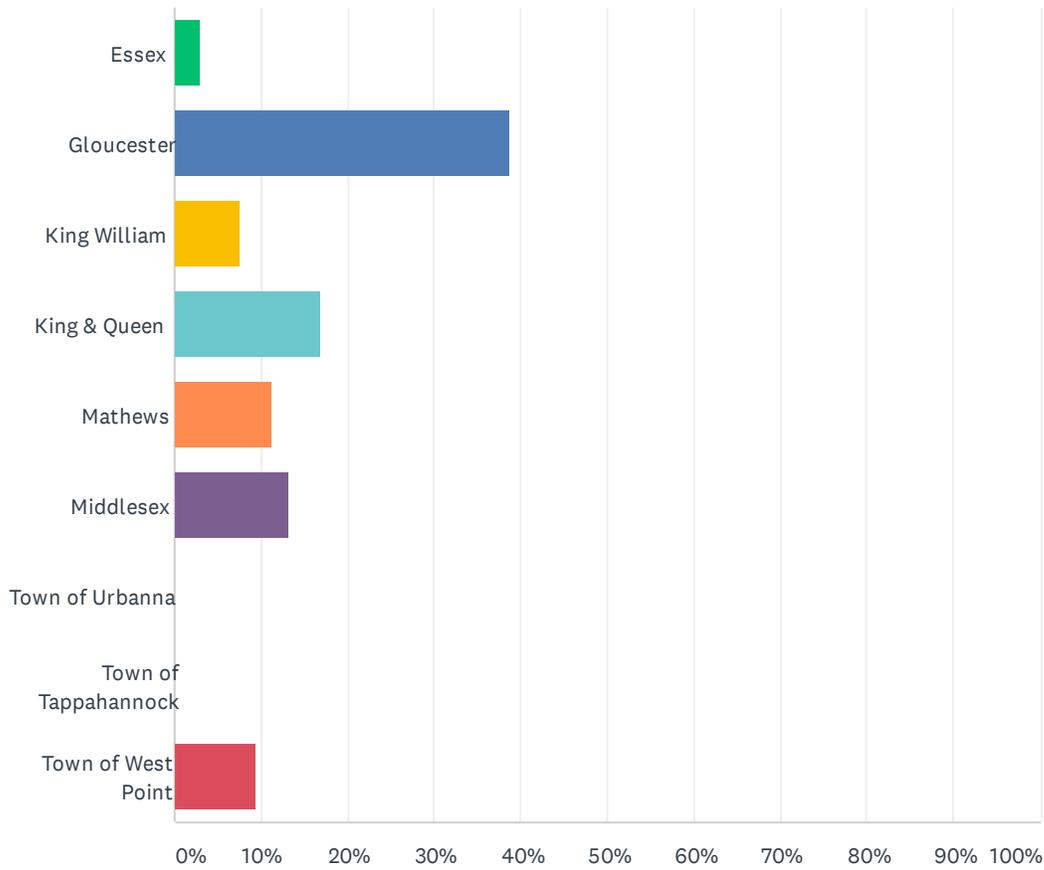
Ann C. Phillips  
Rear Admiral, US Navy  
Special Assistant to the Governor for Coastal Adaptation and Protection  
[Ann.phillips@governor.virginia.gov](mailto:Ann.phillips@governor.virginia.gov)

Jackie Rickards  
Senior Planning Project Manager  
Middle Peninsula Planning District Commission  
[jrickards@mppdc.com](mailto:jrickards@mppdc.com)

**Appendix C -  
Public Survey Responses**

## Q1 From which Middle Peninsula Planning District Commission (MPPDC) area participating locality are you responding?

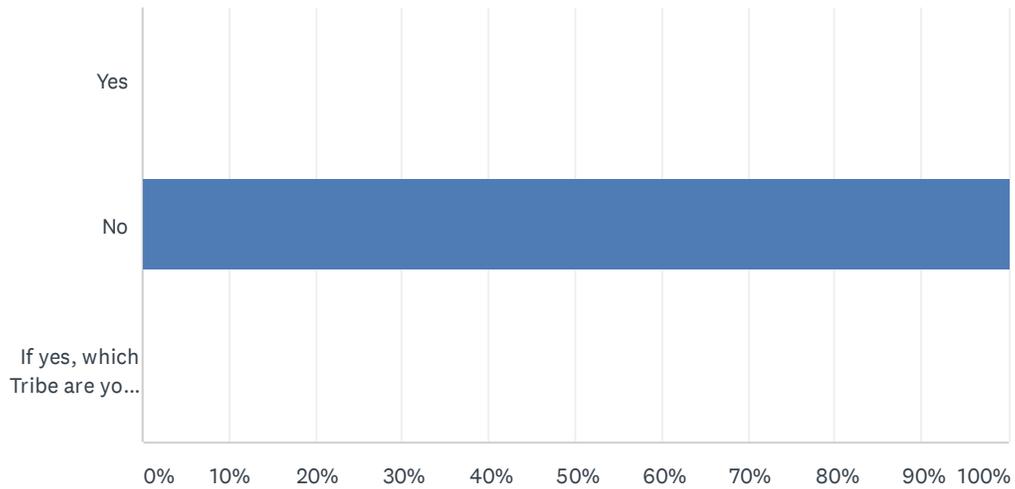
Answered: 106 Skipped: 0



ANSWER CHOICES	RESPONSES	
Essex	2.83%	3
Gloucester	38.68%	41
King William	7.55%	8
King & Queen	16.98%	18
Mathews	11.32%	12
Middlesex	13.21%	14
Town of Urbanna	0.00%	0
Town of Tappahannock	0.00%	0
Town of West Point	9.43%	10
<b>TOTAL</b>		<b>106</b>

## Q2 Are you affiliated with a federally recognized tribe within the Middle Peninsula?

Answered: 106 Skipped: 0



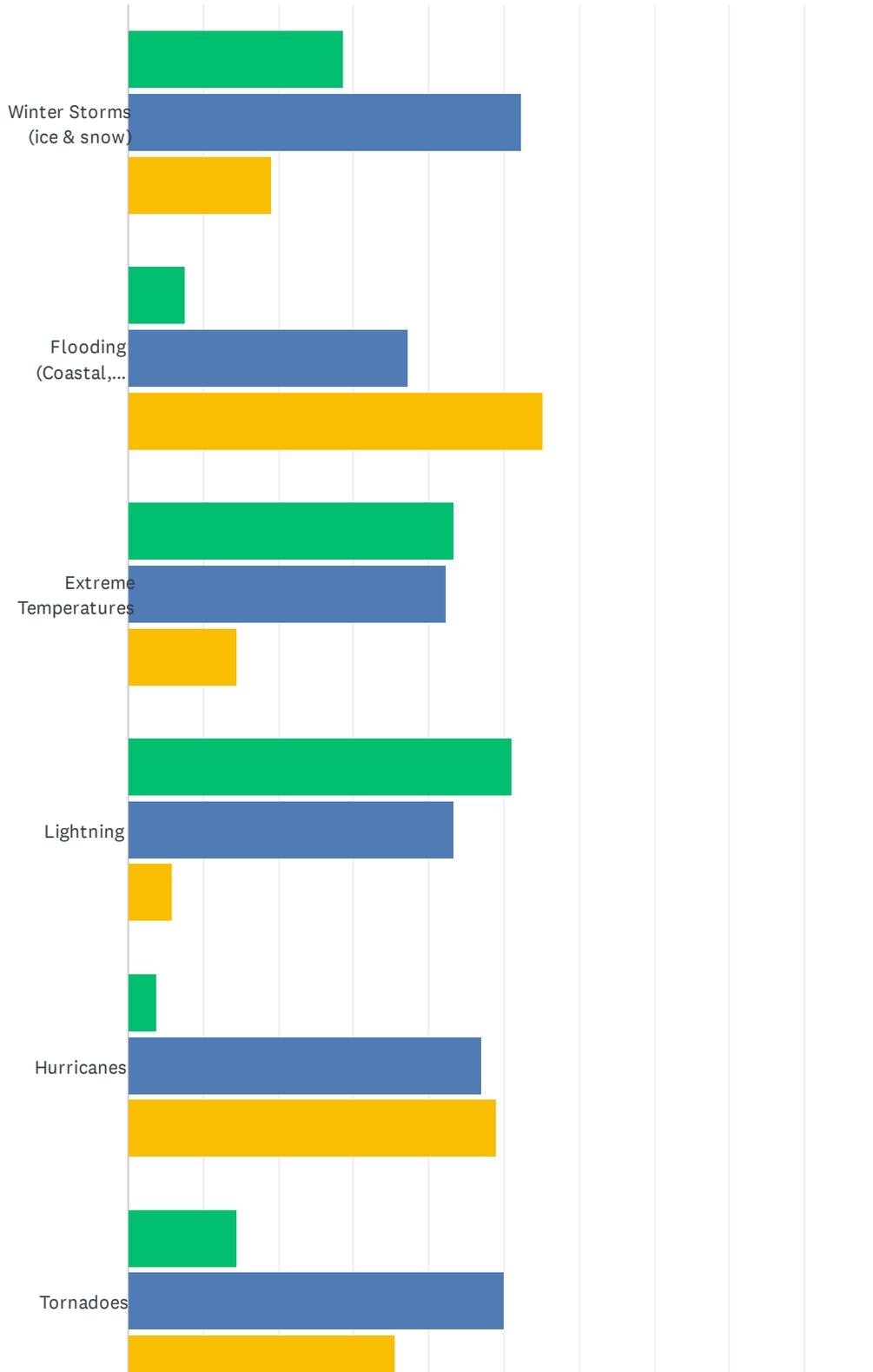
ANSWER CHOICES	RESPONSES
Yes	0.00% 0
No	100.00% 106
If yes, which Tribe are you affiliated with (Upper Mattaponi Tribe, Rappahannock Tribe, or Pamunkey Tribe):	0.00% 0
<b>TOTAL</b>	<b>106</b>

Q3 Please provide the zip code of your home address.

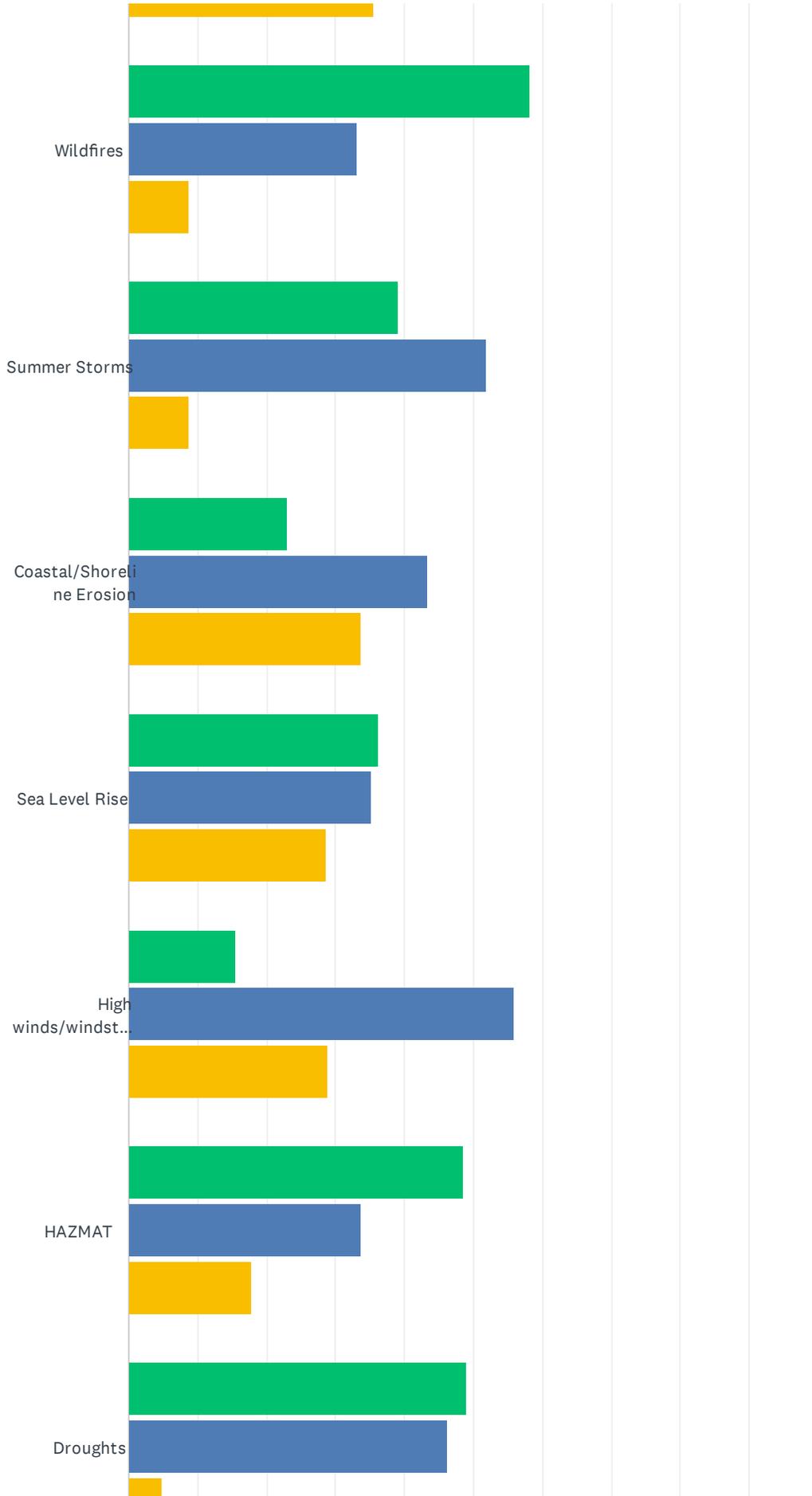
Answered: 105 Skipped: 1

Q4 Below is the list of hazards proposed to be assessed in the 2021 AHMP update. How concerned are you about the following hazards affecting your community over the next 20 years?

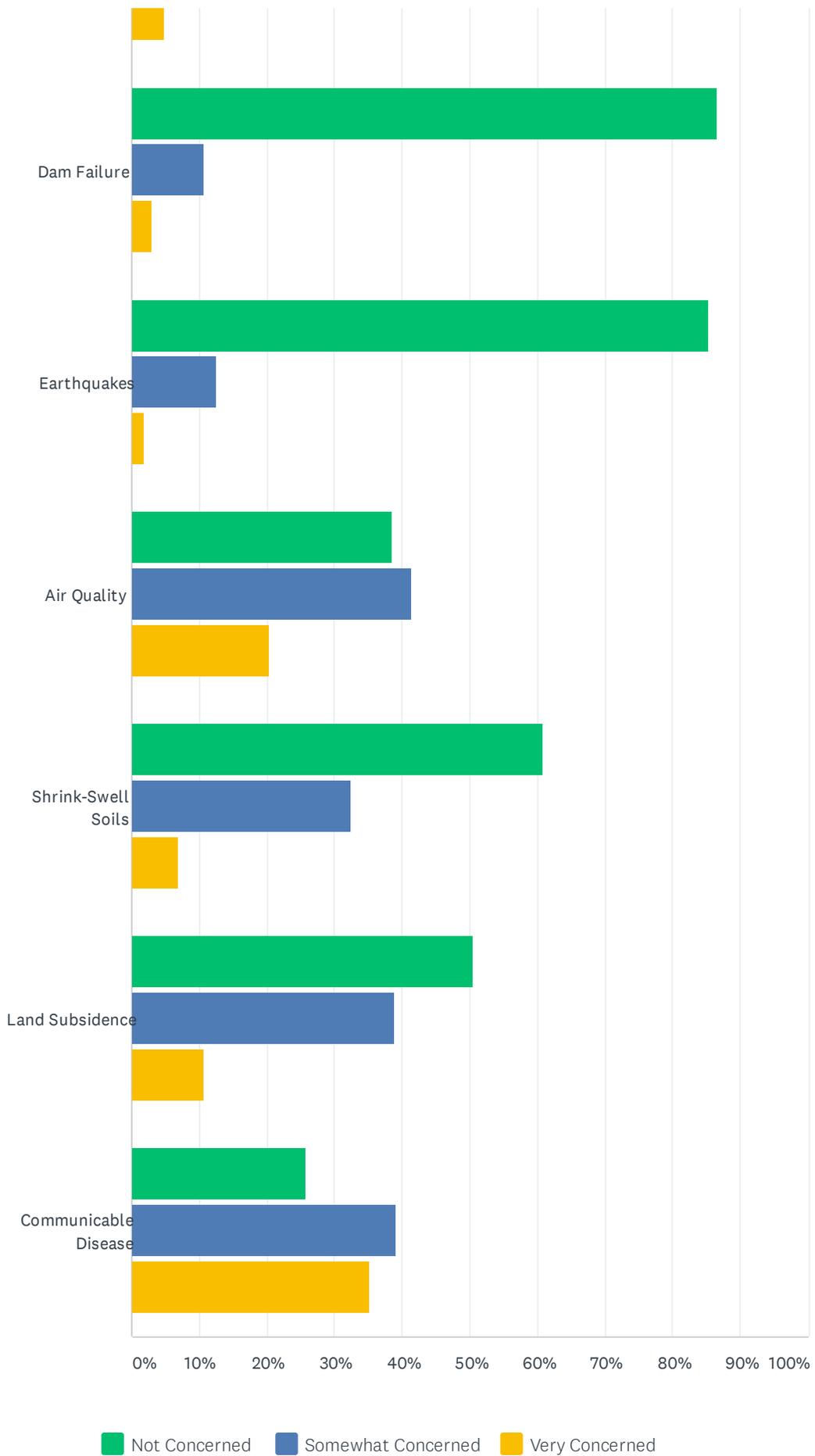
Answered: 106 Skipped: 0



# All Hazard Mitigation Plan Update



# All Hazard Mitigation Plan Update

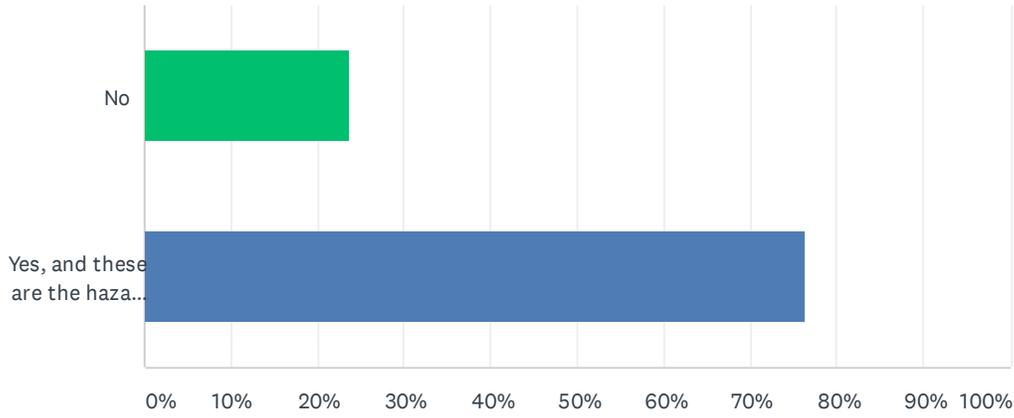


All Hazard Mitigation Plan Update

	NOT CONCERNED	SOMEWHAT CONCERNED	VERY CONCERNED	TOTAL
Winter Storms (ice & snow)	28.57% 30	52.38% 55	19.05% 20	105
Flooding (Coastal, riverine, ditch, & stormwater)	7.62% 8	37.14% 39	55.24% 58	105
Extreme Temperatures	43.27% 45	42.31% 44	14.42% 15	104
Lightning	50.96% 53	43.27% 45	5.77% 6	104
Hurricanes	3.85% 4	47.12% 49	49.04% 51	104
Tornadoes	14.42% 15	50.00% 52	35.58% 37	104
Wildfires	58.25% 60	33.01% 34	8.74% 9	103
Summer Storms	39.22% 40	51.96% 53	8.82% 9	102
Coastal/Shoreline Erosion	23.08% 24	43.27% 45	33.65% 35	104
Sea Level Rise	36.19% 38	35.24% 37	28.57% 30	105
High winds/windstorms	15.38% 16	55.77% 58	28.85% 30	104
HAZMAT	48.51% 49	33.66% 34	17.82% 18	101
Droughts	49.04% 51	46.15% 48	4.81% 5	104
Dam Failure	86.54% 90	10.58% 11	2.88% 3	104
Earthquakes	85.44% 88	12.62% 13	1.94% 2	103
Air Quality	38.46% 40	41.35% 43	20.19% 21	104
Shrink-Swell Soils	60.78% 62	32.35% 33	6.86% 7	102
Land Subsidence	50.49% 52	38.83% 40	10.68% 11	103
Communicable Disease	25.71% 27	39.05% 41	35.24% 37	105

### Q5 While living in the Middle Peninsula Region, have you ever experienced, or been impacted by a hazard (see the list of hazards in question 4)?

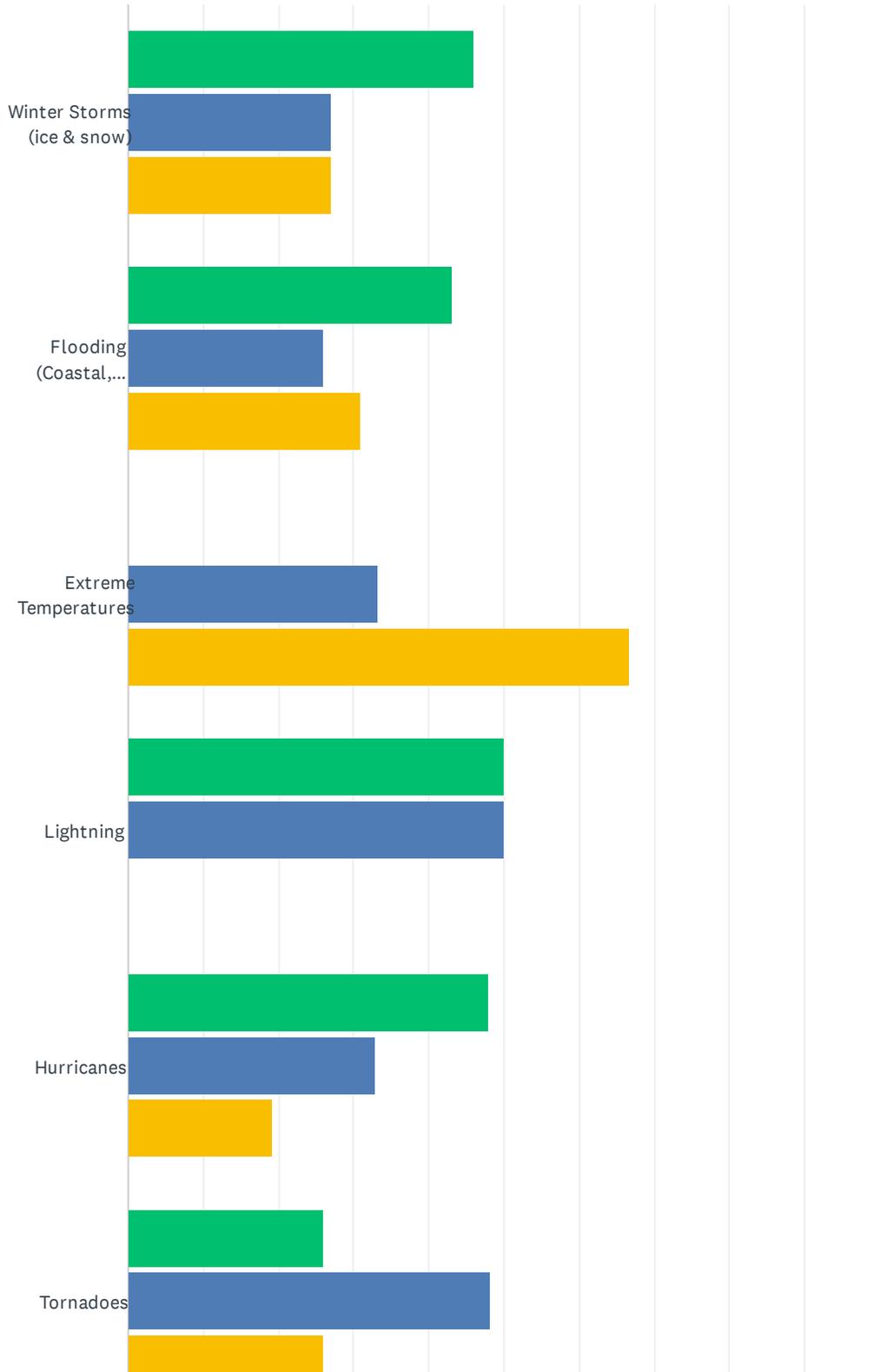
Answered: 106 Skipped: 0



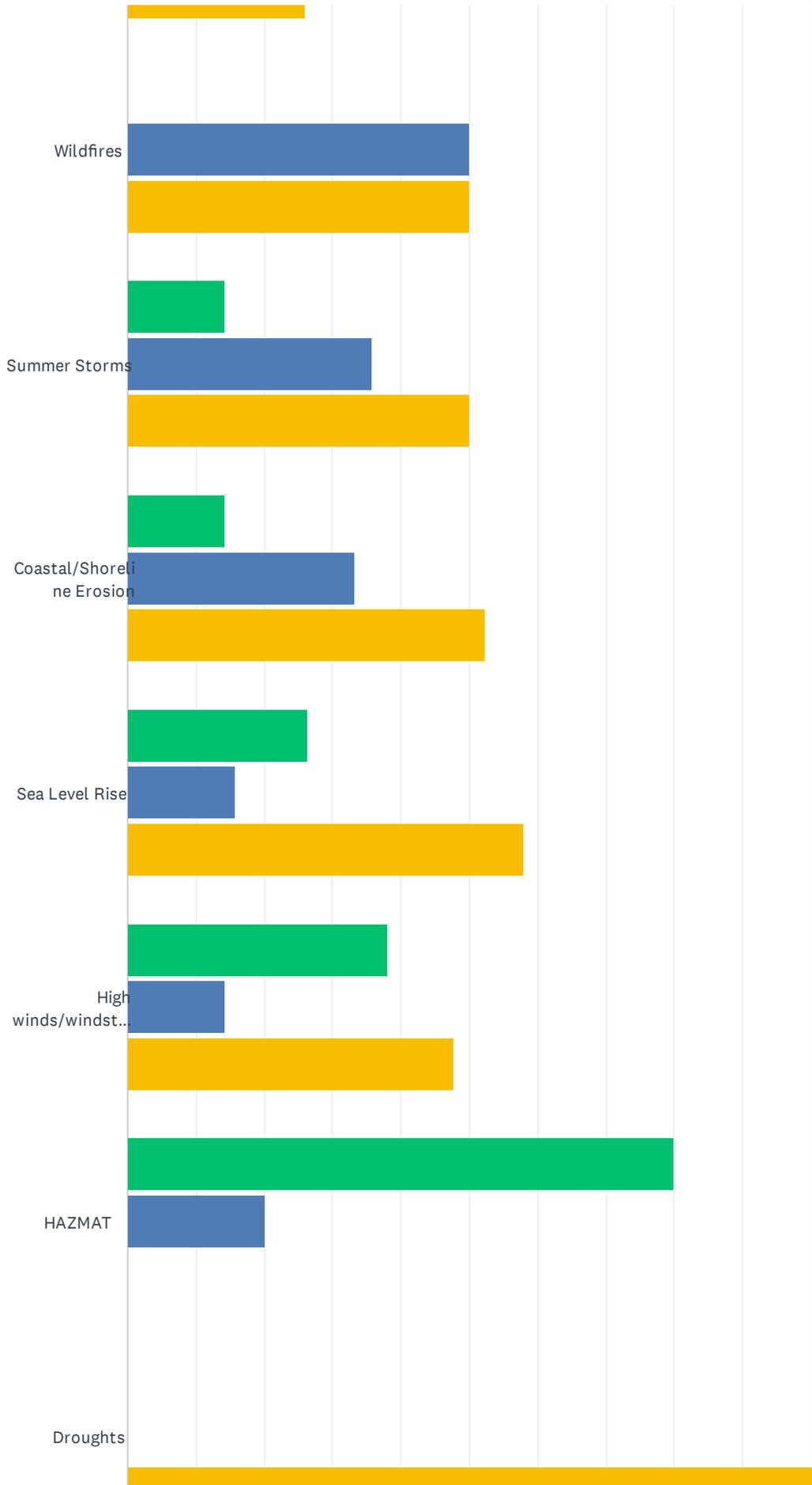
ANSWER CHOICES	RESPONSES	
No	23.58%	25
Yes, and these are the hazards I have been impacted by:	76.42%	81
<b>TOTAL</b>		<b>106</b>

Q6 Please select the top three (3) hazards you think are the highest threat to your home or community? Of the top 3 hazards please rank from the highest threat (1) to the lowest (3).

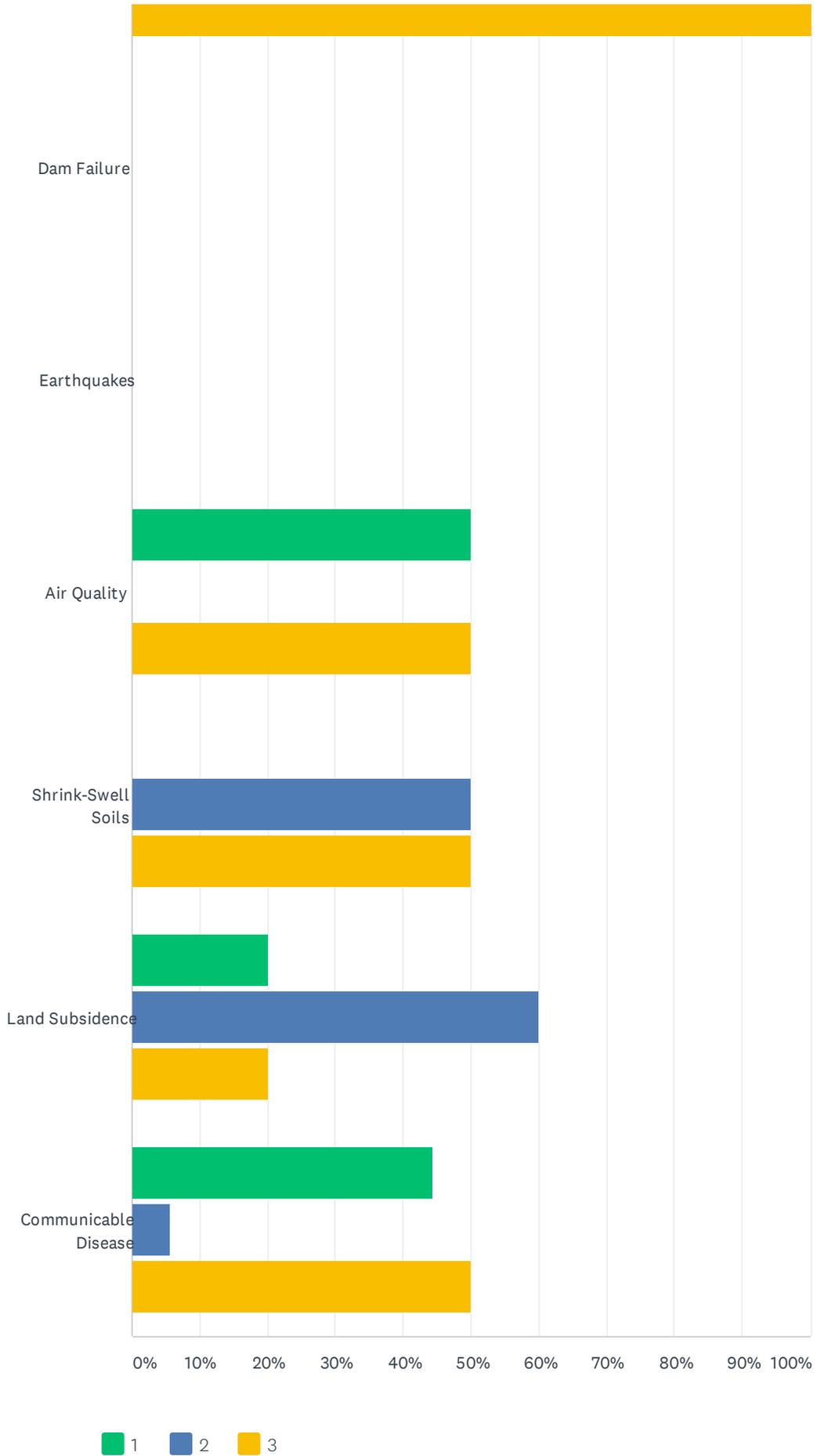
Answered: 106 Skipped: 0



# All Hazard Mitigation Plan Update



# All Hazard Mitigation Plan Update

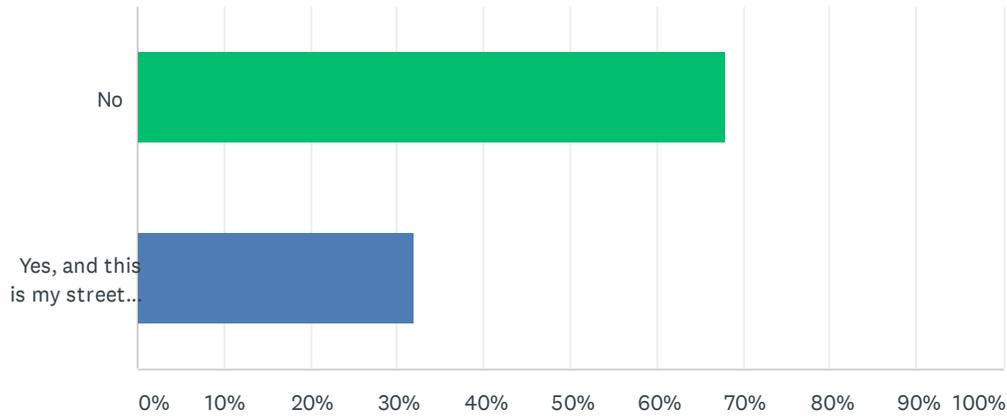


## All Hazard Mitigation Plan Update

	1	2	3	TOTAL	WEIGHTED AVERAGE
Winter Storms (ice & snow)	45.95% 17	27.03% 10	27.03% 10	37	1.81
Flooding (Coastal, riverine, ditch, & stormwater)	43.10% 25	25.86% 15	31.03% 18	58	1.88
Extreme Temperatures	0.00% 0	33.33% 2	66.67% 4	6	2.67
Lightning	50.00% 1	50.00% 1	0.00% 0	2	1.50
Hurricanes	47.95% 35	32.88% 24	19.18% 14	73	1.71
Tornadoes	25.93% 7	48.15% 13	25.93% 7	27	2.00
Wildfires	0.00% 0	50.00% 2	50.00% 2	4	2.50
Summer Storms	14.29% 2	35.71% 5	50.00% 7	14	2.36
Coastal/Shoreline Erosion	14.29% 3	33.33% 7	52.38% 11	21	2.38
Sea Level Rise	26.32% 5	15.79% 3	57.89% 11	19	2.32
High winds/windstorms	38.10% 8	14.29% 3	47.62% 10	21	2.10
HAZMAT	80.00% 4	20.00% 1	0.00% 0	5	1.20
Droughts	0.00% 0	0.00% 0	100.00% 2	2	3.00
Dam Failure	0.00% 0	0.00% 0	0.00% 0	0	0.00
Earthquakes	0.00% 0	0.00% 0	0.00% 0	0	0.00
Air Quality	50.00% 2	0.00% 0	50.00% 2	4	2.00
Shrink-Swell Soils	0.00% 0	50.00% 1	50.00% 1	2	2.50
Land Subsidence	20.00% 1	60.00% 3	20.00% 1	5	2.00
Communicable Disease	44.44% 8	5.56% 1	50.00% 9	18	2.06

## Q7 Does your street flood during rain events?

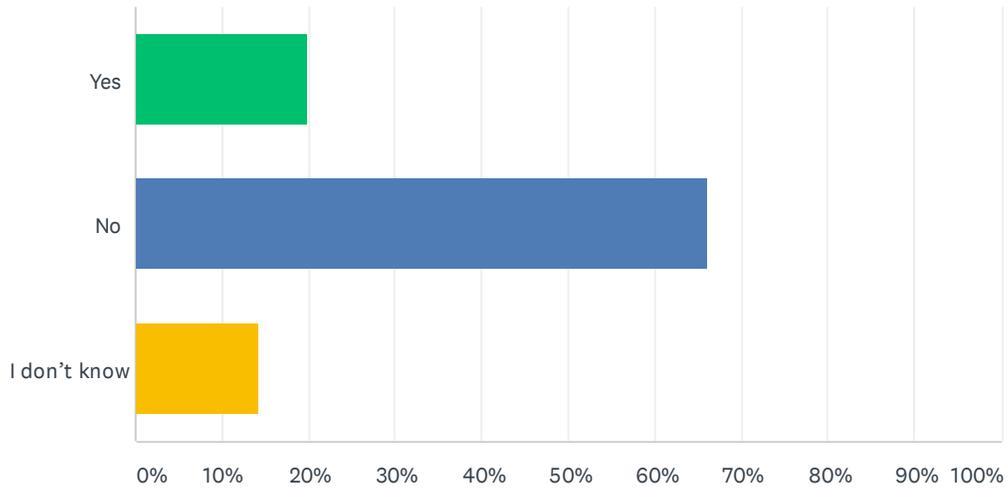
Answered: 106 Skipped: 0



ANSWER CHOICES	RESPONSES
No	67.92% 72
Yes, and this is my street and county/town name:	32.08% 34
TOTAL	106

## Q8 Is your home located in a floodplain?

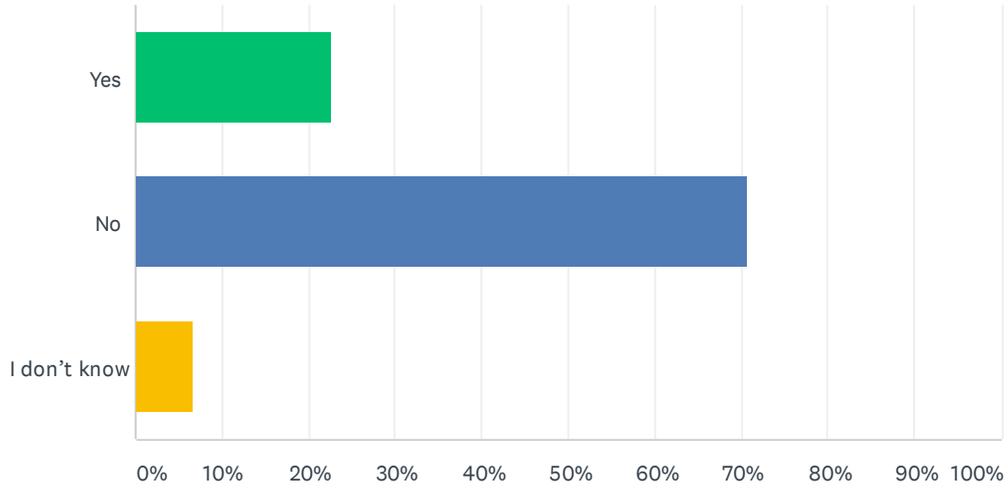
Answered: 106 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	19.81%	21
No	66.04%	70
I don't know	14.15%	15
TOTAL		106

## Q9 Do you currently have flood insurance?

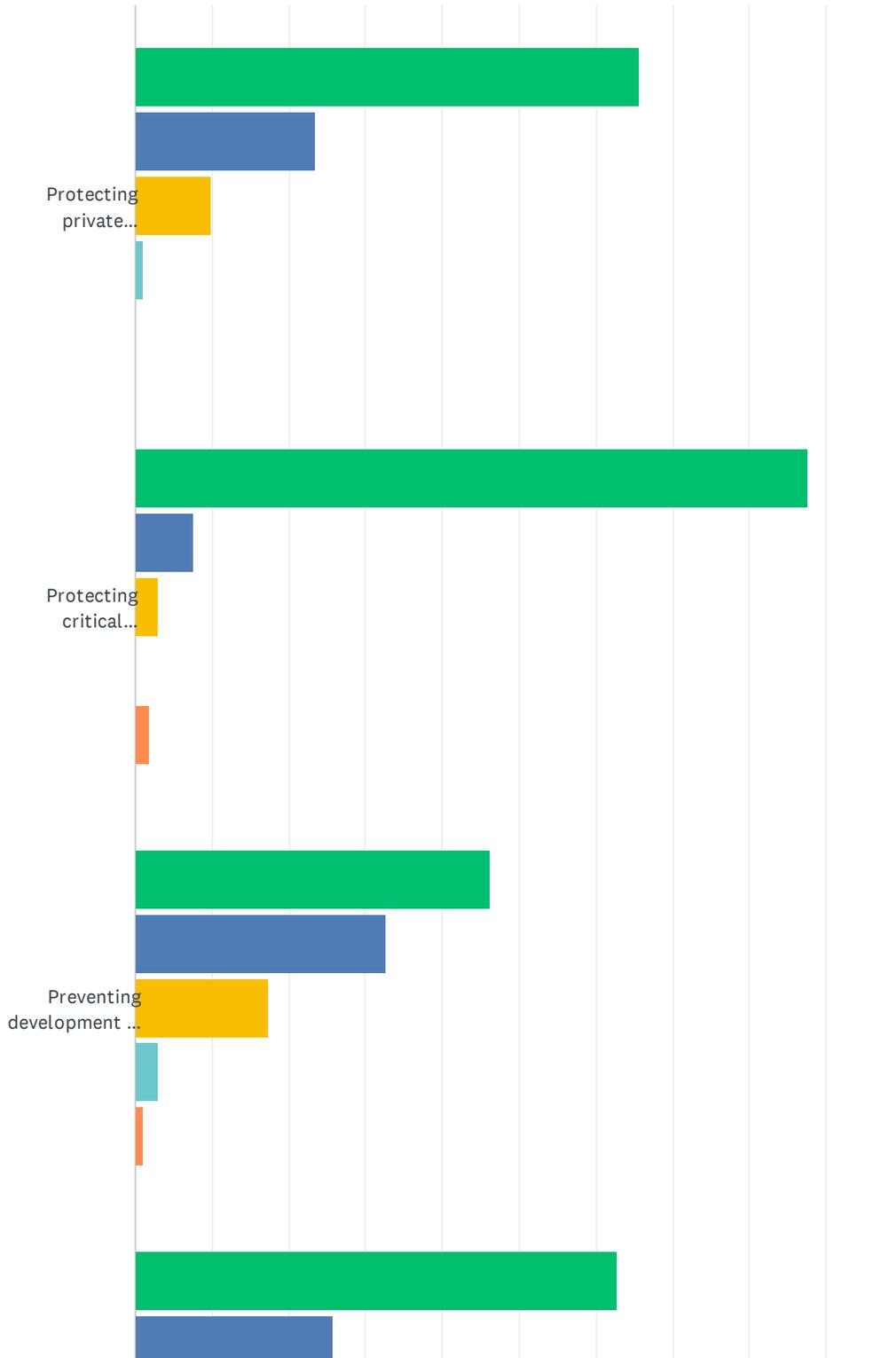
Answered: 106 Skipped: 0



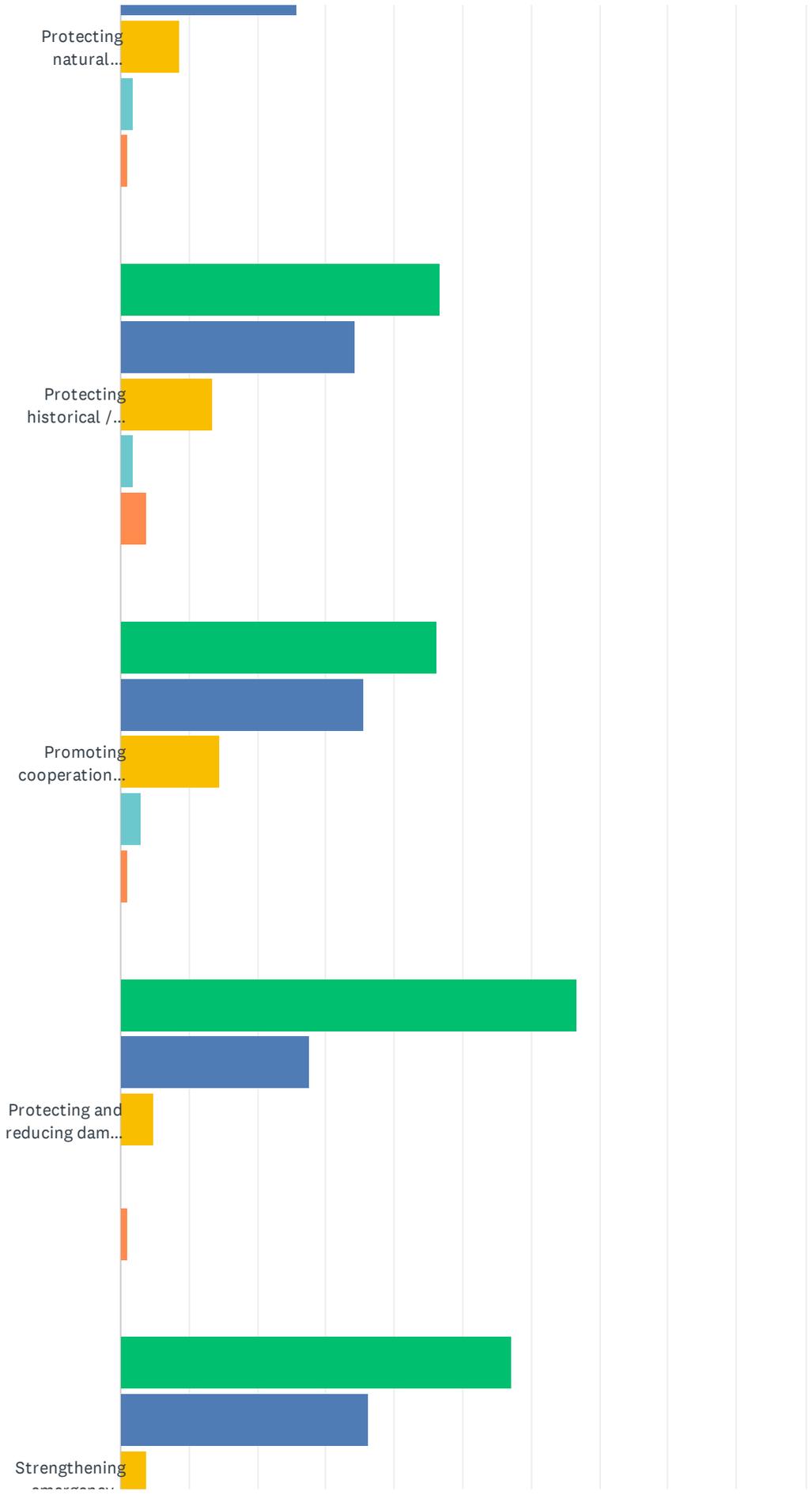
ANSWER CHOICES	RESPONSES	
Yes	22.64%	24
No	70.75%	75
I don't know	6.60%	7
<b>TOTAL</b>		<b>106</b>

Q10 Hazards and disasters can have a significant impact on a community but planning for these events can help lessen the impact. The following statements will help us determine community priorities in planning for these hazards. Please tell us how important each one is to you.

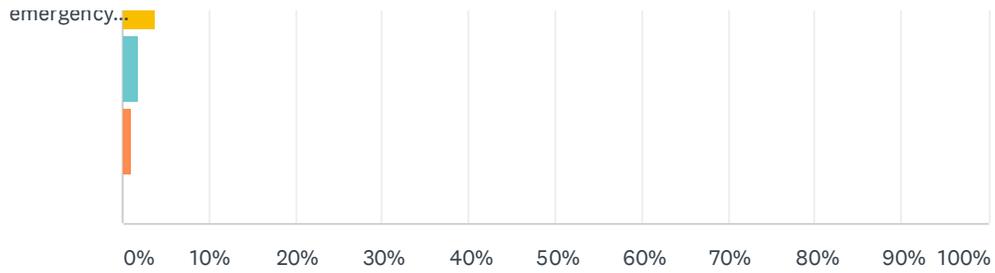
Answered: 106 Skipped: 0



# All Hazard Mitigation Plan Update



## All Hazard Mitigation Plan Update

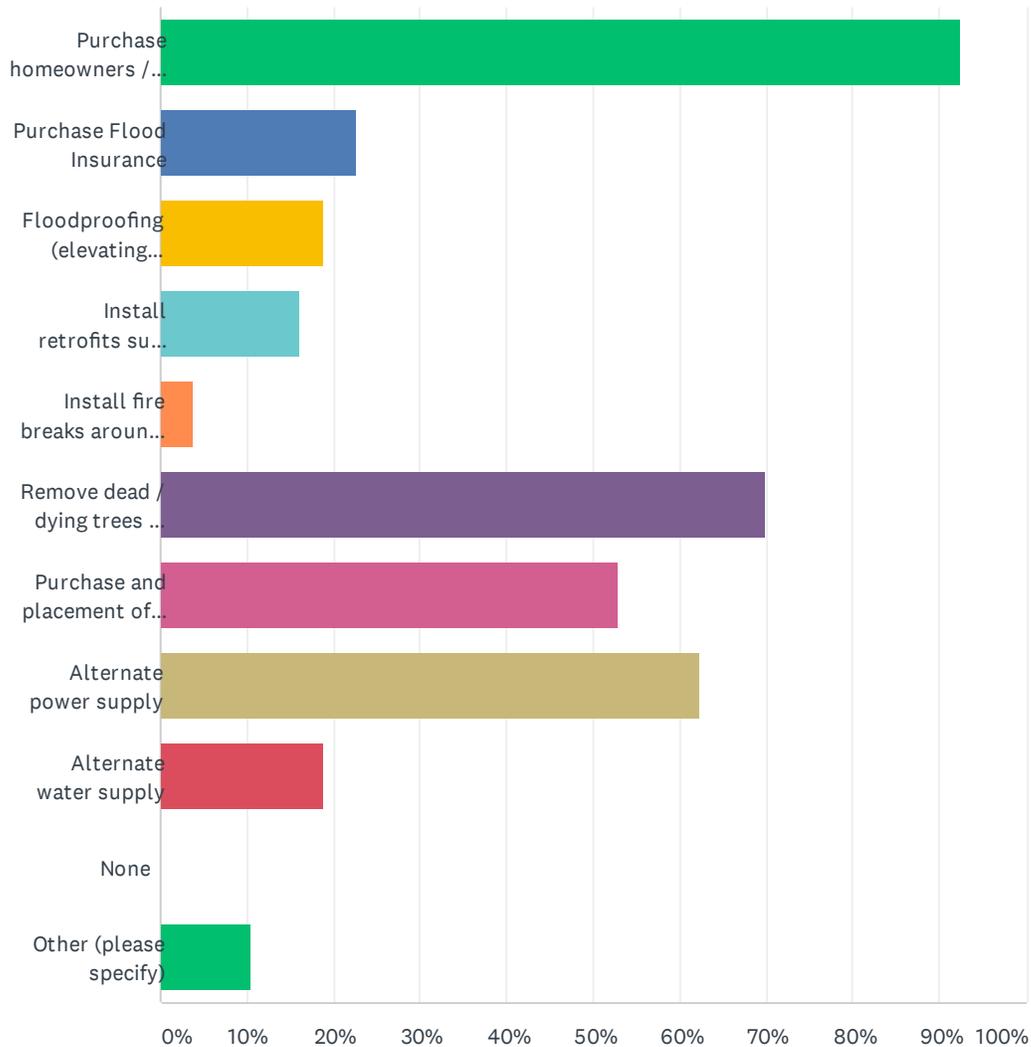


■ Very Important   
 ■ Somewhat Important   
 ■ Neutral   
 ■ Not Very Important  
■ Not Important

	VERY IMPORTANT	SOMEWHAT IMPORTANT	NEUTRAL	NOT VERY IMPORTANT	NOT IMPORTANT	TOTAL
Protecting private property	65.69% 67	23.53% 24	9.80% 10	0.98% 1	0.00% 0	102
Protecting critical facilities (hospitals, transportation networks, fire stations)	87.62% 92	7.62% 8	2.86% 3	0.00% 0	1.90% 2	105
Preventing development in hazard areas	46.15% 48	32.69% 34	17.31% 18	2.88% 3	0.96% 1	104
Protecting natural environment	62.86% 66	25.71% 27	8.57% 9	1.90% 2	0.95% 1	105
Protecting historical / cultural landmarks	46.67% 49	34.29% 36	13.33% 14	1.90% 2	3.81% 4	105
Promoting cooperation among public agencies, citizens, non-profit organizations and businesses	46.15% 48	35.58% 37	14.42% 15	2.88% 3	0.96% 1	104
Protecting and reducing damage to utilities	66.67% 70	27.62% 29	4.76% 5	0.00% 0	0.95% 1	105
Strengthening emergency services (police, fire, ambulance)	57.14% 60	36.19% 38	3.81% 4	1.90% 2	0.95% 1	105

### Q11 What actions have you taken to reduce risk for your house / apartment / property for potential hazards/disasters? (Please check all that apply)

Answered: 106 Skipped: 0

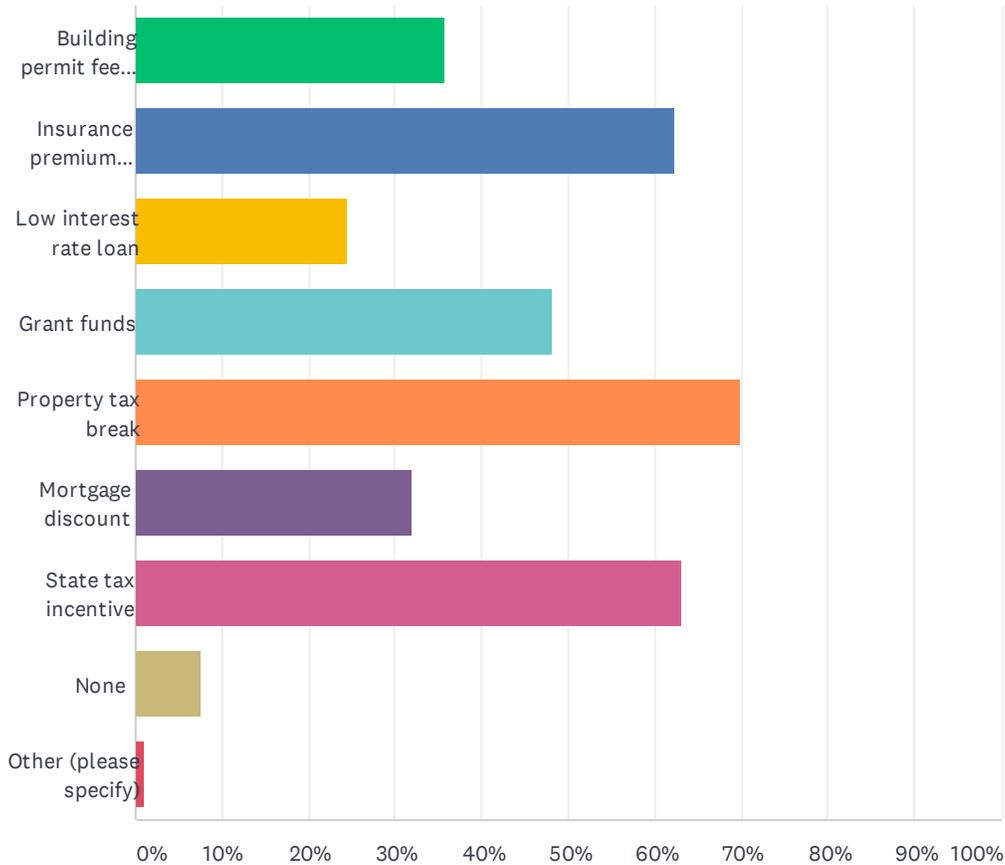


## All Hazard Mitigation Plan Update

ANSWER CHOICES	RESPONSES	
Purchase homeowners / renters insurance police	92.45%	98
Purchase Flood Insurance	22.64%	24
Floodproofing (elevating furnace, water heaters, electric panels)	18.87%	20
Install retrofits such as high impact windows or doors to withstand high winds; fire resistant siding, roofing or window screens; stormshelters, etc.	16.04%	17
Install fire breaks around home	3.77%	4
Remove dead / dying trees or vegetation	69.81%	74
Purchase and placement of easily accessible fire extinguishers	52.83%	56
Alternate power supply	62.26%	66
Alternate water supply	18.87%	20
None	0.00%	0
Other (please specify)	10.38%	11
Total Respondents: 106		

### Q12 Which of the following incentives might encourage you to take actions to reduce risk to your home/apartment/property from hazards? (Please check all that apply)

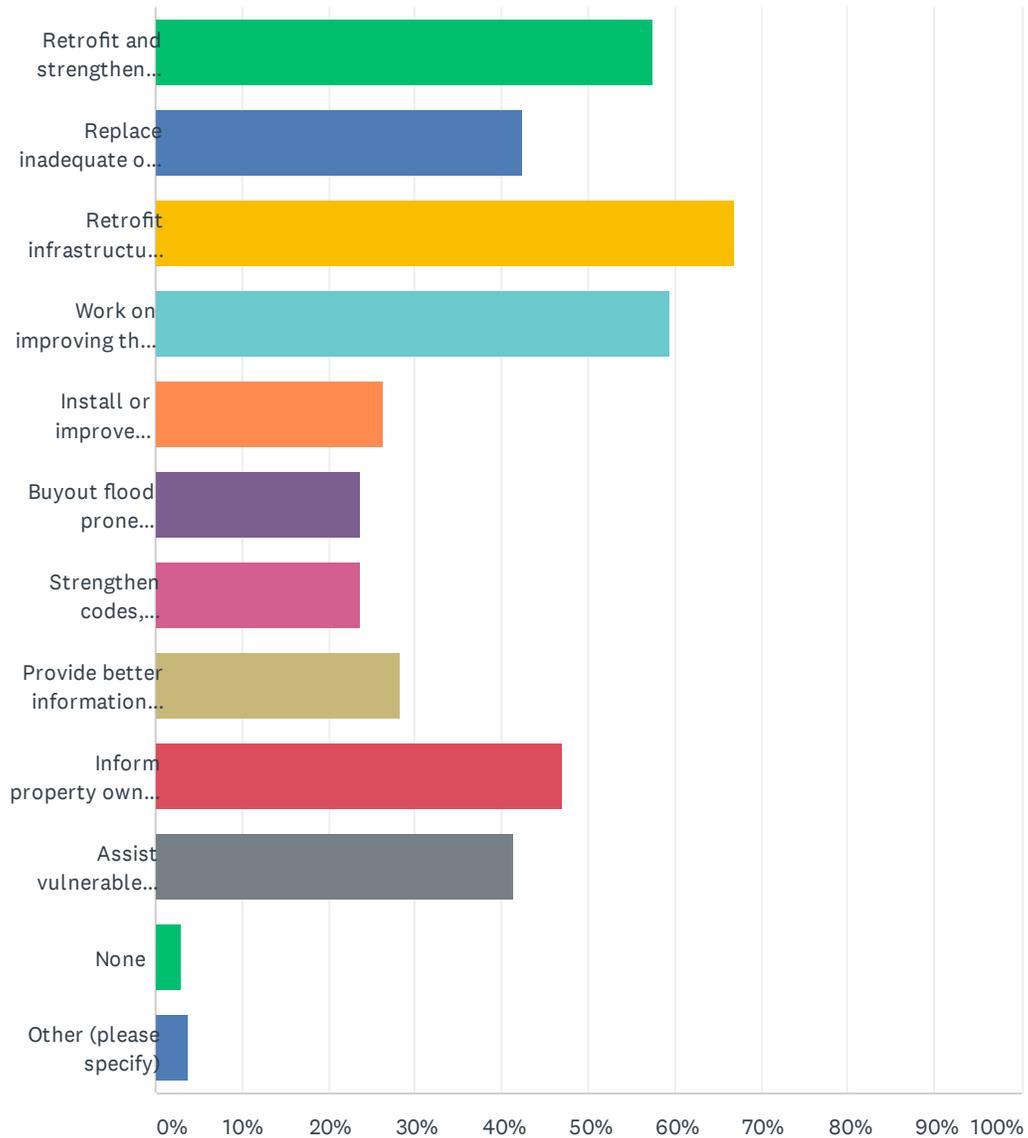
Answered: 106 Skipped: 0



ANSWER CHOICES	RESPONSES	
Building permit fee waiver	35.85%	38
Insurance premium discount	62.26%	66
Low interest rate loan	24.53%	26
Grant funds	48.11%	51
Property tax break	69.81%	74
Mortgage discount	32.08%	34
State tax incentive	63.21%	67
None	7.55%	8
Other (please specify)	0.94%	1
Total Respondents: 106		

Q13 Which of the following mitigation project types do you believe local government agencies should focus on to reduce disruptions of services and to strengthen the community (please check all that apply):

Answered: 106 Skipped: 0



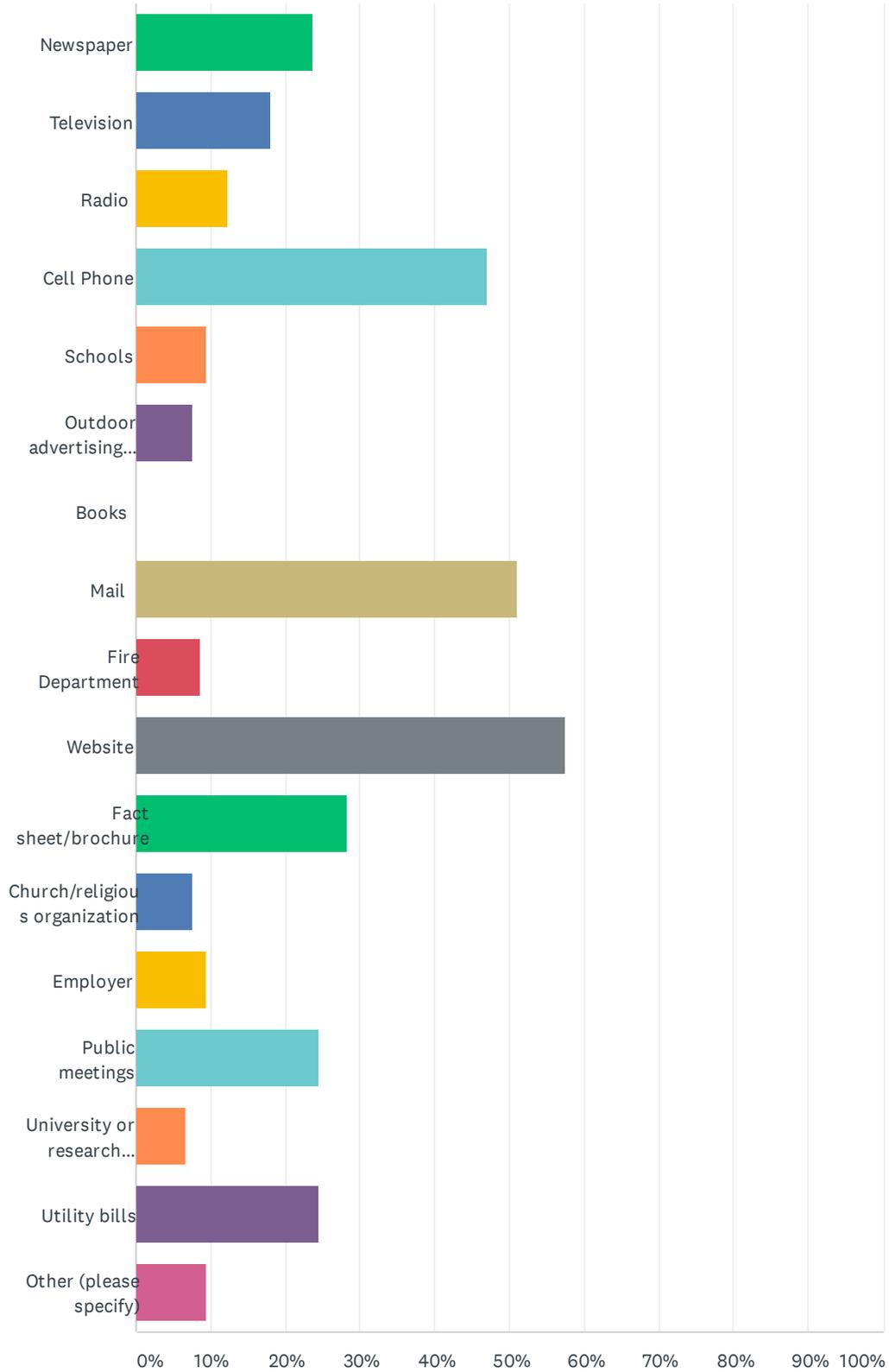
## All Hazard Mitigation Plan Update

ANSWER CHOICES	RESPONSES	
Retrofit and strengthen essential facilities such as police, fire, emergency medical services, hospitals, schools, etc.	57.55%	61
Replace inadequate or vulnerable bridges and causeways.	42.45%	45
Retrofit infrastructure, such as elevating roadways and improving drainage systems.	66.98%	71
Work on improving the damage resistance of utilities (electricity, communications, water / wastewater facilities, etc.).	59.43%	63
Install or improve protective structures, such as floodwalls or living shorelines.	26.42%	28
Buyout flood prone properties and maintain as open-space.	23.58%	25
Strengthen codes, ordinances, and plans to require higher hazard risk management standards.	23.58%	25
Provide better information about hazard risk and high-hazard areas.	28.30%	30
Inform property owners of ways they can mitigate damage to their properties.	47.17%	50
Assist vulnerable property owners with securing funding to mitigate impacts to their property(s).	41.51%	44
None	2.83%	3
Other (please specify)	3.77%	4
Total Respondents: 106		

Q14 What is the most effective way for you to receive information about how to make your household and home safer from natural disasters?  
(Please check all that apply)

Answered: 106 Skipped: 0

# All Hazard Mitigation Plan Update



## All Hazard Mitigation Plan Update

ANSWER CHOICES	RESPONSES	
Newspaper	23.58%	25
Television	17.92%	19
Radio	12.26%	13
Cell Phone	47.17%	50
Schools	9.43%	10
Outdoor advertising (billboards, etc.)	7.55%	8
Books	0.00%	0
Mail	50.94%	54
Fire Department	8.49%	9
Website	57.55%	61
Fact sheet/brochure	28.30%	30
Church/religious organization	7.55%	8
Employer	9.43%	10
Public meetings	24.53%	26
University or research institution	6.60%	7
Utility bills	24.53%	26
Other (please specify)	9.43%	10
Total Respondents: 106		

**Q15 Please provide additional, hazard and mitigation related comments below:**

Answered: 42 Skipped: 64

Q16 The Middle Peninsula Planning District Commission regularly sends out information to the community on various programs (i.e. Fight the Flood Program, Bay Direct, and MidPenRideShare). Please enter your email address here if you would like to be included in those announcements.

Answered: 37 Skipped: 69

**Appendix D -**  
Invitations to Participate in the Plan

Jackie Rickards

---

**From:** Jackie Rickards  
**Sent:** Monday, October 18, 2021 9:52 AM  
**To:** Donna Sprouse; Greg Hunter (ghunter@kingandqueenco.net); David Kretz; David Layman; Eric Pollitt; Frank Sanders; James Knighton; Willie Love; Brent Payne; jwenner@gloucesterva.info; Sherry Graham; Steve Hudgins; Garth Wheeler; John Edwards; Holly McGowan (hmcgowan@west-point.va.us); Leigh Mitchell; Frank Adams; Robert Gray; Steven Nelson; Jimmy Brann (jbrann@essex-virginia.org)  
**Cc:** Angela Davis; Buford, Brandy; Harrison Bresee; Amanda; Peaks, Ronald; Eric Seymour; Ken Sterner; Tuck, Heather; Michael.Barber@dcr.virginia.gov  
**Subject:** Draft AHMP - Ready for Public Comment!  
**Importance:** High

Good Morning Folks,

I have completed the draft of the regional All Hazards Mitigation Plan. It is currently posted on the MPPDC website ([https://www.mppdc.com/articles/service\\_centers/mandates/All%20Hazards%20Mitigation%20Plan%20Update/DRAFT\\_AHMP\\_for%20Public%20Comment\\_RED.pdf](https://www.mppdc.com/articles/service_centers/mandates/All%20Hazards%20Mitigation%20Plan%20Update/DRAFT_AHMP_for%20Public%20Comment_RED.pdf)) and on the MPPDC facebook page for public comment. The public comment period opens today and will close on November 1<sup>st</sup>. Here is the announcement on the MPPDC Facebook page:

*The Regional All Hazards Mitigation Plan (AHMP) for the Middle Peninsula is now available for public comment through November 1, 2021. View the draft AHMP here - <https://bit.ly/3ARbcV1>.*

*Comments? Email them directly to Jackie Rickards, Senior Planning Project Manager for the Middle Peninsula Planning District Commission, at [jrickards@mppdc.com](mailto:jrickards@mppdc.com).*

*All nine Middle Peninsula localities, including Essex, Gloucester, King and Queen, King William, Mathews, and Middlesex Counties and the Towns of Tappahannock, Urbanna, and West Point, participated in the plan's development and amendments. In addition to the nine regional localities, the federally recognized Indian Tribes in the region participated in the 2021 AHMP update.*

Please share this information with your IT folks and have this posted on your social media pages and/or on your websites.

After the comment period ends I will let you know if we have received any comments. With public comments in hand I will go ahead and schedule a meeting with the LPT to discuss the comments and to make any necessary changes to the draft. If I do not receive any comments I will send you an email with the next steps.

If you have any questions about this please let me know.

Jackie



MIDDLE PENINSULA  
PLANNING DISTRICT COMMISSION  
Jackie Rickards  
Senior Planning Project Manager  
Middle Peninsula Planning District Commission  
P.O. Box 286

This invitation to comment and provide feedback on the AHMP was sent to LPT participants including:

- Angela Davis, Virginia Department of Conservation and Recreation
- Brady Buford, Virginia Department of Conservation and Recreation
- Harrison Bresee, Virginia Department of Emergency Management
- Amanda Weaver, Virginia Department of Emergency Management
- Ronald Peaks, Virginia Department of Transportation
- Eric Seymour, National Weather Service
- Ken Sterner, Virginia Department of Forestry
- Heather Tuck, Virginia Department of Forestry
- Michael Barber, Virginia Department of Conservation and Recreation

Jackie Rickards

---

**From:** Jackie Rickards  
**Sent:** Friday, March 4, 2022 10:45 AM  
**To:** LCFEMS@louisia.org; Bateman, John; dunnally@co.caroline.va.us; kchale@newkent-va.us; klleduc@newkent-va.us; planning@hanovercounty.gov; hmothershead@co.richmond.va.us; dlee@westmoreland-county.org; dlee@westmoreland-county.org  
**Subject:** Middle Peninsula Regional All Hazards Mitigation Plan - Neighboring Communities Review Request  
**Importance:** High

Good Morning,

With funding through FEMA and the Virginia Department of Emergency Management, Middle Peninsula Planning District Commission (MPPDC) staff has worked with Middle Peninsula localities over the past year to update the Middle Peninsula Regional All Hazards Mitigation Plan (AHMP). The AHMP evaluates hazards that may impact the region and proposes mitigation strategies to reduce the impacts of future hazardous events.

According to 44 CFR §201.6(b)(2) of the mandate, *The planning process shall include 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.* Therefore, as you are a neighboring community I am sending you the current draft of the [Middle Peninsula Regional All Hazards Mitigation Plan](#) to review. Please take some time to review this document and provide feedback no later than Friday, March 18, 2022.

If you have any questions about this endeavor or if you would like more information feel free to contact me.

Thanks for your help,  
Jackie Rickards



**MIDDLE PENINSULA**  
PLANNING DISTRICT COMMISSION  
**Jackie Rickards**  
*Senior Planning Project Manager*  
*Middle Peninsula Planning District Commission*  
P.O. Box 286  
Saluda, Va 23149  
215-264-6451  
[www.mppdc.com](http://www.mppdc.com)

Invitation sent to:

- John Bateman, Northern Neck Planning District Commission
- Kate Hale, New Kent County Deputy Coordinator of Emergency Management
- Kelley LaDuc, New Kent County Planning Director
- Louisa County Fire & Emergency Management
- David Nunnally, Caroline County Senior Environmental Planner
- David P. Maloney, Hanover County Planning Director
- Hope D. Mothershead, Richmond County Director of Planning & Zoning
- Darrin Lee, Westmoreland County Planner

**Appendix E-**  
Press Releases and Facebook Statistics



# Middle Peninsula Planning District Commission

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Middle Peninsula Planning District Commission  
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**Public input wanted for the Middle Peninsula All Hazard Mitigation Plan Update!**

The Middle Peninsula Planning District Commission (MPPDC) was funded through the Federal Emergency Management Agency (FEMA) and the Virginia Department of Emergency Management (VDEM) to work with Middle Peninsula localities (i.e. Essex, Gloucester, King & Queen, King William, Mathews and Middlesex Counties and the Towns of Urbanna, Tappahannock, and West Point) and Middle Peninsula Tribes (i.e. Rappahannock, Upper Mattaponi, and Pamunkey) to update the 2016 Middle Peninsula All Hazards Mitigation Plan (AHMP). The AHMP assesses all hazards that may affect the region and proposes mitigation strategies to reduce the impacts to citizens, critical facilities, infrastructure, private property, public property, and the natural environment from future hazardous events.

As part of the AHMP update, public outreach and input is critical to shape the plan. This survey requests information on local hazards and your thoughts on mitigation actions. Mitigation actions can be defined as any action taken to reduce or eliminate the long-term risk to human life and property from hazards. Please note this survey should take less than 10 minutes to complete. All responses should be submitted no later than March 15th. Finally, survey results will remain anonymous and will be summarized in the 2021 AHMP update. Please continue to check the MPPDC website project page at [mppdc.com](http://mppdc.com) and here on the MPPDC Facebook page for more opportunities to provide input. A draft plan will be available for public review by August 2021.

Thank you for your participation and your input! Please encourage your neighbors to participate. [www.surveymonkey.com/r/AllHazardPlanUpdate](http://www.surveymonkey.com/r/AllHazardPlanUpdate)



**All Hazard Mitigation Plan Update**  
Take this survey powered by [surveymonkey.com](http://surveymonkey.com). Create your own surveys for free.

6 Shares



Middle Peninsula Planning District Commission



October 17 at 9:56 PM · 🌐

The Regional All Hazards Mitigation Plan (AHMP) for the Middle Peninsula is now available for public comment through November 1, 2021. View the draft AHMP here - <https://bit.ly/3ARbcV1>.

Comments? Email them directly to Jackie Rickards, Senior Planning Project Manager for the Middle Peninsula Planning District Commission, at [jrickards@mppdc.com](mailto:jrickards@mppdc.com).

All nine Middle Peninsula localities, including Essex, Gloucester, King and Queen, King William, Mathews, and Middlesex Counties and the Towns of Tappahannock, Urbanna, and West Point, participated in the plan's development and amendments. In addition to the nine regional localities, the federally recognized Indian Tribes in the region participated in the 2021 AHMP update.



MIDDLE PENINSULA  
PLANNING DISTRICT COMMISSION

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## REGIONAL ALL HAZARDS MITIGATION PLAN 2021

*Participating Middle Peninsula localities include Essex, Middlesex, Mathews, Gloucester, King & Queen, and King William, and the Towns of West Point, Urbanna, and Tappahannock. The Pamunkey Tribe and the Rappahannock Tribe also participated in this plan update.*





## The Regional All Hazards Mitigation Plan (AHMP) for the Middle Peninsula is now available for public...

Published by Sprout Social · October 17 -

Post Impressions   
**1,623**

Post Reach   
**1,422**

Post Engagement   
**37**

### Interactions



5



0



0



0



0



0



Reactions

5



Comments

0



Link Clicks

12



Shares

7



Other Clicks

9

**Appendix F -**  
Hazards Ranking for Each Locality and Tribe

MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

ESSEX COUNTY

EVENT	PROBABILITY <i>Likelihood this will occur</i>	HUMAN IMPACT <i>Possibility of death or injury to public and responders</i>	PROPERTY AND FACILITY IMPACT <i>Physical losses and damages</i>	BUSINESS IMPACT <i>COOP and Interruption of services</i>	Mitigation Options <i>Pre-Planning</i>	UNMITIGATED	
						RISK <i>Relative Threat</i>	RANKING <i>Based only on probability and threat</i>
<b>SCORE</b>	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	
Winter Storms (Ice & Snow)	2	2	2	2	2	44%	3
Flooding (ie. coastal, riverine, ditch & stormwater)	1	2	2	2	1	19%	6
Lightning	3	1	1	1	1	33%	4
Hurricanes	1	3	3	3	2	31%	5
Summer Storms	3	2	2	2	2	67%	1
Tornados	1	3	3	3	2	31%	5
Coastal/Shoreline Erosion	1	1	1	1	1	11%	7
Wildfire	1	1	1	1	1	11%	7
Sea Level Rise	1	1	1	1	1	11%	7
High Wind/Windstorms	1	2	2	2	1	19%	6
HAZMAT	1	1	1	1	1	11%	7
Drought	1	1	1	1	1	11%	7
Dam Failure	1	1	1	1	1	11%	7
Extreme Temperatures (Cold & Heat)	1	1	1	1	1	11%	7
Earthquake	1	1	1	1	1	11%	7
Air Quality	1	1	1	1	1	11%	7
Shrink-Swell Soils (soils with high levels of clay)	1	1	1	1	1	11%	7
Land Subsidence/Karst	1	1	1	1	1	11%	7
Communicable Diseases	2	3	3	3	2	61%	2
<b>AVERAGE</b>	1.32	1.53	1.53	1.53	1.26	15%	

\*Threat increases with percentage.

UNMITIGATED RISK=	0.09	PROBABILITY * IMPACT	0.30
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Spreadsheet developed by:



Modifications by:

Revised: 2/25/2010

MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

TOWN OF  
TAPPAHANNOCK

EVENT	SCORE	UNMITIGATED				UNMITIGATED		
		PROBABILITY <i>Likelihood this will occur</i>	HUMAN IMPACT <i>Possibility of death or injury to public and responders</i>	PROPERTY AND FACILITY IMPACT <i>Physical losses and damages</i>	BUSINESS IMPACT <i>COOP and Interruption of services</i>	Mitigation Options <i>Pre-Planning</i>	RISK <i>Relative Threat</i>	RANKING <i>Based only on probability and threat</i>
Winter Storms (Ice & Snow)	2	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	3	
Flooding (ie. coastal, riverine, ditch & stormwater)	1		2	2	1	19%	6	
Lightning	3		1	1	1	33%	4	
Hurricanes	1		3	3	2	31%	5	
Summer Storms	3		2	2	2	67%	1	
Tornados	1		3	3	2	31%	5	
Coastal/Shoreline Erosion	1		1	1	1	11%	7	
Wildfire	1		1	1	1	11%	7	
Sea Level Rise	1		1	1	1	11%	7	
High Wind/Windstorms	1		2	2	1	19%	6	
HAZMAT	1		1	1	1	11%	7	
Drought	1		1	1	1	11%	7	
Dam Failure	1		1	1	1	11%	7	
Extreme Temperatures (Cold & Heat)	1		1	1	1	11%	7	
Earthquake	1		1	1	1	11%	7	
Air Quality	1		1	1	1	11%	7	
Shrink-Swell Soils (soils with high levels of clay)	1		1	1	1	11%	7	
Land Subsidence/Karst	1		1	1	1	11%	7	
Communicable Diseases	2		3	3	2	61%	2	
<b>AVERAGE</b>	<b>1.32</b>	<b>1.53</b>	<b>1.53</b>	<b>1.53</b>	<b>1.26</b>	<b>15%</b>		



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Modifications by:

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<b>UNMITIGATED RISK=</b>	<b>0.15</b>
<b>PROBABILITY * IMPACT</b>	<b>0.40</b>
<b>0.39</b>	

\*Threat increases with percentage.

MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

GLOUCESTER COUNTY

EVENT	PROBABILITY		HUMAN IMPACT	PROPERTY AND FACILITY IMPACT	BUSINESS IMPACT	Mitigation Options	UNMITIGATED	
	Likelihood this will occur	Score					RISK	RANKING
Winter Storms (Ice & Snow)	2	2	2	2	3	2	50%	4
Flooding (ie. coastal, riverine, ditch & stormwater)	3	2	2	3	2	2	75%	2
Lightning	3	1	1	2	2	1	50%	4
Hurricanes	3	3	3	3	3	2	92%	1
Summer Storms	3	2	2	2	2	2	67%	3
Tornadoes	2	2	2	2	2	2	44%	5
Coastal/Shoreline Erosion	3	1	1	2	1	2	50%	4
Wildfire	2	1	1	1	1	2	28%	7
Sea Level Rise	3	0	0	2	2	2	50%	4
High Wind/Windstorms	2	2	2	2	1	1	33%	7
HAZMAT	2	2	2	2	2	1	39%	6
Drought	2	0	0	1	2	2	28%	7
Dam Failure	1	1	1	1	1	2	14%	9
Extreme Temperatures (Cold & Heat)	2	2	2	1	1	2	33%	7
Earthquake	1	1	1	1	1	0	8%	10
Air Quality	1	0	0	0	0	0	0%	12
Shrink-Swell Soils (soils with high levels of clay)	1	0	0	1	0	1	6%	11
Land Subsidence/Karst	0	0	0	0	0	0	0%	12
Communicable Diseases	2	1	1	0	2	2	28%	8
<b>AVERAGE</b>	<b>2.00</b>	<b>1.21</b>	<b>1.47</b>	<b>1.47</b>	<b>1.47</b>	<b>1.47</b>	<b>22%</b>	



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<b>UNMITIGATED RISK=</b>	<b>0.22</b>	<b>PROBABILITY * IMPACT</b>	<b>0.60</b>
			<b>0.37</b>

\*Threat increases with percentage.

MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

KING & QUEEN  
COUNTY

EVENT	SCORE	MITIGATED				UNMITIGATED		
		PROBABILITY <i>Likelihood this will occur</i>	HUMAN IMPACT <i>Possibility of death or injury to public and responders</i>	PROPERTY AND FACILITY IMPACT <i>Physical losses and damages</i>	BUSINESS IMPACT <i>COOP and Interruption of services</i>	Mitigation Options <i>Pre-Planning</i>	RISK <i>Relative Threat</i>	RANKING <i>Based only on probability and threat</i>
W/inter Storms (Ice & Snow)	3	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	3
Flooding (ie. coastal, riverine, ditch & stormwater)	2	2	2	1	1	1	28%	6
Lightning	2	2	1	1	1	1	28%	6
Hurricanes	2	2	2	2	2	1	39%	4
Summer Storms	3	2	2	2	1	1	50%	2
Tornados	2	2	2	2	1	1	33%	5
Coastal/Shoreline Erosion	1	1	1	1	1	1	11%	8
Wildfire	3	2	2	2	1	1	50%	2
Sea Level Rise	1	1	1	1	1	1	11%	8
High W/ind/Windstorms	2	1	1	1	1	1	22%	7
HAZMAT	2	2	2	2	2	1	39%	4
Drought	3	1	1	1	1	1	33%	5
Dam Failure	2	1	1	1	1	1	22%	7
Extreme Temperatures (Cold & Heat)	2	2	1	1	1	1	28%	6
Earthquake	1	1	1	1	1	1	11%	8
Air Quality	1	1	1	1	1	1	11%	8
Shrink-Swell Soils (soils with high levels of clay)	1	1	1	1	1	1	11%	8
Land Subsidence/Karst	0	0	0	0	0	0	0%	9
Communicable Diseases	3	3	3	3	3	2	92%	1
<b>AVERAGE</b>	<b>1.89</b>	<b>1.53</b>	<b>1.32</b>	<b>1.16</b>	<b>1.00</b>	<b>1.16</b>	<b>19%</b>	<b>1</b>



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Modifications by:

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<b>UNMITIGATED RISK=</b>	<b>0.19</b>
<b>PROBABILITY * IMPACT</b>	<b>0.57</b>
<b>PROBABILITY * IMPACT</b>	<b>0.33</b>

\*Threat increases with percentage.

MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

KING WILLIAM COUNTY

EVENT	MITIGATED					UNMITIGATED	
	PROBABILITY <i>Likelihood this will occur</i>	HUMAN IMPACT <i>Possibility of death or injury to public and responders</i>	PROPERTY AND FACILITY IMPACT <i>Physical losses and damages</i>	BUSINESS IMPACT <i>COOP and Interruption of services</i>	Mitigation Options <i>Pre-Planning</i>	RISK <i>Relative Threat</i>	RANKING <i>Based only on probability and threat</i>
<b>SCORE</b>	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	
Winter Storms (Ice & Snow)	2	1	1	2	1	28%	3
Flooding (ie. coastal, riverine, ditch & stormwater)	2	1	1	1	1	22%	4
Lightning	2	1	1	1	1	22%	4
Hurricanes	2	2	2	2	2	44%	1
Summer Storms	2	1	1	1	1	22%	4
Tornados	2	2	2	2	2	44%	1
Coastal/Shoreline Erosion	1	1	1	0	1	8%	6
Wildfire	1	1	1	0	1	8%	6
Sea Level Rise	1	1	1	0	1	8%	6
High Wind/Windstorms	1	1	1	1	1	11%	5
HAZMAT	1	1	1	0	1	8%	6
Drought	1	0	1	0	1	8%	7
Dam Failure	1	1	1	0	1	8%	6
Extreme Temperatures (Cold & Heat)	1	1	0	1	1	8%	6
Earthquake	1	1	1	1	1	11%	5
Air Quality	0	0	0	0	0	0%	8
Shrink-Swell Soils (soils with high levels of clay)	1	0	0	0	0	0%	8
Land Subsidence/Karst	0	0	0	0	0	0%	8
Communicable Diseases	1	1	0	0	1	6%	7
<b>AVERAGE</b>	<b>1.21</b>	<b>0.89</b>	<b>0.84</b>	<b>0.63</b>	<b>0.95</b>	<b>8%</b>	



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<b>UNMITIGATED RISK=</b>	<b>0.08</b>
<b>PROBABILITY * IMPACT</b>	<b>0.37</b>
	<b>0.22</b>

\*Threat increases with percentage.

MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

TOWN OF WEST  
POINT

EVENT	PROBABILITY <i>Likelihood this will occur</i>	HUMAN IMPACT <i>Possibility of death or injury to public and responders</i>	PROPERTY AND FACILITY IMPACT <i>Physical losses and damages</i>	BUSINESS IMPACT <i>COOP and Interruption of services</i>	Mitigation Options <i>Pre-Planning</i>	UNMITIGATED	
						RISK <i>Relative Threat</i>	RANKING <i>Based only on probability and threat</i>
<b>SCORE</b>	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	
Winter Storms (Ice & Snow)	2	1	1	1	1	22%	4
Flooding (ie. coastal, riverine, ditch & stormwater)	3	1	2	1	1	42%	1
Lightning	1	1	1	1	1	11%	7
Hurricanes	1	2	2	2	2	22%	4
Summer Storms	2	1	2	1	2	33%	3
Tornados	2	1	2	2	1	33%	3
Coastal/Shoreline Erosion	2	1	2	2	2	39%	2
Wildfire	1	1	1	1	1	11%	7
Sea Level Rise	1	1	2	2	1	17%	5
High Wind/Windstorms	2	1	2	1	2	33%	3
HAZMAT	1	2	1	1	1	14%	6
Drought	1	0	0	0	0	0%	8
Dam Failure	0	0	0	0	0	0%	
Extreme Temperatures (Cold & Heat)	1	2	1	1	1	14%	6
Earthquake	1	1	1	1	1	11%	7
Air Quality	1	1	1	1	1	11%	7
Shrink-Swell Soils (soils with high levels of clay)	3	1	2	1	1	42%	1
Land Subsidence/Karst	1	1	1	1	1	11%	7
Communicable Diseases	2	2	1	2	2	39%	2
<b>AVERAGE</b>	<b>1.47</b>	<b>1.16</b>	<b>1.32</b>	<b>1.21</b>	<b>1.21</b>	<b>14%</b>	

\*Threat increases with percentage.

<b>UNMITIGATED RISK=</b>	<b>0.14</b>
<b>PROBABILITY * IMPACT</b>	<b>0.44</b>
	<b>0.32</b>

Spreadsheet developed by:



Modifications by:

Revised: 2/25/2010

MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

MATHEWS COUNTY

EVENT	PROBABILITY <i>Likelihood this will occur</i>	HUMAN IMPACT <i>Possibility of death or injury to public and responders</i>	PROPERTY AND FACILITY IMPACT <i>Physical losses and damages</i>	BUSINESS IMPACT <i>COOP and Interruption of services</i>	Mitigation Options <i>Pre-Planning</i>	UNMITIGATED	
						RISK <i>Relative Threat</i>	RANKING <i>Based only on probability and threat</i>
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	
Winter Storms (Ice & Snow)	3	1	2	3	1	58%	1
Flooding (ie. coastal, riverine, ditch & stormwater)	3	1	2	2	1	50%	2
Lightning	3	1	1	1	1	33%	5
Hurricanes	2	2	2	2	2	44%	3
Summer Storms	3	1	1	1	1	33%	5
Tornados	1	1	2	1	1	14%	8
Coastal/Shoreline Erosion	3	1	1	1	1	33%	5
Wildfire	1	1	1	1	1	11%	9
Sea Level Rise	2	1	1	1	1	22%	7
High Wind/Windstorms	2	1	1	1	2	0%	10
HAZMAT	1	1	1	1	1	0%	10
Drought	2	1	1	1	2	28%	6
Dam Failure	0	0	0	0	0	0%	
Extreme Temperatures (Cold & Heat)	3	1	1	1	2	42%	4
Earthquake	1	1	1	1	1	0%	10
Air Quality	1	1	1	1	1	11%	9
Shrink-Swell Soils (soils with high levels of clay)	1	1	1	1	1	11%	9
Land Subsidence/Karst	1	1	1	1	1	11%	9
Communicable Diseases	2	2	1	2	1	33%	5
<b>AVERAGE</b>	<b>1.84</b>	<b>1.05</b>	<b>1.16</b>	<b>1.21</b>	<b>1.16</b>	<b>17%</b>	



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UNMITIGATED RISK=	0.17
PROBABILITY * IMPACT	0.56
	0.30

\*Threat increases with percentage.

MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

MIDDLESEX COUNTY

EVENT	PROBABILITY <i>Likelihood this will occur</i>	HUMAN IMPACT <i>Possibility of death or injury to public and responders</i>	PROPERTY AND FACILITY IMPACT <i>Physical losses and damages</i>	BUSINESS IMPACT <i>COOP and Interruption of services</i>	Mitigation Options <i>Pre-Planning</i>	UNMITIGATED	
						RISK <i>Relative Threat</i>	RANKING <i>Based only on probability and threat</i>
<b>SCORE</b>	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	
Winter Storms (Ice & Snow)	3	2	3	2	2	75%	1
Flooding (ie. coastal, riverine, ditch & stormwater)	3	2	3	1	2	67%	2
Lightning	2	2	2	1	2	39%	6
Hurricanes	2	2	3	2	2	50%	4
Summer Storms	3	2	3	1	2	67%	2
Tornados	3	2	2	1	2	58%	3
Coastal/Shoreline Erosion	3	0	2	1	2	42%	5
Wildfire	2	1	2	1	2	33%	7
Sea Level Rise	1	0	1	1	2	11%	9
High Wind/Windstorms	2	2	2	1	2	39%	6
HAZMAT	2	2	2	1	1	33%	7
Drought	2	0	1	1	1	17%	8
Dam Failure	1	1	1	0	2	11%	9
Extreme Temperatures (Cold & Heat)	2	2	1	1	2	33%	7
Earthquake	1	1	1	1	1	11%	9
Air Quality	1	1	1	1	1	11%	9
Shrink-Swell Soils (soils with high levels of clay)	2	0	1	0	2	17%	8
Land Subsidence/Karst	2	1	1	0	1	17%	8
Communicable Diseases	2	3	0	3	1	39%	6
<b>AVERAGE</b>	<b>2.05</b>	<b>1.37</b>	<b>1.68</b>	<b>1.05</b>	<b>1.68</b>	<b>24%</b>	

\*Threat increases with percentage.

<b>UNMITIGATED RISK=</b>	<b>PROBABILITY * IMPACT</b>
<b>0.24</b>	<b>0.62</b>
	<b>0.38</b>

Spreadsheet developed by:

Modifications by:

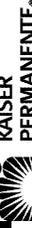
Revised: 2/25/2010



MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

TOWN OF URBANNA

EVENT	PROBABILITY		HUMAN IMPACT <i>Possibility of death or injury to public and responders</i>	PROPERTY AND FACILITY IMPACT <i>Physical losses and damages</i>	BUSINESS IMPACT <i>COOP and Interruption of services</i>	Mitigation Options <i>Pre-Planning</i>	UNMITIGATED	
	Likelihood this will occur						RISK <i>Relative Threat</i>	RANKING <i>Based only on probability and threat</i>
<b>SCORE</b>	0 = N/A 1 = Low 2 = Moderate 3 = High	2	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	
Winter Storms (Ice & Snow)	2	2	2	3	2	2	50%	4
Flooding (ie. coastal, riverine, ditch & stormwater)	2	2	2	2	2	2	44%	5
Lightning	3	2	2	2	2	2	67%	2
Hurricanes	2	3	3	2	3	2	56%	3
Summer Storms	3	3	3	2	2	1	67%	2
Tornadoes	2	2	2	2	2	2	44%	5
Coastal/Shoreline Erosion	2	2	2	2	2	2	44%	5
Wildfire	2	2	2	2	1	2	39%	6
Sea Level Rise	2	1	1	2	1	2	33%	7
High Wind/Windstorms	2	2	2	2	2	2	44%	5
HAZMAT	2	2	2	2	1	1	33%	7
Drought	2	1	1	1	1	1	22%	8
Dam Failure	0	0	0	0	0	1	0%	10
Extreme Temperatures (Cold & Heat)	1	1	1	1	1	1	11%	9
Earthquake	1	1	1	1	1	1	11%	9
Air Quality	1	1	1	1	1	1	11%	9
Shrink-Swell Soils (soils with high levels of clay)	1	1	1	1	1	1	11%	9
Land Subsidence/Karst	1	0	0	0	0	0	0%	10
Communicable Diseases	3	2	2	2	3	2	75%	1
<b>AVERAGE</b>	<b>1.79</b>	<b>1.58</b>	<b>1.58</b>	<b>1.58</b>	<b>1.47</b>	<b>1.47</b>	<b>21%</b>	<b>1</b>



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Revised: 2/25/2010

UNMITIGATED RISK=	0.21	PROBABILITY * IMPACT	0.42
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\*Threat increases with percentage.

MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

PAMUNKEY TRIBE

EVENT	UNMITIGATED						
	PROBABILITY	HUMAN IMPACT	PROPERTY AND FACILITY IMPACT	BUSINESS IMPACT	Mitigation Options	RISK	RANKING
SCORE	Likelihood this will occur	Possibility of death or injury to public and responders	Physical losses and damages	COOP and Interruption of services	Pre-Planning	Relative Threat	Based only on probability and threat
	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	
Winter Storms (Ice & Snow)	2	1	1	0	1	17%	3
Flooding (ie. coastal, riverine, ditch & stormwater)	3	1	2	0	1	33%	1
Lightning	1	1	1	0	1	8%	4
Hurricanes	2	1	2	0	1	22%	2
Summer Storms	2	1	1	0	1	17%	3
Tornados	1	1	1	0	1	8%	4
Coastal/Shoreline Erosion	3	1	2	0	1	33%	7
Wildfire	1	1	1	0	1	8%	4
Sea Level Rise	2	1	2	0	1	22%	2
High Wind/Windstorms	2	1	2	0	1	22%	2
HAZMAT	1	1	1	0	1	8%	4
Drought	1	1	1	0	1	8%	4
Dam Failure	0	0	0	0	1	0%	5
Extreme Temperatures (Cold & Heat)	1	1	1	0	1	8%	4
Earthquake	1	1	1	0	1	8%	4
Air Quality	1	1	1	0	1	8%	4
Shrink-Swell Soils (soils with high levels of clay)	1	1	1	0	1	8%	4
Land Subsidence/Karst	2	1	1	0	1	17%	3
Communicable Diseases	1	1	1	0	1	8%	4
<b>AVERAGE</b>	<b>1.47</b>	<b>0.95</b>	<b>1.21</b>	<b>0.00</b>	<b>1.00</b>	<b>9%</b>	

\*Threat increases with percentage.

<b>UNMITIGATED RISK=</b>	<b>0.09</b>	<b>PROBABILITY * IMPACT</b>	<b>0.44</b>	<b>0.21</b>
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Spreadsheet developed by:



Modifications by:

Revised: 2/25/2010

MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS -- SUMMARY SHEET

RAPPAHANNOCK  
TRIBE

EVENT	UNMITIGATED					RANKING	
	PROBABILITY	HUMAN IMPACT	PROPERTY AND FACILITY IMPACT	BUSINESS IMPACT	Mitigation Options		RISK
SCORE	<i>Likelihood this will occur</i>	<i>Possibility of death or injury to public and responders</i>	<i>Physical losses and damages</i>	<i>COOP and Interruption of services</i>	<i>Pre-Planning</i>	<i>Relative Threat</i>	
	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	
Winter Storms (Ice & Snow)	3	2	2	3	1	67%	1
Flooding (ie. coastal, riverine, ditch & stormwater)	3	2	2	2	2	67%	2
Lightning	3	2	2	2	1	58%	4
Hurricanes	2	3	3	3	2	61%	3
Summer Storms	3	2	2	2	1	58%	4
Tornados	2	2	3	2	1	44%	6
Coastal/Shoreline Erosion	2	2	2	1	2	39%	7
Wildfire	2	2	2	1	2	39%	7
Sea Level Rise	1	1	2	1	2	17%	9
High Wind/Windstorms	3	2	3	3	2	83%	1
HAZMAT	2	3	1	2	2	44%	6
Drought	1	1	1	1	2	14%	10
Dam Failure	0	0	0	0	0	0%	13
Extreme Temperatures (Cold & Heat)	2	2	1	1	1	28%	8
Earthquake	1	1	1	1	1	11%	11
Air Quality	1	2	1	1	1	14%	10
Shrink-Swell Soils (soils with high levels of clay)	1	0	1	1	1	8%	12
Land Subsidence/Karst	1	0	0	0	0	0%	13
Communicable Diseases	2	3	1	3	2	50%	5
<b>AVERAGE</b>	<b>1.84</b>	<b>1.68</b>	<b>1.58</b>	<b>1.58</b>	<b>1.37</b>	<b>23%</b>	

\*Threat increases with percentage.

<b>UNMITIGATED RISK=</b>	<b>0.23</b>
<b>PROBABILITY * IMPACT</b>	<b>0.56</b>
	<b>0.41</b>

Spreadsheet developed by:



Modifications by:

Revised: 2/25/2010

**MIDDLE PENINSULA HAZARD AND VULNERABILITY ASSESSMENT TOOL  
NATURAL HAZARDS**

**UPPER MATTAPONI INDIAN TRIBE**

EVENT	PROBABILITY					UNMITIGATED	
	Likelihood this will occur	HUMAN IMPACT <i>Possibility of death or injury to public and responders</i>	PROPERTY AND FACILITY IMPACT <i>Physical losses and damages</i>	BUSINESS IMPACT <i>Interruption of services</i>	Mitigation Options <i>Preparedness, resources and ability to mitigate,</i>	RISK <i>Relative Threat</i>	RANKING <i>Based only on probability and threat</i>
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 - 100%	
Winter Storms (Ice & Snow)	3	2	2	2	2	67%	3
Flooding (ie. coastal, riverine, ditch & stormwater)	3	2	3	1	3	75%	1
Lightning	3	1	1	1	3	50%	8
Hurricanes	3	2	2	2	2	67%	2
Summer Storms	3	2	2	1	2	58%	4
Tornados	2	2	3	2	3	56%	5
Coastal/Shoreline Erosion	2	1	2	1	3	39%	10
Wildfire	2	1	1	1	2	28%	15
Sea Level Rise	2	1	2	1	2	33%	14
High Wind/Windstorms	3	1	1	1	3	50%	6
HAZMAT	1	1	1	1	3	17%	11
Drought	2	1	1	1	3	33%	13
Dam Failure	2	1	2	1	3	39%	12
Extreme Temperatures (Cold & Heat)	3	2	1	1	2	50%	7
Earthquake	1	1	2	1	3	19%	16
Air Quality	1	1	1	1	3	17%	17
Shrink-Swell Soils (soils with high levels of clay)	1	1	1	1	3	17%	18
Land Subsidence/Karst	1	1	1	1	3	17%	19
Communicable Diseases	2	2	1	2	2	39%	9
<b>AVERAGE</b>	<b>1.60</b>	<b>1.04</b>	<b>1.20</b>	<b>0.92</b>	<b>2.00</b>	<b>28%</b>	

\*Threat increases with percentage.

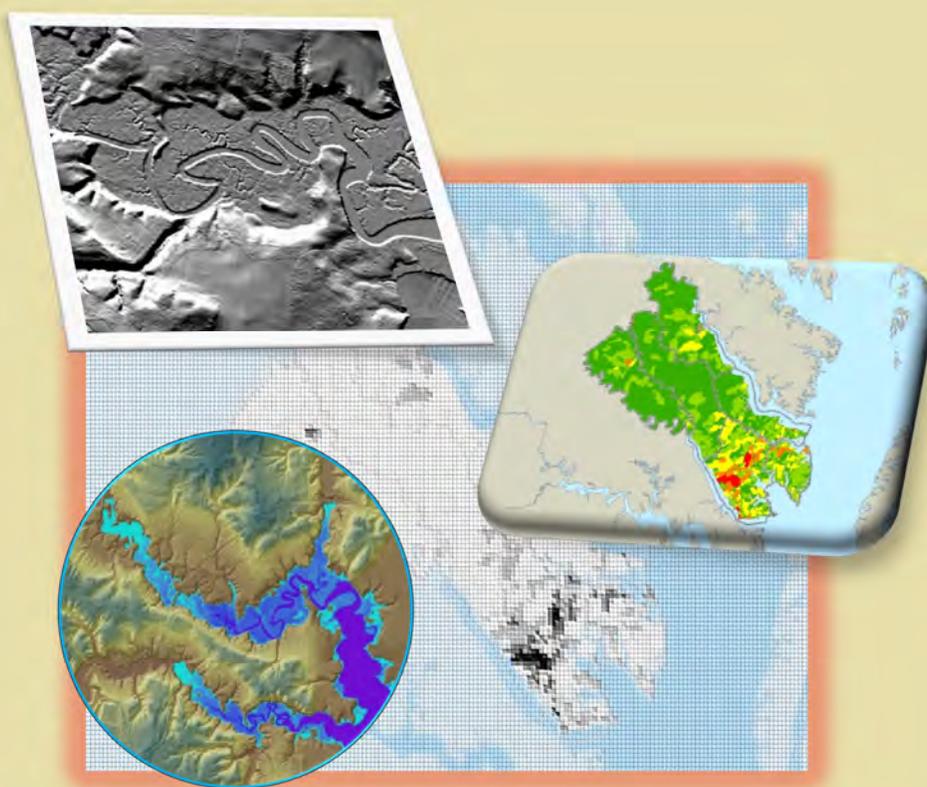
<b>UNMITIGATED RISK=</b>	<b>PROBABILITY * IMPACT</b>	
	<b>0.28</b>	<b>0.63</b>
		<b>0.45</b>



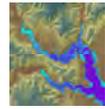
**Appendix G -**  
HAZUS Methodology

# Middle Peninsula Planning District Commission 2015 Hazard Mitigation Plan Update

## HAZUS Modeling Report



April 2015

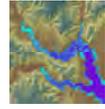


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## INTRODUCTION

As part of the Middle Peninsula Planning District Project, Dewberry was asked to perform HAZUS flood and hurricane wind modeling for the next Hazard Mitigation Plan (HMP) revision. The goal and intent of the effort is that Dewberry would provide the MPPDC updated Hazard Identification and Risk Assessment (HIRA) elements that can be incorporated into the final MPPDC HMP. The effort is also a repeat effort in that Dewberry had provided the same services for the currently approved HMP.

Therefore, the work performed seeks to update the previous HIRA section maps, text and tables. Given the nature of hazard mitigation planning and the goals that the Federal Emergency Management Agency (FEMA) has set for jurisdictions to continually improve HMP's from one revision to the next, Dewberry has significantly improved the nature of the Hazus Flood modeling on behalf of the MPPDC. This report documents the various modeling efforts performed and, where appropriate, denotes modeling efforts that transcend previous efforts given available scope, schedule and budget of the project.

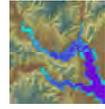
This report documents the methodology used to construct the HAZUS modeling efforts and also discusses core model results where applicable. Users of this document are directed to the final HMP that will be completed in the future (2015/2016) by the MPPDC but will include this work effort by Dewberry in the HIRA sections for Hurricane Wind and Flooding to include certain Sea Level Rise scenarios.

## Flood Modeling – Riverine Streams

The previous Plan flood modeling utilized Hazus Version 1 – Maintenance Release 4; a.k.a. MR4. Significant changes have occurred with the Hazus software and models over the past five (5) years and the software has moved through the following versions:

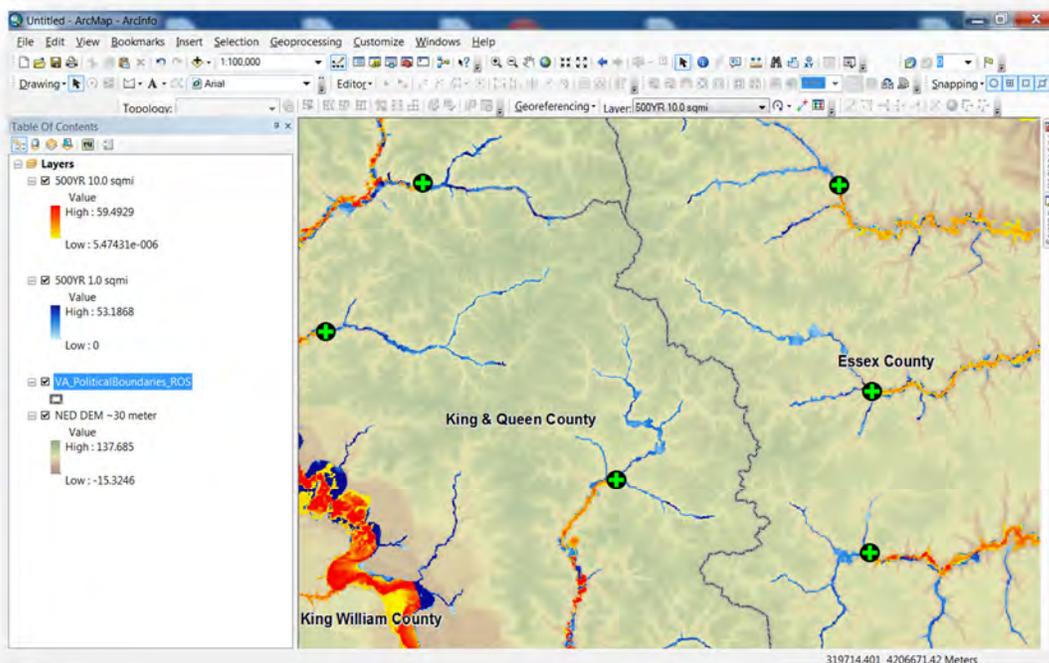
- Version 1 – Maintenance Release 4 (MR4)
- Version 1 – Maintenance Release 5 (MR5)
- Version 2.0
- Version 2.1
- Version 2.2 (current)

In addition to the version releases noted above there have also been various patches deployed in-between the version releases. One notable improvement to the Flood - Riverine Module is the automated methodology of cross section placement which, along with typical advancements in computing hardware and software, helps in the ability to process smaller drainage thresholds. Dewberry in-fact processed the project area at the one-square mile (1 mi<sup>2</sup>) as had been suggested in the previous Plan as a mitigation action that could improve the Hazus Flood modeling efforts. This new Riverine analysis included use of the most recent National Elevation Dataset (NED) digital elevation

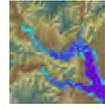


model (DEM) at the one-arc second resolution (i.e., ~ 30 meter resolution). The previous Plan Riverine modeling effort only included one-square mile (1 mi<sup>2</sup>) delineation for Mathews County and the remainder of the Planning District utilized ten-square mile (10 mi<sup>2</sup>). The beneficial effect of using the smaller drainage area threshold means that the analysis of flooded streams will extend further upstream - offering a more complete representation of potential flooding as is shown in **Figure 1** below. It can be seen that the blue-scale depth grid delineations of the 0.2% Annual Chance or 500-year event at one-square mile (1 mi<sup>2</sup>) extends much further upstream as compared to the red-yellow scale grid of the same event delineated at ten-square miles (10 mi<sup>2</sup>). The point-marker has been added to show the relative most upstream extent of the ten-square mile (10 mi<sup>2</sup>) delineation.

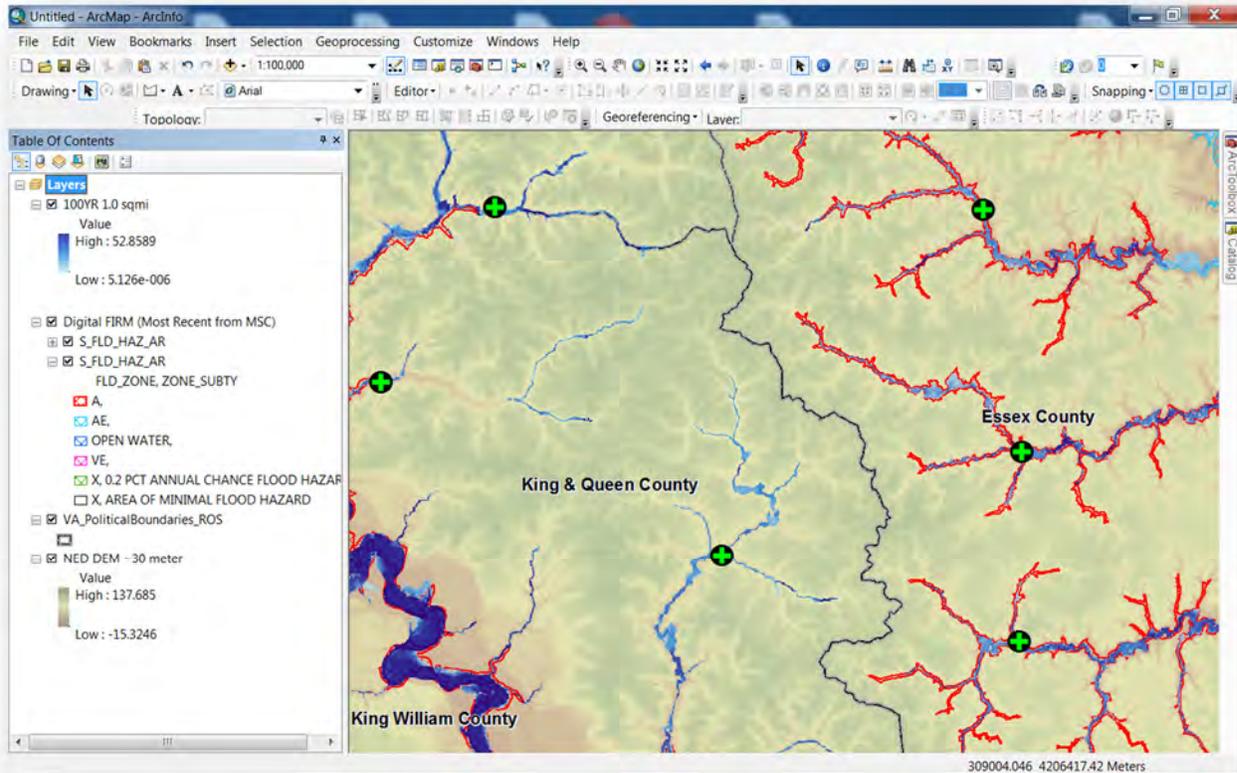
**Figure 1: Riverine 0.2% Annual Chance (500 Year) Depth Grids Comparison**



Furthermore, the (1 mi<sup>2</sup>) delineations, for most riverine streams are consistent with the current effective or new revised preliminary FEMA floodplain mapping. **Figure 2** shows the same example area with the FEMA digital Flood Insurance Rate Map (FIRM) data overlaid with the blue-scale depth grid delineations of the 1% Annual Chance (i.e., 100-Year Event) of the one-square mile (1 mi<sup>2</sup>) depth grid. The example area shown includes primarily 1% Annual Chance Approximate Zone (i.e., Zone A) delineations and are shown as red outlined areas. The marker symbols have been left for reference.



**Figure 2: Riverine 1% Annual Chance Depth Grid vs. FEMA Digital FIRM Comparison**

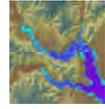


It is also important to note that most FEMA-initiated flood insurance studies use a one-square mile (1 mi<sup>2</sup>) drainage threshold for delineation of floodplains. However, users should be warned and realize that FEMA flood studies also require the use of ground data that is much more precise than one-arc second resolution (i.e., ~ 30 meter resolution); i.e., typical FEMA studies require DEM resolution of two-meter (2 m. or ~6.6 ft.) resolution or better.

### **Issues & Challenges Encountered:**

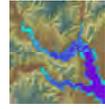
As noted earlier, the previous Plan riverine modeling only utilized one-square mile (1 mi<sup>2</sup>) drainage threshold for Mathews. While the most recent effort now has accomplished one-square mile (1 mi<sup>2</sup>) drainage threshold for the remainder of the MPPDC planning area, there were still a few issues and challenges that existed; some were overcome and others may warrant additional consideration in the future.

- **Issue 1:**
  - Issue: Hydrology or Hydraulics would not complete for a given County.

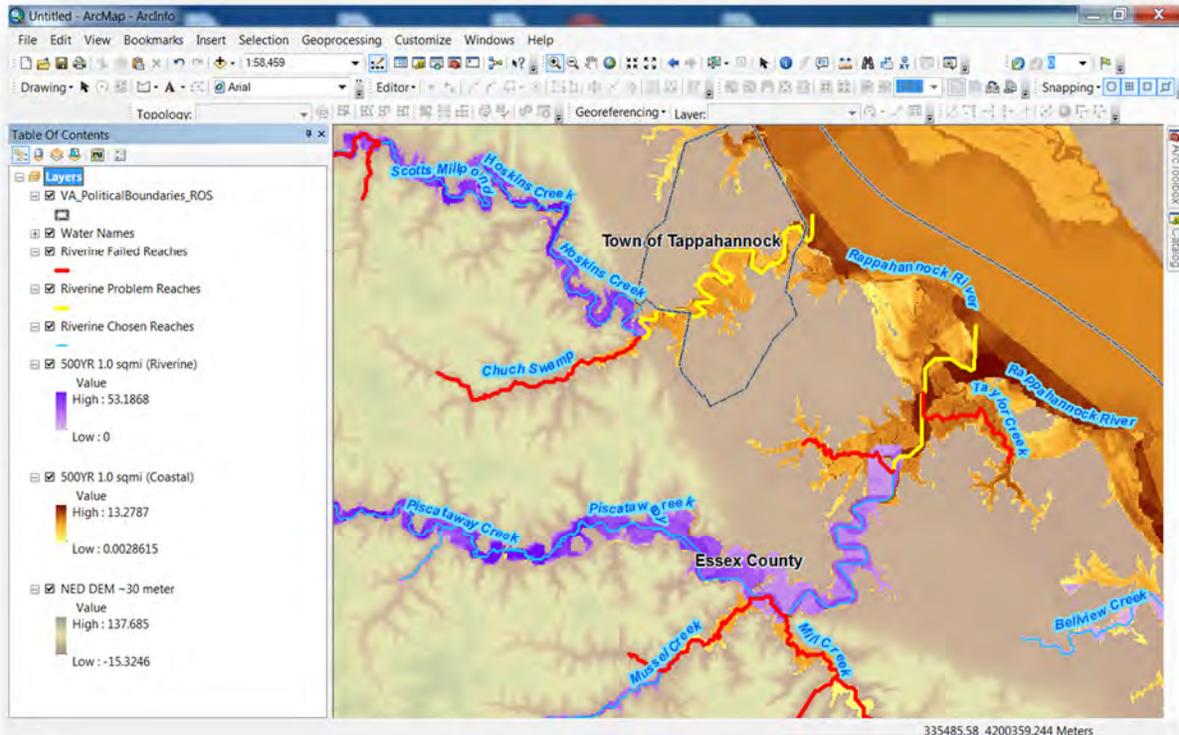


- **Solution:** Divide the County into smaller sub-geographies to reduce the number of stream segments that Hazus must process. There were three (3) counties that had to be divided into two (2) portions each - Essex, King and Queen and lastly, King William each had to be divided into portions. Dividing these counties into smaller portions enabled Hazus to process a smaller quantity of streams and produce usable results.
- **Issue 2:**
  - **Issue:** Hazus produced “Failed Reaches” or “Problem Reaches”.
  - **Solution:** Utilize successful reaches (i.e., non-failed) from adjacent geography where it exists. For example, Dragon Swamp which borders both Essex and King and Queen Counties failed in the riverine model portion of Essex County yet, the same reach did not fail in the companion model of King and Queen. In order to overcome such issues all grids were merged across the MPPDC area to compensate for the deficiency of failed reaches. Inevitably, the Hazus software will utilize the damages estimated from the flooding source that generates the greatest amount of estimated damage. Therefore, another consideration regarding failed reaches is the interaction within Hazus between riverine and coastal hazards as defined by the depth grids from each flooding source. There are failed reaches for which the riverine module did not create a depth grid, however in-reality the same reach may actually be influenced by coastal forces and therefore the coastal methodology is able to supplement or compensate for the lack of a riverine depth grid. An example (see **Figure 3** – next page) where the coastal module generated depth for a riverine failed reach includes Hoskins Creek which runs through the Town of Tappahannock or nearby Piscataway Creek and its tributaries - Mussel Creek or Mill Creek. Also, Cohoke Mill Pond in King William County presents another example of same.

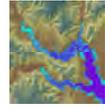
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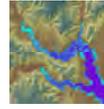
**Figure 3: Riverine Failed/Problem Reaches and Riverine Depth Grid vs. Coastal Depth Grid**



- **Other Discussion:** Regarding failed reaches, the Hazus documentation has little information that explains the reasons why reaches fail. However, Dewberry experience has shown that reaches fail for a few common reasons that are not always in the user's control; for example given a particular geography a reach may fail due to lack of hydrologic stream gauges within the vicinity. Another possibility is that the hydrologic methodology employed by Hazus does not produce any flow (i.e., discharge or "Q" modeling parameter); this is most common where rural regression equations are employed. Notably, it is also possible that Hazus has not been updated with the most recent regression equation parameters available from the United States Geologic Survey (USGS). While Dewberry did not verify the equation parameters in Hazus Version 2.2, based on other work that Dewberry has performed in Virginia, it was known that Hazus Version 2.1 did not include the most recent rural regression equations available from the USGS.



- **Issue 3:**
  - Issue: FEMA Region III concern over the use of Hazus Level 1 functionality.
  - Solution: The solution employed included the suggestion that the MPPDC and Dewberry discuss with FEMA Region III expectations of the Hazus modeling. The call that was held on March 13, 2015 included such discussions. Ultimately, the MPPDC and the Virginia Department of Emergency Management (VADEM) agreed that the Dewberry plan of action was reasonable and appropriate. However, for reference, Dewberry has compiled an explanation of the specific concerns expressed by the Region during the March 13, 2015 call. Dewberry agrees with the Region in that the best data is in-fact the best, however needs to be tempered with the realities of effort, time and cost. The Region expressed concern over the use of the Level 1 methodology which means the Region would prefer the use of the following:
    - Hydrology & Hydraulics (H&H) – preference would be to use data typical of FEMA Risk MAP Flood Insurance Studies (FIS) and Non-Regulatory Depth Grid creation versus the Hazus methodology. Typical H&H is accessed via models such as US Army Corps of Engineers HEC-RAS models. Where such models are not available or inaccessible, digital FIRM data may be used but legacy riverine data typically only includes water surface elevations for the 1% annual chance event which is not conducive to generating annualized loss values expected of hazard mitigation planning. Last, where models and digital FIRM data are not complete or not available, the remaining H&H data would typically be gleaned from Flood Insurance Study (FIS) reports; more specifically, users wishing to develop the flood hazard into depth grids for direct-use in Hazus, would have to convert water surface profiles within the FIS-text into digital data. Lastly, regardless of which H&H inputs mentioned are available, the user would be required to process all data to digital water surfaces for further processing into depth grids.
    - Topographic Data – preference is to use LiDAR-based topography at a resolution consistent with FEMA Risk MAP Flood Insurance Studies (FIS) and Non-Regulatory Depth Grid creation versus the one-arc second or ~ 30-meter DEM employed.
    - Depth Grid Creation – preference is again suggested to develop depth grids consistent with FEMA Risk MAP Non-Regulatory Depth Grid creation which means the use of hydraulic stream models (if they exist and are accessible), and/or the use of digital FIRM data, and/or the use of flood profiles published in FIS reports. Notably, while there is definitely benefits associated with the most accurate inputs, Dewberry noted on the call that the level of effort to produce such depth grids is quite extensive and typically is not feasible under budgets available for HMP's.



## Flood Modeling – Coastal

As with the Flood Riverine, the previous Plan flood modeling utilized Hazus Version 1 – Maintenance Release 4; a.k.a. MR4. The coastal flood module has also experienced certain changes; the primary difference in the coastal model is that users no longer define certain shoreline characteristics such as wave exposure (i.e., Open Coast, Moderate/Minimal Exposure or Sheltered) and shoreline type (e.g., Rocky bluffs, sandy beaches w/ small dunes, open wetlands, etc.). Otherwise, much of the coastal module is the same in that users are still asked to choose shoreline segments and then users have the option of sub-dividing the shorelines and entering water surface and wave characteristics.

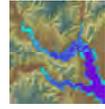
Dewberry followed user guidance for the entry of water surfaces by obtaining the most recent versions of either effective (or) newly released preliminary FIS-text from the FEMA Map Service Center (MSC). Dewberry obtained the following FEMA FIS documents:

- ESSEX COUNTY,VIRGINIA AND INCORPORATED AREAS – Revised May 4, 2015
  - FLOOD INSURANCE STUDY NUMBER - 51057CV000B
- GLOUCESTER COUNTY,VIRGINIA (ALL JURISDICTIONS) – Revised November 19, 2014
  - FLOOD INSURANCE STUDY NUMBER - 51073CV000B
- KING AND QUEEN COUNTY,VIRGINIA AND INCORPORATED AREAS – Preliminary October 3, 2013
  - FLOOD INSURANCE STUDY NUMBER - 51097CV000B
- KING WILLIAM COUNTY,VIRGINIA AND INCORPORATED AREAS – Preliminary October 3, 2013
  - FLOOD INSURANCE STUDY NUMBER - 51101CV000B
- MIDDLESEX COUNTY,VIRGINIA AND INCORPORATED AREAS – Revised May 18, 2015
  - FLOOD INSURANCE STUDY NUMBER - 51119CV000B
- MATHEWS COUNTY,VIRGINIA (ALL JURISDICTIONS) – Revised December 9, 2014
  - FLOOD INSURANCE STUDY NUMBER - 51115CV000B

Per Hazus User guidance the shoreline was divided as closely as possible to the Transect Location Map found within each respective FIS and the Starting Stillwater Elevations (typ. TABLE 2 – Transect Data) were utilized to populate the Hazus menu of Stillwater elevations. Therefore, the Hazus Level 1 methodology was utilized to perform hydrology, hydraulics and coastal hazard delineation. The resulting depth grids were created from the same NED one-arc second DEM utilized for the Riverine analysis.

### **Issues & Challenges Encountered:**

The coastal modeling performed for the previous Plan utilized the Hazus Level 1 methodology. The original intent for the current Plan update was to utilize the same depth grids as the previous Plan, however because new FEMA FIS have been released for all of the counties in the MPPDC region, it was determined that the previous analysis depth grids would not be valid to re-run through the new version

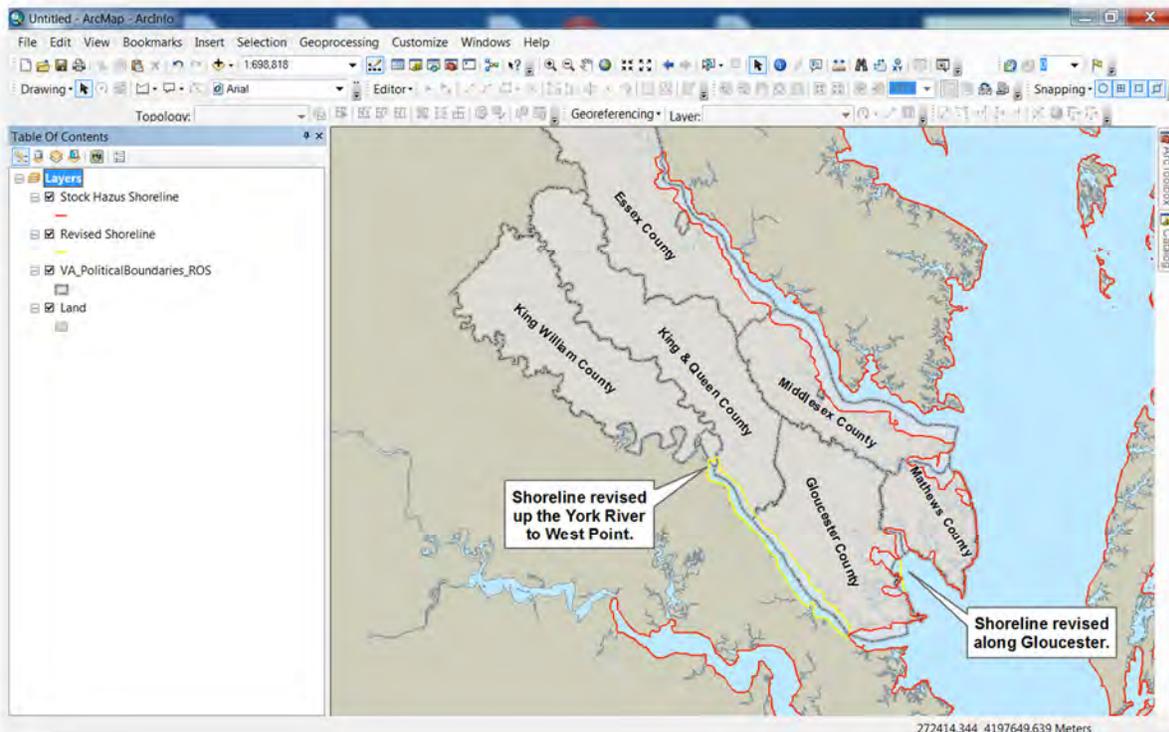


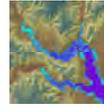
of Hazus (Version 2.2) because of the new FEMA coastal studies. There were a few issues and challenges that existed; some were overcome and others may warrant additional consideration in the future.

- **Issue 1:**

- **Issue:** Hazus stock Shoreline file does not adequately intersect King and Queen nor King William Counties.
- **Solution:** Dewberry made specific adjustments to the stock Hazus shoreline file in order to match, to the greatest extent possible, the most recent Flood Insurance Studies (FIS) performed along coastal Virginia and within the MPPDC region. Most importantly, all six (6) of the MPPDC counties now have coastal hazards as of the most recent FEMA Flood Studies. However, this differs from that which is in Hazus; the stock Hazus shoreline data does not intersect two (2) of six (6) counties (King William and King and Queen) and only covers a portion of Gloucester County. Inherently, if a user creates a Hazus Flood Project for any county that does not intersect with the shoreline, the user cannot define the Hazus project as having a coastal hazard. **Figure 4** shows the original stock Hazus shoreline and the edited shoreline used to extend the coastal potential up the York River along Gloucester, King and Queen, and King William Counties.

**Figure 4: Hazus Shoreline Revisions**





- **Issue 2:**
  - Issue: Unable to produce Coastal results for Gloucester County.
  - Solution: Simplifying the coastal shoreline was required to produce results.
  - Other Discussion: Dewberry made no less than five (5) separate attempts to produce coastal analyses for Gloucester County. In short, the coastal module would fail at the process of performing Hydrology. Based on similar experiences with other counties, it was determined that the Hazus shoreline could not be sub-divided to match the same transect divisions as documented in the FEMA FIS; the detail is too great for the simplified functionality of Hazus. The solution employed to produce results included simplifying the shoreline as also noted in **Figure 4**. The simplified shoreline enabled Hazus to no longer “stall” or “fail” at the Hydrology process. Other counties had to be re-run by simplifying the shoreline sub-divisions (see **Issue 3** below) however, the shoreline line work was not revised for other counties (except up the York River).
  
- **Issue 3:**
  - Issue: Unable to produce Coastal results for other counties.
  - Solution: Simplifying the manner in which the coastal shoreline is sub-divided enabled Hazus to no longer “stall” or “fail” at the processes for Hydrology.
  - Other Discussion: Dewberry made multiple attempts (as necessary) to produce coastal analyses results for each of the MPPDC counties. However, the coastal module would fail at the process of performing Hydrology *if and when* the shoreline sub-divisions were too detailed for Hazus to process. As noted earlier, in some cases the Hazus shoreline could not be sub-divided to match the same transect divisions as documented in the FEMA FIS because the detail is too great for the simplified functionality of Hazus. **Figure 5** (below) includes King and Queen County and shows an example where the Hazus shoreline was able to be sub-divided almost exactly to match the FIS; the colored shoreline segments are those defined for the coastal run in Hazus and are overlaid on a geo-referenced image of the FIS Transect Map. **Figure 6** is a zoom-in view showing the slight differences between the detailed shoreline of King and Queen; the importance is to note how the FIS Transect #9 is positioned upstream in the Mattaponi River, however the shoreline that Dewberry created to extend Hazus functionality along the York River is simplified near the Town of West Point. However **Figure 7** shows that Dewberry still utilized the appropriate “Starting Stillwater Elevations” as published in FIS Table 2 – Transect Descriptions. Consequently, the combination of **Figures 5 through 7** are shown to exemplify how Dewberry performed the Level 1 coastal shoreline work; i.e., matching the FIS as closely as possible. Other counties were not as simple and in some cases engineering judgments were applied to 1.) Simplify the shoreline sub-divisions coupled with 2.) Applying average water surface elevations and wave heights or in some cases applying a weighted average of water surface elevations and wave heights.

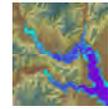


Figure 5: Hazus Shorelines for King and Queen County vs. FIS Transect Map

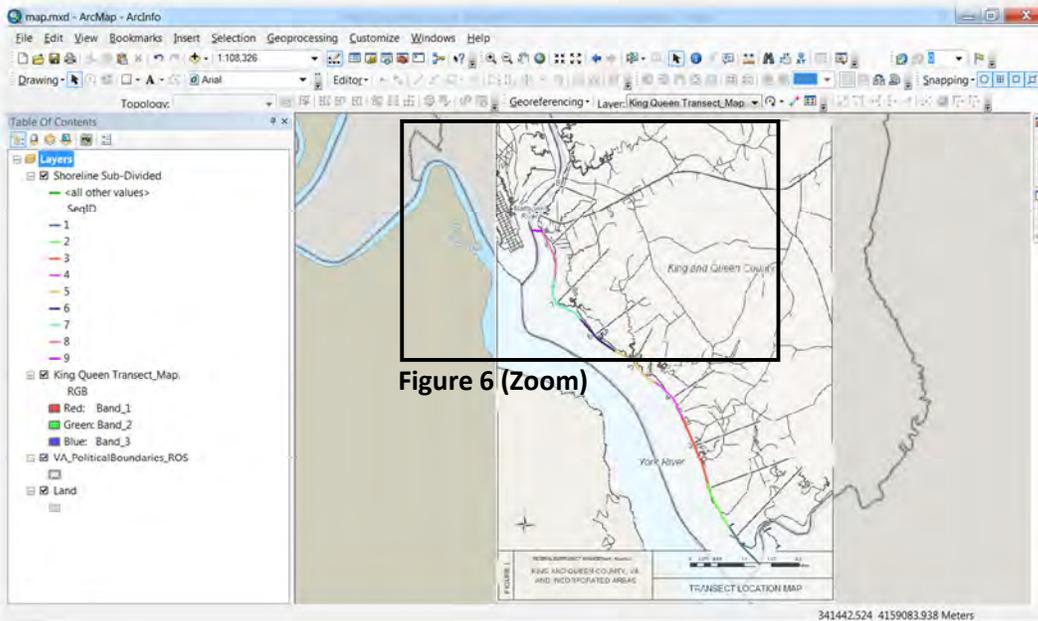
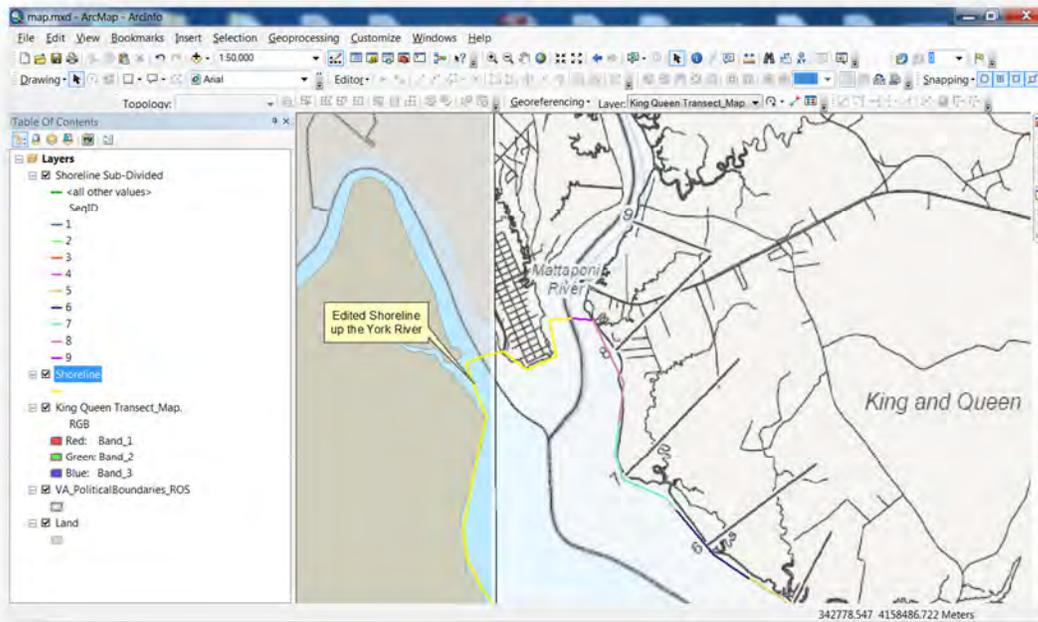


Figure 6: Hazus Shorelines for King and Queen County vs. FIS Transect Map (Zoom)



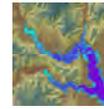


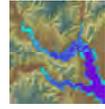
Figure 7: Hazus Shoreline Data for King and Queen County vs. FIS Table 2

ID	FIPSSTCO	SeqID	SW10Yr	SW50Yr	SW100Yr	SW500Yr
VA71	51097	1	5.3	6.4	6.8	8.9
VA71	51097	2	5.3	6.4	6.9	9
VA71	51097	3	5.3	6.4	6.9	9.2
VA71	51097	4	5.4	6.4	6.9	9.4
VA71	51097	5	5.4	6.5	7	9.6
VA71	51097	6	5.4	6.5	7.1	9.8
VA71	51097	7	5.5	6.5	7.1	9.8
VA71	51097	8	5.5	6.5	7.1	10.1
VA71	51097	9	5.4	6.4	6.9	9.9

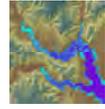
  

Flooding Source	Tract Number	Starting Wave Conditions for the 1% Annual Chance Flood			Starting Stillwater Elevations (feet NAVD 88)			
		Coordinates	Significant Wave Height H <sub>s</sub> (ft)	Peak Wave Period T <sub>p</sub> (sec)	10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
York River	1	N 37 446994 W -76.713225	2.9	3.2	5.3	6.4	6.8	8.9
York River	2	N 37 460458 W -76.722776	3.0	3.2	5.3	6.4	6.9	9.0
York River	3	N 37 472234 W -76.728583	3.0	3.1	5.3	6.4	6.9	9.2
York River	4	N 37 485628 W -76.736491	2.9	3.0	5.4	6.4	6.9	9.4
York River	5	N 37 495476 W -76.750937	3.2	3.2	5.4	6.5	7.0	9.6
York River	6	N 37 503158 W -76.764848	3.3	3.3	5.4	6.5	7.1	9.8
York River	7	N 37 512087 W -76.774966	3.1	3.2	5.5	6.5	7.1	9.8
York River	8	N 37 528361 W -76.780236	2.9	3.1	5.5	6.5	7.1	10.1
Mattaponi River	9	N 37 544698 W -76.777167	2.2	2.9	5.4	6.4	6.9	9.9

- **Issue 4:**
  - Issue: The 0.2% Annual Chance flood hazard (500 Year) of Gloucester County appears to be significantly under-estimated.
  - Solution: Discuss the matter with MPPDC and substitute the 500 Year depth grid from the previous Plan effort.
  - Other Discussion: As discussed earlier, Dewberry made multiple attempts (as necessary) to produce coastal analyses results for each of the MPPDC counties. Gloucester presented the greatest challenge and the 500 Year flood hazard of the Level 1 methodology did not produce a result that – as compared to the new digital FIRM data – seemed reasonable to use. Therefore, Dewberry contacted the MPPDC and offered the option of substituting the 500 Year depth grid from the previous Plan effort as an alternative solution. The MPPDC agreed that while the previous Plan 500 Year depth grid likely over-estimates the potential hazard, it is better to side with caution and Plan around a conservative approach. It is also important to note that Dewberry compared the Level 1 hazard delineations in all counties with the new digital FIRM data. While the digital FIRM data only includes delineations of 1% and 0.2% (100 Year & 500 Year) flood hazard, a visual comparison offers a minimal means by which to gauge how well the Hazus hazard delineations are being created. All issues and challenges being equal, Dewberry is satisfied that the Level 1 delineations are perfectly acceptable for the nature of the work – Hazard Mitigation Planning.



- **Issue 5:**
  - Issue: Level 2 Coastal Risk MAP 1% Annual Chance (100 Year) losses greater than Level 1 0.2% Annual Chance (500 Year) losses.
  - Solution: Do not substitute the Level 2 Coastal Risk MAP 1% Annual Chance (100 Year) for the Level 1 Coastal 1% Annual Chance (100 Year) in the calculation of annualized results. Rather, produce a separate result for comparison of the 100 Year coastal only.
  - Discussion: Original intent was to substitute the new Risk MAP 1% Annual Chance (100 Year) depth grid and subsequent losses for the Hazus-generated Level 1 Coastal 1% Annual Chance (100 Year) depth grid and subsequent losses. However, noting that the new Risk MAP 100 Year depth grid would have been created with much greater detail in all aspects as discussed in detail under **Issue 6** (below) the most appropriate solution is to separate the runs and respective results for comparative purposes. Furthermore, noting the goal and expectation of the Risk MAP Program as well as the nature of Hazard Mitigation Planning; as new, updated or more detailed analyses are available, professionals would endeavor to integrate and utilize new information in the planning, preparation and resilience of communities.
  
- **Issue 6:**
  - Issue: FEMA Region III concern over the use of Hazus Level 1 functionality.
  - Solution: The solution employed included the suggestion that the MPPDC and Dewberry discuss with FEMA Region III expectations of the Hazus modeling. The call that was held on March 13, 2015 included such discussions. Ultimately, the MPPDC and the Virginia Department of Emergency Management (VADEM) agreed that the Dewberry plan of action was reasonable and appropriate. However, for reference, Dewberry has compiled an explanation of the specific concerns expressed by the Region during the March 13, 2015 call. Dewberry agrees with the Region in that the best data is in-fact the best, however needs to be tempered with the realities of effort, time and cost. The Region expressed concern over the use of the Level 1 methodology which means the Region would prefer the use of the following:
    - Hydrology & Hydraulics (H&H) – preference would be to use data typical of FEMA Risk MAP Flood Insurance Studies (FIS) and Non-Regulatory Depth Grid creation versus the Hazus methodology. Typical H&H for *coastal studies* are limited to the development of Stillwater elevations for four (4) frequencies (10, 50, 100 & 500 Yr.) and Static Base Flood Elevations are only mapped for one (1) frequency; namely the 1% annual chance or 100 Year Event. Consequently, even the core H&H of the coastal modeling would require further analyses by qualified coastal engineers and mapping specialists to effectively produce the data required for coastal depth grid creation.



- Topographic Data – preference is to use LiDAR-based topography at a resolution consistent with FEMA Risk MAP Flood Insurance Studies (FIS) and Non-Regulatory Depth Grid creation versus the one-arc second or ~ 30-meter DEM employed.
- Depth Grid Creation – preference is again suggested to develop depth grids consistent with FEMA Risk MAP Non-Regulatory Depth Grid creation which means the use of hydraulic coastal models that have been fully-developed to produce wave-propagated water surface elevations. Again, FEMA flood studies only do this for the 100 Year. Therefore specialized additional work would be required to produce similar data for other frequencies in order to create multi-frequency hazard data that would support the expected annualized analysis typical of Hazard Mitigation Plans. Dewberry again agrees with the Region that there is definitely benefits associated with the most accurate inputs, Dewberry noted on the call that the level of effort to produce such depth grids is quite extensive and typically is not feasible under budgets available for HMP's.
- Other Discussion: As discussed (above) regarding Issue 5, Dewberry has provided the Solution of separating out certain results of the 100 Year Coastal Only Hazus runs so that these can be directly compared. Again, as already noted, over time as more detailed hazard analyses is expected, desired or deemed necessary - future modeling efforts can be sought to produce Risk MAP-based or otherwise detailed depth grids and associated loss analyses.

## Hurricane (Wind) Modeling – Probabilistic Scenario

As with the previous Plan, Dewberry again performed a Probabilistic scenario in the Hazus Level 1 Hurricane (Wind) module. Notably, Dewberry ran the scenario in a Region that was created for both Flood and Hurricane as this allows results to be accessed at the census block-level. In contrast, if a Hazus project is created for only Hurricane Hazus will default to using only census tract-level geography. Ultimately, the level of detail that is able to be accessed, displayed and planned for offers a better representation of Hurricane Wind loss when mapped by census block versus census tract. **Figure 8** shows this very comparison.

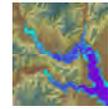
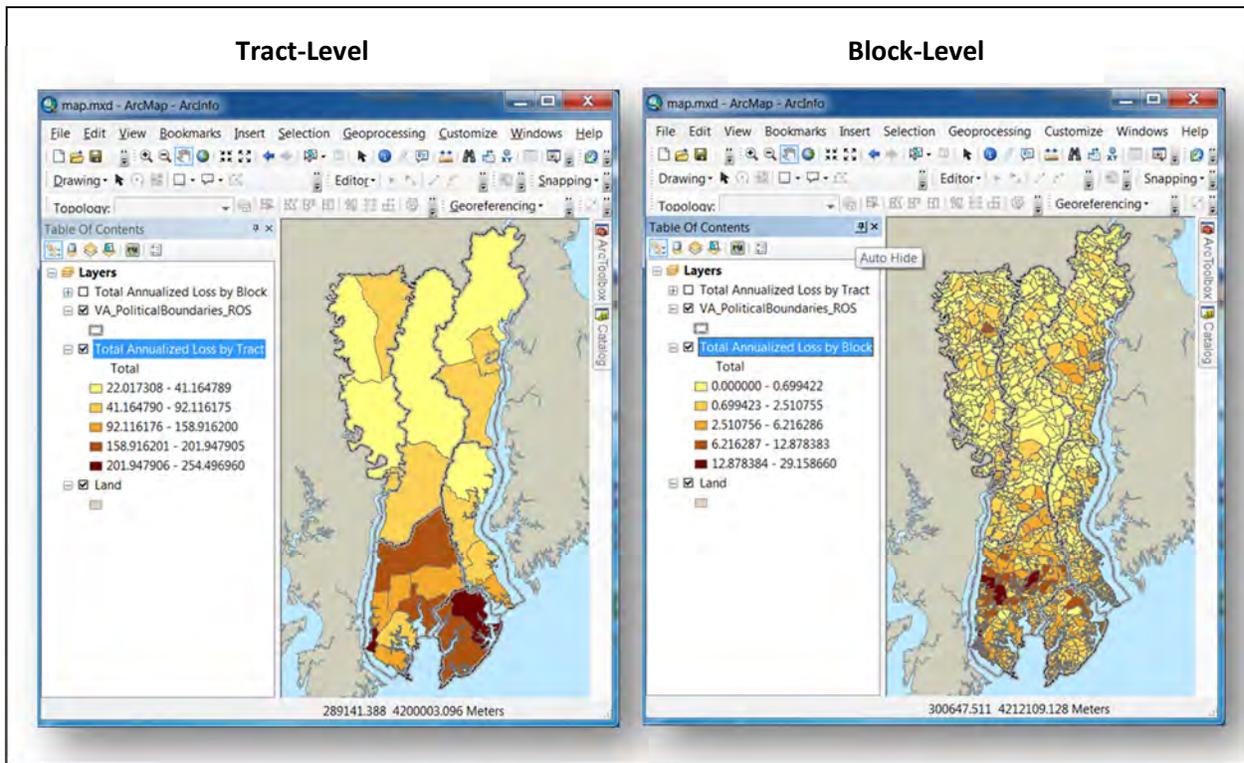
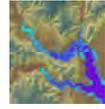


Figure 8: Hurricane (Wind) Model Results at the Tract versus Block Geography



**Issues & Challenges Encountered:**

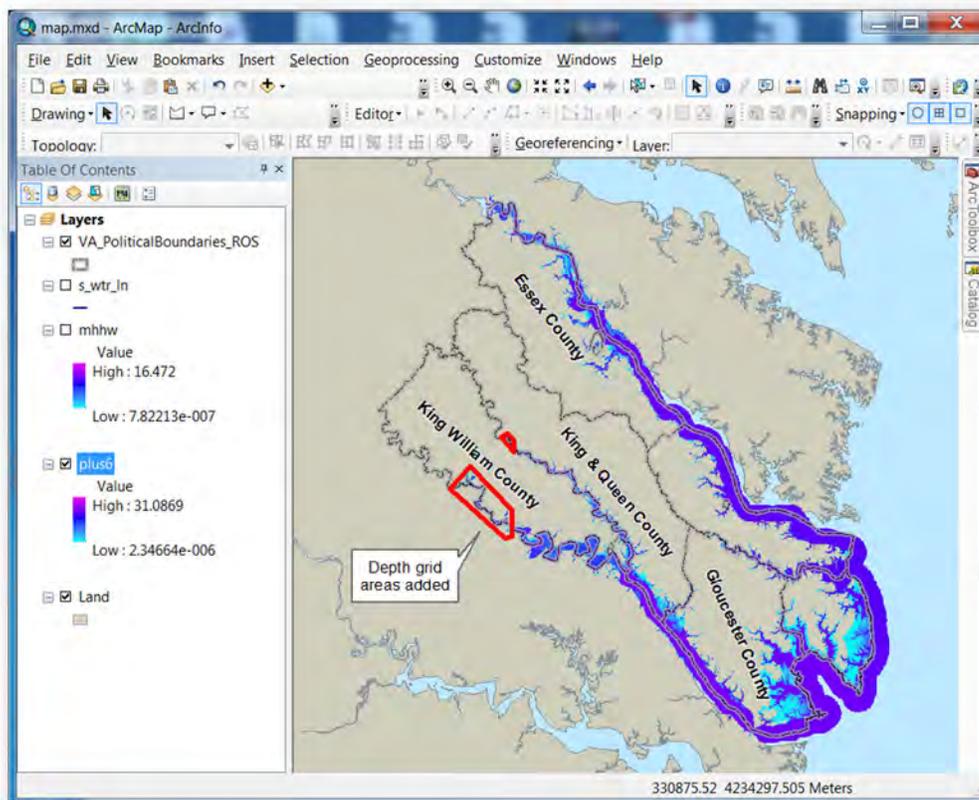
None.



## Sea Level Rise Modeling – Hazus Flood Model

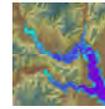
As proposed, Dewberry utilized depth grids available from NOAA Coastal Services Center Sea Level Rise Data. Dewberry obtained and utilized the depth grid of the Mean Higher High Water or Base Scenario and also the Plus 6 feet Sea Level Rise. As a benefit to the MPPDC, Dewberry estimated the addition of depth values in the upstream areas of both the Pamunkey and Mattaponi Rivers; the NOAA depth grids do not extend upstream from these areas as it is the limit of the NOAA data. The method utilized to estimate these small additional areas of depth grid included estimating the water surface elevation where the NOAA depth grids terminated. Next, Spatial Analyst was used to query all elevations in the vicinity that were equal to (or) less than the estimated elevation. The areas were extracted, assigned the estimated water elevation and then converted to a water surface grid. Last the water surface grid was subtracted from the NED one-arc second grid to produce depth values. The additional depth grids were mosaicked with the NOAA grids and ultimately run through the Hazus Flood Module.

**Figure 9: Depth Grid Areas Added (Red) where NOAA data terminated**



### Issues & Challenges Encountered:

None.



## Hazus Modeling Results

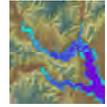
Dewberry has exported various Hazus modeling results to ESRI File Geodatabase format as standalone GIS layers and tables as necessary. These various result export files will be used to update the HIRA sections to include text, maps and tables. As a benefit to the MPPDC, Dewberry is providing the various result exports to be used as deemed necessary. As scoped, Dewberry is providing final Hazus Project Files – otherwise known as HPR files. A Hazus HPR file is essentially a zipped version of all files that are created by Hazus in the course of a given Hazus project. The HPR archive can be imported on any computer that has an active installation of Hazus Version 2.2. The delivery of HPR’s includes an Excel spreadsheet that has basic information about each Hazus Project and HPR file (see **Figure 10**). Importantly, the spreadsheet includes file size information as users need to know how much drive space may be required for a given Hazus Project if they import the HPR file.

- **Results Exports to GIS:**
  - About: Result export files will be used to update the HIRA sections to include text, maps and tables.
  
- **Hazus Project Files (HPR):**
  - About: Zipped version of all files that are created in the course of a given Hazus project.

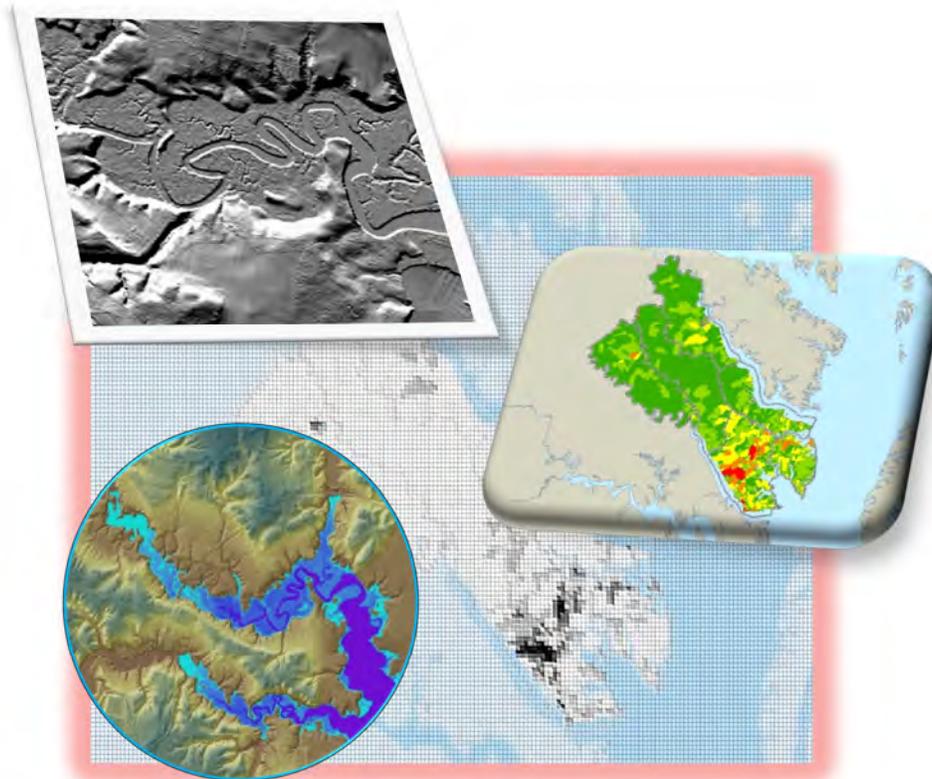
**Figure 10: HPR File Information**

Hazard	Application	HPR Name	HPR File Size	Expanded File Size	Info/Source
FLD*	Level 1 Annualized	MPPDC2015_DasymV22.hpr**	407 MB	10.6 GB	Riverine and Coastal Level 1 Annualized Scenarios were run separately. One-square mile (1 mi <sup>2</sup> ) drainage threshold used for all Riverine Level 1 modeling. One-Arc Second (~ 30 meter) National Elevation Dataset (NED) Digital Elevation Model (DEM) utilized.  All depth grids were extracted and mosaiced into Region-wide depth grids. The Region-wide depth grids were then imported into a new Hazus Project of the entire MPPDC Region and then the loss analysis was run. The Hazus version used in Version 2.2; which includes the new 2010 census-based data. Additionally, the new Hazus Dasymeric General Building Stock (GBS) was used. Note however that final report mapping does not display the losses by dasymeric spatial geometry, rather the results dasymeric data is joined to the stock full block geometry and displayed as such.
	Level 2 RiskMap Coastal 1% (100 YR) Only	MPPDC2015_DasymV22_RskMp100yrDG.hpr**	774 MB	25.3 GB	The depth grids provided by the US Army Corps of Engineers (USACE) were utilized as Level 2 scenario. Dewberry mosaiced all of the 1% (100 YR) depth grids provided and ran them through a Hazus Project created of the entire MPPDC Region. This HPR also includes a second scenario that is the Level 1 depth grid of the coastal-only 1% (100YR) which was run through Hazus for comparison to the Level 2 RiskMap coastal-only 1% (100YR).
	Sea Level Rise Scenarios (Base and Plus 6FT)	MPPDC2015_SLR.hpr**	232 MB	6.92 GB	NOAA depth grids of Sea Level Rise (SLR) utilized per scope of work; Base Scenario or MHHW along with the Plus 6 Feet Scenario.
HUR*	Probabilistic	MPPDC2015_HUR_ByBlockvFLD_Probabilistic.hpr	163 MB	3 GB	Hurricane model probabilistic was run with new 2010 inventory provided by MOTF.

\*NOTES: All Hazus Model Runs using Version 2.2  
 All Hazus Flood Model Runs using Version 2.2 Dasymeric Data for Virginia.



# HAZUS Modeling Report



**Appendix H -**  
National Flood Insurance Program Survey

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: ESSEX COUNTY

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes	All information is on file and available in the Essex County Building and Zoning Department
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes	Adopted April 14, 2015 by the Essex County Board of Supervisors
c. Does the municipality support request for map updates?	If yes, state how.	Yes	We assist citizens in all their requests
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	No	We reviewed the maps and gave our opinion of history of areas
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	We require property owners to get elevation certifications when in question
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes	Essex County Building & Zoning Department (202 South Church Lane Tappahannock, VA 22560

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	No	?
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Yes	Building and Zoning Dept.
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Yes	
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes	
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Yes	
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
<p>c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:</p> <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	Yes	Education certificates

<b>3. FLOOD INSURANCE</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	Yes	Community meetings/ FEMA
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	Yes	Public notice, local newspaper
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	Y	We review maps, explain scenarios. Refer property owners to insurance companies

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: TOWN OF TAPPAHANNOCK

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	yes	
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	5-4-2015	
c. Does the municipality support request for map updates?	If yes, state how.	no	We forward anyone who has a request to FEMA
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	yes	By forwarding information to FEMA
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	yes	With the assistance of Essex County Building Inspector office
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	no	

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.		
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.		
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.		
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.		
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.		
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.		

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
<p>c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:</p> <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	<p>If yes, specify activities.</p>		

<b>3. FLOOD INSURANCE</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
<p>a. Does the municipality educate community members about the availability and value of flood insurance?</p>	<p>If yes, specify how.</p>		
<p>b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?</p>	<p>If yes, specify how.</p>		
<p>c. Does the municipality provide general assistance to community members regarding insurance issues?</p>	<p>If yes, specify how.</p>		

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY:     GLOUCESTER COUNTY    

<b>1. FLOODPLAIN IDENTIFICATION AND MAPPING</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Y	On the emergency management website.
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Y	FIRM adopted by BOS
c. Does the municipality support request for map updates?	If yes, state how.	N	
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	?	We provide VDEM with information and not directly to FEMA
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Y	Planning Development, Building officials and EM assist
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Y	County Administration

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	Y	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.		Permits Building officials
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Y	Planning, Building Officials, Information Technology
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Y	Building Official, Planning
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Y	Code Compliance, Building Officials
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Y	BOS, County Adminsitration

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
<p>c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:</p> <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	Y	Established VE construction zone

<b>3. FLOOD INSURANCE</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	Y	CRS-PPI
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	Y	CRS-PPI
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	Y	CRS-PPI

MUNICIPALITY:  KING & QUEEN COUNTY

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes	Located at the Front Counter of Building/Zoning & Planning Office
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes	New maps to be adopted around May of 2016 once letter of determination is received from FEMA in November of 2015
c. Does the municipality support request for map updates?	If yes, state how.	?	
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	No	N/A
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	Only as found on the adopted FEMA Flood Maps, field determination/Flood Elevation Certificate is to be done by surveyor (required for all flood zones other than X)
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	yes	Planning & Zoning Department

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	Yes	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Yes	Planning & Zoning Department
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Yes	Planning & Zoning Department
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes	Planning & Zoning Department
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Yes	Planning & Zoning Department
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	Require Flood Elevation Certificates for all construction located in a floodplain other than Zone X

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
<p>c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:</p> <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	Yes	Our new proposed ordinance and map adoption will require free board and recognize LimWa

<b>3. FLOOD INSURANCE</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	Yes	FEMA Handouts
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	Yes	During latest map change, all property owners were notified by U.S. mail and news article for an Open House held in November of 2014.
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	No	

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: **KING WILLIAM COUNTY**

<b>1. FLOODPLAIN IDENTIFICATION AND MAPPING</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes	Available from County Building and Planning Department
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes	9/2/15
c. Does the municipality support request for map updates?	If yes, state how.	Yes	
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	No	
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	Provided information to FEMA
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes	Building and Planning Department

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	Yes	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Yes	Building and Planning Department
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Yes	Building and Planning Department
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes	Building and Planning Department
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	No	
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	No	

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	Yes	Considered CRS but decided not to pursue at the time Adopted BFE over minimum

<b>3. FLOOD INSURANCE</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	No	
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	Yes	Mailings & Community Meeting
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	Yes	Provided FEMA contact and website information

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY:           URBANNA          

<b>1. FLOODPLAIN IDENTIFICATION AND MAPPING</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes	
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	4-22-15	
c. Does the municipality support request for map updates?	If yes, state how.	Yes	Town staff will assist update requests
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	Yes	All data obtained by the town will be forwarded to State Floodplain Coordinating Office (DCR) for their assistance in forwarding to the appropriate FEMA offices
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	No	
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes	Town Zoning Office

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	Yes*	*Middlesex County provides cooperative administration of the Floodplain Ordinance. County Building Official is co-administrator for the Town. See Middlesex Co. for additional information
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.		
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.		
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.		
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.		
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	All construction requiring a building permit and/or land disturbance permit receives site visits and stop work orders can be issued if violations are found.

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
<p>c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:</p> <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	Yes	Investigating the feasibility of participating in the CRS program

<b>3. FLOOD INSURANCE</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	Yes	Brochure/periodic web site info
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	Yes	Direct notification of effected land owners
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	Yes	Information and Referral

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: MATHEWS COUNTY

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes	Available in the Building Department and online VIA FEMA MSC link on County website
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	yes	Effective date is 12-09-2014
c. Does the municipality support request for map updates?	If yes, state how.	yes	Providing assistance and guidance through the process
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	yes	Enforcing requirements as adopted in floodplain management ordinance
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	yes	On a daily basis by reviewing FIRM's and making interpretations and determinations
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	yes	Building Department

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	yes	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	yes	Flood zone permit, building permits, etc (Building Department)
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	yes	Per our floodplain management ordinance (Building Department)
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes	USBC and floodplain management ordinance enforcement; plan review process (Building Department)
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	yes	FEMA elevation certificate required for new construction and substantial improvement (Building Department)
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	yes	Permitting process; inspections; and requiring elevation certificates be submitted for verification

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
<p>c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:</p> <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	yes	Higher standards were considered, but were not adopted at this time; minimum required standards were adopted.

<b>3. FLOOD INSURANCE</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	yes	Online info; handouts; various presentations and community events
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	yes	Every single property owner was notified VIA mail regarding map changes and the new ordinance. In addition the public was notified VIA newspaper ads, online ads, PSA's (radio)
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.		Not specifically regarding insurance, but assistance is provided to ensure both FEMA-NFIP requirements are met and the requirements of the floodplain management ordinance are met. Assistance is also provided for flood zone determinations and providing FIRMettes. ICC letters are also provided if documentation is submitted (as required).

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: MIDDLESEX COUNTY, VA

<b>1. FLOODPLAIN IDENTIFICATION AND MAPPING</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes	
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes	3-3-15
c. Does the municipality support request for map updates?	If yes, state how.	N	Not Asked
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	N	
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	Review FIRM Map, Required Elevation Certification
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes	Flood Plain Manager/Planning Department

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	Yes	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Yes	Building Department
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Yes	Planning Department
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes	Building Department
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Yes	Building Department
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	Inspections and Notices of Violation

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
<p>c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:</p> <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	NO	

<b>3. FLOOD INSURANCE</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	No	
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	No	
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	No	

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: TOWN OF WEST POINT

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Y	
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Y	Adopted by Town Council on 8/10/2015. Sent to FEMA, waiting for approval
c. Does the municipality support request for map updates?	If yes, state how.	N	
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	Y	We would if we had data that resulted in map revisions
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Y	We have new maps that we supply citizens and agents with
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Y	Community Development

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	Y	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Y	Community development and building official
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Y	Community development
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Y	Community development and building official
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Y	Community Development and building official
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Y	Notice of violations would be mailed. Notification to owner and applicant

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	Y	Considered CRS

<b>3. FLOOD INSURANCE</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	Y	When requested and community meetings
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	Y	When requested and community meetings
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	Y	When requested, suggest they speak to insurance agents

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

TRIBE: UPPER MATTAPONI INDIAN TRIBE

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the tribe maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the tribe maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	No	
b. Has the tribe adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	No	
c. Does the tribe support request for map updates?	If yes, state how.	No	
d. Does the tribe share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	No	
e. Does the tribe provide assistance with local floodplain determinations?	If yes, specify how.	No	
f. Does the tribe maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	No	

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Has the tribe adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	No	
(1) Does the tribe issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	No	
(2) Does the tribe obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	No	
(3) Does the tribe identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	No	
(4) Does the tribe document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	No	
b. If a compliant floodplain ordinance was adopted, does the tribe enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	No	

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
c. Has the tribe considered adopting activities that extend beyond the minimum requirements? Examples include: <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	No	

<b>3. FLOOD INSURANCE</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the tribe educate community members about the availability and value of flood insurance?	If yes, specify how.	No	
b. Does the tribe inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	No	
c. Does the tribe provide general assistance to community members regarding insurance issues?	If yes, specify how.	No	

**Appendix I –**  
Dams in the Middle Peninsular Region

County	Dam Name	Hazard Potential Classification	Dam Type	Year Constructed	Purposes	Dam Height (ft)	Emergency Action Plan - date of last revision
Middlesex County	Healys Dam	Undetermined	Earth	1930	Recreation	15	N
Middlesex County	Barricks Dam	Undetermined	Earth	1900	Other	18	N
Middlesex County	Conrads Dam	Undetermined	Earth	1900	Recreation	12	N
Middlesex County	Beazley Dam	Undetermined	Earth	1870	Recreation Other	16	N
Middlesex County	Burch Mill Dam	Undetermined	Earth	1900	Recreation	15	N
Middlesex County	Rosegill Upper Dam	Undetermined	Earth	1960	Irrigation	9	N
Middlesex County	Corbin Hall Farm Dam	Undetermined	Earth	1945	Irrigation	9	N
Middlesex County	Hilliards Mill Pond Dam	Low	Earth	1930	Recreation	10.4	Y - 6/14/2010
Middlesex County	Buckingham Dam	Undetermined	Earth	no record	Recreation	17	N
Middlesex County	Grays Dam	Undetermined	Earth	1956	Irrigation/ Recreation	18	N
Middlesex County	Town Bridge Pond Dam	Undetermined	Earth	no record	Recreation	13	N
Middlesex County	Lower Rosegill Lake Dam	Undetermined	Earth	no record	Irrigation/ Recreation	10	N
Middlesex County	Harbor View	Undetermined	no record	no record	no record	10	No Record
Middlesex County	Bristow Dam	Undetermined	no record	no record	no record	14	No Record
Middlesex County	B&LB Dam	Undetermined	no record	no record	no record	12	No Record
Middlesex County	Healys Mill Dam	Undetermined	no record	no record	no record	18.5	N
Middlesex County	Lakeview Drive Dam	Undetermined	Earth	1966	Recreation	18	No Record
Essex County	Hunters Mill Dam	Undetermined	Earth	1850	Recreation	No Record	No Record
Essex County	Taliaferro Mill Dam	Undetermined	Earth	no record	Recreation	12	N
Essex County	Spindles Mill Dam	Undetermined	Earth	1800	Recreation	13	N
Essex County	Hundley Dam	Undetermined	Earth	1955	Recreation	11	N
Essex County	Cheatswood Mill Dam	Undetermined	Earth	1950	Recreation	16	No Record
Essex County	Scotts Millpond Dam	Undetermined	Earth	1850	Recreation	17	N
Essex County	Essex Mill Dam	Undetermined	Earth	1850	Recreation	5.9	No Record
Essex County	Baylors Dam	Undetermined	Earth	1860	Recreation	14	N
Essex County	Millers Dam	Undetermined	Earth	no record	Recreation	23	N

County	Dam Name	Hazard Potential Classification	Dam Type	Year Constructed	Purposes	Dam Height (ft)	Emergency Action Plan - date of last revision
Essex County	Ware Dam	Undetermined	Earth	no record	Recreation	16	No Record
Essex County	Hundley Dam	Undetermined	Earth	1953	Irrigation/Recreation	18	No Record
Essex County	Rose Hill Dam	Undetermined	Earth	1966	Recreation	14	N
Essex County	Wrights Millpond Dam	Undetermined	Earth	no record	Recreation	17	N
Essex County	Cedar Creek Dam	Undetermined	Earth	no record	Recreation	18	N
Essex County	Cedar Creek Lower Dam	Undetermined	Earth	no record	Recreation	12	N
Essex County	Cortney Dam	Undetermined	Earth	no record	Recreation	21	N
Essex County	Dillard Dam	Undetermined	Earth	no record	Recreation	18	N
Essex County	Lewis Dam	Undetermined	no record	no record	no record	26	N
Essex County	Courtney Dam	Undetermined	no record	no record	no record	20.5	N
Essex County	Purkins HOA Dam	Undetermined	no record	no record	no record	17.5	N
Essex County	Penniston Dam	Undetermined	no record	no record	no record	17.25	N
Essex County	Ball Dam	Undetermined	no record	no record	no record	21.5	No Record
Essex County	Taliaferro Dam	Undetermined	no record	no record	no record	20.75	N
Gloucester County	Woodberry Farm Dam	Undetermined	Earth	1930	Irrigation/Recreation	8	N
Gloucester County	Weaver Dam	Undetermined	Earth	1930	Irrigation/Recreation	6	No Record
Gloucester County	Haynes Dam	Undetermined	Earth	1990	Recreation	15	N
Gloucester County	Robins Dam	Undetermined	Earth	1800	Recreation	16	N
Gloucester County	Cow Creek Dam	High	Earth	1935	Recreation	16	Y- 4/15/2021
Gloucester County	Burke Dam	Undetermined	Earth	1920	Recreation	21	Y
Gloucester County	Thousand Trails Dam	Undetermined	Earth	1971	Recreation	15	N
Gloucester County	Haines Pond Dam	Undetermined	Earth	no record	Recreation	9	NR
Gloucester County	Beaverdam Lake Dam	High	Earth	1990	Water Supply	39	Y- 12/22/2014
Gloucester County	Wood Duck Pond Dam	Low	Earth	1970	Recreation	12.7	Y
Gloucester County	Leigh Pond Dam	Undetermined	no record	no record	no record	12	N
Gloucester County	Laneview Dam	Undetermined	no record	no record	no record	17	N
Gloucester County	New Upton Farms Dam	Undetermined	Earth	no record	Other	No Record	No Record

County	Dam Name	Hazard Potential Classification	Dam Type	Year Constructed	Purposes	Dam Height (ft)	Emergency Action Plan - date of last revision
King and Queen County	Walkerton Mill Dam	Undetermined	Earth	1870	Recreation	22	N
King and Queen County	King and Queen Courthouse Dam	Undetermined	Earth	1990	Recreation	12	No Record
King and Queen County	Fleets Millpond Dam	Undetermined	Earth	1800	Recreation	13	N
King and Queen County	Allens Mill Dam	Undetermined	Earth	1990	Recreation	14	No Record
King and Queen County	Corbin Mill Dam	Undetermined	Earth	1900	Recreation	13	N
King and Queen County	Gressitt Dam	Undetermined	Earth	1900	Recreation	14	N
King and Queen County	Spring Branch Dam	Significant	Earth	no record	Fish & wildlife or small farm pond	45	N
King and Queen County	Stevensville Dam	Undetermined	Earth	1920	Other	10	N
King and Queen County	Powers Dam	Undetermined	Earth	1975	Fish & wildlife or small farm pond	21	N
King and Queen County	Townsend Dam	Undetermined	Earth	no record	Irrigation/Recreation	20	N
King and Queen County	Wyatts Dam	Undetermined	Earth	no record	Recreation	10	N
King and Queen County	Gwathmeys Dam	Undetermined	Earth	no record	Recreation	24	N
King and Queen County	Kochs Dam	Undetermined	Earth	no record	Recreation	10	N
King and Queen County	Garnett Millpond Dam	Undetermined	Earth	1953	Recreation	15	N
King and Queen County	Dew Dam	Undetermined	Earth	1967	Irrigation	12	No Record
King and Queen County	Ice House Dam	Significant	Earth	no record	Recreation	13	N
King and Queen County	Walker Coleman Dam	Significant	Earth	no record	Recreation	22	N
King and Queen County	Normans Dam	Undetermined	Earth	no record	Recreation	16	N
King and Queen County	Indian Mound Ponds Dam	Undetermined	Earth	no record	Other	10	N

King and Queen County	Smallwood Dam	Undetermined	no record	no record	no record	No Record	No Record
King and Queen County	North Walker Refuge Dam	Undetermined	Earth	no record	no record	27	N
King and Queen County	South Walker Refuge Dam	Undetermined	Earth	no record	no record	15	N
King and Queen County	King and Queen County Dam #1	Undetermined	no record	no record	no record	11.5	N
King and Queen County	King and Queen County Dam #2	Undetermined	no record	no record	no record	8.25	N
King and Queen County	King and Queen County Dam #3	Undetermined	no record	no record	no record	22	No Record
King and Queen County	King and Queen County Dam #4	Undetermined	no record	no record	no record	12	No Record
King and Queen County	King and Queen County Dam #5	Undetermined	no record	no record	no record	27.25	N
King and Queen County	King and Queen County Dam #6	Undetermined	no record	no record	no record	13.75	N
King William County	Olssons Dam	Undetermined	Earth	1932	Recreation	9	N
King William County	Custis Dam	Undetermined	Earth	1920	Recreation	12	N
King William County	Harrell Dam	Undetermined	Earth	1930	Recreation	5.9	No Record
King William County	Cohoke Mill Dam	Undetermined	Earth	1850	Recreation	9	N
King William County	Old Town Farm Dam	Undetermined	Earth	1990	Fish & wildlife or small farm pond	12	N
King William County	Lafferty Dam No. 1	Undetermined	Earth	1990	Fish & wildlife or small farm pond	15	N
King William County	Curling Dam	Undetermined	Earth	1935	Recreation	14	N
King William County	Aylett Mill Dam	Undetermined	Earth	1936	Recreation	20	N
King William County	Gutherie Dam	Undetermined	Earth	1920	Recreation	18	N
King William County	Deckers Dam	Undetermined	Earth	no record	Irrigation/Recreation	16	N
King William County	Dublin Millpond Dam	Undetermined	Earth	no record	Recreation Other	15	N

County	Dam Name	Hazard Potential Classification	Dam Type	Year Constructed	Purposes	Dam Height (ft)	Emergency Action Plan - date of last revision
King William County	Mitchells Millpond Dam	Undetermined	Earth	2008	Recreation	11.28	N
King William County	Herring Creek Millpond Dam	Undetermined	Earth	no record	Recreation Other	15	No Record
King William County	Kellys Dam	Undetermined	Earth	no record	Recreation	24	N
King William County	Hall Dam	Undetermined	Earth	no record	Irrigation/Recreation	12	N
King William County	Gravatts Millpond Dam	Undetermined	Earth	no record	Recreation Other	17	No Record
King William County	Fogg Dam	Undetermined	Earth	1965	Recreation	12	N
King William County	Garretts Dam	Undetermined	Earth	no record	Recreation	18	N
King William County	Townsend's Dam #2	Undetermined	Earth	1964	Recreation	17	No Record
King William County	Townsend's Dam #1	Undetermined	Earth	1951	Recreation	12	N
King William County	Boshers Mill Pond	Undetermined	Earth	no record	Fish & wildlife or small farm pond	12	N
King William County	Johnsons Dam	Undetermined	Earth	no record	Recreation	22	N
King William County	Hays Farm Dam	Undetermined	Earth	no record	Recreation	10	N
King William County	Lafferty Dam #2	Undetermined	Earth	1960	Irrigation	16	No Record
King William County	Chelsea Dam	Undetermined	Earth	no record	Irrigation	12	N
King William County	Central Crossing Dam	Low	Earth	no record	Recreation	32.2	Y -2/25/2010
King William County	King William Reservoir	Undetermined	Earth	1900	Water Supply	88	No Record
King William County	Lancaster Road Dam	Undetermined	no record	no record	no record	27	N
King William County	Dabneys Millpond Dam	Undetermined	Earth	no record	Recreation	11	N
King William County	McGeorge Pond Dam	Undetermined	Earth	1960	Recreation	17	N

County	Dam Name	Hazard Potential Classification	Dam Type	Year Constructed	Purposes	Dam Height (ft)	Emergency Action Plan - date of last revision
King William County	Fox Run Dam	Undetermined	no record	no record	no record	19	N
King William County	Smokey Road Dam	Undetermined	no record	no record	no record	15	No Record
King William County	Locust Hill Road West Dam	Undetermined	no record	no record	no record	13	No Record
King William County	Fox Hill Dam	Undetermined	no record	no record	no record	14	N
King William County	Beazley Dam	Undetermined	Earth	no record	Recreation	15	No Record
King William County	King William County Dam #1	Undetermined	no record	no record	no record	11.5	N
King William County	King William County Dam #2	Undetermined	no record	no record	no record	10	No Record
King William County	King William County Dam #3	Undetermined	no record	no record	no record	12	N
King William County	King William County Dam #4	Undetermined	no record	no record	no record	22	No Record
King William County	King William County Dam #5	Undetermined	no record	no record	no record	13.75	N
King William County	King William County Dam #6	Undetermined	no record	no record	no record	14.25	No Record
King William County	King William County Dam #7	Undetermined	no record	no record	no record	47.3	N
King William County	King William County Dam #8	Undetermined	no record	no record	no record	29.5	N
King William County	King William County Dam #9	Undetermined	no record	no record	no record	15.5	N
King William County	King William County Dam #10	Undetermined	no record	no record	no record	17.5	N
King William County	King William County Dam #11	Undetermined	no record	no record	no record	23	N
King William County	King William County Dam #12	Undetermined	no record	no record	no record	10	N
King William County	King William County Dam #13	Undetermined	no record	no record	no record	37.8	N
King William County	Acquinton Dam	Undetermined	Earth	1900	Agriculture	31	N

**Appendix J -**  
Tornado History in the Middle Peninsula Region (1950-2021)

List of Tornadoes that have touched down in the Middle Peninsula from 1950-2021 (NOAA National Centers for Environmental Information, 2021).

<u>Location</u>	<u>County/Zone</u>	<u>Date</u>	<u>Time</u>	<u>T.Z.</u>	<u>Tornado Magnitude</u>	<u>Death</u>	<u>Injury</u>
<u>ESSEX CO.</u>	ESSEX CO.	6/26/1954	19:00	CST		0	0
<u>TAPPAHANNOCK</u>	ESSEX CO.	5/8/2003	14:15	EST	F0	0	0
<u>HOWERTONS</u>	ESSEX CO.	2/24/2016	18:37	EST-5	EF3	0	25
<u>GLOUCESTER CO.</u>	GLOUCESTER CO.	4/25/1975	16:00	CST	F1	0	4
<u>GLOUCESTER CO.</u>	GLOUCESTER CO.	8/14/1975	19:10	CST	F0	0	0
<u>GLOUCESTER CO.</u>	GLOUCESTER CO.	8/24/1975	22:30	CST	F1	0	0
<u>GLOUCESTER CO.</u>	GLOUCESTER CO.	9/5/1979	15:30	CST	F1	0	0
<u>GLOUCESTER CO.</u>	GLOUCESTER CO.	5/24/1980	16:50	CST	F1	0	0
<u>SEVERN</u>	GLOUCESTER CO.	7/12/1996	22:05	EST	F0	0	0
<u>WOODS XRDS</u>	GLOUCESTER CO.	7/12/1996	22:15	EST	F0	0	0
<u>TIDEMILL</u>	GLOUCESTER CO.	7/15/1996	18:30	EST	F1	0	0
<u>PERRIN</u>	GLOUCESTER CO.	3/9/1998	5:30	EST	F0	0	0
<u>SIGNPINE</u>	GLOUCESTER CO.	4/27/2007	11:30	EST-5	EF0	0	0
<u>GUM FORK</u>	GLOUCESTER CO.	4/28/2008	15:55	EST-5	EF0	0	0
<u>COKE</u>	GLOUCESTER CO.	4/16/2011	18:00	EST-5	EF3	2	24
<u>BENA</u>	GLOUCESTER CO.	10/11/2018	18:22	EST-5	EF0	0	0
<u>CASH</u>	GLOUCESTER CO.	10/11/2018	18:47	EST-5	EF0	0	0
<u>BENA</u>	GLOUCESTER CO.	4/19/2019	19:20	EST-5	EF0	0	0
<u>COKE</u>	GLOUCESTER CO.	8/4/2020	3:53	EST-5	EF1	0	0
<u>KING AND QUEEN CO.</u>	KING AND QUEEN CO.	5/11/1951	15:00	CST	F1	0	0
<u>West Point</u>	KING AND QUEEN CO.	10/5/1995	13:20	EST	F1	0	0
<u>KING &amp; QUEEN CHURCH</u>	KING AND QUEEN CO.	5/2/2004	21:30	EST	F1	0	0
<u>MILLERS TAVERN</u>	KING AND QUEEN CO.	1/14/2006	2:15	EST	F0	0	0
<u>LITTLE PLYMOUTH</u>	KING AND QUEEN CO.	9/28/2006	19:35	EST	F1	0	0
<u>POWCAN</u>	KING AND QUEEN CO.	5/22/2014	17:05	EST-5	EF0	0	0
<u>BRUINGTON</u>	KING AND QUEEN CO.	2/24/2016	18:34	EST-5	EF1	0	0
<u>KING WILLIAM CO.</u>	KING WILLIAM CO.	7/13/1975	19:20	CST	F0	0	0
<u>KING WILLIAM CO.</u>	KING WILLIAM CO.	10/18/1990	15:00	CST	F3	1	0
<u>AYLETT</u>	KING WILLIAM CO.	9/8/2004	13:05	EST	F0	0	0
<u>ENFIELD</u>	KING WILLIAM CO.	4/20/2008	14:58	EST-5	EF0	0	0
<u>MANQUIN</u>	KING WILLIAM CO.	4/20/2008	17:25	EST-5	EF0	0	0
<u>MIDWAY</u>	KING WILLIAM CO.	4/20/2008	17:28	EST-5	EF0	0	0
<u>ETNA MILLS</u>	KING WILLIAM CO.	5/31/2008	15:52	EST-5	EF0	0	0
<u>LANESVILLE</u>	KING WILLIAM CO.	10/24/2017	2:00	EST-5	EF0	0	0
<u>MATHEWS CO.</u>	MATHEWS CO.	4/25/1975	16:15	CST	F1	0	0
<u>MATHEWS CO.</u>	MATHEWS CO.	3/30/1989	16:15	EST	F1	0	0

<b>Location</b>	<b>County/Zone</b>	<b>Date</b>	<b>Time</b>	<b>T.Z.</b>	<b>Tornado Magnitude</b>	<b>Death</b>	<b>Injury</b>
<u>GWYNN</u>	MATHEWS CO.	7/14/2000	19:09	EST	F0	0	0
<u>MOBJACK</u>	MATHEWS CO.	4/28/2008	15:45	EST-5	EF1	0	0
<u>NORTH</u>	MATHEWS CO.	4/28/2008	16:05	EST-5	EF0	0	0
<u>NORTH</u>	MATHEWS CO.	4/16/2011	18:18	EST-5	EF3	0	0
<u>MOTORUN</u>	MATHEWS CO.	2/24/2012	18:25	EST-5	EF0	0	0
<u>MIDDLESEX CO.</u>	MIDDLESEX CO.	7/15/1976	17:00	CST	F1	0	0
<u>MIDDLESEX CO.</u>	MIDDLESEX CO.	5/11/1981	15:30	CST	F2	0	0
<u>Urbanna</u>	MIDDLESEX CO.	8/6/1993	14:00	EST	F3	0	0
<u>DELTAVILLE</u>	MIDDLESEX CO.	7/14/2000	18:08	EST	F0	0	0
<u>SALUDA</u>	MIDDLESEX CO.	7/8/2005	2:15	EST	F1	0	0
<u>SAMOS</u>	MIDDLESEX CO.	4/16/2011	17:30	EST-5	EF1	0	0
<u>RUARK</u>	MIDDLESEX CO.	4/16/2011	18:25	EST-5	EF2	0	0
<u>MORATTICO</u>	MIDDLESEX CO.	2/24/2016	20:25	EST-5	EF0	0	0
<u>WARNER</u>	MIDDLESEX CO.	2/24/2016	20:35	EST-5	EF1	0	0
<u>JAMAICA</u>	MIDDLESEX CO.	10/11/2018	19:13	EST-5	EF0	0	0

**Appendix K -**  
Wildfires within the Middle Peninsula 2015 – December 2020 (VDOF, 2021)

Fire Number	County Name	Fire Origin Type	General Cause	Specific Cause	Fire Start	Total Acres Impacted	Forest Acres Impacted	Non Forest Acres Impacted
ESSI5001	Essex	Virginia - Non Federal	Smoking	Smoking	3/16/2015	0.10	0.10	0.00
ESSI5002	Essex	Virginia - Non Federal	Miscellaneous	Powerlines	4/22/2015	3.00	3.00	0.00
ESSI6001	Essex	Virginia - Non Federal	Debris Burning	Prescribed Burn	3/26/2016	4.00	4.00	0.00
ESSI6002	Essex	Virginia - Non Federal	Equipment Use	Equipment Malfunction	10/24/2016	31.00	1.00	30.00
ESSI6003	Essex	Virginia - Non Federal	Equipment Use	Equipment Malfunction	10/31/2016	0.10	0.10	0.00
ESSI7001	Essex	Virginia - Non Federal	Debris Burning	Other Debris Burn	2/7/2017	0.10	0.10	0.00
ESSI7002	Essex	Virginia - Non Federal	Incendiary	Incendiary	2/26/2017	0.50	0.50	0.00
ESSI7003	Essex	Virginia - Non Federal	Incendiary	Incendiary	2/26/2017	0.10	0.10	0.00
ESSI7004	Essex	Virginia - Non Federal	Equipment Use	Equipment Malfunction	3/12/2017	3.00	3.00	0.00
ESSI8001	Essex	Virginia - Non Federal	Miscellaneous	Powerlines	3/2/2018	0.70	0.50	0.20
ESSI8002	Essex	Virginia - Non Federal	Miscellaneous	Powerlines	3/2/2018	0.20	0.10	0.10
ESSI8003	Essex	Virginia - Non Federal	Miscellaneous	Powerlines	3/2/2018	0.20	0.10	0.10
ESSI8004	Essex	Virginia - Non Federal	Miscellaneous	Powerlines	3/3/2018	6.20	6.00	0.20
ESSI8005	Essex	Virginia - Non Federal	Debris Burning	Prescribed Burn	5/2/2018	15.00	11.80	3.20
ESSI8006	Essex	Virginia - Non Federal	Lightning	Lightning	5/10/2018	0.30	0.30	0.00
ESSI9001	Essex	Virginia - Non Federal	Miscellaneous	Powerlines	3/28/2019	7.00	6.50	0.50
ESSI9002	Essex	Virginia - Non Federal	Smoking	Smoking	4/24/2019	0.10	0.00	0.10
ESSI9003	Essex	Virginia - Non Federal	Equipment Use	Equipment Malfunction	9/27/2019	7.00	2.60	4.40
ESSI9004	Essex	Virginia - Non Federal	Equipment Use	Friction/Dragging	9/29/2019	0.10	0.10	0.00
ESSI9005	Essex	Virginia - Non Federal	Smoking	Smoking	10/7/2019	0.10	0.10	0.00
ESS20001	Essex	Virginia - Non Federal	Debris Burning	Other Debris Burn	3/20/2020	30.00	30.00	0.00
GLO15001	Gloucester	Virginia - Non Federal	Children	Ages 12 - 17	3/12/2015	0.80	0.00	0.80
GLO15002	Gloucester	Virginia - Non Federal	Debris Burning	Other Debris Burn	3/24/2015	0.70	0.10	0.60
GLO15003	Gloucester	Virginia - Non Federal	Incendiary	Incendiary	4/2/2015	127.00	37.00	90.00
GLO15004	Gloucester	Virginia - Non Federal	Equipment Use	Exhaust	4/2/2015	5.00	3.00	2.00
GLO15005	Gloucester	Virginia - Non Federal	Debris Burning	Other Debris Burn	4/6/2015	0.50	0.50	0.00
GLO15006	Gloucester	Virginia - Non Federal	Incendiary	Incendiary	5/27/2015	11.00	11.00	0.00
GLO16001	Gloucester	Virginia - Non Federal	Incendiary	Incendiary	3/31/2016	130.00	0.00	130.00
GLO16002	Gloucester	Virginia - Non Federal	Equipment Use	Exhaust	4/7/2016	3.00	3.00	0.00
GLO16003	Gloucester	Virginia - Non Federal	Incendiary	Incendiary	4/7/2016	92.00	37.00	55.00
GLO16004	Gloucester	Virginia - Non Federal	Miscellaneous	Spontaneous Heating	8/30/2016	2.00	2.00	0.00
GLO16005	Gloucester	Virginia - Non Federal	Incendiary	Incendiary	9/15/2016	0.30	0.30	0.00
GLO17001	Gloucester	Virginia - Non Federal	Smoking	Smoking	4/10/2017	1.30	1.30	0.00
GLO17002	Gloucester	Virginia - Non Federal	Miscellaneous	Fireworks	7/4/2017	0.40	0.40	0.00
GLO17003	Gloucester	Virginia - Non Federal	Incendiary	Incendiary	12/25/2017	5.90	5.90	0.00
GLO18001	Gloucester	Virginia - Non Federal	Miscellaneous	Powerlines	3/2/2018	0.30	0.10	0.20
GLO18002	Gloucester	Virginia - Non Federal	Lightning	Lightning	8/5/2018	0.00	0.00	0.00
GLO18003	Gloucester	Virginia - Non Federal	Lightning	Lightning	8/30/2018	0.10	0.10	0.00

Fire Number	County Name	Fire Origin Type	General Cause	Specific Cause	Fire Start	Total Acres Impacted	Forest Acres Impacted	Non Forest Acres Impacted
GLO19001	Gloucester	Virginia - Non Federal	Incendiary	Incendiary	5/22/2019	6.00	3.00	3.00
GLO19002	Gloucester	Virginia - Non Federal	Incendiary	Incendiary	7/3/2019	10.00	8.00	2.00
GLO19003	Gloucester	Virginia - Non Federal	Miscellaneous	Firearms/Ammunition	7/5/2019	22.00	7.00	15.00
GLO19004	Gloucester	Virginia - Non Federal	Lightning	Lightning	7/23/2019	4.00	2.00	2.00
GLO20001	Gloucester	Virginia - Non Federal	Debris Burning	Other Debris Burn	3/5/2020	0.50	0.50	0.00
GLO20002	Gloucester	Virginia - Non Federal	Incendiary	Incendiary	3/5/2020	107.00	107.00	0.00
GLO20003	Gloucester	Virginia - Non Federal	Incendiary	Incendiary	4/10/2020	1.20	1.20	0.00
KAQ15001	King and Queen	Virginia - Non Federal	Debris Burning	Other Debris Burn	2/8/2015	16.00	5.00	11.00
KAQ16001	King and Queen	Virginia - Non Federal	Miscellaneous	Powerlines	4/10/2016	3.50	3.50	0.00
KAQ16002	King and Queen	Virginia - Non Federal	Debris Burning	Prescribed Burn	8/31/2016	2.00	1.00	1.00
KAQ16003	King and Queen	Virginia - Non Federal	Debris Burning	Other Debris Burn	11/19/2016	0.80	0.50	0.30
KAQ17001	King and Queen	Virginia - Non Federal	Miscellaneous	Woodstove Ashes	3/22/2017	0.50	0.50	0.00
KAQ17002	King and Queen	Virginia - Non Federal	Miscellaneous	Powerlines	3/22/2017	1.40	1.00	0.40
KAQ17003	King and Queen	Virginia - Non Federal	Miscellaneous	Other Miscellaneous	3/25/2017	6.30	6.30	0.00
KAQ17004	King and Queen	Virginia - Non Federal	Miscellaneous	Woodstove Ashes	4/8/2017	1.50	1.50	0.00
KAQ17005	King and Queen	Virginia - Non Federal	Equipment Use	Equipment Malfunction	5/15/2017	0.10	0.10	0.00
KAQ18002	King and Queen	Virginia - Non Federal	Miscellaneous	Powerlines	3/2/2018	0.50	0.40	0.10
KAQ18001	King and Queen	Virginia - Non Federal	Miscellaneous	Powerlines	3/2/2018	0.70	0.70	0.00
KAQ18003	King and Queen	Virginia - Non Federal	Debris Burning	Other Debris Burn	3/3/2018	21.00	21.00	0.00
KAQ18004	King and Queen	Virginia - Non Federal	Debris Burning	Prescribed Burn	3/18/2018	12.00	11.00	1.00
KAQ19001	King and Queen	Virginia - Non Federal	Debris Burning	Other Debris Burn	3/24/2019	1.50	1.50	0.00
KAQ20001	King and Queen	Virginia - Non Federal	Equipment Use	Friction/Dragging	3/7/2020	25.30	25.30	0.00
KAQ20002	King and Queen	Virginia - Non Federal	Equipment Use	Friction/Dragging	3/9/2020	0.10	0.10	0.00
KAQ20003	King and Queen	Virginia - Non Federal	Debris Burning	Trash Burn	5/15/2020	8.00	8.00	0.00
KAQ20004	King and Queen	Virginia - Non Federal	Lightning	Lightning	7/17/2020	41.00	41.00	0.00
KWMI5001	King William	Virginia - Non Federal	Miscellaneous	Woodstove Ashes	2/6/2015	1.00	1.00	0.00
KWMI5002	King William	Virginia - Non Federal	Debris Burning	Other Debris Burn	4/5/2015	0.30	0.00	0.30
KWMI5003	King William	Virginia - Non Federal	Miscellaneous	Powerlines	4/19/2015	0.10	0.10	0.00
KWMI5004	King William	Virginia - Non Federal	Equipment Use	Direct Heat Transfer	11/13/2015	0.10	0.10	0.00
KWMI6001	King William	Virginia - Non Federal	Smoking	Smoking	2/28/2016	2.50	2.50	0.00
KWMI7001	King William	Virginia - Non Federal	Smoking	Smoking	3/8/2017	10.00	10.00	0.00
KWMI7002	King William	Virginia - Non Federal	Equipment Use	Friction/Dragging	7/22/2017	3.80	3.70	0.10
KWMI8001	King William	Virginia - Non Federal	Debris Burning	Trash Burn	3/4/2018	1.00	0.50	0.50
KWMI8002	King William	Virginia - Non Federal	Debris Burning	Trash Burn	3/15/2018	3.00	3.00	0.00
KWMI9002	King William	Virginia - Non Federal	Equipment Use	Exhaust	9/21/2019	5.00	4.90	0.10

Fire Number	County Name	Fire Origin Type	General Cause	Specific Cause	Fire Start	Total Acres Impacted	Forest Acres Impacted	Non Forest Acres Impacted
KWM20001	King William	Virginia - Non Federal	Debris Burning	Trash Burn	11/17/2020	5.50	1.50	4.00
MAT16001	Mathews	Virginia - Non Federal	Miscellaneous	Other Miscellaneous	3/23/2016	2.00	0.00	2.00
MAT16002	Mathews	Virginia - Non Federal	Children	Under Age 12	3/31/2016	0.10	0.10	0.00
MAT16003	Mathews	Virginia - Non Federal	Debris Burning	Other Debris Burn	9/5/2016	0.70	0.00	0.70
MAT17001	Mathews	Virginia - Non Federal	Children	Ages 12 - 17	9/29/2017	3.30	3.30	0.00
MAT18001	Mathews	Virginia - Non Federal	Equipment Use	Friction/Dragging	7/20/2018	3.00	3.00	0.00
MAT19001	Mathews	Virginia - Non Federal	Lightning	Lightning	6/16/2019	1.80	0.80	1.00
MAT20001	Mathews	Virginia - Non Federal	Debris Burning	Other Debris Burn	5/4/2020	0.70	0.20	0.50
MID15001	Middlesex	Virginia - Non Federal	Miscellaneous	Firearms/Ammunition	4/5/2015	1.00	1.00	0.00
MID16001	Middlesex	Virginia - Non Federal	Debris Burning	Trash Burn	3/25/2016	0.10	0.00	0.10
MID16002	Middlesex	Virginia - Non Federal	Miscellaneous	Structure Fires	3/29/2016	0.10	0.10	0.00
MID18001	Middlesex	Virginia - Non Federal	Miscellaneous	Powerlines	4/6/2018	3.00	3.00	0.00
MID18002	Middlesex	Virginia - Non Federal	Debris Burning	Other Debris Burn	4/12/2018	0.10	0.10	0.00
MID20001	Middlesex	Virginia - Non Federal	Debris Burning	Trash Burn	3/1/2020	0.20	0.00	0.20

**Appendix L-**  
Gloucester County Stormwater Management Ordinance

## Chapter 6 - STORMWATER MANAGEMENT

Pursuant to Virginia Code § 62.1-44.15:27, this ordinance is adopted as part of an initiative to integrate the Gloucester County stormwater management requirements with the Erosion and Sediment Control Ordinance of Gloucester County, Virginia (Chapter 7.5) and the Chesapeake Bay Preservation Ordinance (Chapter 5.5) requirements into a unified stormwater program. The unified stormwater program is intended to facilitate the submission and approval of plans, issuance of permits, payment of fees, and coordination of inspection and enforcement activities into a more convenient and efficient manner for both Gloucester County and those responsible for compliance with these programs.

Footnotes:

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**Editor's note**—An ordinance adopted Aug. 6, 2013, repealed ch. 6, §§ 6-1—6-13, which pertained to demonstrations and parades. Subsequently, an ordinance adopted June 3, 2014, §§ 1-1—1-16, enacted new provisions to the Code, but did not specify manner of inclusion; hence, codification as ch. 6, §§ 6-1—6-16 was at the discretion of the editor.

### Sec. 6-1. - Purpose and authority.

- (a) The purpose of this chapter is to ensure the general health, safety, and welfare of the citizens of the county and protect the quality and quantity of state waters from the potential harm of unmanaged stormwater, including protection from a land-disturbing activity causing unreasonable degradation of properties, water quality, stream channels, and other natural resources, and to establish procedures whereby stormwater requirements related to water quality and quantity shall be administered and enforced.
- (b) This chapter is adopted pursuant to Article 2.3 (§ 62.1-44.15:24 et seq.) of Chapter 3.1 of Title 62.1 of the Code of Virginia.

(Ord. of 6-3-2014(1), § 1-1)

### Sec. 6-2. - Definitions.

In addition to the definitions set forth in 9VAC25-870-10 of the Virginia Stormwater Management Regulations, as amended, which are expressly adopted and incorporated herein by reference, the following words and terms used in this chapter have the following meanings unless otherwise specified herein. Where definitions differ, those incorporated herein shall have precedence.

"Administrator" means the VSMP authority including the County Administrator, or her designee.

"Agreement in lieu of a stormwater management plan" means a contract between the VSMP authority and the owner or permittee that specifies methods that shall be implemented to comply with the requirements of a VSMP for the construction of a single family residence; such contract may be executed by the VSMP authority in lieu of a stormwater management plan.

"Administrative Guidance Manual" means the latest version of policies and procedures for documentation and calculations verifying compliance with the water quality and quantity requirements, review and approval of Stormwater Pollution Prevention Plans and Stormwater Management Plans, site inspections, obtaining and releasing sureties, reporting and recordkeeping, and compliance strategies for reviews, enforcement, and long-term maintenance and inspection programs.

"Applicant" means any person submitting an application for a permit or requesting issuance of a permit under this chapter.

"Best management practice" or "BMP" means schedules of activities, prohibitions of practices, including both structural and nonstructural practices, maintenance procedures, and other management practices to prevent or reduce the pollution of surface waters and groundwater systems from the impacts of land-disturbing activities.

"Chesapeake Bay Preservation Act land-disturbing activity" means a land-disturbing activity including clearing, grading, or excavation that results in a land disturbance equal to or greater than 2,500 square feet and less than one acre in all areas of jurisdictions designated as subject to the regulations adopted pursuant to the Chesapeake Bay Preservation Act, Virginia Code § 62.1-44.15:67 et seq.

"Common plan of development or sale" means a contiguous area where separate and distinct construction activities may be taking place at different times on different schedules.

"Control measure" means any best management practice or stormwater facility, or other method used to minimize the discharge of pollutants to state waters.

"Clean Water Act" or "CWA" means the federal Clean Water Act (33 U.S.C § 1251 et seq.), formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972, Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483, and Public Law 97-117, or any subsequent revisions thereto.

"Department" means the Department of Environmental Quality.

"Development" means land disturbance and the resulting landform associated with the construction of residential, commercial, industrial, institutional, recreation, transportation or utility facilities, structures, uses or the clearing of land for non-agricultural or non-silvicultural purposes.

"General permit" means the state permit titled GENERAL PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES found in Part XIV (9VAC25-880-1 et seq.) of the Regulations authorizing a category of discharges under the CWA and the Act within a geographical area of the Commonwealth of Virginia.

"Land disturbance" or "land-disturbing activity" means a man-made change to the land surface that potentially changes its runoff characteristics including clearing, grading, or excavation except that the term shall not include those exemptions specified in section 6-3(c) of this chapter.

"Layout" means a conceptual drawing sufficient to provide for the specified stormwater management facilities required at the time of approval.

"Locality" or "County" means Gloucester County, Virginia.

"Minor modification" means an amendment to an existing general permit before its expiration not requiring extensive review and evaluation including, but not limited to, changes in EPA promulgated test protocols, increasing monitoring frequency requirements, changes in sampling locations, and changes to compliance dates within the overall compliance schedules. A minor general permit modification or amendment does not substantially alter general permit conditions, substantially increase or decrease the amount of surface water impacts, increase the size of the operation, or reduce the capacity of the facility to protect human health or the environment.

"Municipal separate storm sewer system" or "MS4" means all separate storm sewers that are defined as "large", "medium," or "small" municipal separate storm sewer systems or designated under 9VAC25-870-380(A)(1).

"Operator" means the owner or operator of any facility or activity subject to regulation under this chapter.

"Permit" or "VSMP Authority Permit" means an approval to conduct a land-disturbing activity issued by the Administrator for the initiation of a land-disturbing activity, in accordance with this chapter, and which may only be issued after evidence of general permit coverage has been provided by the Department.

"Permittee" means the person to whom the VSMP Authority Permit is issued.

"Person" means any individual, corporation, partnership, association, state, municipality, commission, or political subdivision of a state, governmental body, including federal, state, or local entity as applicable, any interstate body or any other legal entity.

"Regulations" means the Virginia Stormwater Management Program (VSMP) Permit Regulations, 9VAC25-870 et seq., as amended.

"Site" means the land or water area where any facility or land-disturbing activity is physically located or conducted, including adjacent land used or preserved in connection with the facility or land-disturbing activity. Areas channelward of mean low water in tidal Virginia shall not be considered part of a site.

"State" means the Commonwealth of Virginia.

"State Board" means the Virginia Water Control Board.

"State permit" means an approval to conduct a land-disturbing activity issued by the State Board in the form of a state stormwater individual permit or coverage issued under a state general permit or an approval issued by the State Board for stormwater discharges from an MS4. Under these state permits, the Commonwealth imposes and enforces requirements pursuant to the federal Clean Water Act and regulations, the Virginia Stormwater Management Act and the Regulations.

"State Water Control Law" means Chapter 3.1 (§ 62.1-44.2 et seq.) of Title 62.1 of the Code of Virginia.

"State waters" means all water, on the surface and under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, including wetlands.

"Stormwater" means precipitation that is discharged across the land surface or through conveyances to one or more waterways and that may include stormwater runoff, snow melt runoff, and surface runoff and drainage.

"Stormwater Board" means the body of Board of Supervisor-appointed individuals who convene to arbitrate written decisions of the Stormwater Authority administration.

"Stormwater management plan" means a document(s) containing material describing methods for complying with the requirements of section 6-6 of this chapter. An agreement in lieu of a stormwater management plan as defined in this chapter shall be considered to meet the requirements of a stormwater management plan.

"Stormwater Pollution Prevention Plan" or "SWPPP" means a document that is prepared in accordance with good engineering practices and that identifies potential sources of pollutants that may reasonably be expected to affect the quality of stormwater discharges from a construction site, and otherwise meets the requirements of this chapter. In addition, the document shall identify and require the implementation of control measures, and shall include, but not be limited to the inclusion of, or the incorporation by reference of, an approved erosion and sediment control plan, an approved stormwater management plan, and a pollution prevention plan.

"Subdivision" means the division of any lot, tract, or parcel of land into two (2) or more lots or parcels, for the purpose, whether immediate or future, of transfer of ownership, or building development.

"Total maximum daily load" or "TMDL" means the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources, natural background loading and a margin of safety.

TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. The TMDL process provides for point versus nonpoint source trade-offs.

"Virginia Stormwater BMP Clearinghouse website" means a state-designated website that contains detailed design standards and specifications for control measures that may be used in Virginia to comply with the requirements of the Virginia Stormwater Management Act and associated regulations.

"Virginia Stormwater Management Act" or "Act" means Article 2.3 (§ 62.1-44.15 et seq.) of Chapter 3.1 of Title 62.1 of the Code of Virginia.

"Virginia Stormwater Management Program" or "VSMP" means a program approved by the State Board after September 13, 2011, that has been established by a locality to manage the quality and quantity of runoff resulting from land-disturbing activities and shall include such items as local ordinances, rules, permit requirements, annual standards and specifications, policies and guidelines, technical materials, and requirements for plan review, inspection, enforcement, where authorized in this article, and evaluation consistent with the requirements of Article 2.3 of Chapter 3.1 of Title 62.1 of the Code of Virginia, and associated regulations.

"Virginia Stormwater Management Program authority" or "VSMP authority" means an authority approved by the State Board after September 13, 2011, to operate a Virginia Stormwater Management Program.

(Ord. of 6-3-2014(1), § 1-2)

Sec. 6-3. - Stormwater permit requirement; exemptions.

- (a) Except as provided herein, no person may engage in any land-disturbing activity until a VSMP authority permit has been issued by the Administrator in accordance with the provisions of this chapter.
- (b) Chesapeake Bay Preservation Act land-disturbing activities do not require completion of a registration statement or require coverage under the general permit but shall be subject to an erosion and sediment control plan consistent with the requirements of the Erosion and Sediment Control Ordinance, a stormwater management plan as outlined under section 6-6 of this chapter, the technical criteria and administrative requirements for land-disturbing activities outlined in section 6-9 of this chapter, and the requirements for control measures long-term maintenance outlined under section 6-10 of this chapter.
- (c) Notwithstanding any other provisions of this chapter, the following activities are exempt from the requirements and regulations contained in this chapter, unless otherwise required by federal law:
  - (1) Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of Title 45.1 of the Code of Virginia;
  - (2) Clearing of lands specifically for agricultural purposes and the management, tilling, planting, or harvesting of agricultural, horticultural, or forest crops, livestock feedlot operations, or as additionally set forth by the State Board in regulations, including engineering operations as follows: construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11 (§ 10.1-1100 et seq.) of Title 10.1 of the Code of Virginia or is converted to bona fide agricultural or improved pasture use as described in Virginia Code § 10.1-1163(B);

- (3) Single-family residences separately built and disturbing less than one acre and not part of a larger common plan of development or sale, including additions or modifications to existing single-family detached residential structures;
- (4) Land-disturbing activities that disturb less than one acre of land area, except for land-disturbing activity exceeding an area of 2,500 square feet in all areas of the county designated as subject to the Chesapeake Bay Preservation Area Designation and Management Regulations (9VAC25-830) adopted pursuant to the provisions of the Chesapeake Bay Preservation Act (Virginia Code § 62.1-44.15:67 et seq.) or activities that are part of a larger common plan of development or sale that is one acre or greater of disturbance;
- (5) Permitted or authorized discharges to a sanitary sewer or a combined sewer system;
- (6) Activities under a State or federal reclamation program to return an abandoned property to an agricultural or open land use;
- (7) Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original construction of a project. The paving of an existing road with a compacted or impervious surface and reestablishment of existing associated ditches and shoulders shall be deemed routine maintenance if performed in accordance with this subsection; and
- (8) Conducting land-disturbing activities in response to a public emergency where the related work requires immediate authorization to avoid imminent endangerment to human health or the environment. In such situations, the Administrator shall be advised of the disturbance within seven days of commencing the land-disturbing activity and compliance with the administrative requirements of Virginia Code § 62.1-44.15:34(A) is required within 30 days of commencing the land-disturbing activity.

(Ord. of 6-3-2014(1), § 1-3)

Sec. 6-4. - Stormwater management program established; submission and approval of plans; prohibitions.

- (a) Pursuant to § 62.1-44.15:27 of the Code of Virginia, Gloucester County hereby establishes a Virginia stormwater management program for land-disturbing activities and adopts the applicable Regulations that specify standards and specifications for VSMPs promulgated by the State Board for the purposes set out in section 6-1 of this chapter. The Gloucester County Board of Supervisors hereby designates the County Administrator as the Administrator of the Virginia stormwater management program.
- (b) No VSMP authority permit shall be issued by the Administrator until the following items have been submitted to, and approved by, the Administrator as prescribed herein:
  - (1) A permit application that includes a general permit registration statement;
  - (2) An erosion and sediment control plan approved in accordance with the Erosion and Sediment Control Ordinance of Gloucester County, Virginia (Chapter 7.5); and
  - (3) A stormwater management plan that meets the requirements of Section 6-6 of this chapter or an agreement in lieu of a stormwater management plan as determined appropriate by the Administrator.
- (c) No VSMP authority permit shall be issued until evidence of general permit coverage is obtained by the Administrator from the Department.
- (d) No VSMP authority permit shall be issued until the fees required to be paid pursuant to section 6-15 of this chapter are received, and a reasonable performance surety required pursuant to section 6-16 of this chapter has been submitted.

- (e) No VSMP authority permit shall be issued unless and until the permit application and attendant materials and supporting documentation demonstrate that all land clearing, construction, disturbance, land development and drainage will be done according to the approved permit.
- (f) No grading, building or other local permit shall be issued for a property unless a VSMP authority permit has been issued by the Administrator.

(Ord. of 6-3-2014(1), § 1-4)

Sec. 6-5. - Stormwater pollution prevention plan; contents of plans.

- (a) The Stormwater Pollution Prevention Plan (SWPPP) shall include the content specified by Section 9VAC25-870-54 and must also comply with the requirements and general information set forth in Section 9VAC25-880-70, Section II [stormwater pollution prevention plan] of the general permit.
- (b) The SWPPP shall be amended by the operator whenever there is a change in design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants to state waters which is not addressed by the existing SWPPP.
- (c) The SWPPP must be maintained by the operator at a central location onsite. If an onsite location is unavailable, notice of the SWPPP's location must be posted near the main entrance at the construction site. Operators shall make the SWPPP available for public review in accordance with Section II of the general permit, either electronically or in hard copy.

(Ord. of 6-3-2014(1), § 1-5)

Sec. 6-6. - Stormwater management plan; contents of plan.

- (a) The Stormwater Management Plan, required in section 6-4 of this chapter, must apply the stormwater management technical criteria set forth in section 6-9 of this chapter to the entire land-disturbing activity. Individual lots in new residential, commercial, or industrial developments, including those developed under subsequent owners, shall not be considered separate land-disturbing activities. The Stormwater Management Plan shall consider all known sources of surface runoff and all known sources of subsurface and groundwater flows converted to surface runoff, and include the following information:
  - (1) Information on the type and location of stormwater discharges; information on the features to which stormwater is being discharged including surface waters or karst features, if present, and the predevelopment and post-development drainage areas;
  - (2) Contact information including the name, address, email address, and telephone number of the owner and the tax reference number, parcel number, and RPC of the property or properties affected;
  - (3) A narrative that includes a description of current site conditions and final site conditions;
  - (4) A general description of the proposed stormwater management facilities and the mechanism through which the facilities will be operated and maintained after construction is complete and a note that states the stormwater management meets the requirements set forth in the VSMP Permit Regulations (9VAC25-870-55) and the Administrative Guidance Manual;
  - (5) Information on the proposed stormwater management facilities, including:
    - (i) The type of facilities;

- (ii) Location, including geographic coordinates;
  - (iii) Acres treated; and
  - (iv) The surface waters or karst features, if present, into which the facility will discharge.
- (6) Hydrologic and hydraulic computations, including runoff characteristics;
- (7) Documentation and calculations verifying compliance with the water quality and quantity requirements of section 6-9 of this chapter and the Administrative Guidance Manual; and
- (8) A map or maps of the site that depicts the topography of the site and includes:
- (i) All contributing drainage areas;
  - (ii) Existing streams, ponds, culverts, ditches, wetlands, other water bodies, and floodplains;
  - (iii) Soil types, geologic formations if karst features are present in the area, forest cover, and other vegetative areas;
  - (iv) Current land use including existing structures, roads, and locations of known utilities and easements;
  - (v) Sufficient information on adjoining parcels to assess the impacts of stormwater from the site on these parcels;
  - (vi) The limits of clearing and grading, and the proposed drainage patterns on the site;
  - (vii) Proposed buildings, roads, parking areas, utilities, and stormwater management facilities; and
  - (viii) Proposed land use with tabulation of the percentage of surface area to be adapted to various uses, including but not limited to planned locations of utilities, roads, and easements.
- (b) If an operator intends to meet the water quality and/or quantity requirements set forth in section 6-9 of this chapter through the use of off-site compliance options, where applicable, then a letter of availability from the off-site provider must be included. Approved off-site options must achieve the necessary nutrient reductions prior to the commencement of the applicant's land-disturbing activity except as otherwise allowed by § 62.1-44.15:35 of the Code of Virginia.
- (c) Elements of the stormwater management plans that include activities regulated under Chapter 4 (§ 54.1-400 et seq.) of Title 54.1 of the Code of Virginia shall be appropriately sealed and signed by a professional registered in the Commonwealth of Virginia pursuant to Article 1 (§ 54.1-400 et seq.) of Chapter 4 of Title 54.1 of the Code of Virginia.
- (d) A construction record drawing for permanent stormwater management facilities shall be submitted to the Administrator. The construction record drawing shall be appropriately sealed and signed by a professional engineer, architect, landscape architect, or land surveyor registered in the Commonwealth of Virginia, certifying that the stormwater management facilities have been constructed in accordance with the approved plan.

(Ord. of 6-3-2014(1), § 1-6)

Sec. 6-7. - Pollution prevention plan; contents of plans.

- (a) A Pollution Prevention Plan, required by 9VAC25-870-56, shall be developed, implemented, and updated as necessary and must detail the design, installation, implementation, and maintenance of effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented, and maintained to:

- (1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent treatment to a sediment basin or better treatment prior to discharge;
  - (2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater; and
  - (3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.
- (b) The pollution prevention plan shall include effective best management practices to prohibit the following discharges:
- (1) Wastewater from washout of concrete, unless managed by an appropriate control;
  - (2) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials;
  - (3) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
  - (4) Soaps or solvents used in vehicle and equipment washing.
- (c) Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls.

(Ord. of 6-3-2014(1), § 1-7)

#### Sec. 6-8. - Review of stormwater management plan.

- (a) The Administrator shall review stormwater management plans and shall approve or disapprove a stormwater management plan according to the following:
- (1) The Administrator shall determine the completeness of a plan in accordance with section 6-6 of this chapter, and shall notify the applicant, in writing, of such determination, within 15 working days of receipt of VSMP permit application notification. If the plan is deemed to be incomplete, the above written notification shall contain the reasons the plan is deemed incomplete.
  - (2) The Administrator shall have an additional 60 calendar days from the date of the communication of completeness to review the plan, except that if a determination of completeness is not made within the time prescribed in subdivision (1), then the plan shall be deemed complete and the Administrator shall have 60 calendar days from the date of submission to review the plan.
  - (3) For plans not approved by the Administrator, including an incomplete submittal, all comments shall be addressed and resubmitted by the applicant within 180 calendar days of the latest plan-review comment letter addressed to the applicant. Plans that are not resubmitted within this time period may be subject to a new application fee, as outlined in the Administrative Guidance Manual or referenced as a re-submittal fee in the Fee Schedule.
  - (4) The Administrator shall review any plan that has been previously disapproved, within 45 calendar days of the date of resubmission.
  - (5) During the review period, the plan shall be approved or disapproved and the decision communicated in writing to the Applicant. If the plan is not approved, the reasons for not approving the plan shall be provided in writing to the Applicant. Approval or denial shall be based on the plan's compliance with the requirements of this chapter and the Administrative Guidance Manual.

- (6) If a plan meeting all requirements of this chapter is submitted and no action is taken within the time provided above in subdivision (2) for review, the plan shall be deemed approved.
- (b) Approved stormwater plans may be modified as follows:
  - (1) Modifications to an approved stormwater management plan shall be allowed only after review and written approval by the Administrator. The Administrator shall have 60 calendar days to respond in writing either approving or disapproving such request.
  - (2) The Administrator may require that an approved stormwater management plan be amended, within a time prescribed by the Administrator, to address any deficiencies noted during stormwater inspection.
- (c) The operator shall submit to the Administrator construction record drawings for permanent stormwater management facilities.

(Ord. of 6-3-2014(1), § 1-8)

Sec. 6-9. - Technical criteria for regulated land-disturbing activities.

- (a) To protect the quality and quantity of state water from the potential harm of unmanaged stormwater runoff resulting from land-disturbing activities, the county hereby adopts the technical criteria for regulated land-disturbing activities set forth in 9VAC25-870-62 [Part II B of the Regulations], as amended, expressly to include 9VAC25-870-63 [water quality design criteria requirements]; 9VAC25-870-65 [water quality compliance]; 9VAC25-870-66 [water quantity]; 9VAC25-870-69 [offsite compliance options]; 9VAC25-870-72 [design storms and hydrologic methods]; 9VAC25-870-74 [stormwater harvesting]; 9VAC25-870-76 [linear development projects]; 9VAC25-870-85 [stormwater management impoundment structures or facilities]; and 9VAC25-870-92 [comprehensive stormwater management plans], which shall apply to all land-disturbing activities regulated pursuant to this chapter, except as expressly set forth in subsection (b) and (c) of this section.
- (b) Any land-disturbing activity shall be considered grandfathered and shall be subject to 9VAC25-870-93 thru 99 [Part II C Technical Criteria of the Regulations], provided:
  - (1) A proffered or conditional zoning plan, zoning with a plan of development, preliminary or final subdivision plat, preliminary or final site plan, or any document determined by the locality to be equivalent thereto (i) was approved by the locality prior to July 1, 2012, (ii) provided a layout as defined in 9VAC25-870-10, (iii) will comply with the Part II C technical criteria of the VSMP Regulations, and (iv) has not been subsequently modified or amended in a manner resulting in an increase in the amount of phosphorus leaving each point of discharge, and such that there is no increase in the volume or rate of runoff;
  - (2) A state permit has not been issued prior to July 1, 2014; and
  - (3) Land disturbance did not commence prior to July 1, 2014.
- (c) County, state, and federal projects shall be considered grandfathered by the VSMP authority and shall be subject to the Part II C technical criteria of the VSMP Regulations, provided:
  - (1) There has been an obligation of county, state, or federal funding, in whole or in part, prior to July 1, 2012, or the department has approved a stormwater management plan prior to July 01, 2012;
  - (2) A state permit has not been issued prior to July 1, 2014; and
  - (3) Land disturbance did not commence prior to July 1, 2014.

- (d) Land-disturbing activities grandfathered under subsections b and c of this section shall remain subject to the Part II C Technical Criteria of the Regulations for one additional state permit cycle. After such time, portions of the project not under construction shall become subject to any new technical criteria adopted by the State Board.
- (e) In cases where governmental bonding or public debt financing has been issued for a project prior to July 01, 2012, such project shall be subject to the technical criteria of Part II C of the VSMP Regulations.
- (f) The Administrator may grant exceptions to the technical requirements of Part II B or Part II C of the Regulations, provided that (i) the exception is the minimum necessary to afford relief, (ii) reasonable and appropriate conditions are imposed so that the intent of the Act, the Regulations, and this chapter are preserved, (iii) granting the exception will not confer any special privileges that are denied in other similar circumstances, and (iv) exception requests are not based upon conditions or circumstances that are self-imposed or self-created. Economic hardship alone is not a sufficient reason to grant an exception from the requirements of this chapter. Exceptions granted shall be reported to the Department.
  - (1) Exceptions to the requirement that the land-disturbing activity obtain required VSMP authority permit shall not be given by the Administrator, nor shall the Administrator approve the use of a BMP not found on the Virginia Stormwater BMP Clearinghouse Website, or any other control measure duly approved by the Department.
  - (2) Exceptions to requirements for phosphorus reductions shall not be allowed unless offsite options otherwise permitted pursuant to 9VAC25-870-69 have been considered and found not available.
- (g) Nothing in this section shall preclude an operator from constructing to a more stringent standard at his discretion.

(Ord. of 6-3-2014(1), § 1-9)

Sec. 6-10. - Long-term maintenance of permanent stormwater facilities.

The Administrator shall require the provision of long-term responsibility for and maintenance of stormwater management facilities and other techniques specified to manage the quality and quantity of runoff. Such requirements shall be set forth in an instrument recorded in the county land records prior to general permit termination or earlier as required by the Administrator, and shall at a minimum:

- (a) Be submitted to the Administrator for review and approval prior to the approval of the stormwater management plan;
- (b) Be stated to run with the land;
- (c) Provide for all necessary access to the property for purposes of maintenance and regulatory inspections;
- (d) Provide for inspections and maintenance and the submission of inspection and maintenance reports to the Administrator; and
- (e) Be enforceable by all appropriate governmental parties.

(Ord. of 6-3-2014(1), § 1-10)

Sec. 6-11. - Monitoring and inspections.

- (a) Pursuant to § 62.1-44.15:37 of the Code of Virginia, the Administrator or any duly authorized agent of the Administrator shall provide for periodic inspections of a land-disturbing activity during construction for:
  - (1) Compliance with the approved erosion and sediment control plan;
  - (2) Compliance with the approved stormwater management plan;
  - (3) Development, updating, and implementation of a pollution prevention plan; and
  - (4) Development and implementation of any additional control measures necessary to address a TMDL.
- (b) The Administrator or any duly authorized agent of the Administrator may, at reasonable times and under reasonable circumstances, enter any establishment or upon any property, public or private, for the purpose of obtaining information or conducting surveys or investigations necessary in the enforcement of the provisions of this chapter when reasonable notice has been provided to the owner/agent.
- (c) In accordance with a performance bond with surety, cash escrow, letter of credit, any combination thereof, or such other legal arrangement or instrument, the Administrator may also enter any establishment or upon any property, public or private, for the purpose of initiating or maintaining appropriate actions which are required by the permit conditions associated with a permitted activity when a permittee, after proper notice, has failed to take acceptable action within the time specified.
- (d) Pursuant to § 62.1-44.15:40 of the Code of Virginia, the Administrator may require every VSMP authority permit applicant or permittee, or any such person subject to VSMP authority requirements under this chapter, to furnish when requested such application materials, plans, specifications, and other pertinent information as may be necessary to determine the effect of his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of this chapter.
- (e) Post-construction inspections of stormwater management facilities required by the provisions of this chapter and the recorded maintenance agreement shall be conducted by the owner and at the owner's cost pursuant to the county's adopted and Board approved inspection program, and shall occur within the minimum frequencies shown in BMP Inspection Frequency Table within the Administrative Guidance Manual following approval of the final construction record report for each stormwater facility.
- (f) The owner shall furnish to the Administrator an inspection report prepared by a qualified inspector within the time frames provided in the BMP Inspection Frequency Table within the Administrative Guidance Manual. This report shall include, but not be limited to, current photographs of the BMP, a summary of the current BMP condition, and any recommendations for improvements, if necessary.
- (g) Qualified inspection personnel include a professional engineer, architect, landscape architect, or land surveyor registered in the Commonwealth of Virginia and project inspector or combined administrator for stormwater authority who have met the certification requirements of Virginia Code § 62.1-44.15:30.
- (h) Post-construction inspections of stormwater management facilities required by the provisions of this chapter shall be conducted by the Administrator pursuant to the County's adopted and State Board approved inspection program, and shall occur, at a minimum, at least once every five (5) years.

(Ord. of 6-3-2014(1), § 1-11)

Sec. 6-12. - Hearings.

- (a) Any permit applicant or permittee, or person subject to the requirements of this chapter, aggrieved by any action of the county taken without a formal hearing, or by inaction of the county, may demand in writing a formal hearing by the Stormwater Board considering such grievance, provided a petition requesting such hearing is filed with the Administrator within 30 days after notice of such action is given by the Administrator.
- (b) The hearings held under this section shall be conducted by the Stormwater Board at a time and place identified by the Stormwater Board.
- (c) A verbatim record of the proceedings of such hearings shall be taken and filed with the Stormwater Board.

(Ord. of 6-3-2014(1), § 1-12)

#### Sec. 6-13. - Appeals.

The final decision of the county under this chapter shall be subject to review by the Circuit Court of Gloucester County, provided an appeal is filed within thirty (30) days from the date of any written decision adversely affecting the rights, duties, or privileges of the person engaging in or proposing to engage in land-disturbing activities. An appeal shall not stay the decision of the County.

(Ord. of 6-3-2014(1), § 1-13)

#### Sec. 6-14. - Enforcement.

- (a) If the Administrator determines that there is a failure to comply with the VSMP authority permit conditions or determines there is an unauthorized discharge, notice shall be served upon the permittee or person responsible for carrying out the permit conditions by, but shall not be limited to, any of the following: verbal warnings and inspection reports, notices of violation, notices of corrective action, consent special orders, and notices to comply. Written notices shall be served by registered or certified mail to the address specified in the permit application or by delivery at the site of the development activities to the agent or employee supervising such activities.
  - (1) The notice shall specify the measures needed to comply with the permit conditions and shall specify the time within which such measures shall be completed. Upon failure to comply within the time specified, a stop work order may be issued in accordance with subsection (2) or the permit may be revoked by the Administrator.
  - (2) If a permittee fails to comply with a notice issued in accordance with this section within the time specified, the Administrator may issue an order requiring the owner, permittee, person responsible for carrying out an approved plan, or the person conducting the land-disturbing activities without an approved plan or required permit to cease all land-disturbing activities until the violation of the permit has ceased, or an approved plan and required permits are obtained, and specified corrective measures have been completed.

Such orders shall be issued in accordance with the Administrative Guidance Manual. Such orders shall become effective upon service on the person by certified mail, return receipt requested, sent to his address specified in the land records of the county, or by personal delivery by an agent of the Administrator. However, if the Administrator finds that any such violation is grossly affecting or presents an imminent and substantial danger of causing harmful erosion of lands or sediment deposition in waters within the watersheds of the Commonwealth or otherwise substantially impacting water quality, she may issue, without advance notice or hearing, an emergency order directing such person to cease immediately all land-disturbing activities on the

site and shall provide an opportunity for a hearing, after reasonable notice as to the time and place thereof, to such person, to affirm, modify, amend, or cancel such emergency order. If a person who has been issued an order is not complying with the terms thereof, the Administrator may revoke the permit and institute a proceeding for an injunction, mandamus, or other appropriate remedy in accordance with subsection 6-14(c).

- (b) In addition to any other remedy provided by this chapter, if the Administrator determines that there is a failure to comply with the provisions of this chapter, she may initiate such informal and/or formal administrative enforcement procedures in a manner that is consistent with the Administrative Guidance Manual.
- (c) Any person violating or failing, neglecting, or refusing to obey any rule, regulation, ordinance, order, approved standard or specification, or any permit condition issued by the Administrator may be compelled in a proceeding instituted in Circuit Court of Gloucester County to obey the same and to comply therewith by injunction, mandamus or other appropriate remedy.
- (d) Any person who violates any provision of this chapter or who fails, neglects, or refuses to comply with any order of the Administrator, shall be subject to a civil penalty not to exceed \$32,500 for each violation. Each day of violation of each requirement shall constitute a separate offense.
  - (1) Violations for which a penalty may be imposed under this subsection shall include but not be limited to the following:
    - (i) No state permit registration;
    - (ii) No SWPPP;
    - (iii) Incomplete SWPPP;
    - (iv) SWPPP not available for review;
    - (v) No approved erosion and sediment control plan;
    - (vi) Failure to install stormwater BMPs or erosion and sediment controls;
    - (vii) Stormwater BMPs or erosion and sediment controls improperly installed or maintained;
    - (viii) Operational deficiencies;
    - (ix) Failure to conduct required inspections;
    - (x) Incomplete, improper, or missed inspections; and
    - (xi) Discharges not in compliance with the requirements of Section 9VAC25-880-70 of the general permit.
  - (2) The Administrator may issue a summons for collection of the civil penalty and the action may be prosecuted in the appropriate court.
  - (3) In imposing a civil penalty pursuant to this subsection, the court may consider the degree of harm caused by the violation and also the economic benefit to the violator from noncompliance.
  - (4) Any civil penalties assessed by a court as a result of a summons issued by the county shall be paid into the treasury of the county to be used for the purpose of minimizing, preventing, managing, or mitigating pollution of the waters of the county and abating environmental pollution therein in such manner as the court may, by order, direct.
- (e) Notwithstanding any other civil or equitable remedy provided by this section or by law, any person who willfully or negligently violates any provision of this chapter, any order of the Administrator, any

condition of a permit, or any order of a court shall be guilty of a Class 1 misdemeanor punishable by confinement in jail for not more than 12 months, or a fine of not more than \$2,500, or both.

- (f) Violation of any provision of this chapter may also result in the following sanctions:
- (1) The VSMP authority, where authorized to enforce Virginia Code § 62.1-44.15:24 et seq., may apply to the Circuit Court of Gloucester County to enjoin a violation or a threatened violation of the provisions of Virginia Code § 62.1-44.15:24 et seq. or of this chapter without the necessity of showing that an adequate remedy at law does not exist.
  - (2) With the consent of any person who has violated or failed, neglected, or refused to obey any ordinance, any condition of a permit, any order of the VSMP authority, or any provision of Virginia Code § 62.1-44.15:24 et seq., the VSMP authority may provide, in an order issued against such person, for the payment of civil charges for violations in specific sums, not to exceed the limit specified in this section. Such civil charges shall be instead of any appropriate civil penalty that could be imposed under this section. Any civil charges collected shall be paid to the treasury of the county pursuant to subsection (d)(4). Charges collected shall be applied to environmental restoration.

(Ord. of 6-3-2014(1), § 1-14)

Sec. 6-15. - Fees.

- (a) Fees to cover costs associated with implementation of a VSMP related to land-disturbing activities and issuance of general permit coverage and VSMP authority permits shall be imposed in accordance with Table I.
- (b) The applicable fees designated to the Administrator shall be paid by the Applicant directly to the Administrator at the initial plan submittal; fees designated to the Department shall be paid by the Applicant directly to the Department through the online reporting system. A minimum 50-percent of the fee is required upon submittal; the difference shall be due prior to issuance of permit.

Table I: Stormwater Ordinance Permitting Fees

Type of Permit	Fee Amount	
	County	State
Chesapeake Bay Preservation Act Land-Disturbing Activity (not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Act localities with land-disturbance acreage equal to or greater than 2,500 square feet and less than 1 acre)	\$290	\$0
VSMP General/Stormwater Management - Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land-disturbance acreage less than one acre, except for single-family detached residential structures)	\$209	\$81

VSMP General/Stormwater Management - Small Construction Activity/Land Clearing (single family detached residential structure with a site or area, within or outside a common plan of development or sale, that is equal to or greater than one acre but less than five acres)	\$209	\$0
VSMP General/Stormwater Management - Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 1 acre and less than 5 Acres)	\$1,944	\$756
VSMP General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 5 acres and less than 10 acres)	\$2,448	\$952
VSMP General/Stormwater Management - Large Construction Activity/Land Clearing [Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 10 acres and less than 50 acres]	\$3,240	\$1,260
VSMP General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres)	\$4,392	\$1,708
VSMP General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 100 acres)	\$6,912	\$2,688
VSMP Individual Permit for Discharges of Stormwater From Construction Activities	\$0	\$15,000

(c) Fees for the modification or transfer of registration statements from the general permit issued by the Board shall be imposed in accordance with VSMP Permit Regulations and adopted by this chapter in accordance with Table 2 and shall be paid directly to the Administrator.

Table 2: Fees for the modification or transfer of registration statements for the General Permit for Discharges of Stormwater from Construction Activities

Type of Permit	Fee Amount
Chesapeake Bay Preservation Act Land-Disturbing Activity (not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Act localities with land-disturbance acreage equal to or greater than 2,500 square feet and less than 1 acre)	\$20
General/Stormwater Management - Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land-disturbance acreage less than one acre, except for single-family detached residential structures)	\$20

General/Stormwater Management - Small Construction Activity/Land Clearing (Single-family detached residential structures within or outside a common plan of development or sale with land-disturbance acreage less than 5 acres)	\$20
General/Stormwater Management - Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than one and less than five acres)	\$200
General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than five acres and less than 10 acres)	\$250
General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 10 acres and less than 50 acres)	\$300
General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 50 acres and less than 100 acres)	\$450
General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 100 acres)	\$700
Individual Permit for Discharges of Stormwater from Construction Activities	\$5,000

- (d) If the general permit modifications result in changes to stormwater management plans that require additional review by the county, such reviews shall be subject to the fees set out in the VSMP Permit Regulations and this chapter.
- (e) The fee assessed shall be based on the total disturbed acreage of the site. In addition to the general permit modification fee, applicants seeking modifications resulting in an increase in total disturbed acreage shall pay the difference in the initial permit fee paid and the permit fee that would have applied for the total disturbed acreage in this chapter. These fees shall be paid directly to the Administrator.
- (f) Annual permit maintenance shall be imposed in accordance with Table 3 of this chapter, including fees imposed on expired permits that have been administratively continued. With respect to the general permit, these fees shall apply until the permit coverage is terminated.

Table 3: Permit Maintenance Fees

Type of Permit	Fee Amount
Chesapeake Bay Preservation Act Land-Disturbing Activity (not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Act localities with land-disturbance acreage equal to or greater than 2,500 square feet and less than 1 acre)	\$50
General/Stormwater Management - Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land-disturbance acreage less than one acre)	\$50
General/Stormwater Management - Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance equal to or greater than one acre and less than five acres)	\$400
General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than five acres and less than 10 acres)	\$500
General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 10 acres and less than 50 acres)	\$650
General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 50 acres and less than 100 acres)	\$900
General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater [than] 100 acres)	\$1,400
Individual Permit for Discharges from Construction Activities	\$3,000

- (g) General permit coverage maintenance fees shall be paid annually to the county, by the anniversary date of general permit coverage. No permit will be reissued or automatically continued without payment of the required fee. General permit coverage maintenance fees shall be applied until a Notice of Termination is effective.
- (h) The fees set forth in subsections (a) through (g) above, shall apply to:
  - (1) All persons seeking coverage under the general permit.
  - (2) All permittees who request modifications to or transfers of their existing registration statement for coverage under a general permit.
- (i) No general permit application fees will be assessed to:
  - (1) Permittees who request minor modifications to general permits as defined in section 6-2 of this chapter. Permit modifications at the request of the permittee resulting in changes to stormwater management plans that require additional review by the Administrator shall not be exempt pursuant to this section.

- (2) Permittees whose general permits are modified or amended at the initiative of the Department, excluding errors in the registration statement identified by the Administrator or errors related to the acreage of the site.
- (j) All incomplete payments will be deemed as nonpayment, and the applicant shall be notified of any incomplete payments. Interest may be charged for late payments at the underpayment rate set forth in § 58.1-15 of the Code of Virginia and is calculated on a monthly basis at the applicable periodic rate. A 10% late payment fee shall be charged to any delinquent (over 90 days past due) account. The county shall be entitled to all remedies available under the Code of Virginia in collecting any past due amount.
- (k) The fee for applications brought for hearing through the Stormwater Board, section 6-12 of this chapter, shall be \$275.

(Ord. of 6-3-2014(1), § 1-15)

Sec. 6-16. - Performance bond.

Prior to permit issuance, the Applicant shall submit a reasonable performance bond with surety, cash escrow, letter of credit, any combination thereof, or such other legal arrangement acceptable to the county attorney and Administrator to ensure that measures could be taken by the county at the Applicant's expense should he fail, after proper notice, within the time specified to initiate or maintain appropriate actions which may be required of him by the permit conditions as a result of his land disturbing activity. If the county takes such action upon such failure by the Applicant, the county may collect from the Applicant the difference should the amount of the reasonable cost of such action exceed the amount of the security held, if any. Within 60 days of the completion of the requirements of the permit conditions, such bond, cash escrow, letter of credit or other legal arrangement, or the unexpended or unobligated portion thereof, shall be refunded to the Applicant or terminated.

(Ord. of 6-3-2014(1), § 1-16)

**Appendix M –**  
MOU amongst Rappahannock Fire Association Participants

GVERS

## MEMORANDUM OF UNDERSTANDING AND COOPERATION

THIS AGREEMENT, made and entered into this *25th* day of *August 2011*, by and among the rated fire and rescue departments of the Rappahannock Volunteer Fireman's Association.

### WITNESSETH:

THAT, WHEREAS, the General Assembly of Virginia did enact into law act as Va. Code Section 27-1, which provides, in part, "Whenever the necessity arises during any actual or potential emergency resulting from fire, personal injury, or other public disaster, the fire fighters or emergency medical technicians of any county, city or town may, together with all necessary equipment, lawfully go or be sent beyond the territorial limits of such county, city or town to any point within or without the Commonwealth, to assist in meeting such emergency."

WHEREAS, when responding to a call and while working at a fire or other emergency outside the territorial limits which it normally services, members and employees of county, municipal corporation, fire protection district, sanitary district and incorporated fire departments shall have all of the laws, ordinances, and regulations, and shall have all of the benefits and immunities from liability and exemptions including coverage under the Workmen's Compensation Laws, as they have when responding to a call and while working at a fire or other emergency inside the territorial limits normally served; and

WHEREAS, the purpose of this agreement is to provide a mechanism for each of the parties hereto, through their mutual cooperation, by which they may render aid to each other in case of conflagration, holocaust, civil disorder or natural disaster, which requires fire services beyond the existing capabilities of any party; and

WHEREAS, it is in the public interest for the parties hereto to enter into an agreement for mutual assistance in fire protection in order to increase fire defenses and to assure the community of adequate protection; and

WHEREAS, fire departments within the Rappahannock Volunteer Fireman's Association desire a mechanism to receive mutual aid assistance from and to send mutual aid assistance to other fire service agencies within the region;

NOW THEREFORE, in consideration of the mutual covenants contained herein by and among the parties hereto, it is hereby agreed as follows:

1. Upon receipt of a request for assistance, the Chief of the responding party will determine whether the request may be honored without impairing the respondent's capacity to provide fire protection within its own jurisdiction. The Chief or officer in charge of the responding party may authorize or provide such equipment, manpower and assistance to the requesting party, as he deems appropriate. The decision to respond and the degree of response shall remain in the discretion of the Chief or other officer in charge of the responding party.
2. No party to this agreement shall be bound to dispatch equipment, supplies or personnel to assist any other party, but every effort should be made to furnish such assistance and resources as are indicated so long as, in the judgment of the chief officer of that party, such dispatch would not seriously impair the fire defenses and protection of his own jurisdiction.
3. The Chief or other officer in charge of the party in whose jurisdiction the emergency exists and who requests assistance shall, in all instances, be in command of the emergency, controlling strategy, fire control tactics and direction of the operations.
4. It shall be the responsibility of the responding party to ensure that all personnel responding to the request for assistance are adequately trained. Each of the parties hereto shall be responsible for the conduct and actions of its personnel.
5. Each party to this agreement shall assume all liability and financial responsibility for death of or injury to any member of its own command responding to a request for assistance.
6. A party responding under the terms of this agreement shall not be responsible or financially liable for property damaged or destroyed at the scene of any civil disorder,

- holocaust, conflagration or natural disaster due to firefighting and rescue operations, fire control tactics and strategy or other operations as may be required or ordered; said liability and responsibility shall rest solely with the party requesting such aid and within whose boundaries the property shall exist, or the incident occurs.
7. The party responding to the request for mutual aid under the terms of this agreement shall assume all liability and responsibility for damage to its own apparatus and/or equipment. The responding party shall also assume liability and responsibility for any damage caused by its apparatus or equipment while en route to or returning from a specific location.
  8. The party who requests mutual aid shall in no way be deemed liable or responsible for the personal property of the members of the responding party which may be lost, stolen or damaged while they are performing their duties under the response terms herein.
  9. Each party to this agreement shall assume all costs of salaries, wages, bonuses or other compensation for its own personnel responding for duty under the terms of this agreement and shall assume all costs of the responding party's apparatus, equipment, and supplies used in the response. The responding party shall make no charge for such use to the party requesting assistance except for any special chemicals or supplies by the responding party. Such chemicals shall be paid for by the party requesting aid upon receipt of an itemized statement of costs.
  10. Any party may, at any time, terminate this agreement upon thirty-day written notice to all signatories within the agreement. Written notice shall be sent by registered mail to each department.
  11. When fire department personnel are sent to another jurisdiction pursuant to this agreement, all rights, privileges and immunities as employees or agents of the responding party, including Workmen's Compensation insurance coverage, shall be extended to include their activities when acting within the scope of this agreement.

12. If a party to this agreement does not attempt to send requested assistance aid, with the provision that such aid would not seriously impact the party's own fire protection needs, it should not request or expect to receive assistance from other parties to this agreement.
13. The parties to this mutual aid agreement may amend or alter the agreement by written amendment, signed by each of the Fire Chief of all parties involved.
14. This mutual aid agreement shall remain in force for an initial term of five years, and may be extended by authorization of the governing board of any party.

THEREFORE, the governing boards of each agency agree to this regional mutual aid agreement and cause this instrument to be signed and adopted by their duly authorized officers.

*Charles L. Miller*

Walkerton U.F.D.

*Herb Austin*

Chief Herb Austin  
Abingdon Volunteer and Rescue, Inc.

*J.D. Clements*

Chief J.D. Clements  
Gloucester Volunteer Fire and Rescue

*Jimmy Brand*

Chief Jimmy Brand *DAVID B. WOOLARD*  
Callao Volunteer Fire Department

*King William*

King William Volunteer Fire Department  
*Step Hardesty*

*Jimmy Walden*

Chief Jimmy Walden  
Lower Middlesex Volunteer Fire Department

*Ricky Thompson*

Chief Ricky Thompson  
Mathews Volunteer Fire Department

*Quinton Pitts*

Quinton Volunteer Fire Department  
*Dave Pitts*

*Paul Richardson*

Chief Paul Richardson  
Tappahannock Volunteer Fire Department  
Deputy chief *Ronnie Thomas*

*William Cobb*

Chief *William Cobb*  
Upper Middlesex Volunteer Fire Department

*Robert W. Wilson*

Chief Guy Williams *Robert W. Wilson*  
West Point Volunteer Fire and Rescue

*Phillip Keyser*

Phillip Keyser  
Fairfields U.F.D.

*Thomas Evans*

White Stone U.F.D.

Chief Wayne South  
Central King and Queen Volunteer Fire Department

*John McBlair*

Chief Tommy Lewis *Greg Hilds President*  
Cople District Volunteer Fire Department

*Benny Balderson*

Chief Benny Balderson *Benny Balderson sign*  
Kilmarnock Volunteer Fire Department

*Jeff Calhoun*

Chief Jeff Calhoun  
Lower King and Queen Volunteer Fire Department

*Luke Heller*

Chief Les Cosby *Les Cosby sign*  
Mangohick Volunteer Fire Department

*Bill Thrift*

Chief Bill Thrift  
Middlesex Volunteer Fire Department

*Brian Davis*

Chief Brian Davis  
Richmond County Volunteer Fire Department

*Eddie Weston*

Chief Eddie Weston  
Westmoreland Volunteer Fire Department

*Lindsey Beckham*

Chief Lindsey Beckham *James D. Akers Sr*  
Upper Lancaster Volunteer Fire Department

*David Milby*

Hartfield U.F.D.  
David Milby

**Appendix N –**  
Adoption Resolutions for Localities and Tribes



**PROPOSED RESOLUTION TO ADOPT THE MIDDLE PENINSULA REGIONAL ALL HAZARDS MITIGATION PLAN 2021 UPDATE**

**WHEREAS**, the County of Essex, Virginia has experienced severe damage from a host of hazards such as communicable diseases, winter storm snow and ice, flooding from hurricanes, nor'easters, wildfires, winter storms, tornadoes and lightning on many occasions in the past century that have resulted in property losses, loss of life, economic hardships, and threats to public health and safety for all community residents, and

**WHEREAS**, the first Middle Peninsula Regional All Hazards Mitigation Plan ("the Plan") was undertaken as a regional planning project with all nine (9) jurisdictions participating in its development and adoption in 2006, 2011, and 2016, and

**WHEREAS**, all nine (9) Middle Peninsula jurisdictions and federally recognized Tribes in the region participated in the update of the AHMP within the Federal Emergency Management Agency's required 5-year period, and

**WHEREAS**, the County of Essex, Virginia will submit yearly progress reviews and plan discussion to state and FEMA, and

**WHEREAS**, MPPDC has executed the contract with Dewberry to run HAZUS, which is a risk modeling software to assess the region's risk from flooding, hurricane winds, and sea level rise. Based on discussions with the LPT there will be two sea level rise scenarios assessed: (1) the baseline of Mean High Water (MHHW) and (2) projected sea level rise elevation of the 2060 intermediate-high scenario of MHHW plus 3.02 feet; and

**WHEREAS**, the Plan update recommends many mitigation strategies that will help to protect the residents and their property from the adverse effects of hazards that face the County of Essex, Virginia, and

**WHEREAS**, the Plan update was reviewed at a meeting of the County of Essex, Virginia's Board of Supervisors held on April 12, 2022, as required by law.

**NOW, THEREFORE, BE IT RESOLVED**, by the County of Essex, Virginia, that:

1. The Middle Peninsula Regional All Hazards Mitigation Plan 2021 update is hereby adopted as the official Plan for the County of Essex, Virginia.
2. The respective officials/staff identified in the implementation section of the Plan update are encouraged to implement the mitigation strategies and report on their activities, accomplishments, and progress to the County of Essex, Virginia Board of Supervisors.

3. The County Administrator/Town Administrator/Chief of the County of Essex, Virginia's Board of Supervisors will report status updates on mitigation strategies to the Middle Peninsula Planning District Commission and the Federal Emergency Management Agency on an annual basis.
4. Obtain the latest version of the FEMA: Region 3 High Hazard Potential Dams State and Local Mitigation Planning Tips Resource from FEMA Region 3 and/or State staff and use it to inform the development of the next plan update or amendment.

Adopted the 12th day of April 2022.

CERTIFICATION OF ADOPTION RESOLUTION

The undersigned Clerk of the Board of Supervisors of the County of Essex, Virginia certified that the Resolution set forth above was duly adopted during an open public meeting on the 12<sup>th</sup> day of April 2022 by a majority of the members of the Essex County Board of Supervisors with the following votes:

AYE: Gill, Johnson, Magruder, Smith

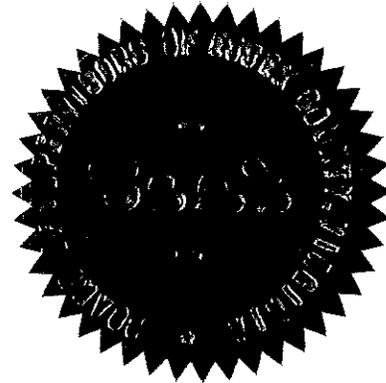
NAY: N/A

ABSTENTION: Akers

ABSENT: N/A

Signed this 12<sup>th</sup> day of April 2022.

ATTEST:



---

Michael A. Lombardo, Clerk  
Board of Supervisors of the County of Essex, Virginia



Town Manager  
Eric Pollitt

Town Treasurer  
Faye D. Johnson

Town Clerk  
Patsy K. Scates

Chief of Police  
James G. Ashworth Jr.

Town Attorney  
Diane M. Lank

Mayor  
Roy M. Gladding

Town Council  
Troy L. Balderson  
Katherine B. Carlton  
A. Fleet Dillard III  
Kenneth A. Gillis  
Marcia W. Jenkins  
Anita J. Latane

## TOWN OF TAPPAHANNOCK

P. O. Box 266  
Tappahannock, Virginia 22560  
(804) 443-3336 Fax (804) 443-1051  
[www.tappahannock-va.gov](http://www.tappahannock-va.gov)

### RESOLUTION TO ADOPT THE MIDDLE PENINSULA REGIONAL ALL HAZARDS MITIGATION PLAN UPDATE

**WHEREAS**, the Town of Tappahannock of Virginia has experienced severe damage from a host of hazards such as flooding from hurricanes, nor'easters, wildfires, winter storms, tornadoes, and lightning on many occasions in the past century that have resulted in property losses, loss of life, economic hardships, and threats to public health and safety for all community residents, and

**WHEREAS**, the first Middle Peninsula Regional All Hazards Mitigation Plan ("the Plan") was undertaken as a regional planning project with all nine (9) jurisdictions participating in its development and adoption in 2006, 2011, and 2016, and

**WHEREAS**, all nine (9) Middle Peninsula jurisdictions and federally recognized Tribes in the region participated in the update of the AHMP within the Federal Emergency Management Agency's required 5-year period, and

**WHEREAS**, the Plan update recommends many mitigation strategies that will help to protect the residents and their property from the adverse effects of hazards that face the Town of Tappahannock and

**WHEREAS**, the Plan update was reviewed at a meeting of the Tappahannock Town Council held on May 9, 2022, as required by law.

**NOW, THEREFORE, BE IT RESOLVED**, by the Town of Tappahannock Virginia, that:

1. The Middle Peninsula Regional All Hazards Mitigation Plan update is hereby adopted as the official Plan for the Town of Tappahannock.
2. The respective officials/staff identified in the implementation section of the Plan update are encouraged to implement the mitigation strategies and report on their activities, accomplishments, and progress to the Tappahannock Town Council.
3. The Town Manager for the Town of Tappahannock will report status updates on mitigation strategies to the Middle Peninsula Planning District Commission and the Federal Emergency Management Agency on an annual basis.

Adopted the 9<sup>th</sup> day of May 2022.

*Resolution – Middle Peninsula Hazards Mitigation Plan 2022*

#### **CERTIFICATION**

I hereby certify that the foregoing was duly adopted at a regular meeting of the Town Council of the Town of Tappahannock held on the 9<sup>th</sup> day of May 2022 with a majority of the Town Council present and voting.

**Patsy K. Scates, Town Clerk**



**AT A REGULAR MEETING OF THE GLOUCESTER COUNTY BOARD OF SUPERVISORS, HELD ON TUESDAY, APRIL 19, 2022, AT 7:00 P.M., IN THE COLONIAL COURTHOUSE AT 6504 MAIN STREET, GLOUCESTER, VIRGINIA ON A MOTION MADE BY MR. HUTSON, AND SECONDED BY MR. CHRISCOE, THE FOLLOWING RESOLUTION WAS ADOPTED BY THE FOLLOWING VOTE:**

Phillip N. Bazzani, yes;  
Ashley C. Chriscoe, yes;  
Kenneth W. Gibson, yes;  
Michael W. Hedrick, yes;  
Christopher A. Hutson, yes;  
Robert J. Orth, yes;  
Kevin M. Smith, yes;

**MIDDLE PENINSULA ALL HAZARDS MITIGATION PLAN  
UPDATE**

**WHEREAS**, Gloucester County has experienced severe damage from a host of natural hazards such as flooding from hurricanes and nor'easters, wildfires, winter storms, tornados, and lightning on many occasions in the past century that have resulted in property losses, loss of life, economic hardships as well as threats to public health and safety for all community residents; and

**WHEREAS**, the first Middle Peninsula Natural Hazards Mitigation Plan (the Plan) was undertaken as a regional planning project with nine jurisdictions participating in its development and adoption in 2006, 2011, and 2016; and

**WHEREAS**, all nine Middle Peninsula jurisdictions and federally recognized Tribes in the region actively participated in the update of the Plan to become the Middle Peninsula Regional All Hazards Mitigation Plan within the Federal Emergency Management Agency's required 5-year period; and

**WHEREAS**, the Plan update recommends many mitigation strategies that will help to protect the residents and their property from the adverse effects of natural hazards that face Gloucester County; and

**WHEREAS**, the Plan update was reviewed at a meeting of the Gloucester County Board of Supervisors held on April 19, 2022, as required by law.

**NOW, THEREFORE, BE IT RESOLVED**, by Gloucester County, Virginia, that:

1. The Middle Peninsula Regional All Hazards Mitigation Plan Update is hereby adopted as the official Plan for Gloucester County.

2. The respective officials/staff identified in the implementation section of the Plan update are hereby directed to implement the recommended strategies assigned to them, with these officials/staff reporting on their activities, accomplishments, and progress to the Board of Supervisors on a quarterly basis.
3. The Gloucester County Emergency Management Coordinator will report status updates on mitigation strategies to the Middle Peninsula Planning District Commission and the Federal Emergency Management Agency on an annual basis.

A Copy Teste:



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Carol E. Steele, Acting County Administrator



# ***King and Queen County***

*Founded 1691 in Virginia*

Office of the County Administrator  
P.O. Box 177 • King and Queen Court House, Virginia 23085  
Phone: (804) 785-5975 – Fax: (804) 785-5999

## **RESOLUTION TO ADOPT THE MIDDLE PENINSULA REGIONAL ALL HAZARDS MITIGATION PLAN UPDATE**

**WHEREAS**, the King and Queen County of Virginia has experience severe damage from a host of hazards such as flooding from hurricanes, nor'easters, wildfires, winter storms, tornadoes and lightning on many occasions in the past century that have resulted in property losses, loss of life, economic hardships, and threats to public health and safety for all community residents, and

**WHEREAS**, the first Middle Peninsula Regional All Hazards Mitigation Plan (“the Plan”) was undertaken as a regional planning project with all nine (9) jurisdictions participating in its development and adoption in 2006, 2011, and 2016, and

**WHEREAS**, all nine (9) Middle Peninsula jurisdictions and federally recognized Tribes in the region participated in the update of the AHMP within the Federal Emergency Management Agency’s required 5-year period, and

**WHEREAS**, the Plan update recommends many mitigation strategies that will help to protect the residents and their property from the adverse effects of hazards that face the King and Queen County, and

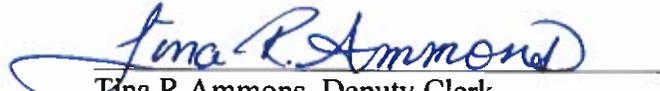
**WHEREAS**, the Plan update was reviewed at a meeting of the King and Queen County Board of Supervisors held on May 9, 2022 as required by law.

**NOW, THEREFORE, BE IT RESOLVED**, by the King and Queen County, Virginia, that:

1. The Middle Peninsula Regional All Hazards Mitigation Plan update is hereby adopted as the official Plan for the King and Queen County.
2. The respective officials/staff identified in the implementation section of the Plan update are encouraged to implement the mitigation strategies and report on their activities, accomplishments, and progress to the King and Queen County Board of Supervisors.

3. The County Administrator of King and Queen County will report status updates on mitigation strategies to the Middle Peninsula Planning District Commission and the Federal Emergency Management Agency on an annual basis.

Adopted the 9<sup>th</sup> day of May, 2022

  
Tina R Ammons, Deputy Clerk



County of King William, Virginia

## Board of Supervisors

### RESOLUTION 22-42 RESOLUTION TO ADOPT THE MIDDLE PENINSULA REGIONAL ALL HAZARDS MITIGATION PLAN

**WHEREAS**, the County of King William, Virginia has experienced severe damage from a host of hazards such as flooding from hurricanes, nor'easters, wildfires, winter storms, tornadoes, and lightning on many occasions in the past century that have resulted in property losses, loss of life, economic hardships, and threats to public health and safety for all community residents, and

**WHEREAS**, the first Middle Peninsula Regional All Hazards Mitigation Plan ("the Plan") was undertaken as a regional planning project with all nine (9) jurisdictions participating in its development and adoption in 2006, 2011, and 2016; and

**WHEREAS**, all nine (9) Middle Peninsula jurisdictions and federally recognized Tribes in the region participated in the update of the Plan within the Federal Emergency Management Agency's required 5-year period; and

**WHEREAS**, the Plan update recommends many mitigation strategies that will help protect the residents and their property from the adverse effects of hazards that face King William County; and

**WHEREAS**, the Plan update was reviewed at a meeting of the King William County Board of Supervisors held on May 9, 2022, as required by law;

**NOW, THEREFORE, BE IT RESOLVED** by the Board of Supervisors of King William County, Virginia, that:

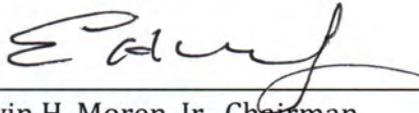
1. The Middle Peninsula Regional All Hazards Mitigation Plan update is hereby adopted as the official Plan for the County of King William, Virginia; and
2. The respective officials/staff identified in the implementation section of the Plan update are encouraged to implement the mitigation strategies and report on their activities, accomplishments, and progress to the King William County Board of Supervisors; and
3. The County Administrator and Board of Supervisors will report status updates on mitigation strategies to the Middle Peninsula Planning District Commission and the Federal Emergency Management Agency on an annual basis.

**DONE** this 23rd day of May, 2022.

The vote on the foregoing was as follows:

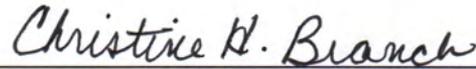
Supervisor, 1st District: William L. Hodges – Vice Chair	Aye
Supervisor, 4th District: C. Stewart Garber, Jr.	Aye
Supervisor, 2nd District: Travis J. Moskalski	Aye
Supervisor, 3rd District: Stephen K. Greenwood	Aye
Supervisor, 5th District: Edwin H. Moren, Jr. – Chairman	Aye

ATTEST:



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Edwin H. Moren, Jr., Chairman  
King William County Board of Supervisors



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Christine H. Branch  
Deputy Clerk to the Board of Supervisors



**RESOLUTION TO ADOPT THE MIDDLE PENINSULA REGIONAL  
ALL HAZARDS MITIGATION PLAN UPDATE**

**WHEREAS**, the Town of West Point of Virginia has experienced severe damage from a host of hazards such as flooding from hurricanes, nor'easters, wildfires, winter storms, tornadoes and lightning on many occasions in the past century that have resulted in property losses, loss of life, economic hardships, and threats to public health and safety for all community residents, and

**WHEREAS**, the first Middle Peninsula Regional All Hazards Mitigation Plan ("the Plan") was undertaken as a regional planning project with all nine (9) jurisdictions participating in its development and adoption in 2006, 2011, and 2016, and

**WHEREAS**, all nine (9) Middle Peninsula jurisdictions and federally recognized Tribes in the region participated in the update of the AHMP within the Federal Emergency Management Agency's required 5-year period, and

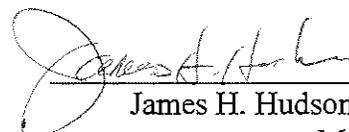
**WHEREAS**, the Plan update recommends many mitigation strategies that will help to protect the residents and their property from the adverse effects of hazards that face the Town of West Point, and

**WHEREAS**, the Plan update was reviewed at a meeting of the West Point Town Council held on April 25, 2022 as required by law.

**NOW, THEREFORE, BE IT RESOLVED**, by the Town of West Point, Virginia, that:

1. The Middle Peninsula Regional All Hazards Mitigation Plan update is hereby adopted as the official Plan for the Town of West Point.
2. The respective officials/staff identified in the implementation section of the Plan update are encouraged to implement the mitigation strategies and report on their activities, accomplishments, and progress to the West Point Town Council.
3. The Town Manager will report status updates on mitigation strategies to the Middle Peninsula Planning District Commission and the Federal Emergency Management Agency on an annual basis.

Certified to be a true copy of a resolution adopted by the Town Council of the Town of West Point at its regular monthly meeting held on the 25th day of April 2022, at which meeting a quorum was present and voting throughout.

  
James H. Hudson, III  
Mayor

ATTEST:

  
Karen M. Barrow  
Town Clerk

# Middlesex County Board of Supervisors



## RESOLUTION R-2022-002

**At a meeting of the Middlesex County Board of Supervisors held on May 3, 2022 at 3:00 p.m.: On a motion duly made by Supervisor Jessie, and seconded by Supervisor Koontz, the following Resolution was adopted by the following vote:**

Wayne H. Jessie, Sr.	Aye
Don R. Harris	Aye
John B. Koontz, Jr.	Aye
Lud H. Kimbrough, III	Aye
Reginald A. Williams, Sr.	Aye

### **A RESOLUTION TO ADOPT THE MIDDLE PENINSULA REGIONAL ALL HAZARDS MITIGATION PLAN UPDATE**

**WHEREAS**, Middlesex County, Virginia has experience severe damage from a host of hazards such as flooding from hurricanes, nor'easters, wildfires, winter storms, tornadoes and lightning on many occasions in the past century that have resulted in property losses, loss of life, economic hardships, and threats to public health and safety for all community residents, and

**WHEREAS**, the first Middle Peninsula Regional All Hazards Mitigation Plan ("the Plan") was undertaken as a regional planning project with all nine (9) jurisdictions participating in its development and adoption in 2006, 2011, and 2016, and

**WHEREAS**, all nine (9) Middle Peninsula jurisdictions and federally recognized Tribes in the region participated in the update of the AHMP within the Federal Emergency Management Agency's required 5-year period, and

**WHEREAS**, the Plan update recommends many mitigation strategies that will help to protect the residents and their property from the adverse effects of hazards that face Middlesex County, Virginia, and

**WHEREAS**, the Plan update was reviewed at a meeting of the Middlesex County Board of Supervisors held on May 3, 2022, as required by law.

**NOW, THEREFORE, BE IT RESOLVED**, by the Middlesex County Board of Supervisors, Virginia, that:

1. The Middle Peninsula Regional All Hazards Mitigation Plan update is hereby adopted as the official Plan for the Middlesex County, Virginia.
2. The respective officials/staff identified in the implementation section of the Plan update are encouraged to implement the mitigation strategies and report on their activities, accomplishments, and progress to the Middlesex County Board of Supervisors.
3. The County Administrator of the Middlesex County Board of Supervisors will report status updates on mitigation strategies to the Middle Peninsula Planning District Commission and the Federal Emergency Management Agency on an annual basis.

Adopted the 3<sup>rd</sup> day of May, 2022

A Copy Teste:



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Matt Walker, County Administrator

# RESOLUTION

## RESOLUTION TO ADOPT THE MIDDLE PENINSULA REGIONAL ALL HAZARDS MITIGATION PLAN UPDATE

**WHEREAS**, the Town of Urbanna, Virginia has experienced severe damage from a host of hazards such as flooding from hurricanes, nor'easters, wildfires, winter storms, tornadoes and lightning on many occasions in the past century that have resulted in property losses, loss of life, economic hardships, and threats to public health and safety for all community residents, and

**WHEREAS**, the first Middle Peninsula Regional All Hazards Mitigation Plan ("the Plan") was undertaken as a regional planning project with all nine (9) jurisdictions participating in its development and adoption in 2006, 2011, and 2016, and 2022, and

**WHEREAS**, all nine (9) Middle Peninsula jurisdictions and federally recognized Tribes in the region participated in the update of the AHMP within the Federal Emergency Management Agency's required 5-year period, and

**WHEREAS**, the Plan update recommends many mitigation strategies that will help to protect the residents and their property from the adverse effects of hazards that face the {Locality/Tribe}, and

**WHEREAS**, the Plan update was reviewed and voted to approve at a meeting of the Town of Urbanna Town Council held on Thursday, May 14, 2022 as required by law.

**NOW, THEREFORE, BE IT RESOLVED**, by the Town of Urbanna, Virginia, that:

1. The Middle Peninsula Regional All Hazards Mitigation Plan update is hereby adopted as the official Plan for the Town of Urbanna, VA.
2. The respective officials/staff identified in the implementation section of the Plan update are encouraged to implement the mitigation strategies and report on their activities, accomplishments, and progress to the Urbanna Town Council.
3. The Town Administrator of Urbanna will report status updates on mitigation strategies to the Middle Peninsula Planning District Commission and the Federal Emergency Management Agency on an annual basis.

Adopted the 14<sup>th</sup> day of May, 2022

A Copy Teste:



Martha J. Rodenburg  
Town Clerk



## RESOLUTION TO ADOPT THE MIDDLE PENINSULA REGIONAL ALL HAZARDS MITIGATION PLAN UPDATE

**WHEREAS**, the County of Mathews of Virginia has experience severe damage from a host of hazards such as flooding from hurricanes, nor'easters, wildfires, winter storms, tornadoes, and lightning on many occasions in the past century that have resulted in property losses, loss of life, economic hardships, and threats to public health and safety for all community residents, and

**WHEREAS**, the first Middle Peninsula Regional All Hazards Mitigation Plan ("the Plan") was undertaken as a regional planning project with all nine (9) jurisdictions participating in its development and adoption in 2006, 2011, and 2016, and

**WHEREAS**, all nine (9) Middle Peninsula jurisdictions and federally recognized Tribes in the region participated in the update of the "the Plan" within the Federal Emergency Management Agency's required 5-year period, and

**WHEREAS**, the Plan update recommends many mitigation strategies that will help to protect the residents and their property from the adverse effects of hazards that face the County of Mathews, and

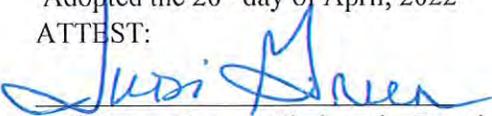
**WHEREAS**, the Plan update was reviewed at a meeting of the County of Mathews Board of Supervisors held on April 26, 2022 as required by law.

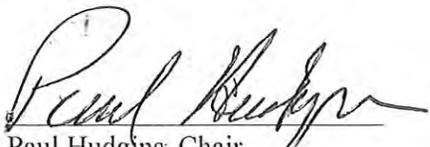
**NOW, THEREFORE, BE IT RESOLVED**, by the County of Mathews, Virginia, that:

1. The Middle Peninsula Regional All Hazards Mitigation Plan update is hereby adopted as the official Plan for the County of Mathews.
2. The respective officials/staff identified in the implementation section of the Plan update are encouraged to implement the mitigation strategies and report on their activities, accomplishments, and progress to the County of Mathews Board of Supervisors.
3. The County Administrator of the County of Mathews Board of Supervisors will report status updates on mitigation strategies to the Middle Peninsula Planning District Commission and the Federal Emergency Management Agency on an annual basis.

Adopted the 26<sup>th</sup> day of April, 2022

ATTEST:

  
Judi Green, Deputy Clerk to the Board

  
Paul Hudgins, Chair

RECORDED VOTE:

Ms. Ingram  
 Rev. Dr. Mason  
 Mr. Jones  
 Mr. Walls  
 Mr. Hudgins



PAMUNKEY TRIBAL GOVERNMENT  
1054 POCAHONTAS TRAIL  
PAMUNKEY INDIAN RESERVATION  
KING WILLIAM, VA 23086

**2022-RES-003**  
**RESOLUTION TO ADOPT THE MIDDLE PENINSULA ALL HAZARDS  
MITIGATION PLAN**

**WHEREAS**, This Resolution (this "Resolution") is being adopted by the Chief and Tribal Council (the "Tribal Council"), the governing body of the Pamunkey Indian Tribe (the "Tribe") as referred to in the Laws of the Pamunkey Indians (the "Laws"); and

**WHEREAS**, Pursuant to Article II of the Laws, the affairs of the Tribe shall be administered and directed by a Chief and Tribal Council, which includes the power to administer the affairs and government of the Tribe, and Article VII of the Laws the Chief and Council have the authority to adopt an ordinance; and

**WHEREAS**, Pursuant to Ordinance LVII, Section M, the Chief and Council have the authority to adopt, rescind and modify ordinances. Such action should include a resolution. Except in emergency situations, such action requires a minimum 15-day announcement satisfied by either public posting, announcement at tribal meeting or direct mail or distribution to resident tribal members;

**WHEREAS**, The Tribe is committed to the safety and well-being of Tribal citizens living on the Pamunkey Indian Reservation; and

**WHEREAS**, THE Middle Peninsula All Hazards Mitigation Plan that has been adopted and approved by the Federal Emergency Management Agency (FEMA) on April 12, 2022 that covers the geographic area of the Pamunkey Indian Reservation; and

**WHEREAS**, The Tribe has worked in coordination with Virginia Department of Emergency Management to develop a portion of this plan that affects the Pamunkey Indian Tribe and the Pamunkey Indian Reservation;

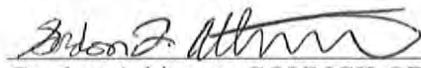
**NOW, THEREFORE, BE IT RESOLVED:** The Tribal Council hereby indicates its adoption of the Middle Peninsula All Hazards Mitigation Plan.

**CERTIFICATION**

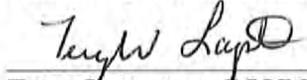
We, the undersigned, do hereby certify that the Pamunkey Indian Tribal Chief and Tribal Council, which is composed of eight (8) members, certify that the foregoing Resolution was adopted on SEPT, 2022 by the affirmative vote of 5 Council persons for, 0 Council persons against, and 0 Council persons abstaining.

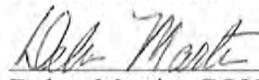
  
\_\_\_\_\_  
Robert Gray, CHIEF  
Pamunkey Indian Tribal Council

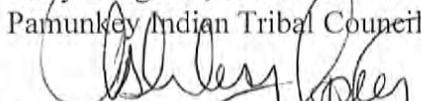
\_\_\_\_\_  
Frederick Timothy "Tim" Langston,  
ASSISTANT CHIEF  
Pamunkey Indian Tribal Council

  
\_\_\_\_\_  
Gordon Atkinson, COUNCILOR  
Pamunkey Indian Tribal Council

  
\_\_\_\_\_  
Walter Hill Jr., COUNCILOR  
Pamunkey Indian Tribal Council

  
\_\_\_\_\_  
Terry Langston, COUNCILOR  
Pamunkey Indian Tribal Council

  
\_\_\_\_\_  
Debra Martin, COUNCILOR  
Pamunkey Indian Tribal Council

  
\_\_\_\_\_  
Ashley Spivey, COUNCILOR  
Pamunkey Indian Tribal Council

\_\_\_\_\_  
Wendy Roberson, COUNCILOR  
Pamunkey Indian Tribal Council



## RAPPAHANNOCK TRIBE

Tribal Government Offices  
5036 Indian Neck Rd.  
Indian Neck, VA 23148  
Phone: 804-769-0260  
Fax 804-769-9250  
E-mail: rappahannocktribe@aol.com

G. Anne  
Richardson  
*Chief*

J. Mark Fortune  
*Assistant Chief*

Faye Fortune  
*Secretary*

Paula Pitts  
*Treasurer*

### To Approve & Adopt the Middle Peninsula Planning District Commission Regional All Hazard Mitigation Plan 2021

#### Rappahannock Tribe Resolution Number 2022 - 009

- WHEREAS,** The Rappahannock Tribe is a Federally Recognized and Acknowledged Tribe, possessing the inherent sovereign powers of a Tribal Government; and
- WHEREAS,** pursuant to Resolution 2018-04, Constitution and By-Laws of the Rappahannock Tribe ("Tribal Council") is the governing body of the Tribe, and
- WHEREAS,** The Tribal Government recognizes the Articles of Incorporation of Rappahannock Tribe, Inc. and certifies the members of the Rappahannock Tribe, Inc of eighteen years or more, do hereby associate as a Corporation, not for profit by virtue of the provision of Chapter Two of Title 13.1 of the code of Virginia and to that is set forth in the Articles of Incorporation; and
- WHEREAS,** The area covered by the Middle Peninsula Planning District Commission Regional All Hazard Mitigation Plan 2021 includes Essex, Gloucester, King William, King & Queen, Mathews, and Middlesex Counties and the Towns of West Point, Urbanna and Tappahannock and the three federally recognized Tribes, including the Pamunkey Tribe, Rappahannock Tribe and the Upper Mattaponi Tribe of the Middle Peninsula. As part of the mitigation planning requirement of the Disaster Mitigation Act of 2000 (DMA 2000), localities and tribes worked to identify, assess, and mitigate risks within their communities to ensure that critical services would continue to function if a disaster were to occur; and

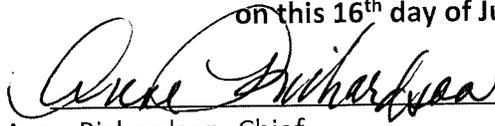
**WHEREAS,** The Rappahannock Tribe has experienced severe damage from natural hazards such as flooding, wind damage, winter storms, and lightning on many occasions in the past as well as threats to public health and safety for all community residents: and

**WHEREAS,** All nine Middle Peninsula jurisdictions and federally recognized Tribes in the region actively participated in the update of the Plan to become the Middle Peninsula Planning District Commission Regional All Hazard Mitigation Plan 2021 within the Federal Emergency Management Agency's required 5-year period; and

**WHEREAS,** The Plan update recommends many mitigation strategies that will help to protect the residents and their property from the adverse effects of natural hazards that face the counties community areas.

**NOW, THEREFORE, BE IT RESOLVED** that the Rappahannock Tribal Council agreed to approve and adopt the Middle Peninsula Planning District Commission All Hazard Mitigation Plan 2021.

The Tribal Council of Rappahannock Tribe does hereby certify that the forgoing resolution was adopted and approved at a duly called meeting of the Tribal Council on this 16<sup>th</sup> day of July 2022, by consensus.

  
Anne Richardson, Chief

  
Date



**RESOLUTION OF THE TRIBAL GOVERNMENT OF THE UPPER MATTAPONI  
INDIAN TRIBE**

**To Adopt the Middle Peninsula Regional All Hazards Mitigation Plan Updated 2022**

**Resolution Number 2022-\_\_\_**

**WHEREAS**, the Upper Mattaponi Indian Tribe of Virginia, has experience severe damage from a host of hazards such as flooding from hurricanes, nor'easters, wildfires, winter storms, tornadoes and lightning on many occasions in the past century that have resulted in property losses, loss of life, economic hardships, and threats to public health and safety for all community residents, and

**WHEREAS**, the first Middle Peninsula Regional All Hazards Mitigation Plan ("the Plan") was undertaken as a regional planning project with all nine (9) jurisdictions participating in its development and adoption in 2006, 2011, 2016, and 2022, and

**WHEREAS**, all nine (9) Middle Peninsula jurisdictions and federally recognized Tribes in the region participated in the update of the AHMP within the Federal Emergency Management Agency's required 5-year period, and

**WHEREAS**, the Plan update recommends many mitigation strategies that will help to protect the residents and their property from the adverse effects of hazards that face the Upper Mattaponi Indian Tribe, and

**WHEREAS**, the Plan update was reviewed at a meeting of the Upper Mattaponi Indian Tribe Council held on 29 June 2022 as required by law.

**NOW, THEREFORE, BE IT RESOLVED**, by the Upper Mattaponi Indian Tribe of Virginia, that:

1. The Middle Peninsula Regional All Hazards Mitigation Plan update is hereby adopted as the official Plan for the Upper Mattaponi Indian Tribe.

2. The respective officials/staff identified in the implementation section of the Plan update are encouraged to implement the mitigation strategies and report on their activities, accomplishments, and progress to Upper Mattaponi Indian Tribe Council.
3. The Emergency Manager of the Upper Mattaponi Indian will report status updates on mitigation strategies to the Middle Peninsula Planning District Commission and the Federal Emergency Management Agency on an annual basis.

### VOTING AND CERTIFICATION

This resolution was read and considered by the Tribal Council on behalf of the Tribe with 5 voting in favor, 0 voting against, and 1 abstention.

W. Fred Adams, Chief

### ATTEST

The foregoing resolution was presented and votes cast as indicated on the 29<sup>th</sup> day of June in the year 2022 by the duly elected government of the Upper Mattaponi Indian Tribe with a quorum present and voting.

Carol Ann Adams, Tribal Secretary

**Appendix O -  
Pamunkey Tribe Addendum**

**PAMUNKEY TRIBE HAZARD MITIGATION PLAN  
ADDENDUM TO MIDDLE PENNINSULA ALL HAZARDS MITIGATION PLAN**

**Chief Robert Gray  
Tribal Administrator,  
Pamunkey Indian Tribe**

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## **Vision and Value Statements**

The Tribe promotes the general welfare of its members by establishing duties, responsibilities and procedures for the conduct of domestic and external affairs.

### **All Hazard Mitigation Vision**

The Tribe will strive to work with surrounding communities and local emergency responders to create an active and results-oriented all hazard mitigation plan that will make the reservation, its residents and visitors a safer and more sustainable place.

### **Note Concerning Sacred Sites**

“The land within the Tribe’s jurisdiction and surrounding areas may contain natural and cultural resources and historic property of significance to the Tribe’s culture, history and values, including burial grounds and other sacred sites. The Tribe intends by this action to fully incorporate Sacred Sites into its disaster and emergency preparedness, mitigation and response plans and procedures by reference while addressing the needs and values of its community.

The entire Pamunkey Indian Reservation is listed on the National Register of Historic Places as an Archaeological District. Sacred sites of public knowledge include a cemetery behind the Pamunkey Indian Baptist Church and a site known as Powhatan’s Mound. We do not wish to disclose any other site.

## **Background: Federal Trust Lands**

The U.S. government has a trust responsibility to act as a protectorate for American Indian Tribal governments. This trust responsibility was an underlying promise made by the United States through treaties and agreements with Indian tribes. The U.S. government acquired virtually all of its land through treaties or agreements with Indian tribes. Today, most lands that Indian tribes use are owned by the United States and held in trust by the U.S. government for those tribes. The U.S. government promised that if Indian tribes would accept the limited jurisdiction of the United States, it would then extend a protectorate status to tribal governments. The U. S. Supreme Court affirmed the U.S. government's trust responsibility to American Indians in the 1830s. The court ruled that when the government entered into treaties with Indian tribes, it made a promise to protect and enhance Indian tribes.

The U.S. government assumes a trust responsibility for all lands that it owns, whether they are national parks, national forests, military reserves or Indian trust lands. The government's responsibility is to manage those lands in a way that best serves the people who use them. The United States is responsible for ensuring decisions affecting Indian trust land will benefit the tribes involved. In recent years, the United States has said that every federal agency has an obligation to ensure the protection of tribal governments, even though the trust relationship is administered primarily through the Bureau of Indian Affairs.

At this time the Pamunkey Indian Reservation is NOT federal trust land but is considered by the Commonwealth of Virginia to be state trust land. The Pamunkey Tribe does intend to request the land be taken into federal trust at a later date.

### **Tribal Government Structure**

Indian tribes have sovereign powers over their members and their territories. These powers derive from their status as sovereign nations that existed before the formation of the United States. These powers also derive from treaties with the United States and acts of Congress.

The purpose of the tribal government of the Tribe is to promote the general welfare of its citizens by establishing duties, responsibilities and procedures for the conduct of domestic and external affairs.

### **Pamunkey Tribe Community Profile**

This section was reviewed by Chief Robert Gray. The Community Profile provides a broad overview of the Tribe's physical, geopolitical, historical, cultural and socioeconomic characteristics, based on the most currently available information.

The coordinated use and implementation of these combined documents form a sound basis for all hazard mitigation projects, plans and activities and ensure that they are tied to the King William County's land use and environmental regulations.

## General Overview

The Pamunkey Indian Reservation is a Native American reservation located in King William, Virginia, United States. The reservation lies along the Pamunkey River in King William County, Virginia on the Middle Peninsula. The Pamunkey Reservation contains approximately 1,200 acres (4.8 km<sup>2</sup>) of land, 500 acres (2 km<sup>2</sup>) of which is wetlands with numerous creeks. Forty-Three families reside on the reservation and many Tribal members live in nearby Richmond, Newport News, and other parts of Virginia.

The Pamunkey Indian Tribe is one of eleven Virginia Indian tribes recognized by the Commonwealth of Virginia, and the state's first federally recognized tribe, receiving its status in January 2016. The historical tribe was part of the Powhatan paramountcy, made up of Algonquian-speaking tribes. The Powhatan paramount chiefdom was made up of over 30 tribes, estimated to total about 10,000–15,000 people at the time the English arrived in 1607. The Pamunkey tribe made up about one-tenth to one-fifteenth of the total, as they numbered about 1,000 persons in 1607. When the English arrived, the Pamunkey were one of the most powerful groups of the Powhatan chiefdom. They inhabited the coastal tidewater of Virginia on the north side of the James River near Chesapeake Bay.

The Pamunkey tribe is one of only two that still retain reservation lands assigned by the 1646 and 1677 treaties with the English colonial government. The Pamunkey reservation is located on some of its ancestral land on the Pamunkey River adjacent to present-day King William County, Virginia. The Pamunkey tribe maintains its own laws and its own governing body, which consists of a chief and seven council members. The reservation was confirmed to the Pamunkey tribe as early as 1658 by the Governor, the Council, and the General Assembly of Virginia. The treaty of 1677 between the King of England, acting through the Governor of Virginia, and several Native American tribes including the Pamunkey is the most important existing document describing Virginia's relationship towards Indian land.

## Reservation Boundaries

The reservation boundary begins at the railroad crossing on Rte 673, Pocahontas Trail and ends at the Pamunkey River.

## Physical Characteristics

As the Pamunkey Reservation is located in the Virginia coastal plain, it has a relatively flat topography.

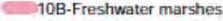
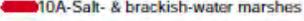
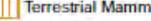
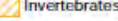
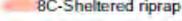
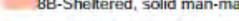
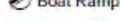
## Primary Transportation Connections

Ingress and egress to the reservation is solely via Rte 673, Pocahontas Trail which requires crossing a railroad track and, immediately adjacent, a low area that has flooded at times. Access to Rte 673 is solely via Rte 633, Powhatan Trail which extends for approximately one mile from the end of Rte 673 before branching off to any other access road.

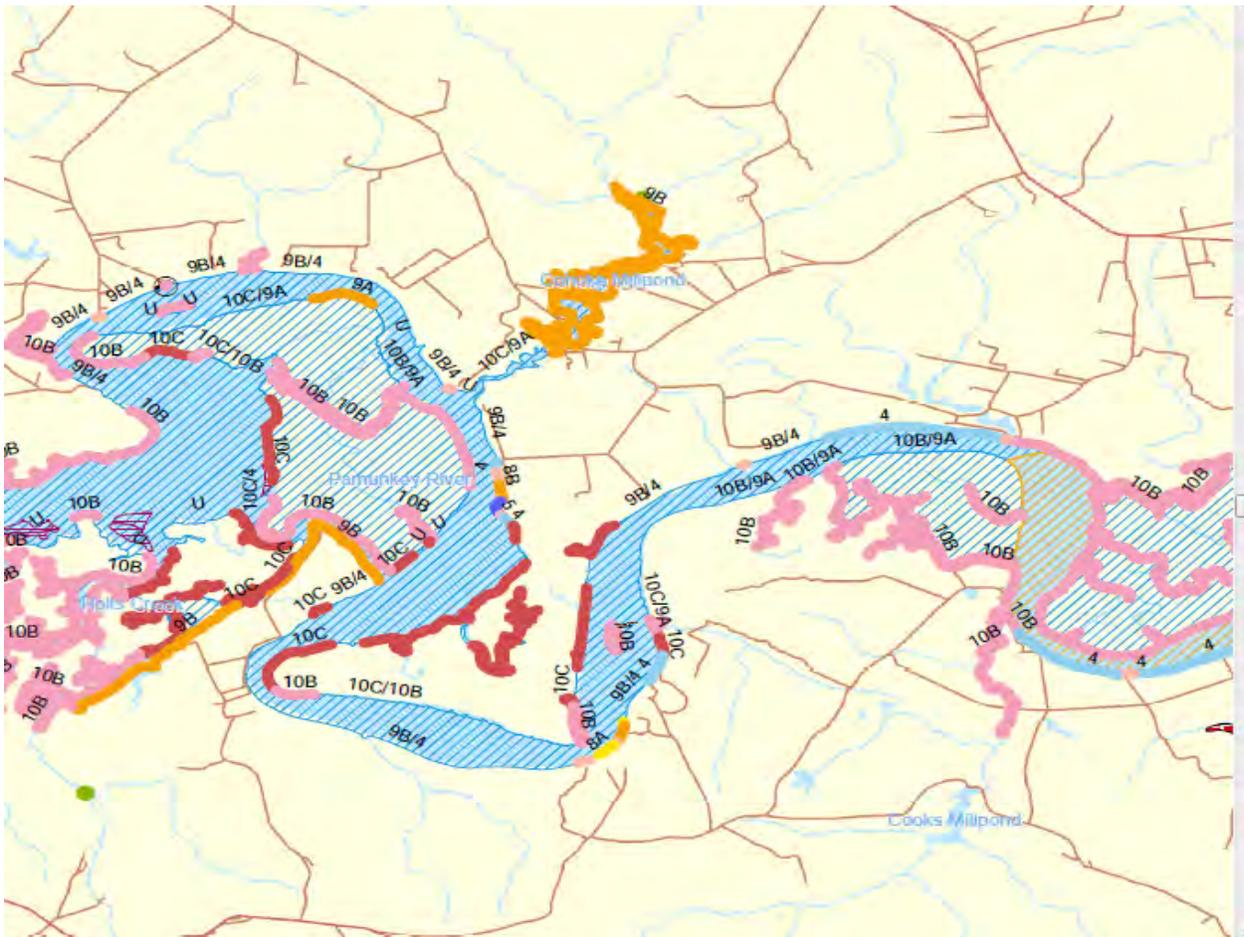
## Land Use

The Pamunkey Tribe's land use consists of recreation-based activities, limited agriculture, a fish hatchery and historic, cultural sites with a museum.

### Legend

- |   |   |
|---|---|
|  10C-Swamps                              |  Nests               |
|  10B-Freshwater marshes                  |  Marine Mammals      |
|  10A-Salt- & brackish-water marshes      |  Terrestrial Mammals |
|  9B-Sheltered, vegetated low banks       |  Habitats            |
|  9A-Sheltered tidal flats                |  Invertebrates       |
|  8C-Sheltered riprap                     |  Reptiles            |
|  8B-Sheltered, solid man-made structures |  Fish                |
|  8A-Sheltered scarps in clay             |  10A Wetlands        |
|  5-Mixed sand & gravel beaches           |   |
|  4-Coarse-grained sand beaches           |   |
|  Reptile Points                          |   |
|  Boat Ramp                               |   |

Pamunkey Indian Tribe Virginia Area  
Contingency Plan (Guide 58)



## Climate

### Climate Average Precipitation and Snowfall

At the West Point station in King William County, snow cover data was collected for 44 years between 1953 and 1997. Based on snowfall frequency and accumulation during this period, a general risk of snow cover and snow depth in a given year was calculated. Rayburn and Lozier determined that there is a 50% risk of having between 1 and 8 inches of snow on the ground for 8 days or more. This means that, in one year out of two, the Pamunkey Indian reservation will probably have snow of up to 8 inches on the ground for 8 days.

In one year out of 4, the Pamunkey Indian reservation may have snow cover up to 8 inches deep for 15 days (in other words, there is a 25% chance of having snow for 15 days).

In one year out of ten, the Pamunkey Indian reservation may have up to 8 inches of snow for 19 days (there is a 10% chance of having snow for 19 days). For deeper accumulations (greater than 8 inches), the risk is the same. There is a 10% risk of having snow cover for 2 days or more. This means that, in 1 year out of 10, this location probably will have snow cover of at least 8 inches for 2 days. The average annual snowfall for 2014 at the Pamunkey Indian reservation was 10.1 inches.

Compared to western, northern, and mountainous regions of the state, the risk of high snow accumulations in the Middle Peninsula is low and will vary amongst localities. According to the National Climatic Data Center, mean annual snowfall in the Middle Peninsula ranges from between 6 and 12 inches at the lower reaches of the region (primarily in Gloucester and Mathews Counties) to as much as 12 to 24 inches in the upper reaches of the region (primarily in Essex, King and Queen, King William, and Middlesex Counties). The proximity of adjacent water bodies bordering the region (Chesapeake Bay and its tributaries) to the Atlantic Ocean allows the Bay to retain heat and buffer to the region from intense snow. The amount of snow that falls across the watershed varies both from year to year and from location to location.

## Hydrology

Based on the regions low topography, 1200+ miles of coastline, and its proximity to waterways-broad rivers, meandering creeks, wide bays and tidal marshes, the Pamunkey Reservation is highly susceptible to floods and coastal storms. Tidal surges associated with these severe storms often compound the flooding within this region.

## Community Infrastructure

### Critical Structure Survey

<b>Infrastructure Name</b>	<b>Address</b>	<b>City</b>	<b>State</b>	<b>Zip</b>	<b>Phone</b>
<b>Museum &amp; Cultural Center</b>	<b>175 Lay Landing Road</b>	<b>King William</b>	<b>VA</b>	<b>23086</b>	<b>(804) 339-1629</b>
<b>Fish Hatchery</b>	<b>759 Lay Landing Rd</b>	<b>King William</b>	<b>VA</b>	<b>23086</b>	<b>(804) 339-1629</b>
<b>Pottery School</b>	<b>191 Lay Landing Rd</b>	<b>King William</b>	<b>VA</b>	<b>23086</b>	<b>(804) 339-1629</b>
<b>School House</b>	<b>191 Lay Landing Rd</b>	<b>King William</b>	<b>VA</b>	<b>23086</b>	<b>(804) 339-1629</b>
<b>Church</b>	<b>1446 Spring Creek Rd</b>	<b>King William</b>	<b>VA</b>	<b>23086</b>	<b>(804) 339-1629</b>
<b>Tribal Office</b>	<b>1054 Pocahontas Trail</b>	<b>King William</b>	<b>VA</b>	<b>23086</b>	<b>(804) 339-1629</b>
<b>Tribal Resource Center</b>	<b>1084 Pocahontas Trail</b>	<b>King William</b>	<b>VA</b>	<b>23086</b>	<b>(804) 339-1629</b>

### Sacred Sites

The land within the Tribe’s jurisdiction and surrounding areas may contain natural and cultural resources and historic property of significance to the Tribe’s culture, history and values, including burial grounds and other sacred sites.

### Railroads and Waterways

The railroad borders the northern part of the reservation with a railroad crossing on Rte 673 (Pocahontas Trail). The Pamunkey River borders the southern part of the reservation.

### Emergency Response Capabilities

The Tribe employs a full time, Emergency Management Coordinator. The Emergency Management Coordinator has been active participants in county, regional, tabletop, functional and full scale exercises. The Tribe routinely conducts similar exercises internally to ensure unified command skills and responsibilities from mobilization to demobilization are maintained.

### Police and Conservation Officers

Law Enforcement is provided King William County because the Pamunkey Indian Reservation is currently state trust land. When the land transfers to federal trust, the Pamunkey Tribe may choose to provide law enforcement or enter into a compact with the Commonwealth and/or King William County.

## Fire Services

Provided by the King William County Fire and EMS. King William County is responsible for fire protection on state forest and park land. Because the Pamunkey Indian Reservation is currently state trust land, the County is responsible for fire protection. When the land transfers to federal trust, the Pamunkey Tribe may choose to provide fire protection or enter into a compact with King William County.

## Risk Assessment: Hazards Facing the Reservation

The probability of future occurrence for each hazard is identified in the risk assessment conclusions portion of each hazard analysis. Overall risk was determined by Pamunkey Tribe assessments of hazard areas, hazard impacts, and probability of occurrence.

## Natural Hazards

### 1 Violent Storms

#### A Winter Storms

- Blizzards, Heavy Snows
- Ice Storms, Sleet

#### B Summer Storms

- Tornadoes, Straight-line Winds
- Thunderstorms, Hail, Lightning,

### 2 Flood

### 3 Extreme Temperatures

### 4 Drought

### Other Hazards

#### 1 Structural Fire

#### 2 Hazardous Materials

## Natural Hazards

The future probability of some identified hazards is difficult to ascertain given the lack of data available to perform such an analysis. Prior to the next plan update, needed data on events and their impacts to improve future analysis will be researched and completed.

## **Hazard: Violent Storms (1).**

**Summer Storms** include straight line wind events and are a clearly defined natural hazard that can unexpectedly cause downed trees, power outages, etc. These storms are specific to the warmer months and are clearly different and separate from other storm events.

### **Tornadoes**

The National Weather Service (NWS) defines a tornado as a violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. A condensation funnel does not need to reach to the ground for a tornado to be present; however a debris cloud beneath a thunderstorm is all that is needed to confirm the presence of a tornado, even without a condensation funnel.

Tornadoes are distinguishable from waterspouts, which are small, relatively weak rotating columns of air over water beneath a cumulonimbus or towering cumulus cloud. Waterspouts are most common over tropical or subtropical waters. The exact definition of waterspout is debatable. In most cases the term is reserved for small vortices over water that are not associated with storm-scale rotation (i.e., they are the water-based equivalent of land spouts). Yet there is sufficient justification for calling virtually any rotating column of air a waterspout if it is in contact with a water surface. Between 1950 and 2014, twelve tornadoes were reported in Gloucester County, seven in Middlesex, seven in Mathews, six in King and Queen County, two in Essex County, and seven in King William County (NCDC Storm Event Database, 2015).

### **Tornado Vulnerability**

Weak tornadoes may break branches or damage signs. Damage to buildings (ie. mobile homes or weak structures) primarily affects roofs and windows, and may include loss of the entire roof or just part of the roof covering and sheathing. Windows are usually broken from windborne debris.

In a strong tornado, some buildings may be destroyed but most suffer damage like loss of exterior walls or roof or both; interior walls usually survive. Violent tornadoes cause severe to incredible damage, including heavy cars lifted off the ground and thrown and strong frame houses leveled off foundations and swept away; trees are uprooted, debarked and splintered.

### **Probability**

The probability of a Tornado is difficult to ascertain given the lack of data available to perform such an analysis. Even so, Tornado events are considered to be a low-probability event, but with the potential to have a significant impact when and where they do occur.

### **Snow Storm**

The winter months can bring a wide variety of hazards to the Middle Peninsula, including blizzards, snowstorms, ice, sleet, freezing rain, and extremely cold temperatures. All of these weather events can be experienced throughout the state, depending on the depth of cold air that is in place over the region when the storm event comes. The Middle Peninsula's biggest winter weather threats come from Northeasters or Nor'easters. These large storms form along the southern Atlantic coast and move northeast into Virginia along the Mid-Atlantic coast. Winter

storm events can bring strong winds and anything from rain to ice to snow to even blizzard conditions over a very large area. This combination of heavy frozen precipitation and winds can be quite destructive and lead to widespread utility failures and high cleanup costs. Nor'easters may occur from November through April, but are usually at their worst in January, February, and March.

The impacts of winter storms are minimal in terms of property damage and long-term effects. The most notable impact from winter storms is the damage to power distribution networks and utilities. Severe winter storms with significant snow accumulation have the potential to inhibit normal functions of the Middle Peninsula. Governmental costs for this type of event are a result of the needed personnel and equipment for clearing streets. Private sector losses are attributed to lost work when employees are unable to travel. Homes and businesses suffer damage when electric service is interrupted for long periods. Health threats can become severe when frozen precipitation makes roadways and walkways very slippery and due to prolonged power outages and if fuel supplies are jeopardized. Occasionally, buildings may be damaged when snow loads exceed the design capacity of their roofs or when trees fall due to excessive ice accumulation on branches. The primary impact of excessive cold is increased potential for frostbite, and potentially death as a result of over-exposure to extreme cold. Some secondary hazards extreme/excessive cold present is a danger to livestock and pets, and frozen water pipes in homes and businesses.

### **Hazard: Flooding and erosion (2).**

#### **Floodplain Properties and Structures**

While floodplain boundaries are officially mapped by FEMA's National Flood Insurance Program (NFIP), flood waters sometimes go beyond the mapped floodplains and/or change courses due to natural processes (e.g., accretion, erosion, sedimentation, etc.) or human development (e.g., filling in floodplain or floodway areas, increased imperviousness areas within the watershed from new development, or debris blockages from vegetation, cars, travel trailers, mobile homes and propane tanks).

In addition to tidal flooding, some regions of the Middle Peninsula are subject to flooding events induced by rain associated with a hurricane or a tropical storm, which can produce extreme amounts of rainfall in short periods of time. In August 2004, Tropical Storm Gaston dumped 14 inches of rain in a matter of hours on King William County, washing out numerous roads and bridges. This storm qualified the county for disaster aid through a Presidential Disaster Declaration.

Flooding of vacant land or land that does not have a direct effect on people or the economy is generally not considered a problem. Flood problems arise when floodwaters cover developed areas, locations of economic importance, infrastructure or any other critical facility. Low-lying land areas of Essex, Gloucester, Mathews, and Middlesex Counties and the lower reaches of King and Queen and King William Counties are highly susceptible to flooding, primarily from coastal storm when combined with tidal surges.

#### **Probability**

Floods typically are characterized by frequency, for example, the “1%-annual chance flood,” commonly referred to as the “100-year” flood. While more frequent floods do occur, in addition to larger events that have lower probabilities of occurrence, for most regulatory and hazard identification purposes, the 1%-annual chance flood is used.

### **Hazard: Extreme Temperatures (3).**

Extreme heat, generally associated with drought conditions, is a phenomenon that is generally confined the months of July and August, although brief periods of excessive heat have occurred in June and September. Extreme heat can be defined either by actual air temperature, or by the heat index, which relates the combined effects of humidity and air temperature on the body. Extreme heat is not an annual event in the Middle Peninsula. Although heat advisories are issued near every year, life-threatening extreme heat is a rare occurrence in the Middle Peninsula region. The frequency of occurrence is dependent entirely upon the extreme heat criteria used (i.e. heat index vs. air temperature). The primary impact of extreme heat is increased potential for hyperthermia, which can be fatal to the elderly and infirmed. In addition, there is an increased risk of dehydration, if proper steps are not taken to ingest adequate amounts of non-alcoholic fluids. The impact of extreme heat is most prevalent in urban areas, which are not found in the Middle Peninsula. Secondary impacts of excessive heat are severe strain on the electrical power system, and potential brownouts or blackouts.

### **Drought(4).**

Empirical studies conducted over the past century have shown that drought is never the result of a single cause. It is the result of many causes, often synergistic in nature, and therefore often difficult to predict more than a month or more in advance. In fact, an area may already be in a drought before drought is even recognized. The immediate cause of drought is the predominant sinking motion of air (subsidence) that results in compressional warming or high pressure, which inhibits cloud formation and results in lower relative humidity and less precipitation. Most climatic regions experience varying degrees of dominance by high pressure, often depending on the season. Prolonged droughts occur when large-scale anomalies in atmospheric circulation patterns persist for months or seasons (or longer). The extreme drought that affected the United States and Canada during 1988 resulted from the persistence of a large-scale atmospheric circulation anomaly (National Drought Mitigation Center, 2004). There have been four major statewide droughts since the early 1900's (USGS, 2002).

## **Other Hazards**

### **Structural Fire (1)**

An urban-wild land interface fire includes situations in which a wildfire enters an area that is developed with structures and other human developments. In UWI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the urban-wild land interface is defined as “...the line, area, or zone where structures and other human development meet or intermingle with undeveloped wild lands or vegetative fuels.”

A wildfire hazard profile is necessary to assess the probability of risk for specific areas. Certain conditions must be present for a wildfire hazard to occur. A large source of fuel must be present; the weather must be conducive (generally hot, dry, and windy); and fire suppression sources must not be able to easily suppress and control the fire. After a fire starts, topography, fuel, and weather are the principal factors that influence wildfire behavior. VDOF defines woodland home communities as clusters of homes located along forested areas at the wild land-urban interface that could possibly be damaged during a nearby wildfire incident.

The Virginia wildfire season is normally in the spring (March and April) and then again in the fall (October and November). During these months, the relative humidity is 5-76 usually lower and the winds tend to be higher. In addition, the hardwood leaves are on the ground, providing more fuel and allowing the sunlight to directly reach the forest floor, warming and drying the surface fuels.

### **Probability**

The probability of wildfires is difficult to predict and is dependent on many things, including the types of vegetative cover in a particular area, and weather conditions, including humidity, wind, and temperature.

### **Hazardous Materials (2)**

HAZMAT can be defined as a material (as flammable or poisonous material) that would be a danger to life or to the environment if released without precautions. Furthermore, a hazardous material is any substance or material in a quantity or form that may pose a reasonable risk to health, the environment, or property. The risk of hazardous material risks will vary amongst Middle Peninsula as it includes incidents involving substances such as toxic chemicals, fuels, nuclear wastes and/or products, and other radiological and biological or chemical agents. In addition to accidental or incidental releases of hazardous materials due to fixed facility incidents and transportation accidents, regions must be ready to respond to hazmat releases as potential terrorism. It's important to note that the risk of a Hazmat incident are unpredictable and will vary amongst Middle Peninsula localities.

**HAZMAT** is carried by a number of vehicles throughout the region, and while the Commonwealth has a HAZMAT plan, local jurisdictions would be the first responders on scene if an accident/spill were to occur.

### **HAZMAT Vulnerability**

The effects of hazardous material is ultimately dependent on the type and amount of hazardous material, however injuries and/or deaths could occur as a result of a hazmat incident. They can pose risk to health, safety, and property during transportation. According to VDEM, "A business might have to evacuate depending on the quantity and type of chemical released or local officials might close a facility or area for hours, possibility days until a substance is properly cleaned up. Businesses that store, produce or transport hazardous materials will be fined for spills. The business involve in the release would typically be responsible for the cost of the clean up. A business that is located near the site of the hazardous site of a hazardous materials spill or release is likely to be unaffected unless the substance is airborne and poses a threat to areas outside the accident site. In that case local emergency official would order an immediate evaluation of areas that could potentially be affected. Depending on the type of hazardous substance, it could take

hours or days for emergency official to deem the area safe for return.” Ultimately this would impact business productivity and could impact the local/regional economy.

### **Hazards Not Addressed In This Plan**

Some hazards addressed by Virginia’s All-Hazard Mitigation Plan are not addressed in this Plan. After profiling these hazards, it was determined that a full risk assessment was not necessary because risks from these hazards are extremely low for the Tribe’s land located in King William County and mitigation efforts either are unnecessary or difficult to address.

### **Hazards Addressed In This Plan**

The Tribe has decided to focus on addressing the following hazards in this Plan: Wildfire, Flood, Violent Storms (includes both winter storms and summer storms), Structural Fire, and Hazardous Materials.

### **Goals and Mitigation Strategies**

Hazard Mitigation, as defined by the Disaster Mitigation Act of 2000, is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. Studies on Hazard Mitigation show that for each dollar spend on mitigation; society saves an average of four dollars in avoided future losses (Multi-hazard Mitigation Council, 2001). Mitigation can take many different forms from planning, construction projects to public education.

This mitigation strategy for the Tribe, in partnership with federal and state planning activities establish a common set of goals. The goals are broad, forward-looking statements that outline in general terms what the Tribe would like to accomplish.

#### **Mitigations Goals:**

1. Maintain and enhance the Reservation’s capacity to continuously make it less vulnerable to all hazards.
2. Improve the coordination and communication with Federal, State, Other Tribal, Regional, Local emergency management personnel and other potential partners.
3. Improve communication with Tribal members to make the community less vulnerable to all hazards, and increase their understanding of hazard mitigation.

## Objectives:

1. Prevent hazard losses through planning and administrative activities.
2. Protect tribal members by structural security measures such as the building of a “safe house” for tornado or flooding risk reduction.
3. Educate Tribal members through outreach projects, media campaigns, and social media about safety and risk reduction.
4. Improve and maintain structures and infrastructure to reduce the impact of hazards on people and property.

## Mitigation Strategy

The Pamunkey Tribe’s Mitigation Strategy is:

1. Ongoing with a long range strategy plan being currently conducted
2. Reviewed periodically
3. Agile in order to address current needs within the overall goals of the Plan
4. Responsive to the community
5. Coordinated with partners

## Priorities

The coordination of the process to establish priorities for the hazard mitigation action plan is the responsibility of Tribal Emergency Manager. Depending on the type, extent, cost and other factors about specific actions, the responsibility for approvals, funding and approaches may fall with another part of the Tribal Government.

## Prioritization of Hazard

The Tribe is susceptible to a number of hazards, ranging from natural hazards to deliberate acts of vandalism, sabotage and violence. The Tribe has identified seven potential hazards.

Although it is beneficial to review and prepare for likely, specific hazards, such as Tornados, Wildfires and Winter Storms, which are frequent and have the potential to be a threat to human life and infrastructure, this approach alone does not protect the community.

Because of this, the goals, objectives and strategies are not based on individual threats of specific Hazards, but the resource being protected. Many of these resources are vulnerable to specific hazards, and risk from those specific hazards will be addressed.

## **Prioritizing Strategies**

The process used by the Tribe's Emergency Management Coordinator involved first identifying goals and their respective objectives based on risk assessments and review of the historical risks and probabilities.

This information was presented to the Tribe by the Emergency Management Coordinator. The Tribe reviewed the information based on the following.

Actions are based on:

1. The potential risk associated with each particular hazard;
2. The ability of the proposed action to have a positive impact upon minimizing or eliminating the risk from the hazard;
2. Overall cost of associated with the proposed action; and
4. The ability of resources to fund and implement the action in a timely manner

## **Capability Assessment**

This benefits the Tribe in obtaining grant funding for equipment and hazard mitigation plan updates as Virginia includes Tribal Governments as an eligible government entity both on the regional and state level. This process demonstrates the commitment Virginia has to the Tribal Governments than having them apply through the county which contains their Tribal lands or directly to the federal government for these. The Virginia Department of Emergency Management (VDEM) Grants Office works cooperatively with the Reservation's Emergency Manger in the application and grant monitoring process.

## **The Planning Process**

The Tribe used the planning process developed by the Federal Emergency Management Agency (now U.S Dept of Homeland Security/FEMA) as a guide for its planning process. The four elements of that process are:

1. Organize Resources
  - a. Create Tribal Annex to existing Middle Peninsula Hazardous Mitigation Plan
  - b. Fire and EMS MOA between Pamunkey Tribe and Prince William County
2. Assess Risk
  - a. Identify and prioritize natural, technical and human caused hazards
  - b. Prioritize those hazards
  - c. Identify how those hazards could affect key facilities
3. Develop Mitigation Plan
  - a. Develop mitigation strategies
  - b. Determine priorities of addressing potential hazards
4. Implement the plan and monitor the progress
  - a. Community members from the Pamunkey Tribe and King William County put the plan into action
  - b. Evaluate efforts for effectiveness
  - c. Revisit and revise plans annually

### Authority

- U.S. Public Law 106-390 (Disaster Mitigation Act of 2000).

### Documentation of the Planning Process

The Tribe assigned the Tribal Emergency Manager as the entity responsible to guide and direct the planning process.

The Tribe coordinated with King William County bordering the reservation.

Emergency services professionals from King William County are invited to the Tribe's meetings where the Disaster Mitigation Planning is discussed. This relationship is ongoing, and has grown to the point that all parties are full partners and exercise plans together.

### Public Participation

The Tribe conducts monthly tribal meetings. These meetings were used as the platform to inform the community about the Tribe's Hazard Mitigation grant and planning. In addition Tribe member feedback about past hazards and concerns were documented and recorded at these same meetings to meet the hazard mitigation grant requirements. Chief Robert Gray, the Tribe's Emergency Management Coordinator, facilitates the discussion on hazard mitigation planning. This information was used in the risk assessments and action plans.

### HAZARD MITIGATION PLAN SURVEY

The Reservation's Emergency Management Office is currently in the process of updating its Hazard Mitigation Plan. An important area is to receive community feedback on what hazards are facing residents that may affect their daily lives.

Below is a list of hazards which we would like to have you make comments on about your concerns if any of these would affect you or your families. Also, if there are areas we missed, please feel free to add those concerns. We have also provided an area for comments – you may use this area to provide any information or opinion you believe we should incorporate into the planning.

### NATURAL DISASTERS

Wild Fires?

Very Concerned Somewhat Concerned Not Concerned

*Comments:*

Floods or Washout Area?

Very Concerned Somewhat Concerned Not Concerned

*Comments:*

Winter Storms (Blizzards, High Winds, Heavy Snow)?

Very Concerned Somewhat Concerned Not Concerned

*Comments:*

Summer Storms (Tornadoes, Thunderstorms)?

Very Concerned Somewhat Concerned Not Concerned

*Comments:*

### TECHNICAL/HUMAN INDUCED

Structural Fire?

Very Concerned Somewhat Concerned Not Concerned

Comments:

Hazardous Materials Transported on Roadways?

Very Concerned Somewhat Concerned Not Concerned

Comments:

Widespread Power Failure?

Very Concerned Somewhat Concerned Not Concerned

Comments:

Water Supply Contamination?

Very Concerned Somewhat Concerned Not Concerned

Comments:

Infectious Disease?

Very Concerned Somewhat Concerned Not Concerned

Comments:

Other?

Very Concerned Somewhat Concerned Not Concerned

Comments:

Once you have written your comments please bring back to the next Community Meeting.

## **Continued Public Involvement**

Community involvement is an essential ingredient of the planning process. We will continue to use all of our communications opportunities, including regularly scheduled meetings and our website to engage the community in its mitigation planning and implementation.

## **Project Implementation**

Project implementation will be the responsibility of the Tribe's Emergency Management Coordinator.

Each year the action plan will be reviewed and updated by the Emergency Management Coordinator. The Emergency Management Coordinator will inform Tribe members in which projects have been completed and those left to be implemented. Those activities not completed during the first year will be re-evaluated and included in the first year of the new action plan if deemed appropriate.

## **Incorporation into Existing Planning Resources**

This action plan serves as a guide to spending priorities but will be adjusted annually to reflect current needs and financial resources. Some strategies will require outside funding from the state or federal agencies to implement. Priority for Capital Improvement on the Pamunkey Reservation is the establishment of a safe house with development of directions for residents to follow in the event of wind or flood events. If outside funding is not available the strategy will be set aside until new sources of funding can be identified.

## **Project Monitoring, Evaluation, Updating and Plan Adoption**

The Hazard Mitigation Plan Annex will be reviewed and updated yearly by the Emergency Management Coordinator. The Emergency Management Coordinator will advise the community 30 days in advance of the monthly community meeting of the intent to review the mitigation plan. The content and scope of the Plan review and evaluation will address the following questions:

1. Hazard Identification: Have the risks and hazards changed?
2. Goals and objectives: Are the goals and objectives still able to address the current and expected conditions?
3. Mitigation Projects and Actions:
  - a. What is the status of the project?
  - b. Has it been completed? If not completed, has it been started?
  - c. Identify the date that the project was started and any challenges faced.
  - d. What percentage has been completed

- e. And the amount of funds expended?
- f. The status of funding for the project: projected costs less than expected, currently on target or will require additional funds.

For FEMA supported projects, progress reports will be submitted to FEMA on a quarterly basis, or as required throughout the project duration. The quarterly reporting will depend on the type of project, its funding source and the associated requirements. At a minimum, the quarterly report shall address:

1. Project Completion Status
2. Project Challenges/Issues (if any)
3. Budgetary Considerations (Cost Overruns or Underruns)
4. Detailed Documentation of Expenditures

The VDEM Grants Department will handle the financial reports and the Tribal Emergency Management Coordinator will monitor and prepare the progress reports. When FEMA supported projects are completed, the project closeout documents will be prepared by the VDEM Grants Department with any necessary input by the Tribal Emergency Management Coordinator.

The State and FEMA approved Plan will be presented before the Tribal Council for an official concurrence and adoption of the changes. Community members will have access to the Plan at the office of the Tribal Emergency Management Coordinator.

Going forward the Tribal Emergency Management Coordinator will participate with the Middle Peninsula PDC in their annual review to ensure regional impacts and initiatives are shared and included the Middle Peninsula Hazard Mitigation Plan.

## **Tribal Assurances**

The Tribe will continue to comply with all applicable Federal statutes and regulations in effect for those periods when the Tribe receives grant funding.

## Appendix A: HAZARD MITIGATION STRATEGY/ACTIONS

### 2018 Mitigation Goals

1. Winter/summer storm risks reduced.
2. Flooding risk reduced
3. Wildfires risks reduced.
4. Hazardous Material release risk reduced.

Each of the 2018 mitigation strategy/actions is discussed below:

- 1) Construction of a safe house on the reservation for storm sheltering.

This strategy/action is to be scheduled in 2018 with the application for a FEMA Hazardous Mitigation Grant.

- 2) NOAA weather radios to be placed in all public buildings for early storm warnings.

This strategy/action is to be scheduled in 2018. They will maintain their rating as a NOAA Storm Ready Community by recertifying every two years.

- 3) Update land use plans to include flood plains; prepare flood maps

This strategy/action is to be scheduled in 2018.

- 4) Ensure new residential home sites have large enough fire breaks to reduce wildfire risks, and conduct yearly controlled burns.

This action is to be scheduled in 2018. It has been determined to be a viable ongoing strategy/action.

After the assessment was completed, the Tribal Emergency Management Coordinator, using the response from the community members, then brainstormed new strategies/actions to be added, reviewing the results of the vulnerability analysis, the capability assessment, and the goals and objectives. Each strategy/action was reviewed based on the categories of the Tribe's cultural beliefs, spirituality, care takers of the land and to ensure adherence to Tribal laws, and statutes. Once the strategies/actions were finalized, the lead agency, potential funding sources and timeframe was completed for each strategy/action.

The following table includes the strategies for the 2018 plan and indicates the status of the actions, who is responsible (lead agency) potential funding sources and the timeframe.

Strategies/Actions to Mitigate Effects of Hazards

**ALL HAZARDS**

<b>Goal</b>	<b>Strategy/Action</b>	<b>Status: New/Ongoing /Completed</b>	<b>Lead Agency</b>	<b>Potential Funding Sources</b>	<b>Timeframe</b>
2018 #1	Tribe members vulnerable to severe Summer storms such as tornado activity. Action desired is to construct a safe house of the reservation for storm sheltering.	New	Emergency Management Coordinator	FEMA Grants	Ongoing
2018 #1	NOAA weather radios to be placed in all government buildings for early storm warnings	New	Emergency Management Coordinator	Net Revenue	Ongoing

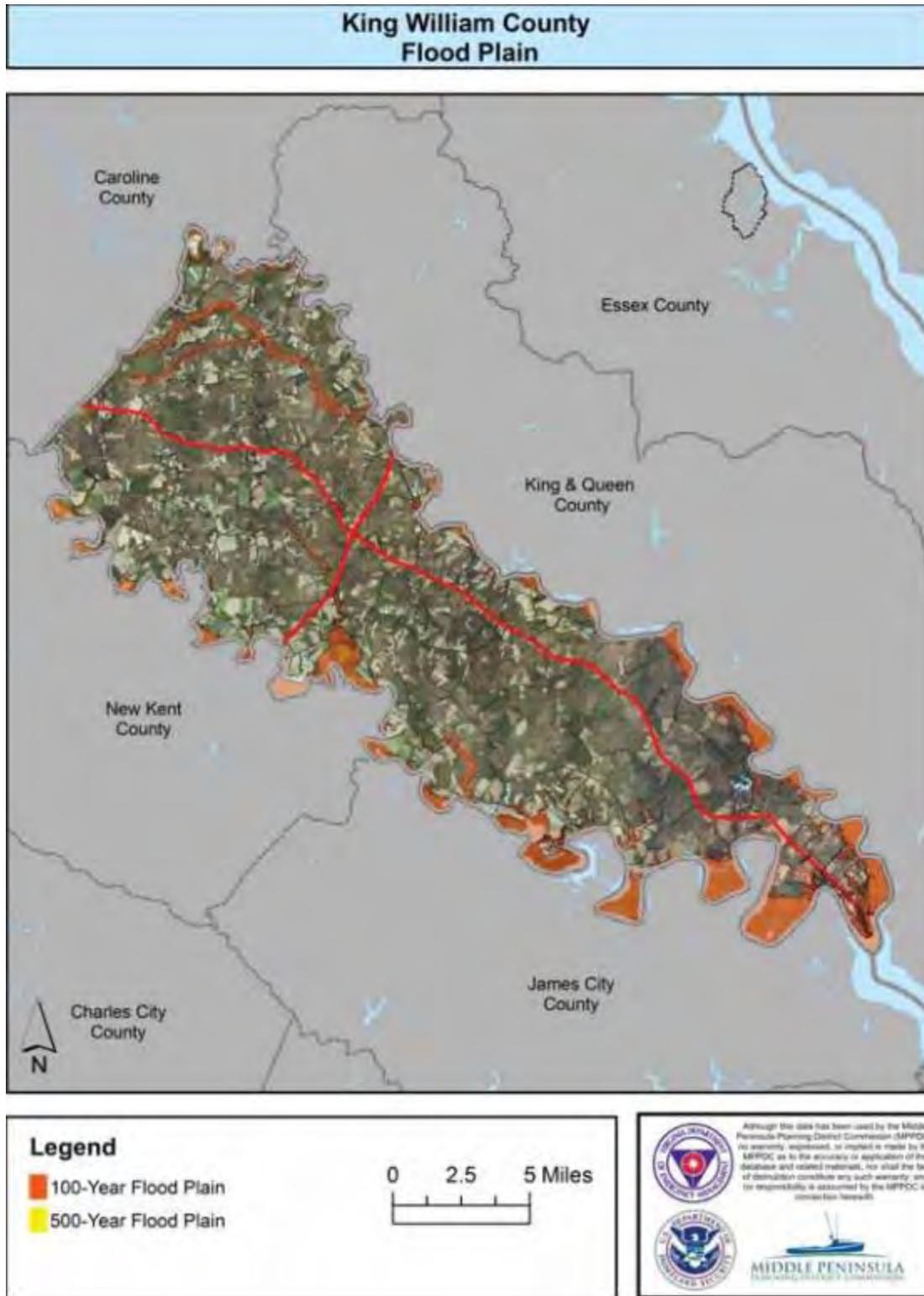
<b>Goal</b>	<b>Strategy/Action</b>	<b>Status: New/Ongoing /Completed</b>	<b>Lead Agency</b>	<b>Potential Funding Sources</b>	<b>Timeframe</b>
<b>FLOOD</b> <i>Probability-High, Impact-Moderate to High and Overall Risk-High</i>					
2018 #2	Update land use plans to include flood plains; prepare flood maps	No SFHA	Emergency Management Coordinator	N/A	N/A

<b>Goal</b>	<b>Strategy/Action</b>	<b>Status: New/Ongoing /Completed</b>	<b>Lead Agency</b>	<b>Potential Funding Sources</b>	<b>Timeframe</b>
<b>WILDFIRES</b> <i>Probability-High, Impact-Moderate to High and Overall Risk-High</i>					
2018 #3	Ensure residential home sites have large enough fire breaks to reduce wildfire risks, and conduct yearly controlled	New	Emergency Management Coordinator	Net Revenue	Ongoing

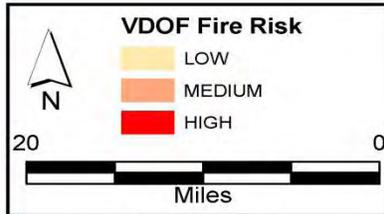
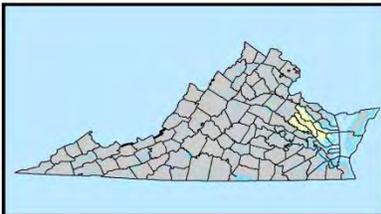
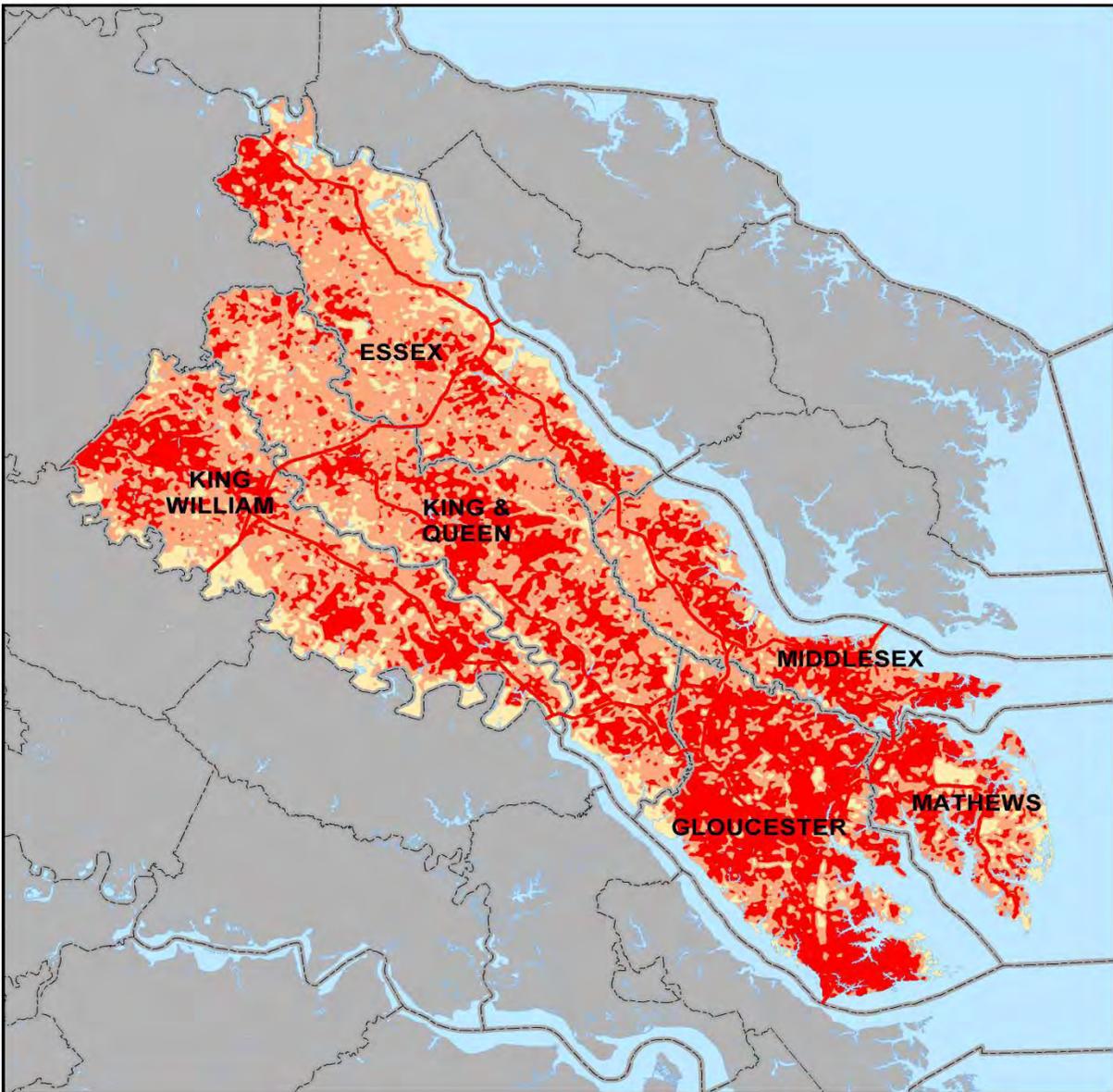
	burns from early spring				
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<b>Goal</b>	<b>Strategy/Action</b>	<b>Status: New/Ongoing /Completed</b>	<b>Lead Agency</b>	<b>Potential Funding Sources</b>	<b>Timeframe</b>
<b><i>HAZARDOUS MATERIALS</i></b>					
<i>Probability-High, Impact-Moderate to High and Overall Risk-High</i>					
2018 #4	Response to transportation accidents: emergency response for victims and environmental clean-up	New	VDEM, VADOT, EPA	EPA	As needed

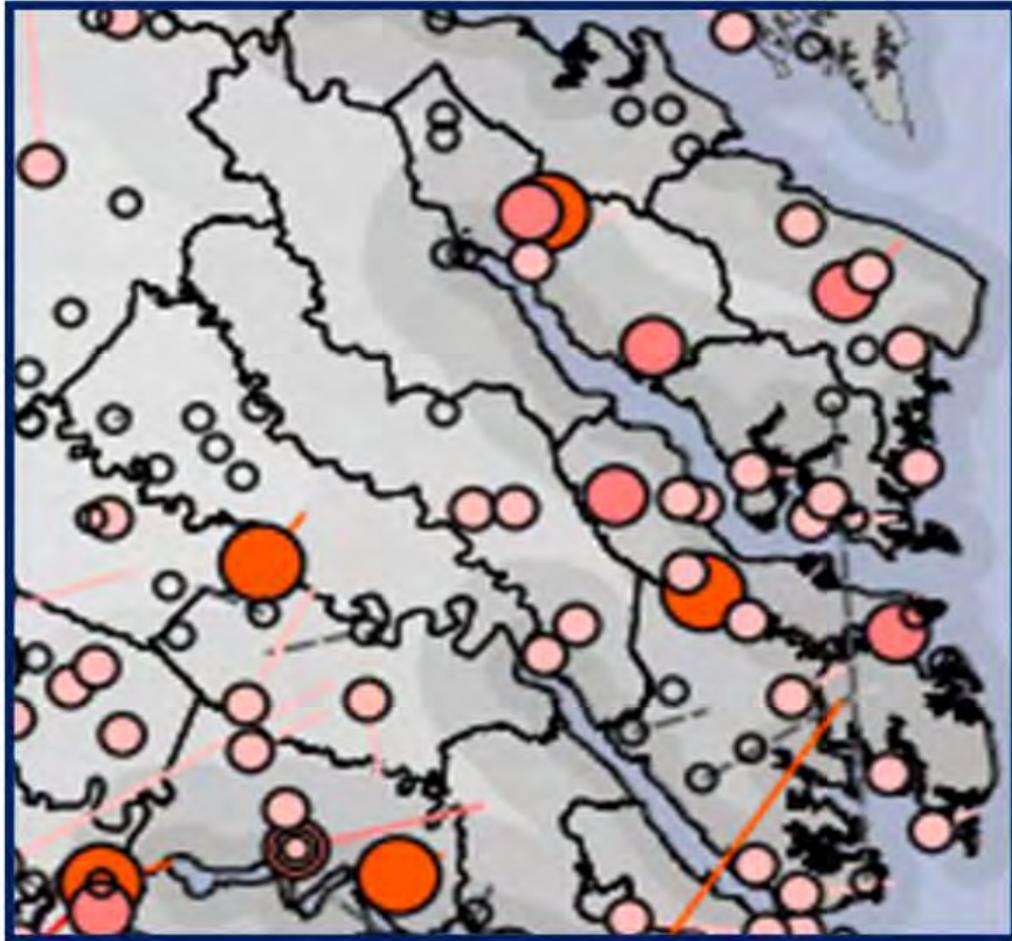
## Appendix B: Maps



**Middle Peninsula Wildfire Risk.** Throughout the region risk to wildlife varies due to historic fire incidents, land cover, topographic characteristics, population density and distance to roads.



# Historic Tornado Touchdowns and Tracks 1950-2011



HAZARD IDENTIFICATION: Historic tornado touchdowns and tracks are symbolized for visual effect and are not drawn to scale. Actual tornado swath widths vary considerably, although more intense tornadoes are generally wider.

		<p><b>DATA SOURCES:</b> SVRGIS VGIN Jurisdictional Boundaries ESRI State Boundaries</p>	<p><b>LEGEND:</b></p> <p>Tornado F-Scale</p> <ul style="list-style-type: none"> <li>○ - - - 0</li> <li>○ 1</li> <li>○ 2</li> <li>○ 3</li> <li>○ 4</li> <li>○ 5</li> </ul>
<p><b>PROJECTION:</b> VA Lambert Conformal Conic North American Datum 1983</p>			
<p><i>DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.</i></p>			



**MIDDLE PENINSULA**  
**PLANNING DISTRICT COMMISSION**

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Secretary/Director

Mr. Lewis L. Lawrence

4/4/24

Debbie Messmer

Deputy Director Grants Management and Recovery,  
Financial Management Bureau  
Virginia Department of Emergency Management (VDEM)

Dear Debbie,

Your staff recently inquired about the Middle Peninsula Planning District Commission's actioning of the FEMA approved **2021 Middle Peninsula All Hazard Mitigation Plan**.

Under motion of approval effective 5/23/22 which was the last date of ninth and final Middle Peninsula local government action of approval for the **2021 Middle Peninsula All Hazard Mitigation Plan**, Vivian Seay, MPPDC Commissioner-King and Queen County Administrator and County Attorney and seconded by Edwin Smith, MPPDC Commissioner and Essex County Board of Supervisors, adoption of the **2021 Middle Peninsula All Hazard Mitigation Plan** was unanimously approved and accepted by the Commission.

Should you have any additional questions, please feel free to contact me at 804-758-2311

Sincerely

Lewie L. Lawrence  
MPPDC  
Executive Director



*Town Manager*

Eric S. Pollitt

*Town Treasurer*

Tina F. Brock

*Town Clerk*

Patsy K. Scates

*Chief of Police*

Thomas D. Carter

*Town Attorney*

M. Tolley Gwinn

*Mayor*

Roy M. Gladding

*Town Council*

Troy L. Balderson

Katherine B. Carlton

A. Fleet Dillard III

Kenneth A. Gillis

Carolyn Barrett

Anita Latane

## TOWN OF TAPPAHANNOCK

*P. O. Box 266*

*Tappahannock, Virginia 22560*

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[www.tappahannock-va.gov](http://www.tappahannock-va.gov)

January 22, 2025

Virginia Department of Conservation and Recreation  
Attention: Virginia Community Flood Preparedness Fund  
Division of Dam Safety and Floodplain Management  
600 East Main Street, 24th Floor  
Richmond, Virginia 23219

**RE: Letter of Support for the Virginia Department of Conservation and Recreation,  
Community Flood Preparedness Fund Grant Application**

To Whom It May Concern,

I am writing this letter in support of the Essex County application for the Virginia Department of Conservation and Recreation (DCR) Community Flood Preparedness Fund Grant. The proposal to develop a robust Floodplain Management Administration Plan and the certification of a Certified Floodplain Manager are critical initiatives that promise to have significant and positive impacts on our community's preparedness and resilience in the face of flooding and community preparedness challenges.

Floodplain Management is an ongoing shared effort between the Town of Tappahannock and Essex County. I would like to highlight a few key points that underscore the importance of this shared effort:

1. **Enhanced Preparedness:** A regional approach to Floodplain Administration will help us better understand the specific risks and vulnerabilities our region faces. It will improve how we prepare for and respond to floods, reducing the potential for loss of life and property damage.

2. **Community Engagement:** Developing education and outreach materials will necessitate active community involvement and stakeholder engagement, promoting collaboration and shared responsibility. This inclusive approach ensures that the floodplain administration reflect the needs and concerns of our diverse community.

3. **Access to Funding:** Securing the DCR Community Flood Preparedness Fund Grant will provide essential financial resources to carry out the planning process effectively, making it a more achievable endeavor for our community to pursue other funding opportunities in the future.

I urge the Virginia Department of Conservation and Recreation to strongly consider and approve the grant application submitted by the Crater Planning District Commission. By supporting this initiative, we invest in our community's well-being and disaster response.

Thank you for your attention to this important matter. I am available to provide any additional information or clarification if needed. I look forward to the positive impact that this funding will have on our community.

Sincerely,

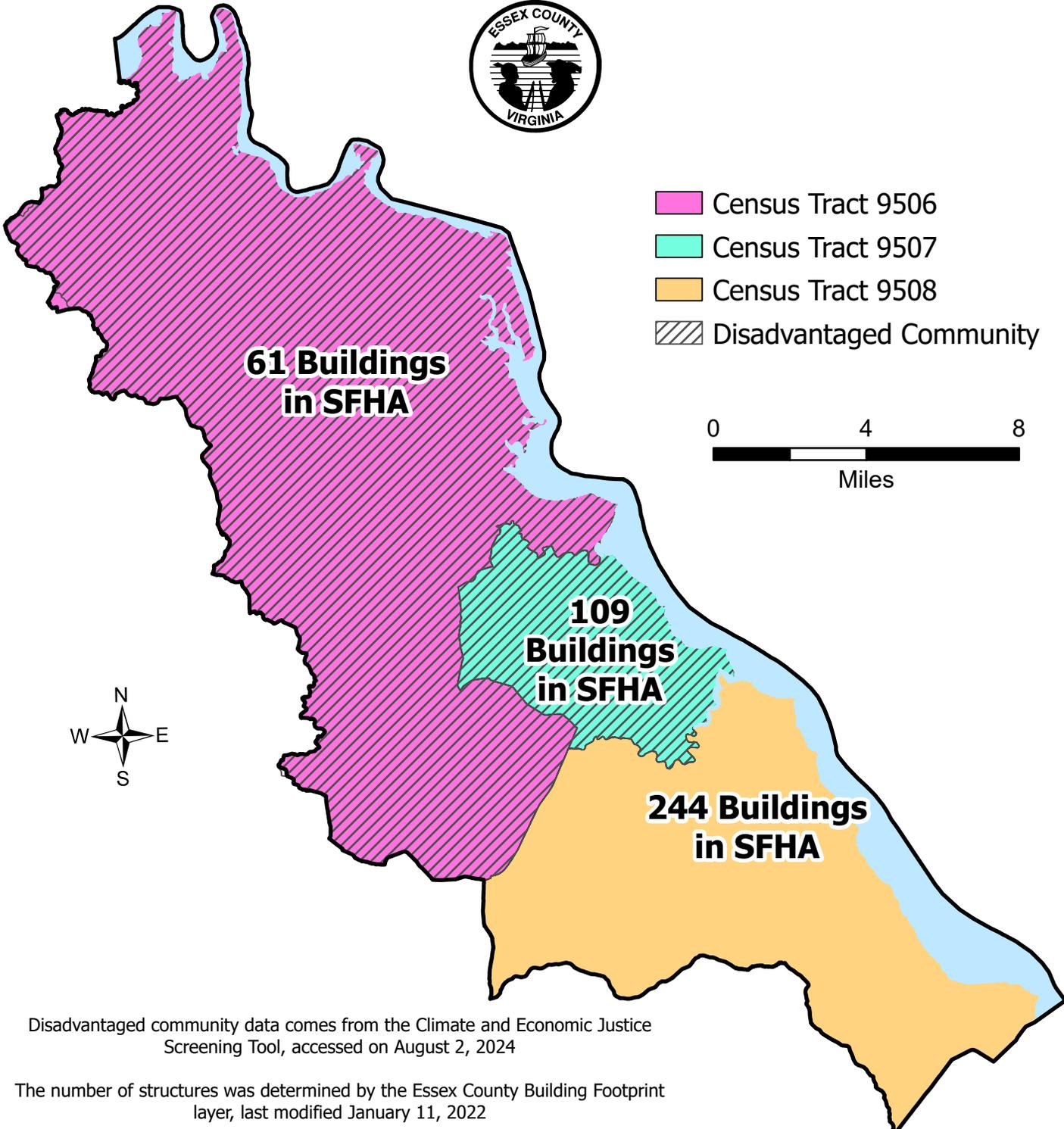


Eric Pollitt

Town Manager

Tappahannock

# Number of Structures in the Special Flood Hazard Area by Census Tract in Essex County, VA



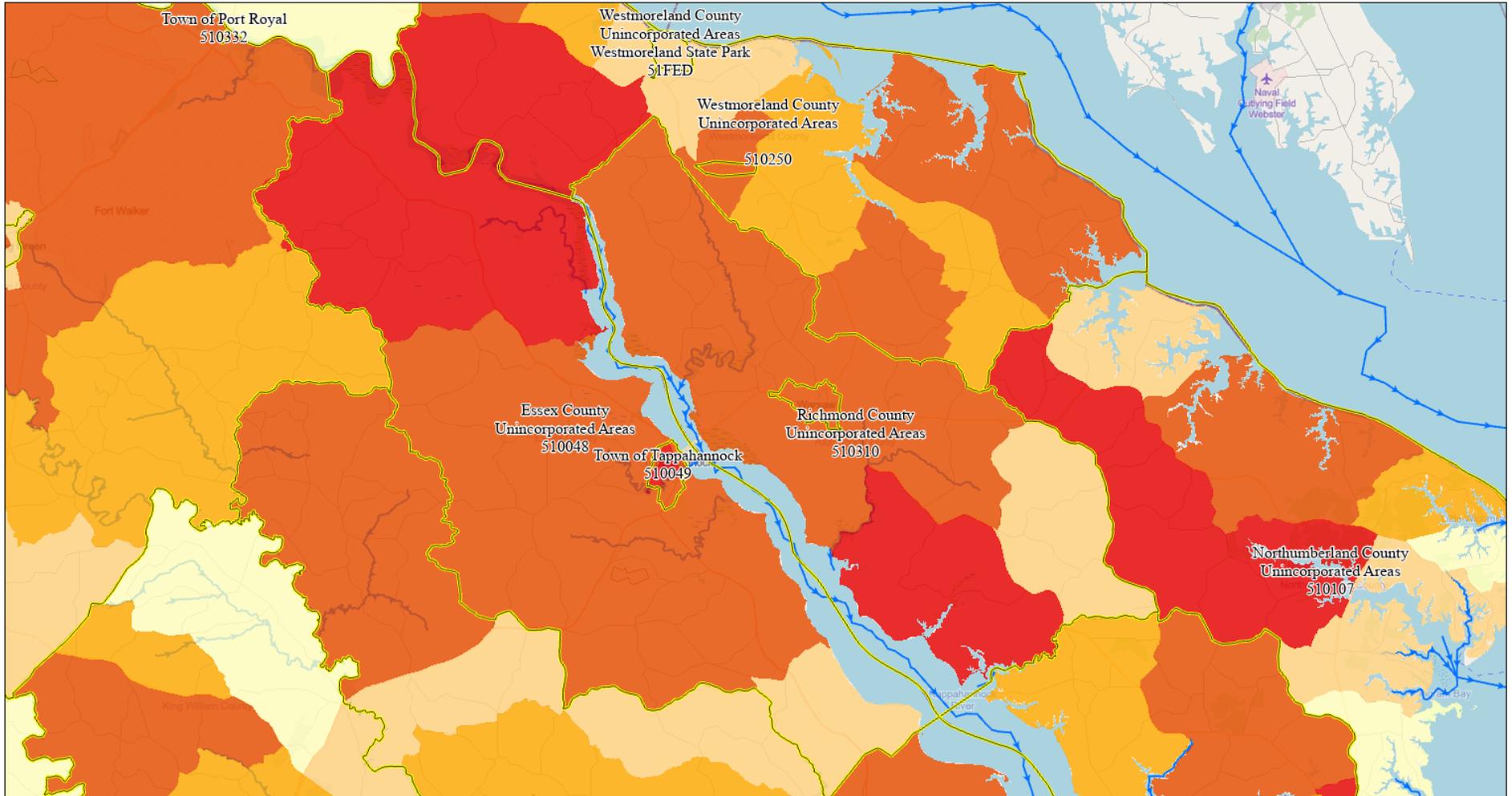
Disadvantaged community data comes from the Climate and Economic Justice Screening Tool, accessed on August 2, 2024

The number of structures was determined by the Essex County Building Footprint layer, last modified January 11, 2022

The Special Flood Hazard Area consists of zones AE, VE, A, and AO from the FEMA Flood Map Service Center with the latest study effective date of February 9, 2023

Prepared by the Essex County GIS Department  
January 18, 2025

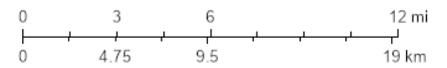
# VFRIS SVI Score



1/21/2025, 5:25:35 PM



1:305,581



Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri, Virginia Geographic Information Network (VGIN)

# ESSEX COUNTY

## Zoning & Subdivision Ordinance

**Adopted:** *October 11, 2022*  
**Effective:** *November 10, 2022*



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**Essex County Code – Chapter 36**  
**Zoning & Subdivision Ordinance**  
**Effective November 10, 2022**

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## ARTICLE I. – IN GENERAL

### Section 36.1. – Title.

This chapter, the full title of which is "Zoning and Subdivision Ordinance of Essex County, Virginia," shall be permitted, for convenience, to be referred to as the "Zoning and Subdivision Ordinance" or "Ordinance." The accompanying map, titled "Zoning Map of Essex County, Virginia," shall be permitted to be referred to as the "Zoning Map."

### Section 36.2. – Authority and Jurisdiction; Introduction.

- (a) Pursuant to the Code of Virginia, § 15.2-2280 et seq., the County of Essex, Virginia is given the authority to classify and regulate land development under its jurisdiction.
- (b) Pursuant to the Code of Virginia, § 15.2-2240, et seq., the County of Essex, Virginia is authorized to adopt regulations to assure the orderly subdivision of land and its development.
- (c) The Comprehensive Plan of the County of Essex embodies the community's vision and goals. THE primary mechanism for achieving the County's land use goals is the Zoning and Subdivision Ordinance. The Zoning and Subdivision Ordinance sets forth the regulations that legally enforce land use policies and establishes the rules guiding the development and use of land within the County. Similarly, the Subdivision Article of the Zoning and Subdivision Ordinance establishes the rules by which land can be divided, often setting the stage for subsequent development under the zoning regulations. These two land use tools work hand in hand to help achieve the County's vision regarding land use and the overall well-being of the community.

### Section 36.3. – Purpose.

This Ordinance, and any amendments hereto, have been adopted for the general purpose of implementing the Comprehensive Plan of the County of Essex; promoting the health, safety, or general welfare of the public; and further accomplishing the objectives of the Code of Virginia, § 15.2-2283 and § 15.2-2240. To these ends, this ordinance is designed to give reasonable consideration to the following purposes, where applicable:

- (1) To provide for adequate light, air, convenience of access, and safety from fire, flood and other dangers;
- (2) To reduce or prevent congestion in the public streets;
- (3) To facilitate the creation of a convenient, attractive and harmonious community;
- (4) To facilitate the provision of adequate police and fire protection, disaster, evacuation, civil defense, transportation, water, sewerage, schools, parks, forests, playgrounds, recreational facilities, airports, and other public requirements;
- (5) To protect against destruction of or encroachment upon historic areas and working waterfront development areas;
- (6) To protect against one (1) or more of the following: overcrowding of land, undue densities of populations in relation to the community facilities existing or available, obstruction of light and air, danger and congestion in travel and transportation, or loss of life, health, or property from fire, flood, panic or other dangers;
- (7) To encourage economic development activities that provide desirable employment and enlarge the tax base;
- (8) To provide for the preservation of agricultural and forestal lands and other lands of significance for the protection of the natural environment;
- (9) To protect approach slopes and other safety areas of licensed airports, including United States government and military air facilities;

- (10) To promote the creation and preservation of affordable housing suitable to meet the current and future needs of the county as well as a reasonable proportion of the current and future needs of the planning district within which the county is located;
- (11) To provide reasonable protection against encroachment upon military bases, military installations, and military airports and their adjacent safety areas, excluding armories operated by the Virginia National Guard;
- (12) To provide reasonable modifications in accordance with the Americans with Disabilities Act of 1990 or state and federal fair housing laws, as applicable;
- (13) To protect surface water and ground water as defined in the Code of Virginia, § 62.1-255;
- (14) To establish standards and procedures for the orderly division, subdivision, and resubdivision of lots, tracts, and parcels of land for residential and commercial purposes pursuant to the Code of Virginia, § 15.2-2240-15.2-2279, as amended;
- (15) To ensure proper legal description and proper monumenting of subdivided land;
- (16) To ensure that purchasers of lots, tracts and parcels of land purchase a commodity that is suitable for the intended use; and
- (17) To provide standards for development, ensuring appropriate ingress, egress, public facilities, services, and utilities.

**Section 36.4. — Applicability.**

- (a) Pursuant to the Code of Virginia, § 15.2-2281, the provisions of this Ordinance shall apply to all property within the unincorporated territory of the County of Essex, Virginia, with the exception that any property held in fee simple ownership and used by the United States of America or the Commonwealth of Virginia shall not be subject to the provisions contained herein.
- (b) Pursuant to the Code of Virginia, § 15.2-2284, the zoning regulations and districts as herein set forth have been drawn with reasonable consideration for the existing use and character of property, the comprehensive plan, the suitability of properties for various uses, the trends of growth or change, the current and future requirements of the community as to land for various purposes as determined by population and economic studies and other studies, the transportation requirements of the community, and the requirements for airports, housing, schools, parks, playgrounds, recreation areas, and other public services; and the conservation of natural resources, the preservation of flood plains, the protection of life and property from impounding structure failures, the preservation of agriculture and forestal land, the conservation of properties and their values, and the encouragement of the most appropriate use of land throughout the County.
- (c) In interpretation and application, the provisions of this Ordinance shall be the minimum requirements, adopted for the promotion of the public health, safety, and general welfare.
- (d) This Ordinance shall not be deemed to interfere with or abrogate or annul or otherwise affect, in any manner whatsoever, any easements, covenants, or other agreements between parties; provided, however, that pursuant to the Code of Virginia, § 15.2-2315, whenever the requirements of this ordinance are at variance with the requirements of any other lawfully adopted statute, regulations, or ordinances, the most restrictive, or that imposing the higher standards shall prevail.
- (e) If any section of this Ordinance incorporates by reference any state statute or regulation, then the ordinance incorporates future amendments of the state statute or regulation.

**Section 36.5. — Conformity with Ordinance Required.**

Except as otherwise provided in this ordinance or as modified through a zoning approval, land, buildings, structures or premises shall only be used, and buildings shall only be erected or altered in conformity with this ordinance's regulations.

**Section 36.6. — Figures in Chapter.**

Where figures are contained in this chapter, they are provided for demonstrative purposes only and are not a substantive part of this ordinance.

**Section 36.7. — Conflicting Ordinances or Conditions.**

- (a) Should any Commonwealth or federal ordinance, provision, or regulation conflict with this Ordinance or portion thereof, the language of whichever is more restrictive shall be controlling to the extent necessary to resolve the conflict.
- (b) Should any provision of this Ordinance conflict with another provision herein or within other chapters of the county code, the language contained in the more restrictive provision shall control.
- (c) As stated in the Code of Virginia § 15.2-2261.1, if the provisions of a recorded plat or final site plan, which was specifically determined by the Board of Supervisors to be in accordance with the zoning conditions previously approved, conflict with underlying zoning conditions of the previous rezoning, then the provisions of the recorded plat or final site plan shall control and the zoning amendment notice requirement of Code of Virginia § 15.2-2204 shall be deemed satisfied.

**Section 36.8. — Severability.**

Should any section or any provision of this Ordinance be decided by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the Ordinance as a whole, or any part thereof other than the part so held to be unconstitutional or invalid.

**Section 36.9. — Effective Date.**

The Ordinance shall become effective 30 days from and after the date of its passage, October 11, 2022, and legal application, and its provisions shall be in force thereafter until repealed or amended.

Reserved 36.10 — 36.15

## ARTICLE II. – ADMINISTRATION

### Division 1. – Zoning Administrator and Subdivision Agent

#### Section 36.16. – Powers and Duties.

- (a) This Ordinance and Zoning Map shall be administered, interpreted, and enforced by the Zoning Administrator (Administrator), who shall be appointed by the Board of Supervisors. The Administrator shall serve at the pleasure of the Board of Supervisors and shall have such duties as are conferred on them by this Ordinance and the Code of Virginia § 15.2-2286 (4). The Zoning Administrator may also hold another office in the County.
- (1) The Administrator shall interpret this Ordinance based upon the following criteria:
- a. Provisions shall be considered the minimum required to promote the public health, safety, convenience and general welfare;
  - b. Unless otherwise specified, the standards of this Ordinance are the minimum required;
  - c. When regulations of this Ordinance conflict with each other, other chapters of the county code, or state or federal law, the more restrictive regulations or standards shall govern;
  - d. This Ordinance does not abolish easements, covenants or other private agreements, however, where this Ordinance's requirements are more restrictive or impose higher standards, this Ordinance's requirements shall govern;
  - e. A building, structure, or use which was not legally existing on November 10, 2022 shall not be made lawful solely by adoption of this Ordinance;
  - f. Where this Ordinance's requirements are vague or unclear, the Zoning Administrator shall be responsible for their interpretation; and
  - g. Conditions imposed or accepted as part of a zoning approval prior to November 10, 2022 shall remain in effect. However, if there is a conflict between conditions imposed through those land use decisions and this Ordinance, the conditions shall apply. If there is no condition that addresses a specific use or development standard of this Ordinance, this Ordinance's requirements shall govern.
- (2) The Administrator, in accordance with the Code of Virginia § 15.2-2299, may administer and enforce conditions attached to a rezoning or amendment to the Zoning Map.
- (b) The Subdivision Agent (Agent) shall be appointed by the Board of Supervisors to administer and enforce the Subdivision Article (Article IX) and shall serve at the pleasure of the Board of Supervisors. The Agent may call for opinions or decisions, either verbal or written, from other departments, state agencies, or the Planning Commission in considering details of any submitted plat.
- (c) The Administrator/Agent may designate a Deputy Administrator/Agent or other designee to assist in these duties.
- (d) The Administrator must provide written notice to the owner, when receiving a request that is not from the owner or agent of the owner, for a written order, requirement, decision, or determination. In accordance with the Code of Virginia § 15.2-2204 (H), the owner must receive the notice within 10 days receipt of said request.
- (e) In addition to the regulations contained herein, the Administrator and Agent may, from time to time, establish any reasonable additional administrative procedures deemed necessary for the proper administration of this Ordinance.

- (f) The provisions of this Ordinance shall not impair a vested right of a property owner. The Zoning Administrator shall be authorized to make determinations on whether a property owner's rights are deemed vested in a land use. The Subdivision Agent shall be authorized to make determinations on whether a property owner's rights are deemed vested in a division. Vested rights determinations shall be made in accordance with the Code of Virginia § 15.2-2307.

Reserved 36.17— 36.26

## **Division 2. — Planning Commission**

### **Section 36.27. — Appointment; Membership.**

The Planning Commission shall be created, organized, removed, and compensated pursuant to the Code of Virginia, § 15.2-2210 and § 15.2-2212.

### **Section 36.28. — Powers and Duties.**

Pursuant to the Code of Virginia §15.2-2221 and §15.2-2230, the Planning Commission shall:

- (1) Exercise general supervision of, and make regulations for, the administration of its affairs;
- (2) Prescribe rules pertaining to its investigations and hearings;
- (3) Supervise its fiscal affairs and responsibilities, under rules and regulations as prescribed by the governing body;
- (4) Keep a complete record of its proceedings; and be responsible for the custody and preservation of its papers and documents;
- (5) Make recommendations and an annual report to the governing body concerning the operation of the commission and the status of planning within its jurisdiction;
- (6) Prepare, publish and distribute reports, ordinances and other material relating to its activities;
- (7) Prepare and submit an annual budget in the manner prescribed by the governing body of the county or municipality;
- (8) If deemed advisable, establish an advisory committee or committees; and
- (9) Review the Comprehensive Plan at least once every five years to determine if it is advisable to amend the plan.

### **Section 36.29. — Rules and Regulations; Meetings.**

- (a) The Planning Commission shall conduct meetings pursuant to the Code of Virginia § 15.2-2214 through 15.2-2217.
- (b) Pursuant to the Code of Virginia § 15.2-2287.1, members are required, prior to or at a hearing on a matter, make a full public disclosure of any business or financial relationship that such member has, or has had within the 12-month period prior to such hearing and shall be ineligible to vote or participate in any way upon the matter.

Reserved 36.30 — 36.39

### **Division 3. — Board of Zoning Appeals**

#### **Section 36.40. — Appointment; Membership; Terms; Removal.**

Pursuant to the Code of Virginia, § 15.2-2308, a Board of Zoning Appeals (BZA) shall be created and organized as follows:

- (1) A BZA consisting of five members shall be appointed by the circuit court of Essex County. Appointments for vacancies occurring otherwise than by expiration of term shall in all cases be for the unexpired term. A member whose term expires shall continue to serve until the successor is appointed and qualifies.
- (2) The term of office shall be for five years; except, that of the first five members appointed, one shall serve for five years, one for four years, one for three years, one for two years and one for one year.
- (3) Members of the BZA shall hold no other public office in the locality except that one may be a member of the Planning Commission, and any member may be appointed to serve as an officer of election.
- (4) Any BZA member or alternate may be removed for malfeasance, misfeasance or nonfeasance in office, or for other just cause, by the court which appointed them, after a hearing held after at least 15 days' notice.
- (5) The BZA shall choose annually its own chairperson and vice-chairperson. The vice-chairperson shall act in the absence of the chairperson.

#### **Section 36.41. — Powers and Duties.**

Pursuant to the Code of Virginia § 15.2-2309, the BZA shall have the following powers and duties:

- (1) Appeals.
  - a. To hear and decide appeals from any order, requirement, decision, or determination made by an administrative officer in the administration or enforcement of this Ordinance as outlined in Article III Division 5.
  - b. No such appeal shall be heard except after notice and hearing as provided by the Code of Virginia § 15.2-2204.
- (2) Variance.
  - a. To authorize upon appeal or original application a variance, as defined in the Code of Virginia § 15.2-2201, from the terms of this Ordinance when the strict application of the Ordinance would unreasonably restrict the utilization of the property, and such need for a variance would not be shared generally by other properties, and if the applicant proves through a preponderance of evidence that a literal enforcement of the provisions of this Ordinance will result in unnecessary hardship; provided that the spirit of this Ordinance shall be observed and substantial justice done.
  - b. No such variance shall be heard except after notice and hearing as provided by The Code of Virginia § 15.2-2204.
- (3) Boundary Interpretations.
  - a. To hear and decide applications for interpretation of the district map where there is any uncertainty as to the location of a district boundary. After notice to the owners of the property affected by any such question, and after public hearing with notice as required by The Code of

Virginia § 15.2-2204, the BZA may interpret the map in such way as to carry out the intent and purpose of this Ordinance for the particular section or district in question.

- b. The BZA shall not have the power to change substantially the locations of district boundaries as established by Ordinance.
- c. No provision of this section shall be construed as granting the BZA the power to rezone property.

**Section 36.42. — Rules and Regulations; Meetings.**

- (a) The BZA shall adopt such rules and regulations as it may consider necessary.
- (b) The BZA may adopt policies regarding ex parte communication that are in accordance with the Code of Virginia § 15.2-2308.1.
- (c) Pursuant to the Code of Virginia § 15.2-2287.1, members are required, prior to or at a hearing on a matter, make a full public disclosure of any business or financial relationship that such member has, or has had within the 12-month period prior to such hearing and shall be ineligible to vote or participate in any way upon the matter.
- (d) Meetings of the BZA shall be held at the call of its Chairman or at such time as a quorum of the BZA may determine.
- (e) The Chairman or, in their absence, the Acting Chairman may administer oaths and compel the attendance of witnesses.
- (f) The BZA shall keep minutes of its proceedings, showing the vote of each member upon each question or, if absent or failing to vote, indicating such fact. It shall keep records of its examinations and other official actions, all of which shall be immediately filed in the office of the Board and shall be public record.
- (g) All meetings of the BZA shall be open to the public.
- (h) A quorum shall be at least three members.
- (i) A favorable vote of three members of the BZA shall be necessary to reverse any order, requirement, decision or determination of any administrative official or to decide in favor of the applicant on any matter on which the Board is required to pass.

Reserved 36.43 — 36.54

**Division 4. — Fees**

**Section 36.55. — Fees; Charges; Expenses.**

- (a) The Board of Supervisors shall establish, by ordinance, a schedule of fees, charges and expenses, and collection procedures for zoning permits, conditional use permits, variances, appeals, amendments, and other matters pertaining to this Ordinance.
- (b) The schedule of fees shall be available for inspection in the office of the Zoning Administrator and may be altered or amended by the Board of Supervisors by ordinance amendment. Until all application fees, charges and expenses have been paid in full to the Treasurer of Essex County, no application or appeal shall be considered complete; thus, no action shall be taken.

**Division 5. — Enforcement**

**Section 36.56. — Authority and Action for Violations.**

- (a) Authority.

As authorized by the Code of Virginia § 15.2-2286(A)(4), the Zoning Administrator or designee shall be responsible for enforcing the provisions of this Ordinance.

(b) Inspection Warrants.

The Zoning Administrator may enter upon or inspect any land or structure to ensure compliance with the provisions of this Ordinance, after requesting and receiving approval of the landowner to enter upon land for these purposes. If consent is not given by the landowner, the Zoning Administrator may enter upon land in accordance with the Code of Virginia § 15.2-2286(A)16.

(c) Notice of Violations.

(1) Upon becoming aware of any violation of the provisions of this Ordinance, the Zoning Administrator may issue written notice of such violation to the person committing or permitting the violations. Notice shall be mailed by registered or certified mail or hand delivered.

(2) The notice of violation shall state the nature of the violation, date that it was observed, the remedy or remedies necessary to correct the violation and a reasonable time period for the correction of the violation.

(3) Every written notice of violation of the Zoning Administrator shall include a statement informing the recipient that he or she may have a right to appeal the notice of zoning violation or written order within 30 days in accordance with the Code of Virginia § 15.2-2311. The zoning violation or written order shall include the applicable appeal fee and a reference to where additional information may be obtained regarding the filing of an appeal. The decision shall be final and unappealable if not appealed within 30 days.

(4) Appeals shall be heard by the Board of Zoning Appeals in accordance with the procedures set forth in Article II, Division 5.

(d) Remedies for Violations.

Upon becoming aware of any violation and making a determination of validity of any of the provisions of this Ordinance, the Zoning Administrator may institute appropriate action or proceedings, as permitted by law, including injunction, abatement to restrain, correction or abatement.

**Section 36.57. – Penalties for Violations.**

The remedies provided in the penalties sections below are cumulative and not exclusive except to the extent expressly provided therein.

(1) Criminal Penalties.

a. With the exception of the subdivision code in Article IX, any violation of the requirements of this chapter resulting in injury to a person or persons or where such civil penalties exceed \$5,000, shall be a misdemeanor, and upon conviction thereof, shall be punishable by a fine of not less than \$10 and not more than \$1,000.

b. If the violation is uncorrected at the time of conviction, the court shall order the violator to abate or remedy the violation in compliance with this Ordinance, within a time period established by the court. Failure to remove or abate such violation within the time period established by the court shall constitute a separate misdemeanor offense punishable by a fine of not less than \$10 nor more than \$1,000, and any such failure during any succeeding ten-day period shall constitute a separate misdemeanor offense for each ten-day period, punishable by a fine of not less than \$100 nor more than \$1,500.

(2) Civil Penalties.

Any violation other than as provided in Section 1 above for criminal penalties shall be subject to the following civil penalties, as provided in Virginia Code § 15.2-2209 and subject to the following:

- a. Procedure. Proceedings seeking civil penalties for violations of this Ordinance shall commence either by filing a civil summons in the general district court or by the Zoning Administrator or Agent issuing a ticket.
- b. Civil summons or ticket. A civil summons or ticket shall contain, at a minimum, the following information:
  1. Name and address of the person charged;
  2. Nature of the violation and the Ordinance provisions being allegedly violated;
  3. Location, date and time violation occurred or was observed;
  4. Amount of the civil penalty for the violation; and
  5. Right of the recipient to elect to either pay the penalty or stand trial for the violation and the date of such trial. The summons shall state that if the person elects to pay the penalty, the person must do so by making an appearance in person or in writing by mail to the county treasurer at least 72 hours prior to the time and date fixed for trial and, by such appearance, enters a waiver of trial and admits liability for the offence charged. The summons shall provide that a signature is an admission of liability that shall have the same force and effect as a judgement of the court. However, such admission shall not be deemed a criminal conviction for any purpose.
- c. Failure to Enter Waiver. If a person charged with a violation does not elect to enter a waiver of trial and admit liability, the violation shall be tried in the general district court in the same manner and with the same right of appeal as provided by law or equity and it shall be the county's burden to prove the violator's liability by a preponderance of the evidence. A finding of liability shall not be deemed a criminal conviction for any purpose.
- d. Fines.
  1. Amount of Civil Penalty. A civil violation shall be subject to a civil penalty of \$200 for the initial summons, and a civil penalty of \$500 for each additional summons arising from the same set of operative facts.
  2. Daily Offense. Each day during which a violation exists shall constitute a separate violation. However, in no event shall a violation arising from the same set of operative facts be charged more frequently than once in any 10-day period.
  3. Maximum Aggregate Penalty. The total civil penalties from a series of violations arising from the same set of operative facts shall not exceed \$5,000. If the violations exceed the \$5,000 limit, the violation may be prosecuted as a criminal misdemeanor pursuant to Section 36.57.

Reserved 36.58 — 36.64

## **Division 6. — Appeals**

### **Section 36.65. — In General.**

- (a) Pursuant to the Code of Virginia § 15.2-2311, an appeal to the Board of Zoning Appeals may be taken by any person aggrieved or by any officer, department, board, or bureau of the County affected by any

decision of the Zoning Administrator or from any order, requirement, decision, or determination made by any other administrative officer in the administration or enforcement of this Ordinance.

- (b) Such appeal shall be taken within 30 days after the decision appealed from by filing with the Zoning Administrator, and with the board, a notice of appeal specifying the grounds thereof. The Zoning Administrator shall forthwith transmit to the board all the papers constituting the record upon which the action appealed from was taken.
- (c) A decision or interpretation of the Zoning Administrator shall be presumed correct and may not be reversed or modified unless there is evidence in the record that the decision is not correct, based on the relevant procedures and review standards of this Ordinance. The Board of Zoning Appeals shall consider the purpose and intent of any applicable provisions of this Ordinance and other relevant Ordinances, laws, and regulations in making its decision.
- (d) An appeal shall stay all proceedings in furtherance of the action appealed from unless the Zoning Administrator certifies to the board that by reason of facts stated in the certificate a stay would in their opinion cause imminent peril to life or property, in which case proceedings shall not be stayed otherwise than by a restraining order granted by the board or by a court of record, on application and on notice to the Zoning Administrator and for good cause shown.

**Section 36.66. — Appeals to Board of Zoning Appeals.**

Pursuant to the Code of Virginia § 15.2-2312, procedures for submitting an appeal shall be as follows:

(1) Mailing Procedure.

Appeals shall be mailed from the applicant seeking appeal to the Board of Zoning Appeals in care of the Zoning Administrator, and a copy of the appeal shall be mailed to the secretary of the Planning Commission. A third copy should be mailed to the individual, official, department, or agency concerned, if any.

(2) Hearing.

The Board of Zoning Appeals shall fix a reasonable time for the hearing of an appeal, give public notice thereof as well as due notice to the parties in interest, and decide the same within 90 days of the filing of the appeal.

(3) Decisions.

- a. In exercising its powers, the BZA may reverse or affirm, wholly or partly, or may modify the order, requirement, decision or determination appealed from. In any appeal, if a BZA's attempt to reach a decision results in a tie vote, the matter may be carried over until the next scheduled meeting at the request of the person filing the appeal.
- b. The BZA shall keep minutes of its proceedings and other official actions which shall be filed in the office of the BZA and shall be public records.
- c. The chairperson of the BZA, or in their absence the acting chairperson, may administer oaths and compel the attendance of witnesses.

**Section 36.67. — Appeals of Board of Zoning Appeals.**

- (a) Pursuant to the Code of Virginia § 15.2-2314, any person jointly or severally aggrieved by any decision of the BZA, or any taxpayer or any officer, department, board or bureau of the county may appeal the decision to the circuit court of Essex County.
- (b) A petition specifying the grounds on which the applicant is aggrieved must be submitted 30 days after the filing of the decision in the office of the BZA.

**Section 36.68. — Construction in Violation of Ordinance.**

- (a) Pursuant to the Code of Virginia § 15.2-2313, construction of a building with a valid building permit deemed in violation of this Ordinance may be prevented, restrained, corrected, or abated by suit filed within fifteen days after the start of construction by a person who had no actual notice of the issuance of the permit.
- (b) The court may hear and determine the issues raised in the litigation even though no appeal was taken from the decision of the administrative officer to the Board of Zoning Appeals.

Reserved 36.69 — 36.79

## **ARTICLE III. — PERMITS AND APPLICATIONS**

### **Division 1. — In General**

#### **Section 36.80. — Outstanding Fees; Taxes.**

Pursuant to the Code of Virginia § 15.2-2286 (B), prior to the initiation of an application, the applicant shall produce satisfactory evidence that any delinquent real estate taxes, nuisance charges, stormwater management utility fees, and any other charges that constitute a lien on the subject property, that are owed to the County have been paid, unless otherwise authorized by the treasurer.

#### **Section 36.81. — Forms.**

Petitions or applications for amendments (to the Ordinance or Official Zoning Map), variances, conditional uses, or zoning permits, and any other request requiring action shall be made on forms provided by the County.

#### **Section 36.82. — Oath Required.**

Petitions or applications for amendments (to the Zoning and Subdivision Ordinance or Official Zoning Map), variances, and conditional use shall be sworn to under oath before a notary public, or other official before whom oaths may be taken.

#### **Section 36.83. — Minimum Submission Standards for Applications.**

- (a) The Zoning Administrator shall establish minimum standards for submission requirements of all applications associated with the Zoning and Subdivision Ordinance. Applications shall contain all information required to meet the minimum standards.
- (b) Upon written request by an applicant, the Zoning Administrator or his or her agent may waive or modify a submission requirement or requirements upon a determination that the information is not necessary to evaluate the merits of the application.

#### **Section 36.84. — Ordinance Conformance.**

- (a) Except where modifications to this Ordinance may be approved, all permits or licenses and the uses and buildings for which they apply shall conform to the provisions of this Ordinance.
- (b) Any permit or license issued which is in conflict with the provisions of this Ordinance shall be null and void.

#### **Section 36.85. — Vested Rights, Not Impaired.**

The provisions of this Ordinance shall not impair a vested right of a property owner. The Zoning Administrator shall be authorized to make determinations on whether a property owner's rights are deemed vested in a land use. Vested rights determinations shall be made in accordance with the Code of Virginia § 15.2-2307.

Reserved 36.86 – 36.94

## **Division 2. — Zoning Permits**

### **Section 36.95. — Purpose and Intent.**

The purpose of this division is to establish a procedure for the review of proposed development to ensure its compliance with the requirements of this Ordinance.

### **Section 36.96. — Applicability.**

Pursuant to the permitted provisions of the Code of Virginia § 15.2-2286, no building or other structure shall be erected, moved, added to, structurally altered, nor shall any building, structure, or land be established or changed in use without the owner or owners first obtaining a permit therefor, issued by the Administrator. No such permit shall be issued by the administrator that does not conform with the provisions of this Ordinance unless he receives a written order from the BZA deciding an appeal, variance, or the administrator grants a modification as provided by this Ordinance.

### **Section 36.97. — Standards and Procedures.**

- (a) Zoning permit applications shall be reviewed using the procedures and minimum submission requirements established by the Zoning Administrator.
  - (1) Each application for a zoning permit shall be accompanied by two (2) copies of a drawing or plan as required by the Administrator showing, with dimensions, the lot lines, the building or buildings, the location of buildings on the lot and such other information as may be necessary to provide for the enforcement of these regulations, including, if necessary and required in a specific case, a boundary survey and a staking of the lot by a competent surveyor and complete construction plans. The drawing plans shall contain suitable notations indicating the proposed use of all land and buildings, including the number of families or dwelling units or rental units proposed.
- (b) If the proposed building or use is in conformity with the provisions of this Ordinance, a permit shall be issued to the applicant by the administrator. One (1) copy of the drawing shall be returned to the applicant with the permit. One (1) copy shall be kept in the offices of the Administrator as record of the decision.
- (c) A zoning permit, in itself, shall not ensure that the development approved through said permit shall receive subsequent approval for any other necessary applications for permit or development approval.

### **Section 36.98. — Period of Validity.**

If the work described in any zoning permit has not begun within eighteen (18) months from the date of issuance thereof, said permit shall expire. If the work described in any zoning permit has not been substantially completed within five (5) years of the date of issuance thereof, said permit shall expire. Further work as described in the expired permit shall not proceed unless and until a new zoning permit has been obtained or extension granted.

### **Section 36.99. — Appeal.**

Any applicant or person aggrieved by the application decision shall have the right to appeal the decision pursuant to the procedures set forth in Article II, Division 6.

Reserved 36.100 – 36.109

### **Division 3. — Zoning Text and Map Amendment**

#### **Section 36.110. — In General.**

Pursuant to the Code of Virginia § 15.2-2286 (7), whenever public necessity, convenience, general welfare, or good zoning practice requires, the Board of Supervisors may, from time to time, amend, supplement or change, by Ordinance, the boundaries of the districts or the regulations established in this Ordinance. Such change shall require a majority vote of the Board of Supervisors.

#### **Section 36.111. — Standards and Procedures.**

(a) Initiation of Change.

- (1) Pursuant to § 15.2-2286 (7), any amendment to this Ordinance or the Zoning Map may be initiated by:
  - a. Resolution of the Board of Supervisors stating that the public necessity, convenience, general welfare and good zoning practice requires the amendment;
  - b. Resolution or motion of the Planning Commission stating that the public necessity, convenience, general welfare, and good zoning practice requires the amendment; or
  - c. Application of the owner, contract purchaser with the owner's written consent, or the owner's agent therefor, of the property which is the subject of the proposed Zoning Map amendment (rezoning), addressed to the Board of Supervisors or the local Planning Commission, who shall forward such petition to the Board of Supervisors.

Upon initiation by either the Board of Supervisors or the Planning Commission, the proposed amendment is automatically referred to the Planning Commission.

- (2) Any applicant must disclose all equitable ownership of the real estate to be affected including, in the case of corporate ownership, the name of stockholders, officers and directors and in any case the names and addresses of all of the real parties of interest in accordance with the Code of Virginia § 15.2-2289.

(b) Application; Review

- (1) Applications for amending this Ordinance or the Zoning Map shall be reviewed using the procedures set forth in this Ordinance and minimum submission requirements established by the Zoning Administrator. Upon receipt of an application for a zoning text amendment or rezoning, the Zoning Administrator will review the application for completion.
  - a. The application shall be accompanied by a preliminary site plan, as required in Division 7 below, and such written and graphic material as may be necessary to enable the Planning Commission and the Board of Supervisors to make the recommendation and determinations set forth below. Applicants may, in advance of filing an official application, submit 15 copies of a general development plan to the Zoning Administrator and request review by the Planning Commission for the purpose of guidance and comment. No official action shall be taken by the Planning Commission at said meeting; no unreasonable proffers shall be requested pursuant to Code of Virginia § 15.2-2303.4; and no commitments shall be made by the County or any agency thereof at said meeting. The submitted general development plan may be general and schematic but shall show the following:
    1. A certified plat of the subject property showing metes and bounds of all property lines.
    2. Proposed land uses to be developed.

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3. The approximate total number, density, type, and price range of dwelling units and the range of lot sizes for the various dwelling types.
  4. If any, the general location of proposed open space and recreational areas.
  5. If any, the general location and type of commercial uses to be developed.
  6. The general location and character of the proposed major roads, trails, public utility and storm drainage systems.
  7. A statement on the proposed development schedule.
  8. A written analysis of the public facilities, roadway improvements, and public utilities that will be required to serve the planned development.
  9. Any additional information as deemed reasonably necessary by the Zoning Administrator.
- b. Once the application has been determined to be complete, the County shall evaluate the application and may request that the applicant make revisions as necessary.
  - c. The application for a rezoning, once complete, is automatically referred to the Planning Commission for public hearing and recommendation.
  - d. The Planning Commission shall not recommend any request for a zoning text amendment or rezoning unless the application has been advertised and public hearings have been held in accordance with the requirements as required in Division 8 of this Article and § 15.2-2204 of the Code of Virginia.
  - e. The Planning Commission shall advise the Board of Supervisors within 100 days from its first meeting following referral. If after 100 days no recommendation has been made, the governing body shall assume that the Planning Commission concurs with the applicant and supports amending this Ordinance, and the Board of Supervisors shall thereafter take any action it deems appropriate, unless the applicant requests an extension and the Planning Commission votes to grant such an extension for a defined period not to exceed a total of 180 calendar days from the date of the public hearing.
  - f. The Board of Supervisors shall hold at least one public hearing as required in Division 8 of this Article and shall take final action to approve or deny the request.
  - g. All motions, resolutions, or petitions for amendment to the Zoning and Subdivision Ordinance and/or Zoning Map shall be acted upon and a decision made within such reasonable time as may be necessary which shall not exceed 12 months unless the applicant requests or consents to action beyond such period or unless the applicant withdraws his motion, resolution, or petition for amendment to the Zoning and Subdivision Ordinance or map, or both. In the event of and upon such withdrawal, processing of the motion, resolution or petition shall cease without further action as otherwise would be required by this subdivision.
- (2) The Zoning Administrator shall cause the Zoning Map to be updated as frequently as necessary to ensure that zoning data shown thereon are both accurate and current. Accordingly, all changes affecting the Zoning Map that are approved by the Board of Supervisors shall be entered onto the original official Zoning Map 60 days following the approval of such changes. After updating sections of the Zoning Map, working prints of any updated section thereof upon which modifications have been made shall be inserted into all sets of the Zoning Maps that are used for public viewing and administration.
- (c) Amendments.
- Any amendments adopted by the Board of Supervisors may be modified from the form in which they were advertised within the limits necessary to relate properly such amendments to the zoning plan and Ordinance; provided, however, that no land may be zoned to a more intensive use classification than

was contained in the public notice without an additional public hearing after notice as required in this Article.

**Section 36.112. — Reconsiderations.**

- (a) Whenever a petition requesting an amendment, supplement, or change has been denied by the Board of Supervisors, such petition, or one substantially similar, shall not be reconsidered sooner than 12 months after the previous denial. This shall not impair the right of either the Planning Commission or the Board of Supervisors to propose any amendment to this Ordinance on their motion at any time.

Reserved 36.113 – 36.124

**Division 4. — Conditional Zoning and Proffers**

**Section 36.125. — Purpose and Intent.**

The purpose of conditional zoning is to provide a method for permitting the reasonable and orderly development of land with reasonable conditions governing the use of such property. As authorized under the Code of Virginia §§ 15.2-2296 through 15.22303.4, reasonable conditions may voluntarily be proffered by the owner of the property to which the proffered conditions will be applicable for the protection of the community when combined with existing Zoning and Subdivision Ordinance district regulations. The exercise of authority shall not be construed to limit or restrict powers otherwise granted nor to affect the validity of any Ordinance adopted by the locality which would be valid without regard to this division. In addition, the provisions of this article shall not be used for the purpose of discrimination in housing.

**Section 36.126. — Standards and Procedures.**

- (a) Proffer of Conditions; Standards for Consideration.
  - (1) Any owner of property or their agent making application for a change in zoning or an amendment to the Zoning Map may, as part of the application, voluntarily proffer in writing reasonable conditions which shall apply to the subject property in addition to the regulations provided for in the zoning district sought in the rezoning application. Any such proffered conditions must be made prior to any public hearing before the Board of Supervisors (including joint public hearings with the Planning Commission). Proffered conditions may be amended once the public hearing has begun, and must be in accord with the procedures and standards contained in the Code of Virginia § 15.2-2297.
  - (2) Proffered conditions shall be subject to the following limitations:
    - a. The rezoning itself must give rise to the need for the conditions;
    - b. The conditions shall have a reasonable relation to the rezoning;
    - c. The conditions shall not include a cash contribution to the County;
    - d. The conditions shall not include mandatory dedication of real or personal property for open space, parks, schools, fire departments or other public facilities not otherwise provided for in Code of Virginia, § 15.2-2241;
    - e. The conditions shall not include a requirement that the applicant create a property owners' association under the Property Owners' Association Act (§ 55.1-1800 et seq.) that includes an express further condition that members of a property owners' association pay an assessment for the maintenance of public facilities owned in fee by a public entity, including open space, parks, schools, fire departments and other public facilities not otherwise provided for in the Code of Virginia § 15.2-2241; however, such facilities shall not include sidewalks, special street signs or markers, or special street lighting in public rights-of-way not maintained by the Department of Transportation;

- f. The conditions must not include payment for, or construction of, off-site improvements except those provided for in the Code of Virginia § 15.2-2241 and § 15.2-2303.4;
  - g. No condition shall be proffered that is not related to the physical development or physical operation of the property; and,
  - h. All such conditions shall be in accordance with the Comprehensive Plan.
- (3) At the time each proffer is submitted to the County, it shall be accompanied by a statement signed by the applicant and the owner or their agents which states:
- “Each proffer made in connection with this application for rezoning was made voluntarily and complies with applicable law. No agent of the County has suggested or demanded a proffer that is unreasonable under applicable law.”
- (4) Application. Each application for rezoning which proposes proffered conditions to be applied to the property shall be accompanied by the following items beyond those required by conventional rezoning requests:
- a. An impact analysis demonstrating justification of proposed proffers.
  - b. A statement by the applicant certifying there has not been a request to supply unreasonable proffers.
  - c. A statement describing the nature of the proposed development and explaining the relationship of the development to the Comprehensive Plan.
  - d. A statement setting forth a maximum number of dwelling units or lots proposed, including density and open space calculations where applicable to any residential development, or a statement describing the types of uses proposed and the approximate square footage for each nonresidential development.
  - e. A statement detailing any special amenities that are proposed.
  - f. A statement of the public improvements both on and off site that are proposed for dedication and/or construction and an estimate of the date for providing such improvements.
  - g. A generalized development plan (or concept plan) listing and detailing the nature and location of any proffered conditions and those proposed circumstances which prompted the proffering of such conditions.
  - h. A statement setting forth the proposed approximate development schedule.
  - i. A signed statement by both the applicant and owner in the following form: “I hereby proffer that the development of the subject property of this application shall be in strict accordance with the conditions set forth in this submission.”

**Section 36.127. — Amendments and Variations.**

- (a) The Board of Supervisors may accept amended proffers once the public hearing has begun provided the amended proffers do not materially affect the overall proposal. If the Board of Supervisors determines that the amendment materially affects the overall proposal, the application with the amended proffers shall be remanded back to the Planning Commission for a public hearing and recommendation.
- (b) Any landowner subject to proffered conditions may apply to the Board of Supervisors for amendments to or variations of such proffered conditions. Written notice, public hearing, and enforcement shall comply with the Code of Virginia § 15.2-2302.

**Section 36.128. — Effect of Condition; Period of Validity.**

Upon the approval of any such rezoning, all conditions proffered and accepted by the governing body shall be deemed a part thereof and non-severable therefrom and shall remain in force and effect until amended

or varied by the Board of Supervisors. All such conditions shall be in addition to the regulations provided for in the zoning district to which the land is rezoned.

**Section 36.129. — Record of Conditional Zoning.**

Each conditional rezoning shall be designated on the Zoning Map by an appropriate symbol designed by the Zoning Administrator. In addition, the Zoning Administrator shall keep and maintain a conditional zoning index which shall provide ready access to the ordinance creating such conditions in addition to the regulations provided for in the particular zoning district and which shall be available for public inspection. The Zoning Administrator shall update the Index annually and no later than November 30 of each year.

Reserved 36.130 – 36.139

**Division 5. — Conditional Use Permits**

**Section 36.140. — Purpose and Intent.**

A use requiring a Conditional Use Permit is a use that may be appropriate in a zoning district, but because of its nature, extent, and external effects, requires special consideration of its location, design, and methods of operation before it can be deemed appropriate in the district and compatible with its surroundings. The purpose of this division is to establish procedures and standards for review and approval of Conditional Use Permits that provide for such special consideration.

**Section 36.141. — Applicability.**

A use permit is required for development of any use designated in Article V Table 12: Zoning Use Matrix, as a use requiring a Conditional Use Permit in accordance with this section, and pursuant to the Code of Virginia § 15.2-2286.

**Section 36.142. — Standards and Procedures.**

(a) Application.

- (1) Conditional Use Permit applications shall be reviewed using the procedures and minimum submission requirements established by the Zoning Administrator. Upon receipt of an application for a Conditional Use Permit, the Zoning Administrator will review the application for completion.
- (2) The application for such Conditional Use Permit shall be accompanied by a preliminary site plan and such written and graphic material as may be necessary to enable the Planning Commission and the Board of Supervisors to make the recommendation and findings set forth below.
- (3) Once the application has been determined to be complete, the County shall evaluate the application and may request that the applicant make revisions as necessary.
- (4) Pursuant to the Code of Virginia § 15.2-2289, all applicants must disclose all equitable ownership of the real estate to be affected including, in the case of corporate ownership, the name of stockholders, officers and directors and in any case the names and addresses of all of the real parties of interest.
- (5) The application shall be referred to the Planning Commission for public hearing and recommendation. The Planning Commission shall not recommend any request unless the application has been advertised and public hearings have been held in accordance with the requirements as required in Division 8 of this Article and § 15.2-2204 of the Code of Virginia.
- (6) The Planning Commission shall advise the Board of Supervisors within 100 days. If after 100 days no recommendation has been made, the governing body shall assume that the Planning Commission concurs with the applicant and supports amending this Ordinance, and the Board of Supervisors shall thereafter take any action it deems appropriate, unless the applicant requests an extension and the

Planning Commission votes to grant such an extension for a defined period not to exceed a total of 180 calendar days from the date of the public hearing.

**Section 36.143. — Amendment of Conditions.**

Any landowner subject to conditions of a Conditional Use Permit may apply to the Board of Supervisors for amendments to or variations of such conditions. Written notice, public hearing, and enforcement shall comply with the Code of Virginia § 15.2-2302.

**Section 36.144. — Effect of Decision; Period of Validity.**

- (a) A Conditional Use Permit authorizes only the particular use(s) and associated development that is approved and shall not ensure that the development approved through said permit shall receive subsequent approval for any other necessary applications for permit or development approval. A Conditional Use Permit, including any approved plans and conditions, shall run with the land and shall not be affected by a change in ownership.
- (b) Unless otherwise specified in this Ordinance or specified as a condition of approval, the height limits, yard spaces, lot area, sign requirements, and other specified standards shall be the same as for other uses in the district in which the conditional use is located.
- (c) No reapplication for a Conditional Use Permit for the same or substantially the same application shall be considered by the governing body within a period of six (6) months from its last consideration. This provision, however, shall not impair the right of the governing body to propose a Conditional Use Permit on its own motion.
- (d) Should the use approved by the Conditional Use Permit cease for any twenty-four-month period during the life of the permit, the Conditional Use Permit shall become void.

**Section 36.145. — Revocation.**

A previously granted Conditional Use Permit may be revoked if the Board of Supervisors determines there has not been compliance with the conditions of the permit. No permit shall be revoked except after notice and hearing as provided in this Article.

**Section 36.146. — Appeal.**

Any applicant or person aggrieved by the application decision shall have the right to appeal the decision pursuant to the procedures set forth in Article II, Division 6.

Reserved 36.147 – 36.154

## Division 6. — Variances

### Section 36.155 — Purpose and Intent.

Pursuant to the Code of Virginia § 15.2-2309, the purpose of a variance is to allow for a reasonable deviation from the provisions of this Ordinance regulating the shape, size, or area of a lot or parcel of land or the size, height, area, bulk, or location of a building or structure when the strict application of the Ordinance would unreasonably restrict the utilization of the property, other relief or remedy is not available, such need for a variance would not be shared generally by other properties, and provided such variance is not contrary to the purpose of the Ordinance.

### Section 36.156. — Standards and Procedures.

(a) Authority.

- (1) Pursuant to the Code of Virginia § 15.2-2309 (2) and (6), the Board of Zoning Appeals is authorized to review petitions for a variance, provided that the burden of proof shall be on the applicant for a variance to prove by a preponderance of the evidence that the application meets the standard for a variance and the criteria set out in this section.
- (2) The Board of Zoning Appeals may approve, approve with conditions deemed necessary in the public interest, including limiting the duration of a permit, requiring a guarantee or bond to ensure the conditions will be complied with, or deny an application for a variance permit in accordance with the procedures and standards of this section.

(b) Application.

- (1) Pursuant to the Code of Virginia § 15.2-2310, application for a variance may be made by any property owner, tenant, government official, department, board, or bureau. Applications shall be made to the Zoning Administrator in accordance with rules adopted by the Board of Zoning Appeals. The application and accompanying maps, plans or other information shall be transmitted promptly to the secretary of the Board of Zoning Appeals who shall place the matter on the docket to be acted upon by the Board of Zoning Appeals. The Zoning Administrator shall also transmit a copy of the application to the local Planning Commission, which may send a recommendation to the Board of Zoning Appeals or appear as a party at the hearing.
- (2) Pursuant to the Code of Virginia § 15.2-2289, all applicants must disclose all equitable ownership of the real estate to be affected including, in the case of corporate ownership, the name of stockholders, officers and directors and in any case the names and addresses of all of the real parties of interest.

(c) Public Notice.

Shall be provided as outlined in Division 8 of this Article.

(d) Standards for Review.

- (1) Pursuant to the Code of Virginia §15.2-2309 (2), a variance shall be granted if the evidence shows that the strict application of the terms of the Ordinance would unreasonably restrict the utilization of the property or that the granting of the variance would alleviate a hardship due to a physical condition relating to the property or improvements thereon at the time of the effective date of the Ordinance, and:
  - a. The property interest for which the variance is being requested was acquired in good faith and any hardship was not created by the applicant for the variance;
  - b. The granting of the variance will not be of substantial detriment to adjacent property and nearby properties in the proximity of that geographical area;

- c. The condition or situation of the property concerned is not of so general or recurring a nature as to make reasonably practical the formulation of a general regulation to be adopted as an amendment to the Ordinance;
- d. The granting of the variance does not result in a use that is not otherwise permitted on such property or a change in the zoning classification of the property;
- e. The relief or remedy sought by the variance application is not available through the process for modification of a Zoning and Subdivision Ordinance pursuant to subdivision A 4 of the Code of Virginia §15.2-2286 at the time of the filing of the variance application.

**Section 36.157. — Effect of Decision; Period of Validity.**

- (a) Issuance of a variance or special exception shall authorize only the particular variance that is approved. A variance, including any conditions, shall run with the land and not be affected by a change in ownership.
- (b) Use or development authorized by the variance shall not be carried out until the applicant has secured all other permits required by this Ordinance or any other applicable Ordinances and regulations of the County. A variance, in itself, shall not ensure that the development approved through said permit shall receive subsequent approval for any other necessary applications for permit or development approval.
- (c) After the Board of Zoning Appeals has granted a variance, the variance so granted shall lapse after the expiration of eighteen (18) months if no substantial construction or change of use has taken place in accordance with the plans for which such variance was granted, or if the Board of Zoning Appeals does not specify some longer period than eighteen (18) months for good cause shown.

**Section 36.158. — Amendment.**

The procedure for amendment of a variance already approved, or a request for a change of conditions attached to an approval, shall be the same as for a new application except that where the Zoning Administrator determines the change to be minor relative to the original approval, he may transmit the same to the Board of Zoning Appeals with the original record without requiring that a new application be filed.

Reserved 36.159 – 36.174

**Division 7. — Site Plans**

**Section 36.175. — Purpose and Intent.**

The purpose of this section is to promote the orderly development of certain activities in the County and to ensure that such activities are developed in compliance with this Ordinance and other applicable regulations and in a manner harmonious with surrounding properties and in the interest of the general public welfare. More specifically, the site plan shall be used to review the project's compatibility with its environment; to review the ability of the project's traffic circulation system to provide for the convenient and safe internal and external movement of vehicles and pedestrians; to review the quantity, quality, utility and type of the project's required community facilities; and to review the location and adequacy of the project's provision for drainage and utilities.

**Section 36.176. — Applicability.**

- (a) Pursuant to Code of Virginia, § 15.2-2286. A.8, no building permit or zoning permit shall be issued involving construction or exterior modifications to a structure until a site plan has been issued in accordance with the procedures established herein. Site plans are required and shall be submitted for all new structures, all renovated structures, and all additions to existing structures, with the following exceptions:
  - (1) Individual Single-Family Dwellings.
  - (2) Individual Two-Family Dwellings.

- (3) Accessory Uses where the area of land disturbance is less than 2,500 square feet.
  - (4) Bona fide agricultural operations and the customary accessory uses and structures associated with bona fide agricultural operations.
  - (5) Filling and grading operations where the area of land disturbance is less than 2,500 square feet where no impervious structures, surfaces or improvements will be installed and no clearing undertaken.
  - (6) Repairs of a general nature to existing buildings.
- (b) Where a change of use of an existing structure requires additional parking or other requirements applicable to a new use, a site plan shall be submitted for review to ensure that the change of use can be accomplished within the purpose and intent of this Ordinance.

**Section 36.177. — Waiver of Requirements.**

Any requirement of this Division may be waived by the administrator where the waiver is not averse to the purpose of this Division, and the applicant establishes that in this specific case an undue hardship would result from a strict enforcement of this Division. A report of waivers shall be provided in an annual report to the Planning Commission.

**Section 36.178. — Preapplication.**

Prior to the submittal of a preliminary site plan, a preapplication meeting must be held between the applicant and the Zoning Administrator, unless otherwise waived by the Zoning Administrator.

**Section 36.179. — Preliminary Site Plan Specifications and Contents.**

The preliminary site plan, or any portion thereof, involving engineering, urban planning, landscape architecture, architecture, or land surveying shall be prepared by qualified persons. Site plans shall be certified by an architect, engineer, or land surveyor licensed to practice by the state within the limits of their respective licenses. The preliminary site plans shall be clearly drawn to scale as specified in this subsection and shall show the following:

- (1) Name and address of the applicant, owner of the property, and the preparer of the plan.
- (2) A certificate, signed by the surveyor or engineer, setting forth the source of title of the owner of the tract and the place of record of the last instrument in the chain of title;
- (3) The Northpoint, scale, date, and number of sheets;
- (4) Location of the project by an insert map at a scale of not less than one-inch equals 2,000 feet, indicating such information as the names and numbers of adjoining roads, streams and bodies of water, railroads, subdivisions, towns and magisterial districts or other landmarks sufficient to clearly identify the location of the property;
- (5) A boundary survey of the parcel(s) by courses and distances and including two points connected to the VA Coordinate System of 1983 (NAD83), tax map parcel number, County or municipal boundaries within one-half mile, existing streets, buildings or waterways, major tree masses and other existing physical features in or adjoining the project;
- (6) Adjoining property owners, zoning, and present use of adjoining property;
- (7) A topographic map with existing and proposed finished grade at a maximum contour interval of two (2) feet supplemented where necessary by spot elevations or other appropriate interval approved by the Zoning Administrator;
- (8) The location and arrangement of all proposed uses;
- (9) The general location of proposed lots, setback lines, easements, rights-of-way, and proposed parks, playgrounds, school sites, all proposed community and public facilities and, open spaces;

- (10) The location and extent of all wooded areas before development; the proposed area of clearing, with indication of post-development cover;
- (11) A tabulation of the total number of acres in the project and the percentage thereof proposed to be devoted to dwelling types, commercial uses, other non-residential uses, off-street parking, streets, parks, schools, amount and percentage to be covered by impervious surface after development, and other reservations;
- (12) A statement setting forth the maximum number of dwelling units that are proposed, the overall project density in dwelling units per acre, a breakdown of the approximate number of units by type, and the range of approximate lot sizes for single-family detached and attached dwellings;
- (13) Number of floors, floor area, height, and location of each building and proposed general use for each building. If a multi-family residential building, the number, size, and type of dwelling units;
- (14) The locations of all existing and proposed septic tanks and drainfield sites including reserve sites;
- (15) The location of all existing and proposed wells;
- (16) The location of existing and proposed public water and sanitary sewer facilities, indicating all pipe sizes, types, and grades and where connection is to be made;
- (17) Provisions for the adequate disposition of natural and storm water, indicating locations, sizes, types and grades of ditches, catch basins and pipes and connections to existing drainage system;
- (18) The proposed traffic circulation plan, including major streets and major pedestrian, bicycle and/or bridle paths, and the location, type and size of vehicular entrances;
- (19) All off-street parking, loading spaces, and walkways, indicating type of surfacing, size, angle of stalls, width of aisles, and a specific schedule showing the number of parking spaces provided and the number required per this Ordinance.
- (20) A landscape plan demonstrating at a minimum the type, size, height and location of plantings, fencing, retaining walls, and screen planting as required in Article VII;
- (21) General location, character, size, height and orientation of proposed signs and outdoor lighting systems;
- (22) The approximate limit of all resource protection area features and any additional required buffer areas if an environmental assessment is not submitted; and other items as required in Article IV, Division 5, which include, but are not limited to, the following:
  - a. Delineation of the RPA boundary;
  - b. Delineation of required buffer areas;
  - c. Delineation of RMA wetlands;
  - d. Delineation of RMA boundary; and,
  - e. A notation that setbacks shown are based on current district requirements but shall not take precedence over any subsequently adopted setback requirements related to any rezoning action or district regulation amendments.;
- (23) The approximate limit of the 100-year floodplain, any drainage district, mapped dam break inundation zone;
- (24) The location of any grave, object or structure marking a place of burial;
- (25) The location of all existing and proposed structures, including marine and temporary structures. In the case of temporary structures, the date when the structure will be removed must be indicated;

- (26) A delineation of those general areas that have scenic assets or natural features deserving of protection and preservation, as outlined in the Essex Comprehensive Plan or identified by the Zoning Administrator and statement of how such will be accomplished;
- (27) A statement or visual presentation of how adjacent and neighboring properties shall be protected from any adverse effects prompted by the proposed development, to include vehicular access plans, proposed measures and types of screening, and dimensions of all buffers that will be provided;
- (28) A report setting forth the proposed development schedule indicating the sequence of development of the various sections thereof and the approximate starting and completion date for the construction of each stage;
- (29) A plan or report indicating the extent, timing and estimated cost of all off-site improvements, such as roads, sewer, and drainage facilities deemed necessary to construct the proposed development, and the extent, timing and estimated cost of all facilities deemed necessary to serve the development such as schools, libraries and police substations. This plan or report shall relate to the sequence of the development schedule if the development is to be constructed in stages or units;
- (30) A traffic impact analysis as required by the Virginia Department of Transportation;
- (31) An impact statement on the effect of the development to the County's school system, refuse system, ground-water supply, environment and any other community service; and
- (32) Any additional information as required by the Zoning Administrator necessary to evaluate the character and impact of the proposed project.

**Section 36.180. — Final Site Plan Specifications and Contents.**

- (a) General Specifications.
  - (1) Separate final site plans shall be submitted for each development stage or unit as set forth in the approved preliminary site plan.
  - (2) A final site plan for a particular development stage or unit other than the first, shall not be approved until the final site plan has been approved for the immediately preceding stage or unit.
- (b) Contents. The final site plan shall comply with the preliminary site plan specifications in section 36.179 above; approved preliminary site plan where such approval is required in section 36.186 (b); and shall in addition show the following, unless the Zoning Administrator may determine that some of the following information is unnecessary due to the scope and nature of the development proposed:
  - (1) The location of all existing and proposed easements for roads, overhead and underground utilities, drainage, or other easements which may exist or are proposed on the property.
  - (2) The location of proposed access and location of all curb cuts as approved by the Virginia Department of Transportation demonstrating efforts made to control access and minimize impacts to through traffic on adjacent routes.
  - (3) Included with the site plan shall be documentation of all existing permits and applications relevant to the parcel, including, but not limited to: Health Department permits for all wells and septic drain fields; all existing zoning permits and zoning applications; applications for rezoning, special use and Conditional Use Permits, and zoning variances and evidence of all wetlands permits required by Federal, State, and local laws and regulations applicable to the site, lot or parcel.
  - (4) All of the features required on the preliminary plan with sufficiently accurate dimensions, construction specifications and computations to support the issuance of zoning and construction permits.
  - (5) Provisions for the adequate disposition of natural and storm water in accordance with duly adopted design criteria and standards of the Virginia Department of Highways indicating the location sizes, types and grades of ditches, catch basins and pipes and connections to existing drainage system. Provisions

- for the adequate control of erosion and sedimentation, indicating the proposed temporary and permanent control practices and measures which will be implemented during all phases of clearing, grading, and construction.
- (6) Distances and bearings must balance and close with an accuracy of not less than one in 10,000.
  - (7) The layout of all major and secondary roads shall be shown by metes and bounds, public or private.
  - (8) When the development is to be constructed in stages or units, a final sequence of development schedule showing the order of construction of such stages or units, an approximate completion date for the construction of each stage or unit, and a final cost estimate of all improvements within each stage or unit.
  - (9) A copy of all covenants, restrictions, and conditions pertaining to the use, maintenance and operation of all open space areas.
  - (10) Any additional requirements as determined by the Board of Supervisors, Board of Zoning Appeals, or Zoning Administrator.

**Section 36.181. — Reviews.**

- (a) Site plan submission. Unless otherwise provided in another Article of this Ordinance, every site plan required by this Article shall be submitted to the Zoning Administrator who shall take the following actions:
  - (1) Review the plans for conformity with the Comprehensive Plan and applicable development regulations.
  - (2) Determine whether the preliminary site plan requires review by the Planning Commission and Board of Supervisors, as outlined in (b) below.
  - (3) If a review is required by the Planning Commission and Board of Supervisors, then place the site plan on the agenda of the Planning Commission and the Board of Supervisors and arrange for public notices as outlined in Division 8 of this Article.
- (b) Preliminary Site Plans requiring actions of the Planning Commission and Board of Supervisors are as follows:
  - (1) Applications that require a change of zoning classification.
  - (2) Applications for Conditional Use Permits.
- (c) All other plans required under Section 36.181, whether preliminary or final, are approved by the Zoning Administrator.
- (d) For projects which are required to be referred to the Planning Commission and the Board of Supervisors, the Zoning Administrator shall prepare an analysis of the plan and a brief report stating whether the site plan is in conformity with applicable plans, regulations and policies of the County. This report shall be submitted to the Planning Commission, through the Zoning Administrator who may make additional analysis and recommendations concerning whether the proposed site plan is consistent with the County's Comprehensive Plan and general development policies. The Zoning Administrator's report may recommend actions that would enable the plan to meet County requirements, should it not meet such requirements as submitted.
- (e) Pursuant to Code of Virginia, § 15.2-2259, the site plan shall be approved or disapproved within 60 days after it has been officially submitted for approval. If disapproved the reasons for disapproval shall be identified by reference to specific duly adopted Ordinances, regulations, or policies and shall identify, to the greatest extent practicable, modifications or corrections that will permit approval of the plan.
- (f) Pursuant to Code of Virginia, § 15.2-2259, the site plan that is previously disapproved but has been modified, corrected, and resubmitted shall be acted on within 45 days of resubmission.

**Section 36.182. — Amendments.**

- (a) If it becomes necessary for an approved site plan to be changed, the administrator may, at the applicant's request, administratively approve an amendment to the site plan if the change or amendment does not:
  - (1) Alter a recorded plat;
  - (2) Conflict with specific requirements of this Ordinance;
  - (3) Change the general character or content of an approved development plan or use;
  - (4) Have an appreciable effect on adjoining or surrounding property;
  - (5) Result in any substantial change of external access points;
  - (6) Decrease the minimum specified yard and open spaces.
- (b) Amendments such as but not limited to, the elimination of any use shown or the addition of any use not shown on the preliminary site plan or any increase or decrease in the density of the development, shall require resubmission of the preliminary site plan.
- (c) If amendments to a site plan do not comply with administrative approval, then the amendment request and a new site plan must be drawn and submitted for review and action in accordance with this division.

**Section 36.183. — Compliance with Approved Site Plan Required.**

It shall be unlawful for any person to construct, erect or substantially alter any building or structure, or develop, change, or improve land for which a site plan is required, except in accordance with an approved site plan. Deviation from an approved site plan without the written approval of the Zoning Administrator shall void the site plan and require submission of a new site plan for approval.

**Section 36.184. — Period of Validity.**

- (a) If no final plan is submitted within 18 months of the approved preliminary site plan and construction has not begun within the time period approved by the Board of Supervisors, the preliminary site plan approved shall lapse and be of no further effect. In its discretion and for good cause, the Board of Supervisors may, upon receipt of written request, extend the period required to submit a final plan.
- (b) In accordance with Code of Virginia, § 15.2-2261, approval of a final site plan submitted under the provisions of this Article shall expire five years after the date of such approval unless building permits have been obtained for construction in accordance therewith.
- (c) The application for and approval of minor modifications to an approved site plan shall not extend the period of validity of such plan and the original approval date shall remain the controlling date for purposes of determining validity.
- (d) No permit shall be issued for any structure in any area covered by the site plan that is required under the provisions of this Article except in conformity with such site plan which has been duly approved.

Reserved 36.185. – 36.199

## Division 8. – Public Notice

### Section 36.200. – Procedure.

- (a) In accordance with the Code of Virginia § 15.2-2204, the Planning Commission shall not recommend, nor shall the Board of Supervisors adopt or approve any plan, ordinance, amendment, or Conditional Use Permit, nor shall the BZA approve any variance, until it has held a duly-advertised public hearing. Advertising and notice procedures shall be conducted according to the procedures under § 15.2-2204, as outlined in this section for the convenience of the public.
- (b) Notice of public hearings shall be published once a week for two successive weeks in some newspaper published or having general circulation in the County. The term "two successive weeks," as used in this subsection, shall mean that such notice shall be published at least twice in such newspaper, with not less than six days elapsing between the first and second publications. Notices shall specify the time and place of a hearing at which persons affected may appear and present their views, not less than five days nor more than 21 days after the second advertisement shall appear in such newspaper. The subject matter of the public hearing need not be advertised in full but may be advertised by reference. Each such advertisement shall contain a reference to the places within the County where copies of the proposed plans, ordinances, amendments, or applications may be examined.
- (c) The Planning Commission and Board of Supervisors may hold a joint public hearing after public notice as set forth herein, and if such joint hearing is held, public notice as set forth above need be given only by the Board of Supervisors.
- (d) In the case of a proposed amendment to the Zoning Map (rezoning), the public notice shall state the general usage and density range of the proposed amendment and the general usage and density range, if any, set forth in the applicable part of the Comprehensive Plan. No land may be zoned to a more intensive use classification than was contained in the public notice without an additional public hearing after notice pursuant to § 15.2-2204.
- (e) When a proposed amendment of this Ordinance involves a change in the zoning classification of 25 or fewer parcels of land, then, in addition to the advertising as above required, written notice shall be given at least five days before the hearing to the owner or owners, their agent or the occupant of each parcel involved, to the owners, their agent or the occupant of all abutting property and property immediately across the street or road from the property affected, and, if any portion of the affected property is within a planned unit development, then to such incorporated property owners' association within the planned unit development that has members owning property located within 2,000 feet of the affected property. Notice shall also be given to the owner, the owner's agent or the occupant of all abutting property and property immediately across the street from the property affected.
- (f) When a proposed amendment of this Ordinance involves a change in the Zoning Map classification of more than 25 parcels of land, or a change to the applicable Zoning and Subdivision Ordinance text regulations that decreases the allowed dwelling unit density of any parcel of land, then, in addition to the advertising as required by subsection A, written notice shall be given by the local planning commission, or its representative, at least five days before the hearing to the owner, owners, or their agent of each parcel of land involved, provided, however, that written notice of such changes to Zoning and Subdivision Ordinance text regulations shall not have to be mailed to the owner, owners, or their agent of lots shown on a subdivision plat approved and recorded pursuant to the provisions of the Code of Virginia, § 15.2-2240 et seq. where such lots are less than 11,500 square feet.
- (g) When a proposed change in Zoning Map classification; or an application to increase by greater than 50 percent of the bulk or height of an existing or proposed building, but not including renewals of previously approved special exceptions, involves any parcel of land located within one-half mile of a boundary of an adjoining locality of the Commonwealth, then, in addition to the advertising and written notification as required by this section, written notice shall also be given by the local commission, or its representative, at

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least 10 days before the hearing to the chief administrative officer, or his designee, of such adjoining locality.

- (h) Notice, as required above, sent by registered or certified mail to the last known address of such property owner(s) as shown on the current real estate tax assessment records shall be deemed adequate notification. Notice may be sent by first class mail; however, a representative of the county shall sign an affidavit that such mailings have been made and file such affidavit with the papers in the case.
- (i) Notifications shall also be provided to military bases, military installations, military airports, and public-use airports in accordance with the Code of Virginia § 15.2-2204.
- (j) The cost of all notice requirements shall be paid by the applicant in addition to any other fees involved in the application. The County shall bill the applicant for such costs.
- (k) Pursuant to the Code of Virginia § 15.2-2206, the County may require the applicant to give written notice to those persons who own property, any portion of which abuts the subject property, and all property which is directly across the street from any portion of the subject property, as determined by the County's real property tax records. This notice shall give the date, provide the time and place of the hearing, identify the property which is the subject of the application, and give a brief description of the proposed action. This notice shall be mailed a minimum of 10 days prior to the date of the public hearing. The list of property owners and the content of the notice shall be approved by the Zoning Administrator prior to mailing.
- (l) The applicant shall also be required to place a sign provided by the County on the subject property which indicates that this action is pending. This sign shall be located to be clearly visible from the street.
- (m) Actual notice of, or active participation in, the proceedings for which the written notice is provide shall waive the right of that party to challenge the validity of the proceedings due to failure of notice as required by this section.

Reserved 36.201 – 36.209

## ARTICLE IV. — ZONING DISTRICTS

### Division 1. — Establishment, Purpose, and Intent of Districts

#### Section 36.210. — General.

- (a) Zoning districts established. In order to regulate and restrict the location and use of buildings and land for trade, industry, residence and other purposes in accordance with the objectives of the comprehensive plan; to regulate and restrict the location, height and size of buildings hereafter erected or structurally altered, the size of yards and other open spaces and the density of population, the following zoning districts are hereby established:
- (1) *Primary zoning districts.* The entire territory under the jurisdiction of the county is hereby classified into one of the following primary zoning districts to be known and cited as indicated:
- a. A-1 Agriculture and Forestry, Preservation
  - b. A-2 Agriculture and Forestry, General
  - c. R-1 Very Low Density Residential
  - d. R-2 Low Density Residential
  - e. R-3 Medium Density Residential
  - f. R-4 Residential, Restricted
  - g. MH-1 Mobile Home Park
  - h. PUD Planned Unit Development
  - i. B-1 Local Business
  - j. B-2 General Business
  - k. I-1 Light Industrial
  - l. I-2 Industrial
- (2) *Special purpose zoning districts.* Special purpose district regulations supplement, rather than replace, the regulations of the primary zoning districts that otherwise apply to the same land. Special purpose zoning districts are established to be known and cited according to the following:
- a. CBPA-OD Chesapeake Bay Preservation Area Overlay
- (b) Reference to district names. For the purpose of reference hereafter in this Ordinance, unless specifically provided to the contrary, the term "residence district" shall include the agricultural districts and the residential districts. The term "business district" shall include all business districts; and the term "industrial district" shall include all industrial districts.

**Section 36.211. — Purpose and Intent of Zoning Districts.**

(a) Primary Zoning Districts.

- (1) *A-1 Agricultural and Forestry, Preservation District.* The purpose of the A-1 district is to encourage continued agricultural and forest uses and preserve the natural beauty and ecology or environmental health of rural areas through large lots with wide expansive areas of farming and forestry. This district generally corresponds to areas of the County represented as the Agricultural Preservation District in the County Comprehensive Plan. At the same time, the district is intended to provide for very sparse residential development for those who own or manage on site farm and forestry lands or choose to live in a rural environment. In order to protect against premature subdivision of land and the formation of urban clusters where none are planned, subdivisions are restricted to maintain and protect the land base necessary to support the County's agricultural economy. This district shall not be confused with, but may include, properties designated as Agriculture and Forestal Districts through the Agricultural and Forestal Act, as described in the Code of Virginia, § 15.2-4300 et. seq.
- (2) *A-2 Agricultural and Forestry, General District.* The purpose of this district is to protect existing and future farming operations, allow accessory uses that boost the agriculture economy, and at the same time allow for low density residential uses. This district generally corresponds to areas represented as the Countryside District and Rural Residential Development in the County Comprehensive Plan. Generally, this district covers certain portions of the County now devoted entirely or predominantly to various open uses, such as farms, forest, parks or lakes, into which residential or other types of development could reasonably be expected to expand in the foreseeable future. In order to protect against premature subdivision of land and the formation of urban clusters where none are planned, subdivisions are restricted to maintain the rural character of the district. This district shall not be confused with, but may include, properties designated as Agriculture and Forestal Districts through the Agricultural and Forestal Act, as described in the Code of Virginia, § 15.2-4300 et. seq.
- (3) *R-1 Very Low Density Residential District.* The purpose of this district is to provide for very low-density residential development of no more than one unit per acre together with such public, civic, recreation and accessory uses as may be necessary or are normally compatible with residential surroundings. Since substantial tracts of vacant land are or may be included in the R-1 district, agricultural and open uses are permitted, but in general, urbanization is planned, and adequate utilities and public services exist or should be planned for the types of development contemplated. The regulations for this district are designed to provide for individuals and families who desire spacious homesites without fear of encroachment of dissimilar uses. The R-1 districts will be generally located in the Rural Residential District as shown in the Essex County Comprehensive Plan.
- (4) *R-2 Low Density Residential District.* The purpose of this district is to provide for low-density residential development of no more than two units per acre together with such public, civic, recreation and accessory uses as may be necessary or are normally compatible with residential surroundings. The regulations for this district are designed to prohibit commercial activities but promote and encourage a suitable environment for family life by providing a mix of housing types located in closer proximity to shopping and employment. The R-2 district will generally be located in the Rural Residential Districts as shown on the Essex County Comprehensive Plan.
- (5) *R-3 Medium Density Residential District.* The purpose of this district is to provide for medium-density residential developments of no more than four units per acre and to encourage a mixture of residential uses with certain public and semipublic land uses. The regulations for this district are designed to provide a suitable environment for those desiring dense community living and close proximity to shopping, employment, and other community facilities. The R-3 district will generally be located in the Development Service and Deferred Development Service District as shown on the Essex County Comprehensive Plan.

- (6) *R-4 Residential, Restricted District.* The purpose of this district is to allow for medium density residential development, on nonconforming lots of record, provided said lots were recorded prior to October 16, 1976, and provided their development is consistent with the requirements of The Chesapeake Bay Preservation District, Section XV-1 of this Ordinance. After November 10, 2022, R-4 zoning shall no longer be granted. Properties zoned R-4 on or before November 10, 2022, shall continue to be subject to the provisions of the R-4 district standards.
  - (7) *MH-1 Mobile Home Park district.* The purpose of this district is to provide for the establishment of attractive, safe, and well-designed mobile home parks and to ensure that space is provided for moderately priced housing. The MH-1 district will generally be located in the Development Service Districts as shown on the Essex County Comprehensive Plan.
  - (8) *PUD Planned Unit Development District.* This district is intended to permit development in accordance with a master plan of cluster type communities. Within such communities, the location of all improvements shall be controlled in such a manner as to permit a variety of housing accommodations in an orderly relationship to one another, with the greatest amount of open area and the least disturbance to natural features. A planned unit development may include light commercial facilities to the extent necessary to serve the needs of the particular planned unit development. Lands currently designated as the Agricultural Preservation (A-1) district shall not be considered appropriate for Planned Unit Development (PUD) district designation. The PUD district will generally be located in the Rural Residential and Development Service Districts as shown on the Essex County Comprehensive Plan.
  - (9) *B-1 Local Business District.* The purpose of this district is to provide primarily for retail shopping and personal service uses, to be developed either as a unit or in individual parcels to serve the needs of a relatively small section of the County or the needs of the traveling public on the highways. To enhance the general character of the district, its function of local services, and its compatibility with its surroundings, the size and design of certain uses is limited. The B-1 district will generally be located in the Development Service District, and Rural Service Centers as shown on the Essex County Comprehensive Plan.
  - (10) *B-2 General Business District.* The purpose of this district is to provide sufficient space in appropriate locations for a wide variety of commercial, automotive, and miscellaneous recreational and service activities, generally serving a wide area of the County and generally located near the Town of Tappahannock where a general mixture of commercial and service activity now exists or is planned. The district is not characterized by extensive warehousing, frequent heavy trucking activity, or the nuisance factors of dust, odor, and noise associated with industrial activities. The B-2 district will generally be located in the Development Service District as shown on the Essex County Comprehensive Plan.
  - (11) *I-1 Light Industrial district.* The purpose of this district is to provide areas in which the principal use of land and buildings is for light manufacturing and assembly plants including processing, storage, warehousing, wholesaling and distribution. It is the intent that permitted uses be conducted so that noise, odor, dust, smoke, and glare of each operation is confined within an enclosed building. The I-1 district will generally be located in the Business and Employment Districts and select locations within the Development Service District as shown on the Essex County Comprehensive Plan.
  - (12) *I-2 Industrial district.* The intent of this district is to permit certain larger scale manufacturing with large outside storage, warehousing, and product display. The creation of any offensive noise, smoke or odor shall be mitigated with industry best practices for the compatibility of the surrounding uses and the preservation of the environment. The I-2 district will generally be located in the Business and Employment District or the Development Service Districts as shown on the Essex County Comprehensive Plan.
- (b) Special Purpose Zoning Districts.
- (1) *CBPA-OD Chesapeake Bay Preservation Area Overlay District.* This district is enacted to implement the requirements of Code of Virginia § 62.1-44.15:67 et seq., as amended, (The Chesapeake Bay Preservation Act) and Regulation 9VAC25-830 et seq. The Chesapeake Bay Preservation Act, Article 2.5 of Chapter 3.1 of

Title 62.1 of the Code of Virginia (1950), as amended, recognizes that healthy State and local economics are integrally related to each other and the environmental health of the Chesapeake Bay.

- (2) The purpose of the District is to assist in protection of the Chesapeake Bay and its tributaries from non-point source pollution from land uses or appurtenances within the Chesapeake Bay drainage area and minimize pollution and deposition of sediment in wetlands, streams, and lakes in Essex County which are tributaries of the Chesapeake Bay. The district encourages and promotes:
  - a. Protection of existing high quality state waters;
  - b. Restoration of all other state waters to a condition or quality that will permit all reasonable public uses and will support the propagation and growth of all aquatic life, including game fish, which might reasonably be expected to inhabit them;
  - c. Safeguarding of the clean waters of the Commonwealth from pollution;
  - d. Preventing any increase in pollution;
  - e. Reducing existing pollution; and
  - f. Promoting water resource conservation in order to provide for the health, safety, and welfare of the present and future citizens of the Commonwealth.
- (3) This district is enacted under the Authority of Code of Virginia, § 62.1-44.15:74(the Chesapeake Bay Preservation Act) and Code of Virginia, § 15.2-2283. Code of Virginia, §§ 62.1-44.15:74 states that zoning ordinances shall "comply with all criteria set forth in or established pursuant to § 62.1-44.15:72."

Reserved 36.212. — 36.219.

## **Division 2. — Residence District Requirements**

### **Section 36.220. — General Standards and Interpretation.**

- (a) In addition to the other requirements of this Ordinance, the requirements specified in this Article shall be considered the minimum required to promote the public health, safety, convenience, and general welfare. Unless otherwise specified, the standards of the Article are the minimum required.
- (b) Family subdivisions are not subject to the density restrictions.
- (c) The permitted density and division of land is allowed provided minimum lot sizes, dimensions, and setbacks can be met and provisions of Community Development Standards Article VII of this Ordinance, including but not limited to, parking, landscaping, buffers, screening, and the Essex County Subdivision Article are satisfied.
- (d) Minimum requirements are also subject to the standards for specific uses in Use Performance Standards, Article VI, and any conditions of Conditional Use approval, if applicable.
- (e) State Health Official may require larger minimum lot area for permitted uses as needed to meet Department of Health requirements for individual wells and/or sewage disposal systems.
- (f) Lot frontage on the terminus of a stub street does not meet the requirements for road frontage unless a determination is made that extension of the stub street is not needed to serve future development.

- (g) Setbacks:
  - (1) Increased setbacks may be required for compliance with Floodplain or Chesapeake Bay regulations.
  - (2) Minimum setbacks shall be increased where necessary to obtain the required lot width at the front building line.
  - (3) Non-residential structures shall meet minimum setbacks provided in this Ordinance.
- (h) Virginia Department of Transportation may require additional accesses for developments other than what is specified in this Article; the more restrictive requirement shall control.

**Section 36.221. — A-1 Agriculture and Forestry, Preservation District Requirements.**

<b>Table 36.1 A-1 District Requirements</b>	
<b>A. Permitted Residential Density for Parcels Recorded On or Before 9/16/2003</b>	
1. Size of Parent Parcel	Permitted Density
a. Parcels less than 5 acres	May be subdivided into 2 lots
b. 5 - 20 acres	1 dwelling unit per 5 acres (0.2 unit per acre)
c. Parcels greater than 20 acres	1 dwelling unit per 5 acres (0.2 unit per acre) for the first 20 acres and 1 dwelling unit per 20 acres for the remaining acreage of the parcel (0.05 unit per acre after first 20 acres)
<b>B. Permitted Residential Density for Parcels Recorded After 9/16/2003</b>	
1. Size of Parent Parcel	Permitted Density
a. Parcels less than 5 acres	May be subdivided into 2 lots
b. All other parcels	1 dwelling unit per 20 acres (0.05 unit per acre)
<b>C. Lot Standards</b>	
1. Lot area and width	
a. Area (acres)	1
b. Width (feet)	150
2. Lot coverage (maximum %)	20
<b>D. Road Frontage for lots (feet)</b>	
1. Family subdivision lots, fronting a public or private road	20
2. All other lots	
a. Fronting a public road	150
b. Fronting a private road	50
<b>E. Principal Structure Setbacks for lots fronting a public road (feet)</b>	
1. Front setback	100
2. Interior side setback	30
3. Corner side setback	
a. Through lot, lot back-to-back with another lot	40
b. Other corner lot	7
4. Rear yard	
a. Non through lot	30
b. Through lot	100
<b>F. Principal Structure Setbacks for lots fronting a private road (feet)</b>	
1. Front setback	50
2. Interior side setback	30
3. Corner side setback	40
4. Rear yard	
a. Non through lot	30
b. Through lot	50
<b>G. Principal Structure Heights (maximum)</b>	
1. Residential Structure	Lesser of 2.5 stories or 35 feet
2. Other Structures	Lesser of 3 stories or 40 feet
<b>H. Accessory Structure Requirements</b>	Subject to Article VI - Use Performance Standards

**Section 36.222. — A-2 Agriculture and Forestry, General District Requirements.**

Table 36.2 A-2 District Requirements	
<b>A. Permitted Residential Density for Parcels Located Within the Countryside District Area of the Comprehensive Plan</b>	
1. Size of Parcel	Permitted Density
a. Parcels less than 5 acres	May be subdivided into 2 lots
b. All other parcels	1 dwelling unit per 5 acres (0.2 unit per acre)
<b>B. Permitted Residential Density for Parcels Located Within the Rural Residential Development Area of the Comprehensive Plan</b>	
Permitted Density	1 dwelling unit per acre (1.0 unit per acre)
<b>C. Lot Standards</b>	
1. Lot area and width	
a. Area (acres)	1
b. Width (feet)	150
2. Lot coverage (maximum %)	20
<b>D. Road Frontage for lots (feet)</b>	
1. Family subdivision lots, fronting a public or private road	20
2. All other lots	
a. Fronting a public road	100
b. Fronting a private road	50
<b>E. Principal Structure Setbacks for lots fronting a public road (feet)</b>	
1. Front setback	100
2. Interior side setback	30
3. Corner side setback	
a. Through lot, lot back to back with another lot	40
b. Other corner lot	75
4. Rear yard	
a. Non through lot	30
b. Through lot	100
<b>F. Principal Structure Setbacks for lots fronting a private road (feet)</b>	
1. Front setback	50
2. Interior side setback	30
3. Corner side setback	40
4. Rear setback	
a. Non through lot	30
b. Through lot	50
<b>G. Principal Structure Heights (maximum)</b>	
1. Residential Structure	Lesser of 2.5 stories or 35 feet
2. Other Structures	Lesser of 3 stories or 40 feet
<b>H. Accessory Structure Requirements</b>	Subject to Article VI - Use Performance Standards

**Section 36.223. — R-1 Very Low Density Residential District Requirements.**

Table 36.3 R-1 District Requirements	
<b>A. Lot Standards</b>	
1. Lot area and width	
a. Area (square feet)	43,560
b. Width (feet)	100
2. Lot coverage (maximum %)	25
<b>B. Road Frontage for lots intended for dwelling purposes (feet)</b>	
1. Family subdivision lot	20
2. Other lots	
a. Permanent cul-de-sac or radius of loop road	25
b. Other roads	80
<b>C. Principal Building Setbacks (feet)</b>	
1. Front setback	
a. Fronting US Primary Highway	100
b. All other fronts	50
2. Interior side setback	25
3. Corner side setback	
a. Side to back with another lot	45
b. Back to back with another lot	30
4. Rear setback	
a. Through lot	50
b. All other lots	30
<b>D. Principal Building Heights (maximum)</b>	
1. Single family dwellings	Lesser of 2.5 stories or 35 feet
2. Other permitted structures	Lesser of 2.5 stories or 35 feet
<b>E. Accessory Building Requirements</b>	Subject to Article VI – Use Performance Standards

**Section 36.224. — R-2 Low Density Residential District Requirements.**

Table 36.4 R-2 District Requirements	
<b>A. Lot Standards</b>	
1. Lot area and width	
a. Area (square feet)	21,500
b. Width (feet)	100
2. Lot coverage (maximum %)	30
<b>B. Road Frontage for lots intended for dwelling purposes (feet)</b>	
1. Family subdivision lot	20
2. Other lots	
a. Permanent cul-de-sac or radius of loop road	25
b. Other roads	50
<b>C. Principal Building Setbacks (feet)</b>	
1. Front setback	
a. Fronting US Primary Highway	100
b. All other fronts	35
2. Interior side setback	15
3. Corner side setback	
a. Side to Back with another lot	30
b. Back to back with another lot	30
3. Rear setback	
a. Through lot	35
b. All other lots	30
<b>D. Principal Building Heights (maximum)</b>	
1. Single family dwellings	Lesser of 2.5 stories or 35 feet
2. Other permitted principal structures	Lesser of 2.5 stories or 35 feet
<b>E. Accessory Building Requirements</b>	Subject to Article VI - Use Performance Standards

**Section 36.225. — R-3 Medium Density Residential District Requirements.**

Table 36.5 R-3 District Requirements - Single Family Residential and Non-Residential Use	
<b>A. Lot Standards</b>	
1. Lot area and width	
a. Area (square feet)	10,500
b. Width (feet)	80
2. Lot coverage (maximum %)	30
<b>B. Road Frontage for lots intended for dwelling purposes (feet)</b>	
1. Family subdivision lot	20
2. Other lots	
a. Permanent cul-de-sac or radius of loop road	25
b. Other roads	50
<b>C. Principal Building Setbacks (feet)</b>	
1. Front setback	
a. Fronting US Primary Highway	50
b. All other fronts	35
2. Interior side setback	15
3. Corner side setback	
a. Back to side with another corner lot	30
b. Back to back with another corner lot	25
4. Rear setback	
a. Through lot	35
b. All other lots	25
<b>D. Principal Building Heights (maximum)</b>	
1. Single family dwellings	Lesser of 2.5 stories or 35 feet
2. Other permitted principal structures	Lesser of 2.5 stories or 35 feet
<b>E. Accessory Building Requirements</b>	Subject to Article VI - Use Performance Standards

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<b>Table 36.6. R-3 District Requirements</b>	<b>Residential Townhouse Use – Subdivision, Lot, and Building Standards</b>	<b>Residential Multi-Family Use – Project and Building Standards</b>
<b>A. Project Size (minimum)</b>	8 acres	15 acres
<b>B. Common Area (passive and active recreational space of total development)</b>	30%	10%
<b>C. Density</b>	8 units per acre	10 units per acre
<b>D. Maximum Number of Attached Lots in Each Row</b>	8	N/A
<b>E. Maximum Number of Multi-Family Dwelling Units Per Floor</b>	N/A	10
<b>F. Minimum Access Points into Project from Public Road</b>		
1. For 50 or fewer units	1	1
2. For 51 – 200 units	2	2
3. For more than 200 units	Determined in conjunction with zoning	Determined in conjunction with zoning
<b>G. Lot Standards</b>		
1. Lot area (square feet)	2,000	N/A
2. Lot width (feet)	30	N/A
3. Lot coverage (maximum %)	50%	40%
<b>H. Private Pavement Setbacks from Roads (feet)</b>		
1. Fronting US. Primary Highway	50	50
2. Fronting Other Roads	15	15
<b>I. Road Frontage for Townhouse Units</b>		
<b>J. Townhouse Principal Building Setbacks (feet)</b>		
1. Front yard	20	N/A
2. Side yard		
a. Interior units and Corner sides	20	
b. End unit in a row of less than 5 attached lots	10	N/A
c. End unit in a row of 5 or more attached lots	15	N/A
3. Rear yard	20	N/A
<b>K. Multi-Family Principal Building Setbacks (feet)</b>		
1. Project Property Lines	N/A	50
2. Public Roads	N/A	50
3. Parking spaces	N/A	15
4. Distances Between Buildings	N/A	30
<b>L. Pavement Width of Other Drives (feet)</b>	24	24

Table 36.6. R-3 District Requirements	Residential Townhouse Use – Subdivision, Lot, and Building Standards	Residential Multi-Family Use – Project and Building Standards
<b>M. Principal Building Height (maximum feet)</b>	35	35
<b>N. Accessory Building Requirements</b>	Subject to Article VI - Use Performance Standards	Subject to Article VI - Use Performance Standards

(a) Other Required Townhouse Subdivision Standards.

- (1) *All lots shall have frontage on a road.* If approved by the County as part of a rezoning application, lots may front on private pavement which has direct access to a public road when the private pavement is designed and constructed in accordance with the provisions of the Essex County Subdivision Article.
- (2) *Common Areas Design.* Within required common area, except where lots abut a public street, a 5-foot-wide common area shall be provided around the perimeter of each group of attached lots.
- (3) *Common Areas Ownership.* Open space shall be owned and maintained by the developer and/or owner of the townhouse development, until such time as it is turned over to the ownership and maintenance of an approved homeowners' association, whose members shall include all of the individual owners of townhouses in the development, or to a nonprofit council of co-owners as provided under the Code of Virginia. This land shall be used solely for the recreational and parking purposes of the individual townhouse lot owners. Such land conveyance shall include deed restrictions and covenants, in a form acceptable to the county attorney, that shall provide, among other things, that assessments, charges and costs of the maintenance of such areas shall constitute a pro rata lien against the individual townhouse lots, inferior in dignity only to taxes and bona fide duly recorded deeds of trust of each townhouse lot. An applicant seeking to subject property to townhouse development under this section whose ownership or interest in the property is held by a valid lease, shall provide for an initial term of not less than 99 years in such lease.
- (4) *Attached lots.* The number of lots in each group of attached lots shall be varied throughout the subdivision.

(b) Additional Townhouse Subdivision and Multi-family Project Standards.

- (1) *General Design and Building Layout.* The development shall be designed with special attention to compatibility of adjacent land uses, topography, existing vegetation, and orientation. The development shall incorporate an attractive building layout which relates to and enhances natural vegetation and terrain or incorporates natural design features such as preservation of scenic vistas or other unique elements of the site.
- (2) *Architecture.* Buildings shall be designed to impart harmonious proportions and avoid monotonous facades and large bulky masses. Buildings shall maintain possess architectural variety while at the same time maintain an overall cohesive residential character. Residential character may be achieved through the creative use of design elements such as, but not limited to, balconies, terraces, articulation of doors and windows, sculptural or textural relief of facades, architectural ornamentation, varied roof lines, or other appurtenances such as lighting fixtures and plantings. The facades of individual units within any contiguous row of townhouses shall be sufficiently varied in their materials, design, or appearance as to visually distinguish them as individual dwelling units.
- (3) *Public Water and Public Sewer.* All developments shall be provided with public water and public sewer.
- (4) *Pedestrian Access.* Pedestrian access shall be provided to all common area elements, including mail kiosks, parking lots, refuse collection areas, recreational amenities and to adjoining properties and along public roadways as required through plans review.
- (5) *Roads and Private Pavement.* All roads and private pavement shall have concrete curb and gutter.

- (6) *Landscaping and Architectural Plans.* In conjunction with site plan submission, landscape and architectural renderings or elevations, as well as any development phasing plans shall be submitted for approval.
- (7) *Landscaping and Buffer.* Landscaping as required in Article VII shall be installed within the private pavement setback and the building setbacks.
- (8) *Screening of Mechanical Equipment and Refuse Collection.* Whether ground-level or rooftop, any refuse collection or mechanical equipment visible from adjacent property or roads shall either be integrated into the architectural treatment of the building or screened from view.
- (9) *Phasing.* Unless a phasing plan is approved through preliminary plat review, construction shall be completed prior to issuance of building permits. An approved phasing plan may include limitations on the issuance of building permits for individual multi-family units.
- (10) *Multifamily Building Placement.*
  - a. A multifamily building constructed along a public road shall front the road.
  - b. The front yard setback of each unit shall be varied at least 2 feet from the adjacent unit and every third unit shall be varied at least 4 feet from the adjacent unit.

**Section 36.226. — R-4 Residential, Restricted District Requirements.**

In addition to the other requirements of this Ordinance, uses within the R-4 district shall only be permitted on lots recorded prior to October 16, 1976, in compliance with Chesapeake Bay Preservation Area Overlay District standards, Chapter 18 – Floodplain Management of the County Code, and as specified in this section.

Table 36.7 R-4 District Requirements	
<b>A. Lot Standards</b>	
1. Lot area and width	
a. Area (square feet)	Must obtain health permit
b. Width (feet)	Must obtain health permit
2. Lot coverage (maximum %)	40
<b>B. Road Frontage (feet)</b>	
1. Permanent cul-de-sac or radius of loop road	15
2. Other roads	20
<b>C. Principal Building Setbacks (feet)</b>	
1. Front setback	15
2. Interior side setback	5
3. Corner side setback	
a. Back to side with another corner lot	15
b. Back to back with another corner lot	15
4. Rear setback	
a. Through lot	15
b. All other lots	15
<b>D. Principal Building Heights (maximum)</b>	
1. Single family dwellings	Lesser of 2.5 stories or 35 feet
2. Other permitted principal structures	Lesser of 2.5 stories or 35 feet
<b>E. Accessory Building Requirements</b>	Subject to Article VI - Use Performance Standards

**Section 36.227. — MH-1 Mobile Home Park District Requirements.**

Table 36.8 MH-1 District Requirements - Park Standards	
<b>A. Park Size</b>	8 acres
<b>B. Density (maximum)</b>	4 units per acre
<b>C. Number of Accesses to Public Road</b>	
1. 50 or fewer units	1
2. 51 or more units	2
<b>D. Setbacks (feet)</b>	
1. Public road	100
2. Other property lines	35
<b>E. Interior Park Street Width (feet)</b>	24
<b>F. Recreation Area</b>	10 % of park acreage
<b>Notes for Table 36.8 MH-1 District Requirements - Park Standards</b>	
<p>[1] Setbacks shall be measured between property lines and nearest manufactured homes or other structures.</p> <p>[2] Setbacks shall contain a screen, fence or landscaping not less than six (6) feet in height with no openings to adjoining property other than the required accesses to public roads or public spaces.</p> <p>[3] Interior Park Streets shall have a dedicated right-of-way of 40 feet in width.</p>	

(a) Other Required Park Standards.

- (1) *Recreational Area.* Fifty (50) percent of the required area shall be outside of floodplains and have a slope of not more than 5%. Sufficient recreation facilities such as playground equipment, playfields and courts, picnic tables, and benches, as deemed appropriate at time of plan review, shall be installed within required recreation area. Recreational facilities shall be designed, constructed and maintained to be safe for users. All required safety fall zones and surfacing standards shall be met.
- (2) *Interior Park Streets.* Park streets shall have unobstructed access to a public road. The design and construction of the interior park street system shall be sufficient to adequately serve the size and density of the development. Parking shall be prohibited in park streets. Park streets shall be constructed of bituminous concrete, concrete or similar material, designed to ensure adequate access by emergency services, and shall comply with private road standards of the Subdivision Article.
- (3) *Underground Utilities and Water and Sewer Systems.* All telephone, electrical distribution, water, fuel and other utility lines shall be placed underground. All manufactured home parks shall be served by public water and wastewater or be served by a private central water and sewer system approved by the Virginia Department of Health. All manufactured homes shall be required to utilize the approved water and sewer systems. All sanitary wastewater connections shall be located beneath the manufactured home which it serves.
- (4) *Solid Waste Disposal Areas.* Solid waste disposal areas shall not create a health or fire hazard. All solid waste shall be stored in fly proof, watertight, rodent proof containers. A sufficient number of containers shall be provided. Park management shall be responsible for the collection and disposal of waste.
- (5) *Streetlights.* Streetlights shall be installed at the intersection of park driveways and in locations where it is determined that such lighting is necessary to ensure safety and security for persons, property and traffic. The exact number and location of streetlights shall be approved at the time of plan review.
- (6) *Expansion of Existing Parks.* Any expansion of existing mobile home parks must result in full compliance with all regulations contained in this section.

Table 36.9 MH-1 District Requirements – Individual Manufactured Home Standards	
<b>A. Pad Standards</b>	
1. Lot area and width	
a. Area (square feet)	6000
b. Width (feet)	55
<b>B. Street or Parking Area Frontage (feet)</b>	55
<b>C. Individual Manufactured Home Spacing (feet)</b>	
1. Between manufactured homes	40
2. Internal roads, drives and parking areas	25
<b>D. Principal Building Setbacks for each pad site (feet)</b>	
1. Front yard	20
2. Interior side yard	15
3. Corner side yard	20
4. Rear yard	15
<b>E. Principal Building Heights</b>	
1. Manufactured home (feet)	20
2. Other	Lesser of 1 ½ stories or 25 feet
<b>F. Accessory Building Requirements</b>	Subject to Article VI – Use Performance Standards
<b>Notes for Table 36.9 MH-1 District Requirements – Individual Manufactured Home Standards</b>	
[1] Manufactured homes shall be placed in designated pad sites and shall not obstruct any road, private pavement, sidewalk or public utility easement.	
[2] Manufactured homes shall abut a park driveway or parking area which is adjacent to the driveway.	

(b) Other Required Individual Manufactured Home Standards.

(1) *Skirting*. Manufactured homes shall be skirted in accordance with the Building Code.

Reserved 36.228.— 36.239.

### Division 3. — Planned District Requirements

#### Section 36.240. — PUD Planned Unit Development District Requirements

Overall Guidelines and Design.

- (1) The purpose of the PUD, Planned Unit Development District, is to offer areas where higher density and more intense development can be accommodated. A variety of uses are permitted within this District that create a unified livable community. Generally, an integrated mix of higher-density residential development with some smaller scale neighborhood-serving commercial uses is permitted in a village-like setting.
- (2) PUDs are intended to develop contiguous to existing development or as an infill development that has a compact design with a mix of housing types, commercial uses and open space and recreational areas that are all interconnected with access that facilitates walking, cycling, transit and driving.

- (3) PUDs shall be located on tracts having sufficient size to accommodate the development and provide appropriate transitions. Primary access for the development would be provided directly to a major roadway and not through an existing residential development having an average lot size larger than that of the proposed development.
- (4) The PUDs development design and quality should enhance the surrounding area, preserve scenic assets and natural features and be designed with the influence of the historic and architectural character of the community.
- (5) Edges of the development adjacent or near to established neighborhoods would be required to buffer the edges to minimize impact to established neighborhoods. This approach acknowledges existing development patterns and recognizes historic development conditions.
- (6) Quality design standards are required to include provision of sidewalks, street trees, site and individual lot landscaping, recreational amenities, a comprehensive system of pedestrian, bike and bridle paths, where appropriate, and quality and variety of the architectural design and materials. Further, it is the intent of the district to be designed to the human scale with neighborhood connectivity. Consideration should be given to height of buildings, mixture of homes to accommodate various incomes, neighborhood parks, recreational areas, greens, walking distances, interconnected streets, and traffic calming techniques.
- (7) These higher density, mixed use developments will only be permitted in areas where infrastructure in the form of public water and sewer, transportation systems and other public facilities such as parks and community facilities would not be adversely impacted or provisions are made for such facilities to accommodate demands resulting from the development.

#### **Section 36.241. — Permitted Uses.**

An integrated mix of higher density residential development with smaller scale neighborhood-serving commercial uses, public spaces and community and recreational uses are permitted:

- (1) Residential Use. The majority of the development should be residential units of varying types. Permitted residential uses include: Attached and detached single family dwellings, duplexes, townhouses and attached and detached multi-family (condominiums and/or apartments) units. Multi-family residential uses would be permitted to be vertically integrated with non-residential uses within buildings, with residential uses on the upper floor(s) of a building and non-residential uses on the ground floor.
- (2) Non-Residential Use. Permitted non-residential uses should primarily be smaller-scale and serve a neighborhood wide trade area as permitted in the Business Limited (B-1) District. Limited commercial uses that serve broader trade areas as permitted in the Business (B-2) District may be permitted under circumstances that minimize impacts of vehicular traffic on the desired development pattern and surrounding area. These uses would not include automobile-oriented uses such as automobile repair, service and sales; automobile parts sales; and car-washes.
- (3) Guaranteed Mixed Use. Non-residential uses are required to be developed in conjunction with the development's residential uses such that:
  - a. Minimum of 30 % of the total land area of the PUD must include non-residential uses (Overall not less than 20% commercial uses and not less than 10% public/recreational and open space uses)
  - b. Maximum of 50% of the total residential uses for the project are permitted to receive certificates of occupancy until such time as construction is complete on 40% of the non-residential uses for the project.

#### **Section 36.242. — Density, Minimum Development Standards and Development Standard Exceptions**

While the standards below offer the minimum development standards, PUDs often are substantially different in character than traditional single use developments such that additional standards and exceptions to existing

standards are needed through the approval process. Considerations for granting exceptions are provided in Section 5 below.

(1) Residential Uses.

- a. For the residential uses, development shall comply with the standards for permitted uses in the R-3 (Higher Density Residential) Zoning District and Use and Development Standards sections for these uses. These standards address requirements including, but not limited to, densities, lot areas, frontage, width, setbacks, buffers, landscaping, parking, building heights, open space ownership and maintenance and architectural standards.

(2) Non-Residential Uses.

- a. For non-residential uses, development shall comply with the standards for permitted uses in the B-1 (Business Limited) Zoning District and Use and Development Standards sections for these uses. These standards address requirements including, but not limited to, lot areas, frontage, width, setbacks, buffers, screening, landscaping, parking, building heights, open space ownership and maintenance and architectural standards.

(3) Streets, alleys and pedestrian circulation:

- a. Streets and alleys shall be provided pursuant to the Ordinance and shall be constructed in compliance with current standards and accepted for maintenance by VDOT.
- b. Safe and appropriate vehicular circulation on-site and between adjacent properties shall be provided.
- c. Pedestrian ways shall be incorporated into each development and extended to adjacent properties. Pedestrian ways shall be designed to minimize conflicts with vehicular traffic.
- d. The orientation of streets shall enhance the visual impact of common open space and prominent scenic assets and natural features.
- e. Alley easements shall be owned, controlled, and maintained by a property owners' association (POA) or similar association or owned by individual property owners with control and maintenance by a POA or other association. The County shall be granted emergency ingress and egress to alleys but shall have no maintenance or ownership responsibilities.

(4) Architecture:

- a. In addition to standards provided in R-3 and B-1 District and in Use Performance Standards, the following shall be met with the planned development:
  1. A consistent architectural treatment shall be developed for the project to ensure quality design and architecture are provided throughout. Architectural treatment of buildings, including materials, color and style, shall be compatible.
  2. Architectural compatibility may be achieved through the use of similar building massing, materials, scale, colors and other architectural features.

(5) Standards Exceptions:

- a. An applicant may request to develop portions of the development at higher densities than stated for that particular use or may request flexibility in Ordinance standards to accommodate the planned design and to encourage innovative and creative design and high-quality development. In granting development standard exceptions, consideration shall be given as to:
  1. Whether the exceptions are solely for the purpose of promoting an integrated development plan which would be equally beneficial to the development's design, its future occupants, and the surrounding area as would be obtained under this Ordinance's development standards;
  2. Whether the exceptions are necessary, desirable and appropriate with respect to the primary purpose of the development; and

3. Whether the exceptions are not of such a nature or located so as to have a detrimental influence on the area.
  4. *Lot Area Reductions.* The minimum lot area requirements may be decreased without limitation, provided that land in an amount equivalent to that by which each residential lot or building site is diminished is provided in common area within the development.
  5. *Amendment of Conditions of Approval.* Except as outlined below, amendment of conditions of approval for a PUD shall occur through the same process as the original approval:
    - i. Conditions allowing amendment by the planning commission, staff or others may be amended per the language of the condition; and
    - ii. Conditions establishing setbacks may be amended through the granting of a variance by the Board of Zoning Appeals provided relief applies solely to a single lot and not the overall area encompassed by the PUD.
- (6) Conditions and Guarantees:
- a. Conditions and restrictions may be imposed on the use, operation, establishment, location and construction of the development or any portion thereof as necessary to protect the public interest and ensure compliance with the guidelines of this Ordinance and the Comprehensive Plan. In addition, a guarantee or bond may be required to ensure that conditions and Ordinance standards are satisfied. Reasonable guarantees shall be provided that required common area and other commonly owned portions of the development will always remain available and be reasonably maintained.
- (7) Application and Review
- a. Establishment of a PUD District shall be pursuant to the rezoning procedure set forth in Article III.
  - b. In addition to the rezoning application requirements listed in Article III, the following application requirements shall apply:
    1. A master plan showing:
      - i. general location of streets and alleys;
      - ii. land uses by type, function, density and intensity;
      - iii. transitional areas between uses and adjacent properties;
      - iv. proposed open space, specifically designating areas for passive and active use, and an inventory of scenic assets and natural resources to be considered for preservation; and,
      - v. preliminary plans for drainage and erosion control, transportation improvements, water and sewer service, and other public utilities and facilities as may be required.
    2. A textual statement explaining in specific detail any and all exceptions to this Ordinance that are being requested for the development and written justification for such exception request(s).
    3. A tabulation of the proposed program of development by general area and in total providing:
      - i. proposed dwelling units by residential type;
      - ii. proposed non-residential square footages by use type; and (iii) calculations of percentages of land area covered by the various land uses.
      - iii. illustrative building, parking, and alley layouts;
      - iv. descriptions and illustrations of screening, buffering and transitions to be provided between residential and non-residential uses and along development's edge;
      - v. standards for the landscaping and lighting;

- vi. standards for the landscaping and lighting; (vi) street, loading areas and parking design;
- vii. screening;
- viii. architectural guidelines for all building types; such guidelines need not set specific floor plans or elevations, but shall describe the style and materials of buildings;
- ix. a written description of how the proposed plan and design guidelines for the proposed PUD meet the objectives outlined in this section;
- x. a statement regarding the timing of construction of common and/or public facilities;
- xi. A general statement as to how parks, squares, common open spaces and common facilities are to be owned and maintained; and
- xii. detailed conceptual plan of each residential type, commercial areas, recreational amenities, and open space areas.

Reserved 36.243. — 36.254.

**Division 4. — Business and Industrial District Requirements**

**Section 36.255. — B-1 Local Business and B-2 General Business Requirements.**

Table 36.10 B-1 and B-2 District Requirements		
<b>A. Setbacks (feet)</b>		
1. Road type	a. U.S. Primary Highway	75
	b. Other roads	50
2. Interior side	a. Adjacent to A, R or MH-1 Districts	50
	b. Adjacent to B or I Districts	10
3. Rear	a. Adjacent to A, R or MH-1 Districts	50
	b. Adjacent to B or I	20
<b>B. Building Heights (maximum)</b>		Lesser of 3 stories or 45 feet <sup>[1]</sup>
<b>Notes for Table 36.10 B-1 and B-2 District Requirements</b>		
[1] Within 100 feet of a R District, the height shall not exceed the lesser of 2.5 stories or 35 feet.		

(a) Other Required Conditions

(1) Architecture. Buildings shall meet the following architectural requirements:

- a. Building facades visible to a road or A, R or MH District shall not be constructed of unadorned concrete block, unfinished corrugated metal or unfinished sheet metal. A façade shall not consist of architectural materials inferior in quality, appearance or detail to any other façade, except that use of different materials on different facades shall be permitted.
- b. Views of junction and accessory boxes visible from roads or adjacent property shall either be integrated into the architectural treatment of the building or their view minimized by landscaping.
- c. For developments within Rural Service Centers, as identified in the Comprehensive Plan, buildings shall possess architectural variety while still maintaining compatibility with existing structures, especially those of high historic interest and shall employ an overall cohesive character as reflected in existing structures through the use of design elements including, but not limited to, materials, balconies, terraces, articulation of doors and windows, sculptural or textual relief of facades, architectural ornamentation, varied roof lines, or other appurtenances such as lighting fixtures and landscaping. Compatibility may be achieved through the use of similar building massing, materials, scale, colors and other architectural features.

**Section 36.256. — I-1 Light Industrial and I-2 Industrial District Requirements.**

Table 36.11 I-1 and I-2 District Requirements		
<b>A. Setbacks (feet)</b>		
1. Road type	a. U.S. Primary Highway	75
	b. Other roads	50
2. Interior side	a. Adjacent to A, R or MH-1 Districts	50
	b. Adjacent to B or I Districts	20
3. Rear	a. Adjacent to A, R or MH-1 Districts	50
	b. Adjacent to B or I	30
<b>B. Building Heights (maximum)</b>		Lesser of 3 stories or 45 feet <sup>[1]</sup>
<b>Notes for Table 36.11 I-1 and I-2 District Requirements</b>		
[1] Within 100 feet of a R District, the height shall not exceed the lesser of 2.5 stories or 35 feet.		

(a) Other Required Conditions

(1) Architecture. Buildings shall meet the following architectural requirements:

- a. Building facades shall not be constructed of unadorned concrete block, unfinished corrugated metal or unfinished sheet metal. A façade shall not consist of architectural materials inferior in quality, appearance or detail to any other façade, except that use of different materials on different facades shall be permitted.
- b. Views of junction and accessory boxes visible from roads or adjacent property shall either be integrated into the architectural treatment of the building, or their view minimized by landscaping.

Reserved 36.257. — 36.264.

## Division 5. — Chesapeake Bay Preservation Area Overlay District

### Section 36.265. — Findings of Fact.

- (a) The Chesapeake Bay and its tributaries are one of the most important and productive estuarine systems in the world, providing economic and social benefits to the citizens of Essex County and the Commonwealth of Virginia. The health of the Bay is vital to maintaining Essex County's economy and the welfare of its citizens.
- (b) The Chesapeake Bay waters have been degraded significantly by many sources of pollution, including non-point source pollution from land uses and development. Existing high-quality waters are worthy of protection from degradation to guard against further pollution. Certain lands that are proximate to shorelines have intrinsic water quality value due to the ecological and biological processes they perform. Other lands have severe development constraints from flooding, erosion, and soil limitations. With proper management, they offer significant ecological benefits by providing water quality maintenance and pollution control, as well as flood and shoreline erosion control. These lands together designated by the Essex County Board of Supervisors as Chesapeake Bay Preservation Areas ("CBPAs"), need to be protected from destruction and damage in order to protect the quality of water in the Bay and consequently the quality of life in Essex County and the Commonwealth of Virginia.

### Section 36.266. — Establishment.

- (a) This district shall be in addition to and shall overlay all other zoning districts where they are applied so that any parcel of land lying in the Chesapeake Bay Preservation Area Overlay District shall also lie in one or more of the other zoning districts provided for by the Zoning and Subdivision Ordinance.
- (b) Unless otherwise stated in the Overlay District, the Essex County Zoning and Subdivision Ordinance, the Erosion and Sediment Control Ordinance of Essex County, the Building Regulations Ordinance of Essex County, and any other applicable local ordinance shall be followed in reviewing and approving development, redevelopment, and uses governed by this Overlay District.

### Section 36.267. — Areas of Applicability.

- (a) The Chesapeake Bay Preservation Area Overlay District shall apply to all lands identified as CBPAs as designated by the Essex County Board of Supervisors and as shown on the Overlay CBPA Map adopted by the Essex County Board of Supervisors on October 22, 1991. The Overlay CBPA Map, together with all explanatory matter thereon, is hereby adopted by reference and declared to be a part of this Article.
  - (1) The Resource Protection Area (RPA) includes:
    - a. Tidal wetlands;
    - b. Nontidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow;
    - c. Tidal shores;
    - d. A vegetated buffer area not less than 100 feet in width located adjacent to and landward of the components listed above, and along both sides of any water body with perennial flow. The full buffer area shall be designated as the landward component of the RPA notwithstanding the presence of permitted uses, encroachments, and permitted vegetation clearing in compliance with this article.
  - (b) The Resource Management Area (RMA) is composed of concentrations of the following land categories; floodplains; highly erodible soils, including steep slopes; highly permeable soils; nontidal wetlands not included in the RPA or other sensitive lands necessary to protect the quality of State waters.

The Overlay CBPA Map shows the general location of CBPAs and should be consulted by persons contemplating activities within Essex County prior to engaging in a regulated activity. The specific location of RPAs on a lot or parcel shall be delineated on each site or parcel as required under Section 36.268 (a) of this Article.

**Section 36.268. — Determining RPA Boundaries.**

- (a) *Delineation by the Applicant.* The site-specific boundaries of the RPA shall be determined by the applicant through the performance of an environmental site assessment, subject to approval by the Zoning Administrator and in accordance with Section 36.273, (Plan of Development), of this Article or a Water Quality Impact Assessment (WQIA) as required under 36.272 (b) of this Article. The CBPA Overlay Map may be used as a guide to the general location of RPAs; however, this does not relieve the applicant of the requirement that they perform site-specific determination of the RPA.
- (b) *Delineation by the Zoning Administrator in RPAs.* The Zoning Administrator, when requested by an applicant wishing to construct a single-family dwelling or additions to existing homes, or utility buildings, garages, and other structures accessory to single-family dwellings, may waive the requirement for an environmental site assessment and perform the delineation. The Zoning Administrator may use hydrology, soils, plant species, and other data, and consult other appropriate resources as needed to perform the delineation.
- (c) *Where Conflict Arises Over Delineation.* Where the applicant has provided a site-specific delineation of the RPA, the Zoning Administrator will verify the accuracy of the boundary delineation. In determining the site-specific RPA boundary, the Zoning Administrator may render adjustments to the applicant's boundary delineation in accordance with Section 36.252 to 36.273 (Plan of Development) of this Article. In the event the adjusted boundary delineation is contested by the applicant, the applicant may seek relief, in accordance with the provisions of Section 36.273(i) (Denial/Appeal of the Plan).

**Section 36.269. — Use Regulations.**

Permitted uses, special permit uses, accessory uses, any other uses and special requirements shall be as established by the underlying zoning district, unless specifically modified by the requirements set forth herein.

**Section 36.270. — Lot Size.**

Lot size shall be subject to the requirements of the underlying zoning district(s), provided that any lot shall have sufficient area outside the RPA to accommodate an intended development, in accordance with the performance standards in Section 36.250, when such development is not otherwise allowed in the RPA.

**Section 36.271. — Performance Standards.**

- (a) Purpose and Intent.
  - (1) The performance standards establish the means to minimize erosion and sedimentation potential, reduce land application of nutrients and toxics, and maximize rainwater infiltration. Natural ground cover, especially woody vegetation, is most effective in holding soil in place and preventing site erosion. Indigenous vegetation, with its adaptability to local conditions without the use of harmful fertilizers or pesticides, filters stormwater runoff. Minimizing impervious cover enhances rainwater infiltration and effectively reduces stormwater runoff potential.
  - (2) The purpose and intent of these requirements are also to implement the following objectives:
    - a. Prevent a net increase in non-point source pollution from new development;
    - b. Achieve a ten percent (10%) reduction in non-point source pollution from redevelopment; and
    - c. Achieve a forty percent (40%) reduction in non-point source pollution from agricultural and silviculture uses.
- (b) Required Conditions
  - (1) All development and redevelopment exceeding two thousand five hundred (2,500) square feet of land disturbance shall be subject to a plan of development process, including the approval of a site plan in accordance with the provisions of the Zoning and Subdivision Ordinance or a subdivision plat in accordance with the Subdivision Article unless otherwise provided for.

- (2) Development in RPAs may be allowed only if it: (i) is water dependent; (ii) constitutes redevelopment; (iii) constitutes development or redevelopment within a designated Intensely Developed Area; (iv) is a new use established pursuant to subdivision 4a of this section; (v) is a road or driveway crossing satisfying the conditions set forth in subdivision 1d of this section; or (vi) is a flood control or stormwater management facility satisfying the conditions set forth in subdivision 1e of this section.
- a. A WQIA in accordance with subdivision F of this section shall be required for a proposed land disturbance.
  - b. A new or expanded water-dependent facility may be permitted provided that:
    1. It does not conflict with the Comprehensive Plan.
    2. It complies with the performance criteria set forth in Section 36.271 of this Ordinance.
    3. Any non-water dependent component is located outside of the RPA.
    4. Access will be provided with the minimum disturbance necessary. Where practical, a single point of access will be provided.
  - c. Redevelopment outside locally designated Intensely Developed Areas shall be permitted in the RPA only if there is no increase in the amount of imperious cover and no further encroachment within the Resource Protection Area, and it shall conform to applicable erosion and sediment control and stormwater management criteria set forth in the Erosion and Sediment Control Law and the Virginia Stormwater Management Act and their attendant regulations, as well as all applicable stormwater management requirements of other state and federal agencies.
  - d. Roads and driveways not exempt under subdivision B 1 of [9VAC25-830-150](#) and which, therefore, must comply with the provisions of this chapter, may be constructed in or across RPAs if each of the following conditions is met:
    1. The director finds that there are no reasonable alternatives to aligning the road or driveway in or across the RPA;
    2. The proposed alignment, design and construction of the road or driveway is optimized to minimize encroachment in the RPA and adverse effects on water quality;
    3. The design and construction of the road or driveway conform to all applicable criteria of this article, including submission of a water quality impact assessment; and
    4. The director reviews the plan for the proposed road or driveway in coordination with construction plan, land disturbance, site plan, subdivision or building permit approvals, and finds that the plan is consistent with this article.
  - e. For flood control and stormwater management facilities that drain or treat water from multiple development projects or from a significant portion of a watershed;
    1. The director establishes that location of the facility within the RPA is the optimum location;
    2. The size of the facility is the minimum necessary to provide necessary flood control or stormwater treatment, or both;
    3. The facility is consistent with a stormwater management program that has been approved by the State Water Control Board as a phase I modification to the county's program;
    4. All applicable permits for construction in state or federal waters have been obtained from the appropriate state and federal agencies;
    5. Approval has been received from the director prior to construction; and

6. Maintenance agreements in a form and with content acceptable to the director have been executed, to allow the county to perform routine maintenance on such facilities to assure that they continue to function as designed. This subsection shall not be construed to allow a best management practice to be located within the RPA that collects and treats runoff from only an individual lot or portion thereof.
  - f. A WQIA shall be required for any proposed development or redevelopment or land disturbance within RPAs and any development within the RMA that involves more than fifty (50) acres or that results in sixty (60) percent or more impervious cover on the lot or parcel being developed.
- (c) General Performance Standards for Development and Redevelopment.
- (1) Land disturbance shall be limited to the area necessary to provide for the proposed use or development.
    - a. In accordance with an approved Plan of Development, the limits of land disturbance, including clearing or grading shall be strictly defined. These limits shall be clearly shown on submitted plans and physically marked on the development site.
  - (2) Indigenous vegetation shall be preserved to the maximum extent practical consistent with the proposed use or development proposed by an approved Plan of Development.
    - a. Existing trees shall be preserved outside the construction footprint. Diseased trees or trees weakened by age, storm, fire, or other injury may be removed.
    - b. Prior to clearing or grading, suitable protective barriers, such as safety fencing, shall be erected outside of the dripline of any tree or stand of trees to be preserved, unless otherwise approved on the Plan of Development. These protective barriers shall remain so erected throughout all phases of construction. The storage of equipment, materials, debris, or fill shall not be allowed within the area protected by the barrier.
  - (3) Land development shall minimize impervious cover to promote infiltration of stormwater into the ground consistent with the proposed use or development permitted.
    - a. Grid and modular pavements which promote infiltration should be used for any required parking area, alley, or other low traffic driveway.
    - b. Parking areas and driveways shall be designed so as to minimize impervious surfaces.
  - (4) Notwithstanding any other provisions of this Article or exceptions or exemptions thereto, any land disturbing activity exceeding two thousand five hundred (2,500) square feet including construction of all single-family houses, septic tanks and drain fields, shall comply with the requirements of Essex County Erosion and Sediment Control Ordinance.
  - (5) All sewage disposal systems, except those requiring a Virginia Pollutant Discharge Elimination System permit, shall comply with the following:
    - a. Systems shall be pumped out at least once every five years, unless the owner submits documentation, certified by a sewage handler permitted by the Virginia Department of Health, that the septic system has been inspected, is functioning properly, and the tank does not need to have the effluent pumped out of it. As an alternative to the mandatory pump-out or documentation, a plastic filter approved by the health department may be installed and maintained in the outflow pipe from the septic tank to filter solid material from the effluent. Such a filter shall satisfy standards established in the sewage handling and disposal regulations administered by the Virginia Department of Health.
    - b. A reserve sewage disposal site with a capacity at least equal to that of the primary sewage disposal site shall be provided on each lot or parcel proposed for new construction. This reserve sewage disposal site requirement shall not apply to any lot or parcel recorded prior to October 1, 1989, if the lot or parcel,

as determined by the local health department, is not sufficient in capacity to accommodate a reserve sewage disposal site.

- c. Building or construction of any impervious surface shall be prohibited on the area of all sewage disposal sites until the development is served by public sewer or an on-site sewage treatment system that operates under a permit issued by the state water control board.
- (6) Prior to initiating grading or other on-site activities on any portion of a lot or parcel, all wetlands permits or other permits required by Federal, State, and local laws and regulations shall be obtained and evidence of such submitted to the Zoning Administrator, in accordance with Section 36.273, of this Article.
  - (7) Land upon which agricultural activities are being conducted, including but not limited to crop production, pasture, and dairy and feedlot operations, or lands otherwise defined as agricultural land by the local government, shall have a soil and water quality conservation assessment conducted that evaluates the effectiveness of existing practices pertaining to soil erosion and sediment control, nutrient management, and management of pesticides, and, where necessary, results in a plan that outlines additional practices needed to ensure that water quality protection is being accomplished consistent with the Act and this chapter.
    - a. Recommendations for additional conservation practices need address only those conservation issues applicable to the tract or field being assessed. Any soil and water quality conservation practices that are recommended as a result of such an assessment and are subsequently implemented with financial assistance from federal or state cost-share programs must be designed, consistent with cost-share practice standards effective in January 1999 in the "Field Office Technical Guide" of the U.S. Department of Agriculture Natural Resource Conservation Service or the June 2000 edition of the "Virginia Agricultural BMP Manual" of the Virginia Department of Conservation and Recreation, respectively. Unless otherwise specified in this section, general standards pertaining to the various agricultural conservation practices being assessed shall be as follows:
      1. For erosion and sediment control recommendations, the goal shall be, where feasible, to prevent erosion from exceeding the soil loss tolerance level, referred to as "T," as defined in the "National Soil Survey Handbook" of November 1996 in the "Field Office Technical Guide" of the U.S. Department of Agriculture Natural Resource Conservation Service. However, in no case shall erosion exceed the soil loss consistent with an Alternative Conservation System, referred to as an "ACS", as defined in the "Field Office Technical Guide" of the U.S. Department of Agriculture Natural Resource Conservation Service.
      2. For nutrient management, whenever nutrient management plans are developed, the operator or landowner must provide soil test information, consistent with the Virginia Nutrient Management Training and Certification Regulations ([4VAC50-85](#)).
      3. For pest chemical control, referrals shall be made to the local cooperative extension agent or an Integrated Pest Management Specialist of the Virginia Cooperative Extension Service. Recommendations shall include copies of applicable information from the "Virginia Pest Management Guide" or other Extension materials related to pest control.
    - b. A higher priority shall be placed on conducting assessments of agricultural fields and tracts adjacent to Resource Protection Areas. However, if the landowner or operator of such a tract also has Resource Management Area fields or tracts in his operation, the assessment for that landowner or operator may be conducted for all fields or tracts in the operation. When such an expanded assessment is completed, priority must return to Resource Protection Area fields and tracts.

- c. The findings and recommendations of such assessments and any resulting soil and water quality conservation plans will be submitted to the local Soil and Water Conservation District Board, which will be the plan-approving authority.
- (d) Buffer Area Requirements.
  - (1) To minimize the adverse effects of human activities on the other components of RPAs, State waters, and aquatic life, a 100-foot buffer area of vegetation that is effective in retarding runoff, preventing erosion, and filtering non-point source pollution from runoff shall be retained if present and established during development where it does not exist.
  - (2) When replanting is required to establish a buffer, a combination of trees, groundcover, and shrubs with a demonstrated ability to improve water quality shall meet the intent of the buffer area.
  - (3) The buffer area shall be located adjacent to and landward of other RPA components and along both sides of any water body with perennial flow. The full buffer area shall be designated as the landward component of the RPA, in accordance with Sections 36.267 (Areas of Applicability) and 36.273 (Plan of Development) of this Article.
  - (4) The 100-foot buffer area shall be deemed to achieve a seventy-five (75) percent reduction of sediments and a forty (40) percent reduction of nutrients.
  - (5) Where land uses such as agriculture or silviculture within the area of the buffer cease and the lands are proposed to be converted to other uses, the full 100-foot buffer shall be reestablished. In reestablishing the buffer, management measures shall be undertaken to provide woody vegetation that assures the buffer function set forth in this chapter, subject to approval by the Zoning Administrator.
  - (6) The buffer area shall be maintained to meet the following additional performance standards:
    - a. In order to maintain the functional value of the buffer area, indigenous vegetation may be removed only subject to approval by the Zoning Administrator, to provide for reasonable sight lines, access paths, general wood lot management, and best management practices, as follows:
      1. Trees may be pruned or removed as necessary to provide for sight lines and vistas, provided that where removed, they shall be replaced with other vegetation that is equally effective in retarding runoff, preventing erosion, and filtering non-point source pollution from runoff.
      2. Any path shall be constructed and surfaced so as to effectively control erosion.
      3. Dead, diseased, or dying trees or shrubbery may be removed and thinning of trees allowed pursuant to sound horticultural practice incorporated into locally adopted standards.
      4. For shoreline erosion control projects, trees and woody vegetation may be removed, necessary control techniques employed, and appropriate vegetation established to protect or stabilize the shoreline in accordance with the best available technical advice and applicable permit conditions or requirements.
    - b. When the application of the buffer areas would result in the loss of a buildable area on a lot or parcel recorded prior to October 1, 1989, the Zoning Administrator may through an administrative process permit encroachment into the buffer area in accordance with Section 36.273 (Plan of Development) and the following criteria:
      1. Encroachments into the buffer areas shall be the minimum necessary to achieve a reasonable buildable area for a principal structure and necessary utilities;
      2. Where practical, vegetated area that will maximize water quality protection, mitigate the effects of the buffer encroachment and is equal to the area encroaching the buffer area shall be established elsewhere on the lot or parcel; and
      3. In no case shall the reduced portion of the buffer area be less than fifty (50) feet in width and the encroachment may not extend into the seaward fifty (50) feet of the buffer area.

- c. When the application of the buffer area would result in the loss of a buildable area on a lot or parcel recorded between October 1, 1989, and March 1, 2002, encroachments into the buffer area may be allowed through an administrative process in accordance with the following criteria:
  - 1. The lot or parcel was created as a result of a legal process conducted in conformity with the local government's subdivision regulations;
  - 2. Conditions or mitigation measures imposed through a previously approved exception shall be met;
  - 3. If the use of a best management practice (BMP) was previously required, the BMP shall be evaluated to determine if it continues to function effectively and, if necessary, the BMP shall be reestablished or repaired and maintained as required; and
  - 4. The criteria in subdivision 4a of this section shall be met.
- d. On agricultural lands the agricultural buffer area shall be managed to prevent concentrated flows of surface water from breaching the buffer area and appropriate measures taken to prevent noxious weeds (such as Johnson grass, kudzu, and multiflora rose) from invading the buffer area. Agricultural activities may encroach into the buffer as follows:
  - 1. Agricultural activities may encroach into the landward fifty (50) feet of the 100-foot wide buffer area when at least one (1) agricultural best management practice which, in the opinion of the local soil and water conservation district board, addresses the more predominant water quality issue on the adjacent land — erosion control or nutrient management — is being implemented on the adjacent land, provided that the combination of the undisturbed buffer and the best management practice achieves water quality protection, pollutant removal, and water resource conservation at least the equivalent of the 100-foot wide buffer area. If nutrient management is identified as the predominant water quality issue, a nutrient management plan, including soil tests, must be developed consistent with the Virginia Nutrient Training and Certification Regulations (4 VAC 5-15) administered by the Virginia Department of Conservation and Recreation.
  - 2. Agriculture activities may encroach within the landward seventy-five (75) feet of the 100-foot wide buffer area when agricultural best management practices which address erosion control, nutrient management, and pest chemical control, are being implemented on the adjacent land. The erosion control practices must prevent erosion from exceeding the soil loss tolerance level, referred to as "T," as defined in the "National Soil Survey Handbook" of November 1996 in the "Field Office Technical Guide" of the U.S. Department of Agriculture Natural Resource Conservation Service. A nutrient Management Training and Certification Regulations (4 VAC 5-15) administered by the Virginia Department of Conservation and Recreation. In conjunction with the remaining buffer area, this collection of best management practices shall be presumed to achieve water quality protection at least the equivalent of that provided by the 100-foot wide buffer area.
  - 3. The buffer area is not required to be designated adjacent to agricultural drainage ditches if at least one (1) best management practice which, in the opinion of the local soil and Water Conservation District board, addresses the more predominant water quality issue on the adjacent land — either erosion control or nutrient management — is being implemented on the adjacent land.
  - 4. If specific problems are identified pertaining to agricultural activities that are causing pollution of the nearby water body with perennial flow or violate performance standards pertaining to the vegetated buffer area, the local government, in cooperation with soil and water conservation district, shall recommend a compliance schedule to the landowner and require the problems to be corrected consistent with that schedule. This schedule shall expedite environmental protection while taking into account the seasons and other temporal considerations so that the probability for successfully implementing the corrective measures is greatest.
  - 5. In cases where the landowner or his agent or operator has refused assistance from the local Soil and Water Conservation District in complying with or documenting compliance with the agricultural requirements of this chapter, the District shall report the noncompliance to the local government.

The local government shall require the landowner to correct the problems within a specified period of time not to exceed 18 months from their initial notification of the deficiencies to the landowner. The local government, in cooperation with the district, shall recommend a compliance schedule to the landowner. This schedule shall expedite environmental protection while taking into account the seasons and other temporal considerations so that the probability for successfully implementing the corrective measures is greatest.

**Section 36.272. — Water Quality Impact Assessment (WQIA).**

(a) Purpose and Intent.

- (1) The purpose of the WQIA is to: (i) identify the impacts of proposed development on water quality and lands with RPAs and other environmentally-sensitive lands; (ii) ensure that, where development does take place within RPAs and other sensitive lands, it will be located on those portions of a site and in a manner that will be least disruptive to the natural functions of RPAs and other sensitive lands; (iii) to protect individuals from investing funds for improvements proposed for location on lands unsuited for such development because of high ground water, erosion, or vulnerability to flood and storm damage; and (iv) specify mitigation which will address water quality protection.

(b) WQIA Required.

- (1) A WQIA is required for any proposed development or redevelopment within an RPA, including any buffer area encroachment as provided for in Section 36.271 of this Article, and in any development in the RMA if:
  - a. The proposed development exceeds fifty (50) acres; or
  - b. The proposed development results in more than sixty (60) percent impervious cover on the lot or parcel being developed.
- (2) There shall be two (2) levels of WQIAs: a minor assessment and a major assessment.
  - a. Minor WQIA. A minor WQIA pertains only to development with CBPAs which causes no more than five thousand (5,000) square feet of land disturbance and/or proposes encroachment into of the landward fifty (50) feet of the 100-foot buffer area as permitted under this section. A minor assessment must demonstrate that the undisturbed buffer area and necessary best management practices will result in removal of no less than seventy-five (75) percent of sediments and forty (40) percent of nutrients from post-development stormwater runoff. A minor assessment shall include a site drawing to scale which shows the following:
    1. Location of the components of the RPA, including the 100-foot buffer area;
    2. Location and nature of the proposed encroachment into the buffer area, including: type of paving material; areas of clearing or grading; location of any structures, drives, or other impervious cover; and sewage disposal systems or reserve drain field sites;
    3. Type and location of proposed best management practices to mitigate the proposed encroachment.
    4. Location of existing vegetation on site, including the number and type of trees and other vegetation to be removed in the buffer to accommodate the encroachment or modification.
    5. Re-vegetation plan that supplements the existing buffer vegetation in a manner that provides for pollutant removal, and erosion and runoff control.
  - b. Major WQIA Assessment. A major WQIA shall be required for any development that:
    1. Exceeds five thousand (5,000) square feet of land disturbance within CPBAs and proposes any modification or encroachment into the landward fifty (50) feet of the 100-foot buffer area;
    2. Disturbs any portion of any other component of an RPA or disturbs any portion of the buffer area within fifty (50) feet of any other component of an RPA; or

3. Is located in an RMA and is deemed necessary by the Zoning Administrator.
- (3) The information required in this section shall be considered a minimum, unless the Zoning Administrator determines that some of the elements are unnecessary due to the scope and nature of the proposed use and development of land.
  - (4) The following elements shall be included in the preparation and submission of a major water quality assessment:
    - a. All of the information required in a minor WQIA, as specified in Section 36.272 (2);
    - b. A hydrogeological element that:
      1. Describes the existing topography, soils, hydrology, and geology of the site and adjacent lands.
      2. Describes the impacts of the proposed development on topography, soils, hydrology, and geology on the site and adjacent lands.
      3. Indicates the following:
        - i. Disturbance or destruction of wetlands and justification for such action;
        - ii. Disruptions or reductions in the supply of water to wetlands, streams, lakes, rivers, or other water bodies;
        - iii. Disruption to existing hydrology including wetland and stream circulation patterns;
        - iv. Source location and description of proposed fill material;
        - v. Location of dredge material and location of dumping area for such material;
        - vi. Estimation of pre- and post-development pollutant loads in runoff;
        - vii. Estimation of percent increase in impervious surface on site and type(s) of surfacing materials used;
        - viii. Percent of site to be cleared for project;
        - ix. Anticipated duration and phasing schedule of construction project;
        - x. Listing of all requisite permits from all applicable agencies necessary to develop project.
      4. Describes the proposed mitigation measures for the potential hydrogeological impacts. Potential mitigation measures include:
        - i. Proposed erosion and sediment control concepts; concepts may include minimizing the extent of the cleared area, perimeter controls, reduction of runoff velocities, measures to stabilize disturbed areas, schedule and personnel for site inspection;
        - ii. Proposed stormwater management system;
        - iii. Creation of wetlands to replace those lost;
        - iv. Minimizing cut and fill.
    - c. Landscape and clearing elements that:
      1. Identify and delineate the location of all significant plant material, including all trees on site six (6) inches or greater diameter at breast height. Where there are groups of trees, stands may be outlined.
      2. Describe the impact the development or use will have on the existing vegetation. Information should include:
        - i. General limits of clearing, based on all anticipated improvements, including buildings, drives, and utilities;

- ii. Clear delineation of all trees which will be removed;
  - iii. Description of plant species to be disturbed or removed.
3. Describes the potential measures for mitigation. Possible mitigation measures include:
- i. Replanting schedule for trees and other significant vegetation removed for construction, including a list of possible plants and trees to be used;
  - ii. Demonstration that the design of the plan will preserve to the greatest extent possible any significant trees and vegetation on the site and will provide maximum erosion control and overland flow benefits from such vegetation.
  - iii. Demonstration that indigenous plants are to be used to the greatest extent possible.
- (5) Submission and Review Requirements.
- a. Five (5) copies of all site drawings and other applicable information as required by Subsection (2) above shall be submitted to the Zoning Administrator for review.
  - b. All information required in this section shall be certified as complete and accurate by a professional engineer or a certified land surveyor.
  - c. A minor WQIA shall be prepared and submitted to and reviewed by the Zoning Administrator in conjunction with Section 36.273, (Plan of Development) of this Article.
  - d. A major WQIA shall be prepared and submitted to and reviewed by the Zoning Administrator in conjunction with Section 36.273, (Plan of Development) of this Article.
  - e. As part of any major WQIA submittal, the Zoning Administrator may require review by the State Water Control Board or its agent. Upon receipt of a major WQIA, the Zoning Administrator will determine if such review is warranted. Any comments by State Water Control Board or agent will be incorporated into the final review by the Zoning Administrator provided that such comments are provided within 90 days of the request.
- (6) Evaluation Procedure.
- a. Upon completed review of a minor WQIA, the Zoning Administrator will determine if any proposed encroachment into the buffer area is consistent with the provisions of this Article and make a finding based upon the following criteria in conjunction with Section 36.273:
    - 1. The necessity of the proposed encroachment and the ability to place improvements elsewhere on the site to avoid disturbance of the buffer area;
    - 2. Impervious surface is minimized;
    - 3. Proposed best management practices, where required, achieve the requisite reductions in pollutant loadings;
    - 4. The development, as proposed, meets the purpose and intent of the Article;
    - 5. The cumulative impact of the proposed development, when considered in relation to other development in the vicinity, both existing and proposed, will not result in a significant degradation of water quality.
  - b. Upon the completed review of a major WQIA, the Zoning Administrator will determine if the proposed development is consistent with the purpose and intent of this Article and make a finding based upon the following criteria in conjunction with Section 36.273:
    - 1. Within any RPA, the proposed development or redevelopment is water-dependent;
    - 2. The disturbance of wetlands will be minimized;
    - 3. The development will not result in significant disruption of the hydrology of the site;

4. The development will not result in significant degradation to aquatic vegetation or life;
  5. The development will not result in unnecessary destruction of plant materials on site;
  6. Proposed erosion and sediment control concepts are adequate to achieve the reductions in runoff and prevent off-site sedimentation;
  7. Proposed stormwater management concepts are adequate to control the stormwater runoff to achieve the required standard for pollutants control;
  8. Proposed revegetation of disturbed areas will provide optimum erosion and sediment control benefits;
  9. The design and location of any proposed drain field will be in accordance with the requirements of Section 36.271, and the Essex County Zoning and Subdivision Ordinance.
  10. The development, as proposed, is consistent with the purpose and intent of the Overlay District;
  11. The cumulative impact of the proposed development, when considered in relation to other development in the vicinity, both existing and proposed, will not result in significant degradation of water quality.
- c. The Zoning Administrator shall require additional mitigation where potential impacts have not been adequately addressed. Evaluation of mitigation measures will be made by the Zoning Administrator based on the criteria listed above in subsections a. and b.
  - d. The Zoning Administrator shall find the proposal to be inconsistent with the purpose and intent of this Article when the impacts created by the proposal cannot be mitigated. Evaluation of the impacts will be made by the Zoning Administrator based on the criteria listed in subsections a. and b.

**Section 36.273. — Plan of Development.**

(a) Purpose and Intent.

- (1) This section is enacted to ensure compliance with this Ordinance and all applicable ordinances and regulations to protect and enhance the values of the natural environment in Essex County, to protect the economic value of the natural environment from unwise and disorderly development, to ensure the efficient use of land, and to create standards in the layout, design, landscaping and construction of development.

(b) Applicability.

- (1) Any development or redevelopment exceeding two thousand five hundred (2,500) square feet of land disturbance in the CBPA shall be accomplished through a plan of development processes prior to any development activities or site work such as clearing or grading of the site or the issuance of any building permit, to ensure compliance with all applicable requirements of this Article unless otherwise provided for.
- (2) Pre-Application Conference. Prior to submitting a Plan of Development, the applicant should schedule a pre-application conference with the Administrator. Sketched plans may be submitted prior to or on the conference date. Due to the existing site conditions, the Administrator may waive certain requirements of the plan of development process.

(c) Required Information. In addition to the requirements of the underlying Zoning and Subdivision Ordinance and any other related ordinances, regulations, or laws, the plan of development process shall consist of the plans and studies identified below. These required plans or studies may be coordinated or combined, as deemed appropriate by the Zoning Administrator. The Zoning Administrator may determine that some of the following information is unnecessary due to the scope and nature of the proposed development.

- (1) The following plans or studies shall be submitted, unless otherwise provided for:
  - a. A site plan in accordance with the provisions of this Article and Article III, Division 7 and/or a subdivision plat in accordance with the provisions of the Essex County Subdivision Article of this Ordinance;

- b. An environmental site assessment;
  - c. A landscape and clearing plan;
  - d. A stormwater management plan;
  - e. An erosion and sediment control plan in accordance with the provisions of the Erosion and Sediment Control Ordinance of Essex County.
- (d) Environmental Site Assessment. An environmental site assessment shall be submitted in conjunction with preliminary site plan or preliminary subdivision plan approval applications. The Administrator may waive the requirements of the environmental site assessment provided no part of the lot or parcel being developed is within the RPA boundaries, as determined by the County. If the developer disagrees with the determination of RPA boundaries by the County, they shall submit an environmental site assessment to establish boundaries.
- (1) The environmental site assessment shall be drawn to scale and clearly delineate the following environmental features:
    - a. Tidal wetlands;
    - b. Tidal shore;
    - c. Nontidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow;
    - d. A 100-foot buffer area located adjacent to and landward of the components listed in subsection (d) (1) above, and along both sides of any water body with perennial flow.
  - (2) Wetland's delineations shall be performed consistent with the procedures specified in the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, applicable at the time.
  - (3) The environmental site assessment shall delineate the site-specific geographic extent of the RPA.
  - (4) The environmental site assessment shall be drawn at the same scale as the preliminary site plan or subdivision plat, and shall be certified as complete and accurate by a professional engineer, a soil scientist, a wetlands scientist, a certified land surveyor, a certified landscape architect, or a person or firm competent to make the assessment.
- (e) Landscape and Clearing Plan. A landscape and clearing plan shall be submitted in conjunction with site plan approval or as part of subdivision plan approval. The Administrator may waive the requirements of the landscape and clearing plan if the proposed clearing and/or grading is less than ten thousand (10,000) feet. Landscape and clearing plans shall be prepared and/or certified by a certified professional or person, firm or corporation, competent to design such plans. The plan shall comply with the requirements of Article VII, Division 4 of this Ordinance and:
- (1) Contents of the plan.
    - a. The landscape and clearing plan shall be drawn to scale and clearly delineate the location, size and description of existing and proposed plant material. All existing trees on the site six (6) inches or greater diameter at breast height (DBH) shall be shown on the landscape and clearing plan. Where there are groups of trees, wood lines of the group may be outlined instead. The specific number of trees six (6) inches or greater DBH to be preserved outside of the impervious cover and outside the groups shall be indicated on the plan. Trees proposed to be removed and wood lines to be changed to create a desired impervious cover shall be clearly delineated on the landscape and clearing plan.
    - b. Any required RPA buffer area shall be clearly delineated and any plant material to be added to establish or supplement the buffer area, as required by this Article, shall be shown on the landscape and clearing plan.
    - c. Within the buffer area, trees to be removed for sight lines, vistas, access paths, and best management practices, as provided for in this Article, shall be shown on the plan. Vegetation

- required by this Article to replace any existing trees within the buffer area shall also be shown on the landscape and clearing plan.
- d. Trees to be removed for shoreline stabilization projects and any replacement vegetation required by this Article shall be shown on the landscape plan.
  - e. The landscape and clearing plan will include specifications for the protection of existing trees during clearing, grading, and all phases of construction.
- (2) Plant Specifications.
- a. All plant material necessary to supplement the RPA buffer area or vegetated areas outside the impervious cover shall be installed according to standard planting practices and procedures.
  - b. All supplementary or replacement plant materials shall be living and in healthy condition.
  - c. Where areas to be preserved, as designated on an approved landscape and clearing plan, are encroached, replacement of existing trees and other vegetation will be achieved at a ratio of two (2) planted trees to one (1) removed. Replacement trees shall be a minimum of two and one-half (2.5) inches DBH at the time of planting.
- (3) Maintenance.
- a. The applicant shall be responsible for the maintenance and replacement of all vegetation as may be required by the provisions of this Article.
  - b. In buffer areas and areas outside the impervious cover, plant material shall be tended and maintained in a healthy growing condition and free from refuse and debris. Unhealthy, dying or dead plant materials shall be replaced during the next planting season, as required by the provisions of this Article.
- (f) Stormwater Management Plan. A stormwater management plan shall be submitted as part of the plan of development process required by this Article and in conjunction with site plan or subdivision plan approval.
- (1) The Administrator may waive the requirements of the stormwater management plan when development is for single-family residence, or addition to existing homes, or utility buildings, garages, and other structures accessory to single-family residences, and agriculture structures, on a lot or parcel one (1) acre or larger in size.
  - (2) Contents of Plan. The stormwater management plan shall contain maps, charts, graphs, tables, photographs, narrative descriptions, explanations, and citations to supporting references as appropriate to communicate the information required by this Article. At a minimum, the stormwater management plan must contain the following:
    - a. Location and design of all planned stormwater control devices;
    - b. Procedures for implementing non-structural stormwater control practices and techniques;
    - c. Pre- and post-development non-point source pollutant loadings with supporting documentation of all utilized coefficients and calculations;
    - d. For facilities, verification of structural soundness, including a Professional Engineer or Class III-B Surveyor Certification.
  - (3) Site specific facilities shall be designed for the ultimate development of the contributing watershed based on zoning, comprehensive plans, local public facility master plans, or other similar planning documents.
  - (4) All engineering calculations must be performed in accordance with procedures outline in the current edition of the Virginia Stormwater Management Manual.
  - (5) The plan shall establish a long-term schedule for inspection and maintenance of stormwater management facilities that includes all maintenance requirements and persons responsible for performing maintenance.

If the designated maintenance responsibility is with a party other than Essex County, then a maintenance agreement shall be executed between the responsible party and Essex County.

- (g) Erosion and Sediment Control Plan. An erosion and sediment control plan shall be submitted that satisfies the requirements of this Article and in accordance with the Erosion and Sediment Control Ordinance of Essex County, in conjunction with site plan or subdivision plan approval.
- (1) Final Plan. Final plans for property within CBPAs shall be final plats for land to be subdivided and/or site plans for land not to be subdivided as required by this Ordinance.
- (2) Final plans for all lands within CBPAs shall include the following additional information:
- a. The delineation of the RPA boundary; if any lot, parcel, or portion of lot or parcel, lies within the RPA;
  - b. The delineation of required buffer areas; if any lot, parcel, or portion of lot or parcel, lies within the RPA;
  - c. All wetlands permits required by law;
  - d. A maintenance agreement as deemed necessary and appropriate by the Zoning Administrator to ensure proper maintenance of best management practices in order to continue their functions;
  - e. WQIA as required by Section 36.272 of this Article.
- (3) Installation and Bonding Requirements.
- a. Where buffer areas, landscaping, stormwater management facilities or other specifications of an approved plan are required, no certificate of occupancy shall be issued until the installation of required plant materials or facilities is completed, in accordance with the approved site plan.
  - b. When the occupancy of a structure is desired prior to the completion of the required landscaping, stormwater management facilities, or other specifications of an approved plan, a certificate of occupancy may be issued only if the applicant provides to Essex County a form of surety satisfactory to the Zoning Administrator in an amount equal to the remaining plant materials, related materials, and installation costs of the required landscaping or facilities and/or maintenance costs for any required stormwater management facilities during the construction period.
  - c. All required landscaping shall be installed and approved by the first planting season following issuance for a certificate of occupancy or the surety may be forfeited to Essex County.
  - d. All required stormwater management facilities or other specifications shall be installed and approved within eighteen (18) months of project commencement. Should the applicant fail, after proper notice, to initiate, complete or maintain appropriate actions required by the approved plan, the surety may be forfeited to Essex County. Essex County may collect from the applicant the amount by which the reasonable cost of required actions exceeds the amount of surety held.
  - e. After all required actions of the approved site plan have been completed, the applicant must submit a written request for a final inspection. If the requirements of the approved plan have been completed to the satisfaction of the Zoning Administrator, such unexpended or portion of the surety held shall be refunded to the applicant or terminated within sixty (60) days following the receipt of the applicant's request for final inspection. The Zoning Administrator may require a certificate of substantial completion from a Professional Engineer or Class III-B Surveyor before making a final inspection.
- (h) Administrative Responsibility. Administration of the plan of development process shall be in accordance with this Ordinance.
- (i) Denial of Plan, Appeal of Conditions or Modifications. In the event the final plan or any component of the plan of development process is disapproved and recommended conditions or modifications are unacceptable to the applicant, the applicant may appeal the decision of the Zoning Administrator to the Board of Zoning Appeals. In granting an appeal, the Board of Zoning Appeals must find such plan to be in accordance with all applicable ordinances and include necessary elements to mitigate any detrimental impact on water quality and upon adjacent property and the surrounding area, or such plan meets the purpose and intent of the performance

standards in this Article. If the Board of Zoning Appeals finds that the applicant's plan does not meet the above stated criteria, they shall deny approval of the plan.

**Section 36.274. — Administrative Waivers.**

Nonconforming Use and Waivers.

- (1) Nonconforming Building and Structures. The lawful use of a building or structure which existed on October 22, 1991, or which exists at the time for any amendment to this Article, and which is not in conformity with the provisions of the Overlay District, may be continued in accordance with Article VIII, Nonconformities, of the Essex County Zoning and Subdivision Ordinance.

**Section 36.275. — Exemptions.**

- (a) Exemptions for Public Utilities, Railroads, Public Roads, and Facilities. Construction, installation, operation, and maintenance of electric, natural gas, and telephone transmission lines, Cable TV, railroads, and public roads and their appurtenant structures in accordance with:
  - (1) Regulations promulgated pursuant to the Erosion and Sediment Control Law (Regulation 9VAC25-840-10 et seq.) and the Stormwater Management Act (Regulation 9VAC25-870-10 et seq.);
  - (2) An erosion and sediment control plan and a stormwater management plan approved by the Virginia Department of Environmental Quality; or
  - (3) Local water quality protection criteria at least as stringent as the above state requirements are deemed to comply with this Article. The exemption of public roads is further conditioned on the following:
    - a. The road alignment and design has been optimized, consistent with all applicable requirements, to prevent or otherwise minimize the encroachment in the RPA and to minimize the adverse effects on water quality.
- (b) Exemptions for Local Utilities and other service lines. Construction, installation, and maintenance of water, sewer, natural gas, underground telecommunications and cable television lines owned, permitted or both, by an Essex County or a regional service authority shall be exempt from the Overlay District provided that:
  - (1) To the degree possible, the location of such utilities and facilities should be outside RPAs;
  - (2) No more land shall be disturbed than is necessary to provide for the proposed utility installation;
  - (3) All such construction, installation, and maintenance of such utilities and facilities shall be in compliance with all applicable State and Federal requirements and permits and designed and conducted in a manner that protects water quality; and
  - (4) Any land disturbance exceeding an area of two thousand five hundred (2,500) square feet complies with the requirements for the Essex County Erosion and Sediment Control Ordinance.
- (c) Exemptions in RPAs. The following land disturbances in RPAs may be exempted from the Overlay District: (i) water wells; (ii) passive recreation facilities such as boardwalks, trails, and pathways; and (iii) historic preservation and archaeological activities, provided that it is demonstrated to the satisfaction of the Zoning Administrator that:
  - (1) Any required permits, except those to which this exemption specifically applies, shall have been issued;
  - (2) Sufficient and reasonable proof is submitted that the intended use will not deteriorate water quality;
  - (3) The intended use does not conflict with nearby planned or approved uses; and,
  - (4) Any land disturbance exceeding an area of two thousand five hundred (2,500) square feet shall comply with all Essex County Erosion and Sediment Control requirements.

- (d) Exemptions from RMAs. An applicant may apply to have his property made exempt from the requirements of the RMA. An environmental site assessment, meeting all of the criteria in (2) below, along with a study indicating the location, concentration or absence physical characteristics must be submitted to the Administrator.
- (1) A study indicating the location, concentration or absence of the following RMA physical characteristics must be submitted to the Administrator:
- a. Highly erodible soils;
  - b. Steep slopes greater than twenty five (25) percent;
  - c. Highly permeable soils;
  - d. Nontidal wetlands not included in the RPA;
  - e. Floodplains.
- (2) The Administrator may approve an exemption after finding, upon review of the environmental site assessment, that:
- a. There is no RPA, as established by Section 36.267 (a) (1) of this Ordinance, located on or within five hundred (500) feet of any portion of the lot or parcel;
  - b. There is no RMA Component, as established by Section 36.267 (a) (2) of this Ordinance, located on any portion of the lot or parcel;
  - c. An environmental site assessment, as established by Section 36.273 (d) of this Ordinance which accurately demonstrates the absence of RMA components, is submitted and approved by the Administrator;
  - d. The environmental site assessment is prepared by a qualified soil scientist and wetland scientist, or any person who is determined to be qualified by the Administrator; and
- (3) Upon approval of an exemption, the applicant shall cause a plat depicting the areas approved for exemption to be recorded among the land records in the Circuit Court Clerk's Office of Essex County, Virginia, prior to the issuance of any permits that would otherwise be unlawful in the RMA.
- (e) Exemptions for silviculture activities. Silvicultural activities are exempt from the requirements of the Article provided that silvicultural operations adhere to water quality protection procedures prescribed by the Department of Forestry in its edition of "Forestry Best Management Practices for Water Quality in Virginia." The Virginia Department of Forestry will oversee and document installation of best management practices and will monitor impacts of forestry operations in Chesapeake Bay Preservation Areas.

**Section 36.276. — Exceptions (Variances).**

Exceptions Affecting RPA. Any exception or variance to the requirements those exceptions dealing with RPA issues, shall be reviewed and considered by the Board of Zoning Appeals of Essex County. The request for an exception shall identify the impacts of the proposed exception on water quality and on lands within the RPA through the performance of a WQIA which complies with Section 36.272.

Reserved 36.277 — 36.289

## Division 6. — Modifications and Encroachments

### Section 36.290. — Height Modifications.

The height limitations of this Ordinance shall not apply to:

- (1) Belfries.
- (2) Chimneys.
- (3) Church spires.
- (4) Conveyors.
- (5) Cooling towers.
- (6) Elevator bulkheads.
- (7) Fire towers.
- (8) Water towers and standpipes.
- (9) Flag poles.
- (10) Public monuments.
- (11) Ornamental towers and spires, domes, cupolas.
- (12) Commercial radio and television towers less than one hundred twenty-five (125) feet in height.
- (13) Silos and grain driers; tanks.
- (14) Smoke stacks.
- (15) Stage towers or scenery lofts.
- (16) Fire and parapet walls extending no more than four feet above the roof.

### Section 36.291. — Setback Encroachment.

- (a) Except as provided herein, any physical element that is attached to a principal structure must meet the minimum setback standards of the district.
- (b) The following structures shall be permitted to encroach into any yard, including front yards, provided applicable sight distance and fire safety requirements are met and maintained, and provided the following requirements are met:
  - (1) Fences pursuant to Article VII, Division 4.
  - (2) Ground level terraces, patios or decks not over 30 inches high which do not include a permanently roofed-over terrace or porch.
  - (3) Awnings or canopies provided they do not project more than eight feet from the existing building face.
  - (4) Bay windows and overhanging eaves or gutters projecting no more than three feet into the yard.
  - (5) Arbors and trellises not exceeding ten feet in height, provided that such structures do not reduce the width of the yard to less than three feet.
  - (6) Flagpoles not to exceed 25 feet in height.
  - (7) Recreational playground equipment, as defined herein, provided that such equipment does not reduce the width of the yard to less than ten feet.
  - (8) Heat pumps or central air conditioning units, except in the R-4 district, may project to a distance not to exceed 5 feet into a required side yard.

Reserved 36.292— 36.309

## ARTICLE V. — USE MATRIX

### Section 36.310. — Purpose and Intent.

- (a) The following table provides all use types and all zoning districts where the use type is permitted (B) by-right or (C) with approval of a conditional use permit in accordance with the requirements of this ordinance.
- (b) Some uses listed in the use matrix, in addition to the district regulations and design standards, have associated use performance standards.
- (c) All uses not specifically permitted or permitted with approval of a conditional use permit are prohibited.
- (d) Overlay Districts. Regardless of whether the use matrix lists a use as permitted or prohibited, the use type shall be restricted or prohibited by the requirements of an overlay district.

Section 36.311. — Zoning Use Matrix – Districts and Uses.

Table 36.12 Zoning Use Matrix - Districts & Uses													
Proposed Use/Change	Districts												Use Performance Standard Reference
	A-1, Agriculture and Forestry, Preservation	A-2, Agriculture and Forestry, General	R-1, Very Low Density Residential	R-2, Low Density Residential	R-3, Medium Density Residential	R-4, Residential Restricted	MH-1, Mobile Home Park	PUD, Planned Unit Development	B-1, Local Business	B-2, General Business	I-1, Light Industrial	I-2, Industrial	
Use Types: B - By-right   C - Conditional													
<b>Agricultural</b>													
Agriculture/Silviculture	B	B											
Agriculture, Intensive	C	C											Section 36.320
Agritourism	B	B											
Aquaculture	B	B											
Biomass conversion, small-scale	C	C											
Conservation	B	B											
Farm winery	B	B											

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Table 36.12 Zoning Use Matrix - Districts & Uses													
Proposed Use/Change	Districts												Use Performance Standard Reference
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Use Types: B - By-right   C - Conditional													
Greenhouse, commercial	C	C								C	C		
Livestock market	C												
Sportsman club, commercial	B	C											Section 36.321
Sportsman club, private	B	B											Section 36.322
Stable, commercial	B	B											Section 36.323
Stable, private	B	B											Section 36.324
Wayside stand	B	B											
<b>Residential</b>													
Alternative dwelling	C	C											
Dwelling, manufactured	B	B					B						Section 36.335

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Use Types: B - By-right   C - Conditional													
Dwelling, multifamily					B			B					
Dwelling, single-family	B	B	B	B	B	B		B					
Dwelling, townhouse					B			B					
Dwelling, two-family				B	B			B					
Group home	B	B	B	B	B	B		B					
Life care facility					C			C					
Manufactured home park							B						Section 36.336
Shelter, residential					C								
<b>Public/Civic/Recreation</b>													
Assembly, place of	C	C			C			C	C	B			

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Proposed Use/Change	Districts												Use Performance Standard Reference
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Use Types: B - By-right   C - Conditional													
Camp, day or youth		C											
Campground	C	C											Section 36.345
Cemetery	B	B											Section 36.346
Cultural facility		C						C	B	B			
Educational facility, college/university								C	C	C			
Educational facility, primary/secondary	C	C	B	B	B			C	C	C			
Emergency management services facility	C	C	C	C	C			C	B	B	C	C	
Public Park and recreation area	B	B	B	B	B	B	B	B	B	B			Section 36.347
Public use	C	C						C	B	B	B	B	

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Proposed Use/Change	Districts												Use Performance Standard Reference
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Use Types: B - By-right   C - Conditional													
Recreation facility, private			B	B	B	B	B	B					
Religious assembly	B	B	B	B	B			C	B	B			
Utility service, major	C	C	C	C	C	C	C	C	C	C	C	C	
Utility service, minor	B	B	B	B	B	B	B	B	B	B	B	B	
<b>Commercial</b>													
Automobile repair service		C								C	B		Section 36.360
Automobile sale, rental/leasing									B	B	B		Section 36.361
Brewery or distillery	C	C									B	B	
Business or trade school		C						B		B	B	B	
Business support service								B	B	B	B	B	

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Use Types: B - By-right   C - Conditional													
Car wash									C	B	B		Section 36.362
Catering facility									B	B	B		
Commercial indoor entertainment								B	C	B	B		
Commercial indoor recreation/ amusement								B	C	B			
Commercial outdoor recreation/ amusement		C						C	-	C			
Construction material sales										-	B		Section 36.363
Consumer repair service								B	B	B	B		Section 36.364
Crematory										C	B		
Day care center			C	C				C	C	B	B		

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Use Types: B - By-right   C - Conditional													
Equipment repair service, heavy		C								C	B		Section 36.365
Equipment sales and rental, heavy		C								C	B		Section 36.366
Farmer's market		B						B	B	B			
Farm supply and service establishment		C							C	B	B		
Financial institution								B	B	B			
Funeral home									B	B			
Garden center									B	B			
Gasoline station		C						C	B	B			Section 36.367
Hospital									C	C			

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	A-1, Agriculture and Forestry, Preservation	A-2, Agriculture and Forestry, General	R-1, Very Low Density Residential	R-2, Low Density Residential	R-3, Medium Density Residential	R-4, Residential Restricted	MH-1, Mobile Home Park	PUD, Planned Unit Development	B-1, Local Business	B-2, General Business	I-1, Light Industrial	I-2, Industrial	
Use Types: B - By-right   C - Conditional													
Hotel									B	B			
Janitorial business										B	B		
Kennel, commercial	B	B											Section 36.368
Laundry, commercial										B	B		
Manufactured home sales										C	C		
Micro-brewery	C	C						B	B	B			
Micro-distillery	C	C						B	B	B			
Mini-warehouse									C	C	B		
Motor Vehicle Racing	C	C											
Nursing home		C	C	C	C				C	C			

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Use Types: B - By-right   C - Conditional													
Office, general								B	B	B			
Office, medical/clinic								B	B	B			
Outdoor sales, seasonal		C						B	B	B			Section 36.369
Personal Improvement Service								B	B	B			
Personal services								B	B	B			
Recreational vehicle storage, commercial		C							C	C			
Restaurant, drive-in								B	B	B			Section 36.370
Restaurant, general								B	B	B			
Restaurant, mobile								B	B	B	B		Section 36.371

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Use Types: B - By-right   C - Conditional													
Shooting range, outdoor	C	C											
Store, adult										C			Section 36.372
Store, general								B	B	B			
Store, neighborhood convenience		C						B	B	B			Section 36.373
Store, specialty								B	B	B			
Store, specialty food								B	B	B			
Studio, fine arts								B	B	B	B		
Tattoo parlor and/or body piercing salon										B			
Tradesperson service										B	B	B	Section 36.374

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Use Types: B - By-right   C - Conditional													
Veterinary hospital/clinic		C						B	B	B			Section 36.375
<b>Industrial</b>													
Bulk fuel storage and distribution											C	C	Section 36.385
Construction yard											B		Section 36.386
Junkyard												C	Section 36.387
Laboratory, research and development											B	B	
Manufacturing, heavy												B	
Manufacturing, light											B	B	
Truck/freight terminal											C	B	

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Use Types: B - By-right   C - Conditional														
Warehousing and distribution												B	B	
<b>Miscellaneous</b>														
Aviation facility		C										C		
Boat yard	C	C										B	B	
Broadcasting or communication tower	C	C									C	C	C	Section 36.400
Exploratory well	C	C												
Helipad		C												
Marina		C								C	B			
Parking lot, commercial								B		B				Section 36.401

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Use Types: B - By-right   C - Conditional													
Pier, commercial		C							B	B			
Pier, private	B	B	B	B	B	B		B					
Recycling center		C										C	
Resource extraction	C	C											
Sawmill, commercial		C									B	B	
Sawmill, mobile	B	B											Section 36.402
Small cell facility	B	B	B	B	B	B	B	B	B	B	B	B	Section 36.403
Solar energy, large-scale	C	C	C	C	C		C	C					Section 36.404
Solar energy, medium-scale	C	B									B	B	Section 36.405

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Use Types: B - By-right   C - Conditional													
Solar energy, Power Purchase Agreement (PPA)	C	C	C	C	C		C	C			C	C	Section 36.404
Solar energy, small-scale	B	B	B	B	B	B	B	B	B	B	B	B	Section 36.405
Solar energy, utility-scale	C	C											Section 36.404
<b>Accessory</b>													
Accessory building or structure	B	B	B	B	B	B	B	B	B	B	B	B	Section 36.415
Accessory dwelling unit	B	B	C	C				B					Section 36.416
Amateur radio antennas	B	B	B	B									
Bed and breakfast	B	B	C	C					C				Section 36.417
Family health care structure, temporary	B	B	B	B	B	B		B					Section 36.418

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Use Types: B - By-right   C - Conditional													
Family home day care (1-4 individuals)	B	B	B	B	B	B		B					
Family home day care (5-12 individuals)		C	C	C									
Home occupation type A	B	B	B	B	B	B							Section 36.419
Home occupation type B	C	C	C										Section 36.419
Kennel, private	B	B											Section 46.420
Outdoor storage		C								B	B	B	Section 36.421
Short-term rental	B	B	B	B	B	B		B					Section 36.422
Temporary construction trailers and buildings	B	B	B	B	B	B	B	B	B	B	B	B	Section 36.423

Reserved 36.312 – 36.314

## **ARTICLE VI. — USE PERFORMANCE STANDARDS**

### **Division 1. — General Standards for Specific Uses**

#### **Section 36.315. — Purpose and Intent.**

The following additional regulations apply to specific uses as set forth below. These regulations are intended to serve as the minimum standards for these uses and are not intended to exclude other provisions of this Ordinance that may apply. The standards set forth in this Article for a specific use apply to the particular individual use, regardless of the review procedure by which it is approved, unless otherwise specified in this Ordinance. Every use shall comply with all applicable county, state, and federal regulations.

Reserved 36.316 — 36.319

### **Division 2. — Agriculture/Forestral Use Standards**

#### **Section 36.320. — Agriculture, intensive.**

- (a) Located a minimum of 400 feet from any boundary of a town within the County.
- (b) Located a minimum of 400 feet from any primary highway and 200 feet from any secondary highway or other right-of-way for passage;
- (c) Located a minimum of 400 feet from any residential district and from any existing residence not located on the same parcel;
- (d) Setback 400 feet from any adjacent landowner property line;
- (e) Located a minimum of 400 feet from any religious assemblies, public or private schools, and other public-owned facilities;
- (f) Located a minimum of 400 feet from any river, creek, spring, reservoir, or any public or private water supply system, including but not limited to wells or cisterns unless a greater distance is required by State or Federal requirements, including but not limited to, the Chesapeake Bay Act and the Virginia Department of Conservation and Recreation;
- (g) Agriculture, intensive uses shall submit an approved Nutrient Management Plan and any Federal and State permits prior to the issuance of any building permits for the use.

#### **Section 36.321. — Sportsman club, commercial.**

- (a) The minimum required area for the use is five acres.
- (b) Kennel, private as an accessory use shall be subject to the use requirements under this Article.

#### **Section 36.322. — Sportsman club, private.**

- (a) The minimum required area for the use is five acres.
- (b) Kennel, private as an accessory use shall be subject to the use requirements under this Article.

**Section 36.323. — Stable, commercial.**

- (a) The lot shall be a minimum of 20 acres.
- (b) Any buildings, barns, pens, and areas for the keeping of animals or animal waste storage shall be located at least 400 feet from any residential district lot line and any existing dwelling unit not located on the same parcel.
- (c) Any buildings, barns, pens, and areas for the keeping of animals or animal waste storage shall be located at least 200 feet from any adjacent lot line not within a residential district.
- (d) Any buildings for the keeping of animals shall be located at least 200 feet from a primary highway or other right-of-way for passage and 100 feet from any secondary highway.
- (e) Riding surfaces shall be covered and maintained with a substance to minimize dust and erosion.
- (f) Fencing and other means of animal confinement shall be maintained at all times.
- (g) Pens, stalls, and grazing areas shall be maintained in a sanitary manner.

**Section 36.324. — Stable, private.**

- (a) Any buildings, barns, pens, and areas for the keeping of animals or animal waste storage shall be located at least 400 feet from any residential district lot line and any existing dwelling unit not located on the same property.
- (b) Any buildings, barns, pens, and areas for the keeping of animals or animal waste storage shall be located at least 200 feet from any adjacent lot line not within in a residential district.
- (c) Any buildings for the keeping of animals shall be located at least 200 feet from a primary highway or other right-of-way for passage and 100 feet from any secondary highway.
- (d) Riding surfaces shall be covered and maintained with a substance to minimize dust and erosion.
- (e) Fencing and other means of animal confinement shall be maintained at all times.
- (f) Pens, stalls, and grazing areas shall be maintained in a sanitary manner.
- (g) Educational projects (e.g., 4-H Livestock) in a R-1 or R-2 district are exempt from this use but are permitted separately by County Code. However, associated structures must comply with accessory building standards unless otherwise regulated in the County Code.

Reserved 36.325 – 36.334

**Division 3. — Residential Use Standards**

**Section 36.335. — Dwelling, manufactured.**

- (a) The manufactured home dwelling shall comply with the Virginia Manufactured Housing Construction and Safety Standards Law.
- (b) The manufactured home dwelling shall be placed on a permanent foundation and shall comply with the requirements of the Virginia Uniform Statewide Building code, including skirting requirements.
- (c) Two or more manufactured home dwellings shall not be joined or connected together as one dwelling, nor shall any accessory building be attached to a manufactured home dwelling. This does not prohibit manufactured home dwellings designed and manufactured as multi-section homes.

**Section 36.336. — Manufactured home park.**

- (a) Manufactured home parks shall have access to a paved road or major collector road. The design and construction of the interior street system shall be sufficient to adequately serve the size and density of the development. All interior streets shall conform and be constructed to the specification of the Virginia Department of Transportation.
- (b) Every manufactured home park shall be enclosed with an approved fence or planted hedge not less than seven feet in height and with no openings to adjoining property other than the required entrances and exits to streets or public spaces.
- (c) All manufactured parks shall be provided with central water system and an approved sewer system, by the Virginia Health Department, and all manufactured homes within a manufactured home park shall be required to hook up to such systems.
- (d) No manufactured home site shall extend into a floodplain.
- (e) An acceptable garbage and refuse collection program and temporary storage system shall be provided, with such program and physical system subject to final plan approval.
- (f) Any expansion of existing manufactured home parks must result in full compliance with all regulations contained in this section.

Reserved 36.337 – 36.344

**Division 4. — Public/Civic/Recreation Use Standards**

**Section 36.345. — Campground.**

- (a) The minimum required area for the use shall be five acres.
- (b) A site plan shall be submitted for consideration along with the application for a conditional use permit. Such plans shall include provisions for the protection of environmental features on the campground site and for stormwater management.
- (c) No more than one permanent residence shall be allowed in a campground, which shall only be occupied by the owner or manager.
- (d) The camping area shall comply with all sanitary and other requirements prescribed by law or regulations.
- (e) All bulk solid waste receptacles shall be maintained in a clean condition. Such receptacles shall be enclosed on all four sides to shield it from public view or from unauthorized access. The owner of the premises benefitted by a bulk solid waste receptacle shall maintain the screening in workable and effective condition.
- (f) Main campground roads shall be paved or treated to prevent dust.
- (g) Each camping site shall also have one parking space, with minimum dimensions of ten feet by 20 feet.
- (h) Patrons in campgrounds may stay no longer than 14 nights in any 30-day period or 45 nights in any one calendar year. The owner of a campground shall maintain a log of all patrons, including their name, address, license plate number and state, and their length of stay. The log shall be available to County staff upon request.
- (i) Retail sales for the convenience of campground tenants are permitted. Items are limited to food, concessions, recreational supplies, personal care items, and other items clearly supportive of campground tenants' needs.
- (j) The sale and/or storage of recreational vehicles that are not occupied nightly is strictly prohibited.

- (k) The overall design shall evidence a reasonable effort to preserve the natural amenities of the site. Where natural vegetation is not sufficient to provide a visual screen then buffer landscaping is required as outlined in Section 36.489, Buffering.
- (l) Accessory structures or recreation facilities, washrooms, swimming pools, game courts, and the like shall not be located closer than 100 feet to any campground boundary or closer than 200 feet to any lot in a residential district.
- (m) Within 12 months of opening the campground, each site shall be marked to be readily identifiable and easily readable from the park or camp road.

**Section 36.346. — Cemetery.**

- (a) The approval of a cemetery shall include the following uses without further zoning approval required: all uses necessarily or customarily associated with interment of human remains, benches, ledges, walls, graves, roads, paths, landscaping, and soil storage consistent with federal, state, and local laws on erosion and sediment control.
- (b) Mausoleums, columbaria, chapels, administrative offices, and maintenance storage areas that are shown in the applicant’s plan of development shall not require additional local legislative approval provided such structures and uses are developed in accordance with the original plan of development. This subsection shall not supersede any permission adopted pursuant to Code of Virginia § 15.2-2306.

**Section 36.347. — Public Park and recreation area.**

- (a) Any outdoor activity area, swimming pool, ball field, or court that adjoins a residential lot line shall include screening and buffering in accordance with the landscape section of this Ordinance.
- (b) Where nighttime lighting is proposed, it shall be set to automatically extinguish during park closure, and if games/events are extended beyond normal park hours it shall extinguish 1 hour after last game/event of the day. Large evergreen trees shall be required to appropriately screen any adjoining residences.
- (c) Any active recreational area, including but not limited to swimming pools, ball fields, or courts, shall not be located closer than 50 feet to any property line.

Reserved 36.348 — 36.359

**Division 5. — Commercial Use Standards**

**Section 36.360. — Automobile repair service.**

- (a) No portion of the use, excluding required screening and landscape buffers, shall be located within 150 feet of a residential district or structure containing a dwelling unit.
- (b) All repairs and maintenance of vehicles, including parts installation, shall be performed within a completely enclosed building.
- (c) No exterior display or storage of new or used automobile parts shall be permitted.
- (d) Outdoor storage, including temporary on-site storage of vehicles awaiting, repair, service, or removal, as an accessory use, where permitted, shall be subject to the use requirements of this Article.
- (e) There shall be no storage of motor vehicles within 150 feet of the public road right-of-way.

**Section 36.361. — Automobile sale, rental/leasing.**

- (a) No vehicle or equipment displays shall be located within a required yard, setback, fire lane, travelway, sidewalk, or landscaped area.
- (b) All vehicles for sale shall be parked in a parking space or a vehicle display pad.
- (c) The vehicle display pad may be elevated up to four feet above adjacent displays or grade level.
- (d) No vehicle or other similar items shall be displayed on the top of a building.
- (e) Any display of new goods or merchandise shall be permitted; no other displays are permitted.
- (f) All accessory vehicle maintenance or service shall be conducted within a completely enclosed building and subject to the use requirements of this Article.
- (g) All vehicles must be operational.
- (h) Outdoor storage, including temporary on-site storage of vehicles awaiting, repair, service, or removal, as an accessory use, where permitted, shall be subject to the use requirements of this Article.

**Section 36.362. — Car wash.**

- (a) Car washes shall be located and designed so that vehicular circulation does not conflict with traffic movements in adjacent streets, service drives, and/or parking areas.
- (b) Any use that has a car wash shall treat the car wash as a primary use for the purposes of setbacks, buffers, and landscaping.
- (c) No sales, repair, or outside storage of motor vehicles shall be conducted on the site.

**Section 36.363. — Construction material sales.**

Outdoor storage as an accessory use, where permitted, shall be subject to the use requirements of this Article.

**Section 36.364. — Consumer repair service.**

Outdoor storage as an accessory use, where permitted, shall not exceed 30 percent of the total site area and shall be subject to the use requirements of this Article.

**Section 36.365. — Equipment repair service, heavy.**

- (a) Screening and landscape buffers are required as provided in Article VII of this Ordinance.
- (b) All repairs shall be performed within a completely enclosed building.
- (c) No exterior display or storage of new or used equipment or parts is permitted.
- (d) There shall be no storage of equipment within 150 feet of the public road right-of-way.
- (e) Outdoor storage, including temporary on-site storage of vehicles awaiting, repair, service, or removal, as an accessory use, where permitted, shall be subject to the use requirements of this Article.

**Section 36.366. — Equipment sales and rental, heavy.**

- (a) No equipment displays shall be located within a required yard or setback.
- (b) The display pad may be elevated up to four feet above adjacent displays or grade level.
- (c) There shall not be more than one elevated equipment display for every 100 feet of street frontage.
- (d) No display shall be on the top of a building.

- (e) Any display of new goods or merchandise shall be permitted; no other displays are permitted.
- (f) All accessory maintenance or service shall be conducted within a completely enclosed building and subject to the use requirements of this Article.
- (g) All equipment must be operational.
- (h) Outdoor storage as an accessory use, where permitted, shall not exceed 30 percent of the total site area and shall be subject to the use requirements of this Article.

**Section 36.367. — Gasoline station.**

- (a) Applicants shall demonstrate that the gasoline station will be compatible with the neighborhood with regards to traffic circulation, parking, and appearance and size of structures.
- (b) Entrances to the site shall be minimized and located in a manner promoting safe and efficient traffic circulating while minimizing the impact on the surrounding neighborhood.
- (c) Fuel pumps shall be located at least 20 feet from any property line.
- (d) Gasoline canopy shall be designed and built to be compatible with the principal use.
- (e) Dumpster screening shall be in compliance with the standards provided in Article VII of this Ordinance.
- (f) There shall be no storage of automobiles, trailers, recreational vehicles, boats, or similar equipment.
- (g) Sales of limited fuel oil or bottled gas is permitted as an accessory use.
- (h) The Zoning Administrator may require a traffic analysis to be provided by the applicant. Such analysis may include, but not be limited to, the proposed traffic flows, sight visibility for emerging vehicles, and other public safety factors.
- (i) Fuel dispensers, pump islands, overhead canopy, and air and water dispensers shall be removed upon cessation of the use for a period of more than one year.

**Section 36.368. — Kennel, commercial.**

- (a) No portion of the use, excluding required screening and landscape buffers, shall be located within:
  - (1) 100 feet from the property lines of adjoining agricultural zoned property;
  - (2) 400 feet from the property lines of adjoining residential zoned property; and,
  - (3) 400 feet from any dwelling not on the associated parcel.
- (b) All exterior runs, play areas, or arenas shall be designed with a minimum six-foot high opaque screen from adjacent lot lines and street rights-of-way.
- (c) Kennels must be kept free of waste on a regular basis to minimize impacts of odor and reduce propagation of insects.

**Section 36.369. — Outdoor sales, seasonal.**

- (a) Each stand for the retail sale of holiday goods, including fireworks, shall obtain a zoning permit by the Zoning Administrator prior to setup and sales.
- (b) Each stand shall be permitted for a period not to exceed 60 consecutive days.
- (c) No more than four permits shall be issued for the same lot during a calendar year.

- (d) No permit shall be issued to an applicant unless and until at least 30 consecutive days after a permit issued to that applicant for the same or an adjacent lot or parcel has expired.
- (e) The outdoor sales stand or display shall setback at least 35 feet from any public right-of-way.
- (f) Parking shall be supplied on the site of the primary use and not along the public right-of-way.

**Section 36.370. — Restaurant, drive-in.**

- (a) Stacking spaces shall not interfere with the travel way traffic or designated parking spaces.
- (b) A minimum of six stacking spaces shall be located behind the order speaker and four stacking spaces shall be located between the order speaker and the pickup window.

**Section 36.371. — Restaurant, mobile.**

- (a) The following additional requirements apply to sales from a mobile restaurant operating on private property or within public spaces or rights of way, except when operating in conjunction with temporary, special events permitted under applicable sections of the County Code:
  - (1) Mobile restaurants must obtain a County Mobile Restaurant permit at least three business days prior to initial operation. The permit shall be valid January 1<sup>st</sup> (or from whatever date the permit is first issued) through December 31<sup>st</sup> of the calendar year and shall be renewed annually.
  - (2) Mobile restaurants must maintain a valid business license issued by the County and a valid health permit issued by the Virginia Department of Health.
  - (3) A mobile restaurant may operate on either public property or private business zoned property or industrial zoned property with written permission from the owner.
  - (4) No items shall be sold other than food and beverages.
  - (5) No music shall be played that is audible outside of the vehicle.
  - (6) Mobile restaurant vehicles shall not block i) the main entry drive isles or impact pedestrian or vehicular circulation overall, (ii) other access to loading areas, or (iii) emergency access and fire lanes. The Mobile Restaurant must also be positioned at least 15 feet away from fire hydrants, any fire department connection (FDC), driveway entrances, alleys, and handicapped parking spaces.
  - (7) A mobile restaurant may operate between 6am and 9pm Sunday to Thursday and between 6am to 11pm Friday and Saturday (including set-up and break-down) on any one day at any single location, except during national holidays and county events during which a mobile restaurant may operate between 6am and 12am midnight. The vehicle and all accessory structures shall be removed each day.
  - (8) No signs may be displayed except:
    - a. Those permanently affixed to the vehicle.
    - b. One, A-framed sign not to exceed four feet in height and six square feet of display for each of the two sides; the sign cannot block any passageways.
  - (9) Trash receptacles shall be provided, and all trash, refuse, or recyclables generated by the use shall be removed from the site by the operator at the end of the business day.
  - (10) No liquid wastes shall be discharged from the mobile restaurant.

- (11) No mobile restaurant shall locate within 100 feet of the entrance to a business that sells food for consumption (determined by measuring from the edge of the Mobile Restaurant to the main public entrance of the restaurant) unless permission of the restaurant owner is provided.
- (12) No mobile restaurant shall locate within 100 feet of a single family or two-family residential use.
- (13) A mobile restaurant may operate at any farmer’s market held on public or private property, if the food truck vendor is legally parked at the farmer’s market and has received written permission from the farmer’s market manager and displays such written permission upon request.
- (14) The operation of the mobile restaurant or use of a generator should not be loud enough to be greater than 50 dBA at 100 feet away. Excessive complaints about vehicle or generator noise will be grounds for the Administrator to require that the Mobile Restaurant Vendor change location on the site or move to another property.
- (15) The requirements of this section shall not apply to Mobile Restaurant Vendors at catered events (events where the food is not sold through individual sales but provided to a group pursuant to a catering contract with a single payer).
- (16) A Mobile Restaurant permit may be revoked by the Zoning Administrator at any time, due to the failure of the property owner or operator of the Mobile Restaurant permit to observe all requirements for the operation of mobile restaurants. Notice of revocation shall be made in writing to address of record for Mobile Restaurant permit holder. Any person aggrieved by such notice may appeal the revocation to the Board of Zoning Appeals.

**Section 36.372. — Store, adult.**

- (a) Distances specified in this section shall be measured from the property line of one use to the property line of the other. The distance between an adult store and a residentially zoned district shall be measured from the property line of the use to the nearest point of the boundary line of the residential zoning district.
  - (1) An adult store shall be located at least 1,000 feet from any religious assembly, public assembly, nursing home, hotel, bed and breakfast, or residential zoning district in existence on the date on which the store obtains its zoning permit.
  - (2) An adult store shall be located at least 2,500 feet from any education facility, public recreational facility, or day care center in existence on the date on which the store obtains its zoning permit.
  - (3) No adult store shall be located within 1,000 feet of any other adult store.
- (b) No adult store shall display adult media, depictions of specified sexual activities or specified anatomical areas in its window, or in a manner visible from the street, highway, or public sidewalk, or the property of others. Window areas shall remain transparent.
- (c) Signs may not include graphic or pictorial depiction of material available on the premises.
- (d) The store shall not begin service to the public or any outside activity before 11:00am and shall not extend after 11:00 p.m. local time.

**Section 36.373. — Store, neighborhood convenience.**

- (a) Entrances to the site shall be minimized and located in a manner promoting safe and efficient traffic circulating while minimizing the impact on the surrounding neighborhood.
- (b) Dumpsters shall be located to minimize view from off-site areas and shall be screened in compliance with Article VII of this Ordinance.

- (c) There shall be no fuel pumps or the selling of fuel for motor vehicles.
- (d) There shall be no storage of automobiles, trailers, recreational vehicles, boats, or similar equipment.
- (e) The Zoning Administrator may require a traffic analysis to be provided by the applicant. Such analysis may include, but not be limited to, the proposed traffic flows, sight visibility for emerging vehicles, and other public safety factors.

**Section 36.374. — Tradesperson service.**

Outdoor storage as an accessory use, where permitted, shall not exceed 30 percent of the total site area and shall be subject to the use requirements of this Article.

**Section 36.375. — Veterinary hospital/clinic.**

- (a) Any treatment rooms, cages, pens, or kennels shall be maintained within a completely enclosed soundproof building
- (b) Such hospital or clinic be operated in such a way as to produce no objectionable noise or odors outside its walls.

Reserved 36.376 — 36.384

**Division 6. — Industrial Use Standards**

**Section 36.385. — Bulk fuel storage and distribution.**

- (a) Bulk storage of fuel shall comply with National Fire Protection Association (NFPA), U.S. Environmental Protection Agency, and any other applicable federal, state, and local standards.
- (b) Fuel dispensers shall be located at least 30 feet from any public street right-of-way and shall be located at least 100 feet from any adjoining residential property line.
- (c) Bulk storage shall be buffered in accordance with Article VII, Division 4, of this Ordinance.

**Section 36.386. — Construction yard.**

- (a) No portion of the use, excluding required screening and landscape buffers, shall be located within 150 feet of a residential district or structure containing a dwelling unit.
- (b) Storage yards for construction materials and equipment shall be designed and located to minimize visual impacts on adjacent properties and public rights-of-way.
- (c) All portions of such storage yards shall be treated and maintained in such manner as to prevent dust or debris from blowing or spreading onto adjoining properties or onto any public right-of-way.
- (d) Construction yards shall be screened by a solid wall or fence, including solid entrance and exit gates, not less than six feet nor more than ten feet in height. All fences and walls shall have a uniform and durable character and shall be property maintained.
- (e) When fences and walls are adjacent to business or residential districts, a landscaped buffer must be provided to break visibility of the fence in accordance with the landscape section of this Ordinance.
- (f) No wall or fence screening a storage area shall encroach into a sight distance triangle.
- (g) Parts, materials, and equipment stored in the storage yard shall not be stacked higher than the screening wall or fence.

**Section 36.387. — Junkyard.**

- (a) No junkyard, salvage yard, or automotive wrecking yard or graveyard shall hereafter be established with any portion of its area within 150 feet of a public street, road, or highway.
- (b) No portion of the use, excluding required screening and landscape buffers, shall be located within 150 feet of a residential district or structure containing a dwelling unit.
- (c) All such yards shall be screened effectively from view from public streets or highways, public spaces, and adjacent property in a residential or business district by natural vegetation, topography or other means and shall be surrounded by an opaque structural fence or wall not less than eight feet in height. All fences and walls shall have a uniform and durable character and shall be properly maintained.
- (d) Inoperative vehicles or parts thereof shall not be collected or stored outside the required fence or in piles more than six feet in height.
- (e) The collection or storage of any material containing or contaminated with dangerous explosives, chemicals, gases, or radioactive substances is prohibited.
- (f) Every junkyard, salvage yard, or automobile wrecking yard or graveyard shall be operated and maintained in such a manner as not to allow the breeding of rats, flies, mosquitoes, or other disease-carrying animals and insects.

Reserved 36.388 — 36.399

**Division 7. — Miscellaneous Use Standards**

**Section 36.400. — Broadcasting or communication tower.**

- (a) The standards of this section apply whenever a conditional use permit is sought for a broadcasting or communications tower, as this use is defined in the definitions of this Ordinance. Any wireless communication antenna which meets the definition of a “Administrative review-eligible project” as defined in the Code of Virginia § 15.2-2316.6, is considered a “Utility Service, Minor” by this Article and is not subject to the provisions of this section.
- (b) General standards:
  - (1) The following sites shall be considered by applicants as the preferred order of location of proposed broadcasting or communication facilities:
    - a. Existing broadcasting or communication towers.
    - b. Public structures, such as water towers, utility structures, fire stations, bridges, steeples and other public buildings not utilized primarily for residential uses.
    - c. Property zoned Agricultural.
    - d. Property zoned Business or Industrial.
    - e. Property zoned Residential or Planned Unit Development.
  - (c) No new tower shall be permitted unless the applicant demonstrates to the reasonable satisfaction of Board of Supervisors that no existing tower or structure can accommodate the applicant's proposed antenna. Evidence submitted to demonstrate that no existing tower or structure can accommodate the applicant's proposed antenna shall consist of any of the following:
    - (1) No existing towers or structures are located within the geographic area required to meet the applicant's engineering requirements, as documented by a qualified and licensed professional engineer.

- (2) Existing towers or structures do not have sufficient height to meet applicant's engineering requirements, as documented by a qualified and licensed professional engineer.
  - (3) The planned equipment would exceed the structural capacity of the existing or approved tower or building, as documented by a qualified and licensed professional engineer, and the existing or approved tower cannot be reinforced modified, or replaced to accommodate the planned or equivalent equipment at a reasonable cost.
  - (4) The applicant's proposed antenna would cause electromagnetic interference with the antenna on the existing towers and structures, or the existing antenna would interfere with applicant's proposed antenna.
  - (5) The fees, costs, or contractual provisions required by the owner in order to share an existing tower or structure or to adapt an existing tower or structure for sharing are unreasonable. Costs exceeding new tower development are deemed unreasonable.
  - (6) The applicant demonstrates that there are other limiting factors that render existing towers and structures unreasonable.
- (d) The maximum height of any Broadcasting and Communication Tower shall be made a condition of the conditional use permit. No facility shall be greater than 125 feet. Exceptions provided when included in a church steeple, bell tower, water tower, light pole, or other similar architecturally compatible structure,
- (e) Towers and equipment attached to existing structures shall not extend more than 25 feet beyond the existing structure and must be designed to be architecturally compatible.
- (f) Broadcasting or communication towers shall conform with each of the following minimum setback requirements:
- (1) Towers shall have a minimum front, side, and rear yard setback equal to the height of the tower.
  - (2) Tower's guys and accessory structures shall satisfy the minimum setback requirements of the underlying zoning district.
  - (3) Towers shall not be located between the principal structure and a public street.
  - (4) No habitable structures or places where people gather shall be located within any "fall zone" as certified by a registered professional engineer licensed in Virginia.
  - (5) A tower's setback may be reduced or its location in relation to a public street varied, at the sole discretion of the Board of Supervisors, to allow the integration of a tower into an existing or proposed structure such as a church steeple, light pole, utility pole, water tower, public facility, or similar structure.
- (g) More than one tower may be permitted on a lot provided all setback requirements have been met.
- (h) All broadcasting or communication facilities shall be designed, structurally, electrically, and in other respects, to accommodate both the applicant's antennas and comparable antennas for at least three additional users, if the tower is over 100 feet in height, or for at least two additional users if the tower is over 60 feet in height.
- (i) Proposed towers and antennas shall meet the following design requirements:
- (1) Towers and antennas shall be designed to blend into the surrounding environment using color and camouflaging architectural treatment, except in instances where the color is dictated by federal or state authorities such as the Federal Aviation Administration.
  - (2) Broadcasting or communication towers shall be of a monopole design unless the Board of Supervisors determines that an alternative design would better blend into the surrounding environment.

- (3) Towers shall be designed to collapse fully within the lot lines of the subject property in case of structural failure.
- (j) Replacement of existing towers may be replaced without the need for a conditional use permit, subject only to administrative site plan, zoning permit, building permit, and other applicable approvals if the following are met:
  - (1) The development standards supplied in this section are met with the exception that:
    - a. The replacement tower is not required to meet current setbacks so long as the replacement tower and equipment compound do not encroach further than the existing tower; and,
    - b. The replacement tower is not required to meet the height limitations so long as the replacement tower does not exceed the existing tower height.
  - (2) The existing tower being replaced, including tower base and foundation, must be removed within six months of the initial operation of the new tower.
- (k) Towers shall be illuminated as required by the Federal Communications Commission, (FCC) but no lighting shall be incorporated if not required by the FCC, other than essential security lighting. Site lighting shall full cut-off and directed downward. When incorporated into the approved design of the tower, light fixtures used to illuminate ball fields, parking lots, or similar areas may be attached to the tower.
- (l) A buffer yard shall be provided surrounding the facility. The conditional use permit application shall include a landscape plan showing the locations, species, and size at planting for the landscaping proposed. The evergreens shall have an initial height and spacing sufficient to provide immediate screening of the accessory ground mounted equipment or structures.
- (m) Signage on site shall be limited to no trespassing or safety signs to be positioned on the fence surrounding the facility. The use of any portion of a tower for signs other than warning or equipment information signs is prohibited.
- (n) No new or existing telecommunications service shall interfere with public safety communications. Before the introduction of new service or changes in existing service, telecommunications providers shall notify the County at least ten calendar days in advance of such changes and allow the County to monitor interference levels during the testing process.
- (o) There shall be no outdoor storage associated with the facility.
- (p) A bond, whose amount shall be approved by the Zoning Administrator shall be required to assure the removal of an abandoned telecommunications facility. All towers and associated facilities shall be removed within six months of the cessation of operations at the site unless a time extension is approved by the Zoning Administrator. In the event that a tower is not removed within six months of the cessation of operations at a site, the tower and associated facilities may be removed by the County, utilizing the bond and any remaining costs of removal assessed against the owner of the tower or the landowner.
- (q) Applications requirements.

In addition to the outlined conditional use permit requirements outlined in Article III Division 5 of this Ordinance the following are also required with broadcasting and communication tower requests:

- (1) A map showing the designated search ring.
- (2) Identification of the intended service providers of the tower.
- (3) Title report or American Land Title Association (A.L.T.A.) survey showing all easements on the tower area, lease area and access to the tower.
- (4) Verifiable evidence of the lack of feasible antenna space on existing towers, buildings, or other structures suitable for antenna location within the coverage area.

- (5) An engineering report stating the number of collocation spaces on the proposed tower.
  - (6) An agreement allowing the County to collocate on the tower for the purpose of emergency service communications.
  - (7) A proposed construction schedule.
  - (8) The applicant shall certify through a written statement that the facility meets or exceeds the standards for electrometric radiation as set by the Federal Communications Commission ("FCC") at the time of the application.
  - (9) A radio frequency propagation plot indicating the coverage of the applicant's existing wireless communications sites within the area and coverage prediction of the proposed facility.
  - (10) The applicant shall provide at least two actual photographs of the site that include simulated photographic images of the proposed tower. The photographs with the simulated image shall illustrate how the facility will look from adjacent roadways, nearby residential areas, or public building such as a school, religious assembly, and the like. The County staff reserves the right to select the locations for the photographic images and require additional images. As photo simulations may be dependent upon a balloon test first being conducted, the applicant is not required to submit photo simulations with their initial application but must provide them prior to the public hearing with the Planning Commission.
  - (11) List of all adjacent property owners, their tax map numbers, and addresses.
  - (12) Aerial imagery which shows the proposed location of the tower, fenced area, and driveways with the closest distance to all adjacent property lines and dwellings.
  - (13) The County may require other information deemed necessary to assess compliance with this Article.
- (r) Procedures and Process.
- (1) Balloon test. A balloon test shall be required for new towers prior to the public hearing with the Planning Commission.
    - a. The applicant shall arrange to raise a colored balloon (no less than three feet in diameter) at the maximum height of the proposed tower and within 50 horizontal feet of the center of the proposed tower.
    - b. The applicant shall inform the community development department and adjacent property owners in writing of the date and times of the test at least seven but no more than 14 days in advance. The notice will direct readers to a new date if the test is postponed due to inclement weather. The applicant shall request in writing permission from the adjacent property owners to access their property during the balloon test to take pictures of the balloon and to evaluate the visual impact of the proposed tower on their property.
    - c. The date, time and location of the balloon test shall be advertised in the County's newspaper of record by the applicant at least seven but no more than 14 days in advance of the test date. The advertisement will direct readers to a new date if the test is postponed due to inclement weather.
    - d. The balloon shall be flown for at least four consecutive hours during daylight hours on the date chosen.
    - e. Signage shall be posted on the property to identify the property where the balloon is to be launched. The signage will direct readers to a new date if the test is postponed due to inclement weather. This signage shall be posted a minimum of 72 hours prior to the balloon test. If inclement weather postpones the test, then cancellation of the test for that day shall be clearly noted on the signage.

- f. If the wind during the balloon test does not allow the balloon to sustain its maximum height or there is significant fog or precipitation which obscures the balloon's visibility then the test shall be postponed and moved to the alternate inclement weather date provided in the advertisement. County staff reserves the right to declare weather inclement for purposes of the balloon test.
- (2) Community meeting. A community meeting shall be held by the applicant prior to the public hearing with the Planning Commission.
- a. The applicant shall inform the community development department and adjacent property owners in writing of the date, time, and location of the meeting at least seven but no more than 14 days in advance.
  - b. The date, time, and location of the meeting shall be advertised in the County's newspaper of record by the applicant at least seven but no more than 14 days in advance of the meeting date.
  - c. The meeting shall be held within the County, at a location open to the general public with adequate parking and seating facilities which may accommodate persons with disabilities.
  - d. The meeting shall give members of the public the opportunity to review application materials, ask questions of the applicant and provide feedback.
  - e. The applicant shall provide to the community development department a summary of any input received from members of the public at the meeting.
- (3) Approval process and time restrictions.
- a. The approving bodies, in exercise of the County's zoning regulatory authority, may disapprove an application on the grounds that the tower's aesthetic effects are unacceptable, or may condition approval on changes in tower height, design, style, buffers, or other features of the tower or its surrounding area. Such changes need not result in performance identical to that of the original application.
  - b. Factors relevant to aesthetic effects are: the protection of the view in sensitive or particularly scenic areas, and areas containing unique natural features, scenic roadways or historic areas; the concentration of towers in the proposed area; and, whether the height, design, placement or other characteristics of the proposed tower could be modified to have a less intrusive visual impact.
  - c. The approving bodies, in accord with State Code § 15.2-2316.4:2, may disapprove an application based on the availability of existing wireless support structures within a reasonable distance that could be used for co-location at reasonable terms and conditions without imposing technical limitations on the applicant.
  - d. Unless some other timeframe is mutually agreed upon, an application for a tower shall be reviewed by the County and a written decision shall be issued within 150 days of a completed submission.
  - e. Unless some other timeframe is mutually agreed upon, an application for collocation shall be reviewed by the County and a written decision shall be issued within 90 days of a completed submission.
  - f. A complete application for a project shall be deemed approved if the locality fails to approve or disapprove the application within the applicable period specified or mutually agreed upon.
  - g. If the County disapproves an application, it must provide the applicant with a written statement of the reasons for disapproval. If the locality is aware of any modifications to the project as described in the application that if made would permit the locality to approve the proposed project, the locality shall identify them in the written statement provided. The written statement must contain substantial record evidence and be publicly released within 30 days of the decision.

- (s) Appeal. An applicant adversely affected by the disapproval of an application for a standard process project may file an appeal within 30 days following notice to the applicant of the disapproval.

**Section 36.401. — Parking lot, commercial.**

- (a) No motor vehicle work shall be permitted in association with a parking facility except under emergency service work.
- (b) Parking shall be the principal use of all parking facilities. Spaces may be rented for parking, but no other business of any kind shall be conducted in the structure except County sanctioned farmer’s markets or permitted mobile restaurants.

**Section 36.402. — Sawmill, mobile.**

- (a) No structure and no storage of lumber, logs, chips, or timber shall be located closer than 100 feet to any lot line. Trees and vegetation within the 100-foot setback shall be maintained as a buffer to abutting properties and uses, provided that during the last three months of operation the trees may be removed.
- (b) No saw, planer, chipper, conveyor, chute, or other similar machinery shall be located closer than 600 feet from any dwelling on any lot other than the lot on which the sawmill, planning mill, or wood yard is located.
- (c) All timbering and milling operations, including reforestation/restoration and the disposal of snags, sawdust, and other debris, shall be conducted in accordance with the regulations of the Virginia Department of Forestry.

**Section 36.403. — Small cell facility.**

- (a) In accordance with Code of Virginia § 15.2-2316.4, small cell facilities shall be permitted by right in all zoning districts subject to the following general performance standards.
  - (1) The small cell facility shall be installed by a wireless services provider or wireless infrastructure provider on an existing structure.
  - (2) The wireless services provider or wireless infrastructure provider has obtained permission from the owner of the existing structure to collocate the small cell facility on the existing structure and to collocate the associated transmission equipment on or proximate to the existing structure.
  - (3) Each antenna is located inside an enclosure of, or the antenna and all its exposed elements could fit within an imaginary enclosure of, no more than six cubic feet; and
  - (4) Excluding electric meter, concealment, telecommunications demarcation boxes, backup power systems, grounding equipment, power transfer switches, cut-off switches, and vertical cable runs for the connection of power and other services, all other equipment associated with the facility does not exceed 28 cubic feet, or such higher limit as may be established by the Federal Communications Commission.
  - (5) Wireless facilities which do not meet the criteria to be deemed a small cell facility shall be deemed mobile and land-based telecommunications facilities. Such facilities may be permitted pursuant to the applicable criteria and procedures of this Article.
  - (6) A wireless services provider or wireless infrastructure provider may submit up to 35 permit requests for small cell facilities on a single application. Permit application fees shall be in accordance with Code of Virginia § 15.2-2316.4, Paragraph B (2) of the Code of Virginia.

(7) Permit applications for small cell facilities shall be reviewed and approved as follows:

- a. Permit applications for the installation of small cell facilities shall be approved or disapproved within 60 days of receipt of the complete application. The 60-day period may be extended by staff upon written notification to the applicant, for a period not to exceed an additional 30 days.
- b. Within ten days of receipt of an application submission and a valid electronic mail address for the applicant, the applicant shall receive an electronic mail notification if the application is incomplete. If the application is determined to be incomplete, the notification shall specify the missing information which needs to be included in a resubmission in order to be determined complete.
- c. Any disapproval of the application shall be in writing and accompanied by an explanation for the disapproval. The disapproval may be based only on any of the following reasons:
  1. Material potential interference with other pre-existing communications facilities or with future communications facilities that have already been designed and planned for a specific location or that have been reserved for future public safety communications facilities.
  2. Public safety or other critical public service needs.
  3. In instances where the installation is to be located on or in publicly owned or publicly controlled property (excluding privately owned structures where the applicant has an agreement for attachment to the structure), aesthetic impact or the absence of all required approvals from all departments, authorities, and agencies with jurisdiction over such property.

(8) A permit application approval shall not be unreasonably conditioned, withheld, or delayed.

(9) An applicant may voluntarily submit, and staff may accept, any conditions that address potential visual or aesthetic effects resulting from the placement of small cell facilities.

(10) The submission of a permit application shall represent a wireless services provider's or wireless infrastructure provider's notification of the County as required by Code of Virginia § 15.2-2316.4(A).

**Section 36.404. — Solar energy, large-scale, power purchase agreement, and utility-scale.**

(a) Statement of intent.

The purpose of this section is to establish requirements for construction, operation, and decommissioning of solar facilities and to provide standards for the placement, design, construction, monitoring, modification, and removal of solar facilities; address public safety, minimize impacts on scenic, natural, and historic resources; and provide adequate financial assurance for decommissioning.

(b) Applicability.

This section shall apply to all solar facilities constructed after the effective date of this article, including any physical modifications to any existing solar facilities that materially alter the type, configuration, or size of such facilities or other equipment.

(c) Applications and procedures.

In addition to other requirements of the Essex County Zoning and Subdivision Ordinance and conditional use permit requirements, conditional use applications for solar facilities shall include the following information:

- (1) Pre-application meeting. Schedule a pre-application meeting with Essex County to discuss the location, scale, and nature of the proposed use and what will be expected during that process.
- (2) Comprehensive Plan review. A 2232 review by the County as required by the Code of Virginia (§15.2-2232) for utility-scale solar facilities. This Code provision provides for a review by the Planning Commission of public utility facility proposals to determine whether the general or approximate location, character and extent are substantially in accord with the Comprehensive Plan or part thereof.
- (3) Submit a complete conditional use permit application including:
  - a. Documents demonstrating the ownership of the subject parcel(s).
  - b. Proof that the applicant has authorization to act upon the owner's behalf.
  - c. A letter of commitment from the utility company who will interconnect to the facility.
  - d. List of all adjacent property owners, their tax map numbers, and addresses.
  - e. A description of the current use and physical characteristics of the subject parcels including identification and percentage of Prime Farmland and Farmland of Statewide Importance.
  - f. A description of the existing uses of nearby properties.
  - g. A narrative identifying the applicant, owner, or operator, and describing the proposed solar energy facility project, including an overview of the project and its location, approximate rated capacity of the solar energy facility project, the approximate number of panels, representative types, expected footprint of solar equipment to be constructed, and type and location of interconnection to electrical grid.
  - h. Aerial imagery which shows the proposed location of the solar energy facility, fenced area, driveways, and interconnection to electrical grid with the closest distance to all adjacent property lines and dwellings along with main points of ingress/egress.
  - i. Fifteen sets (11"× 17" or larger), one reduced copy (8½"× 11") and one electronic copy of the concept plan in accordance with the requirements of Subsection (4), including elevations and landscape plans as required.
  - j. Payment of the application fee and any additional review costs, advertising, or other required staff time.
- (4) Concept plan. A concept plan prepared by an engineer with a professional engineering license in the Commonwealth of Virginia, that shall include the following:
  - a. A description of the subject parcels.
  - b. Property lines and setback lines.
  - c. Existing and proposed buildings and structures; including preliminary locations of the proposed solar panels and related equipment; the location of proposed fencing, driveways, internal roads, and structures; and the location of points of ingress/egress.
  - d. The location and nature of proposed buffers and screening elements, including vegetative and constructed buffers and wildlife corridors.
  - e. A grading plan, elevation plan, and a landscape plan.

- f. A landscaping maintenance plan.
  - g. Existing and proposed access roads, drives, turnout locations, and parking.
  - h. Location of substations, electrical cabling from the solar energy facility systems to the substations, ancillary equipment, buildings, and structures including those within any applicable setback.
  - i. Fencing or other methods of ensuring public safety.
  - j. Distance to all adjacent property lines and dwellings.
  - k. Demonstration of compliance with applicable conditions set forth in the Chesapeake Bay Preservation Area Overlay District.
  - l. An inventory of all solar facilities – existing and proposed – within a four-mile radius.
  - m. Environmental inventory and impact statement regarding any site and viewshed impacts, including direct and indirect impacts and mitigations, to wetlands, waterways, floodplains, endangered and threatened species, national and state forests, national and state parks, wildlife management areas, conservation easements, recreational areas, or any known historic or cultural resources within three miles of the proposed project.
  - n. The applicant shall consult with the Department of Wildlife Resources and provide a written recommendation regarding wildlife corridors.
  - o. Additional information may be required as determined by Essex County such as a scaled elevation view of the property and other supporting drawings, photographs of the proposed site, photo or other realistic simulations or modeling of the proposed project from potentially sensitive locations as deemed necessary by Essex County to assess the visual impact of the project, landscaping and screening plan, coverage map, and additional information that may be necessary for a technical review of the proposal.
- (5) Decommissioning plan. Submit a detailed decommissioning plan, certified by an engineer, who has expertise in the removal of solar facilities, which shall include the following:
- a. The anticipated life of the project;
  - b. The estimated decommissioning cost explicitly detailing in current dollars;
  - c. The mechanism for calculating increased removal costs due to inflation and without reduction for salvage value;
  - d. How the estimate was determined;
  - e. The method, whether escrow, surety, or security, of ensuring that funds will be available for decommissioning and removal;
  - f. The method that the estimated decommissioning cost will be recalculated every five (5) years and the surety updated accordingly; and
  - g. The manner in which the project will be decommissioned and the site restored.
- (6) Traffic study submitted with application modelling the construction and decommissioning processes. County staff will review the study in cooperation with VDOT.
- (7) Large-scale solar facilities and PPA facilities shall provide a copy of any subdivision covenants and restrictions associated with the site.
- (8) An economic cost/benefit analysis describing generated property taxes, sales taxes, other taxes, proffered payment, real property, or construction improvements related to the project, construction dollars spent locally, estimated construction jobs and construction payroll, estimated permanent jobs

- and continuing payroll, and costs associated with impact on roads and other county infrastructure in the area.
- (9) An estimated construction schedule.
  - (10) A community impact assessment including economic impact shall be required and shall assess the various project tax and revenue options, including but not limited to those in: Code of Virginia §58.1-2636, §58.1-3660, §15.2-2288.8, and §15.2-2316.6 through 2316.9.
  - (11) A visual impact analysis demonstrating project siting and proposed mitigation, if necessary, so that the solar energy facility minimizes impact on the visual character of the County, including but not limited to, residences; historic, cultural, recreational, or environmentally sensitive areas; and scenic viewsheds.
    - a. The applicant shall provide accurate, to scale, photographic simulations showing the relationship of the solar energy facility and its associated infrastructure and development to its surroundings. The photographic simulations shall show such views of solar structures from locations such as property lines and roadways, as deemed necessary by the County in order to assess the visual impact of the solar energy facility.
    - b. The total number of simulations and the perspectives from which they are prepared shall be established by Essex County after the pre-application meeting.
- (d) Neighborhood meeting. A public meeting shall be held prior to the public hearing with the Planning Commission to give the community an opportunity to hear from the applicant and ask questions regarding the proposed project.
- (1) The applicant shall inform Essex County and adjacent property owners in writing of the date, time, and location of the meeting, at least seven but no more than 14 days, in advance of the meeting date.
  - (2) The date, time, and location of the meeting shall be advertised in the County's newspaper of record by the applicant, at least seven but no more than 14 days, in advance of the meeting date.
  - (3) The meeting shall be held within the County, at a location open to the general public with adequate parking and seating facilities that may accommodate persons with disabilities.
  - (4) The meeting shall give members of the public the opportunity to review application materials, ask questions of the applicant, and provide feedback.
  - (5) The applicant shall provide to Essex County and adjoining property owners, a summary of any input received from members of the public at the meeting and the developer shall provide an action plan with the concerns raised, to adjoining property owners.
- (e) Minimum development and use standards
- (1) Location standards for large-scale, Power Purchase Agreement (PPA), and utility-scale solar facilities. Facilities should locate on brownfields, County-owned capped landfills, or near existing industrial uses, where feasible. The location standards stated below are intended to mitigate the adverse effects of such uses on adjoining property owners, the area, and the County.
    - a. The minimum area of a utility-scale solar energy facility shall be two (2) acres, and the maximum area shall be less than 500 acres, including the required open space.
    - b. The maximum area of a large-scale solar energy facility or PPA solar energy facility shall be less than 50 contiguous acres.
    - c. The equipment, improvements, structures, and percent of acreage coverage of a facility shall be shown on the approved concept plan and site plan.
    - d. Utility-scale solar facilities shall be located a minimum of 1 mile outside the banks of the Rappahannock River.

- e. Utility-scale solar facilities shall preserve forest resources by maintaining natural buffers.
  - f. Wetlands, waterways, and floodplains shall be avoided.
  - g. Utility-scale solar energy facility shall be located at least three miles from a town boundary.
  - h. Unless on a brownfield or capped landfill, facilities shall be located at least one mile from identified Rural Service Centers as depicted on the Future Land Use Map.
  - i. Unless on a brownfield or capped landfill, facilities shall be located at least one mile from a Business and Employment district, a Deferred Development Service District, and Rural Residential Development as depicted on the Future Land Use Map.
  - j. Utility-scale solar facilities shall be within one mile of electric transmission lines and any tie lines shall be located and buffered to block visibility from highways.
  - k. Battery energy storage systems, if required, shall be installed near the substation and with industry best practices, including a Battery Management System (BMS) with 24/7 monitoring and automated fire suppression.
- (2) Concept plan compliance. The facility shall be constructed and operated in substantial compliance with the approved concept plan, with allowances for changes required by the Virginia Department of Environmental Quality Permit by Rule (PBR) process.
- (3) Setbacks.
- a. Setback is measured from external property lines to the project facilities, excluding roads and transmission poles.
  - b. The minimum setback for utility-scale solar facilities to property lines shall be 150 feet.
  - c. The minimum setback for large-scale solar and PPA solar facilities to property lines shall be in accordance with the setback requirements for that zoning district or 50 feet, whichever is greater. Facilities shall setback a minimum of 150 feet from any existing dwellings.
  - d. The minimum setback for any battery storage units shall be 500 feet from any existing dwelling.
- (4) The maximum height of the lowest edge of the photovoltaic panels shall be 10 feet as measured from the finished grade. The maximum height of principal buildings and accessory buildings shall be 15 feet as measured from the finished grade at the base of the structure to its highest point, including appurtenances. The Board of Supervisors may approve a greater height based upon the demonstration of a significant need where the impacts of increased height are mitigated.
- (5) PV solar panels and any associated equipment shall not be located on slopes 10 percent or greater and no site shall be graded more than 50 percent of the site surface area.
- (6) Landscape buffer.
- a. Utility-scale solar facilities, including fencing, shall be significantly screened from the ground-level view of adjacent properties by a buffer zone at least 100 feet wide that shall be landscaped with a minimum of two staggered rows of eight (8)-foot tall evergreen trees. The remainder of the buffer shall be planted with staggered rows of evergreen tree plugs except to the extent that existing vegetation or natural land forms on the site provide such screening as determined by Essex County. In the event that existing vegetation or landforms providing the screening are disturbed, new plantings shall be provided that accomplish the same. Opaque architectural fencing may be used to supplement other screening methods but shall not be the primary method.
  - b. Large-scale and PPA solar facilities shall be significantly screened from the ground-level view of adjacent properties by a buffer zone at least half the required setback that shall be landscaped with plant materials consisting of an evergreen and deciduous mix (as approved by County staff),

except to the extent that existing vegetation or natural landforms on the site provide such screening as determined by the zoning administrator. In the event, existing vegetation or landforms providing the screening are disturbed, new plantings shall be provided which accomplish the same. Opaque architectural fencing may be used to supplement other screening methods but shall not be the primary method.

- (7) The facilities shall be enclosed by security fencing a minimum of eight (8) feet in height on the interior of the buffer area (not to be seen by other properties). A performance bond reflecting the costs of anticipated fence maintenance shall be posted and maintained. Failure to maintain the security fencing shall result in revocation of the conditional use permit and the facility's decommissioning.
- (8) Ground cover on the site shall be native vegetation where compatible with soil conditions and maintained in accordance with the landscaping maintenance plan and established performance measures. A performance bond reflecting the costs of anticipated landscaping maintenance shall be posted and maintained. Failure to maintain the landscaping shall result in revocation of the conditional use permit and the facility's decommissioning. Incorporation of native plant species that require no pesticides, herbicides, and fertilizers or the use of pesticides and fertilizers with low toxicity, persistence, and bioavailability is recommended. The operator shall notify the County prior to application of pesticides and fertilizers. The County reserves the right to request soil and water testing.
- (9) The utility-scale facility shall provide access corridors for wildlife to navigate through the Solar energy facility, at a number and design based on the Department of Wildlife Resources' guidance and acceptable to the County. The proposed wildlife corridors shall be shown on the concept plan submitted to the County and conditioned as part of the CUP. Areas between fencing shall be kept open to allow for the movement of migratory animals and other wildlife.
- (10) The design of support buildings and related structures shall use materials, colors, textures, screening, and landscaping that will blend the facilities to the natural setting and surrounding structures.
- (11) The owner or operator shall maintain the solar energy facility in good condition. Such maintenance shall include, but not be limited to, painting, structural integrity of the equipment and structures, as applicable, and maintenance of the buffer areas and landscaping. Site access shall be maintained to a level acceptable to the County. The project owner shall be responsible for the cost of maintaining the solar energy facility and access roads, and the cost of repairing damage to private roads occurring as a result of construction and operation.
- (12) A facility shall be designed and maintained in compliance with standards contained in applicable local, state, and federal building codes and regulations that were in force at the time of the permit approval.
- (13) A facility shall comply with all permitting and other requirements of the Virginia Department of Environmental Quality.
- (14) The applicant shall provide proof of adequate liability insurance for a solar energy facility prior to beginning construction and before the issuance of a zoning or building permit to Essex County.
- (15) Lighting fixtures as approved by the County shall be the minimum necessary for safety and/or security purposes to protect the night sky by facing downward and to minimize off-site glare. No facility shall produce glare that would constitute a nuisance to the public. Any exceptions shall be enumerated on the concept plan and approved by Essex County.
- (16) During operation, a utility-scale solar energy facility shall not produce a noise level that exceeds 65 dBA as measured at the property line or 50 dBA as measured at the nearest neighboring inhabitable building.
- (17) No signage of any type may be placed on the facility other than notices, warnings, and identification information required by law.

(18) All facilities must meet or exceed the standards and regulations of the Federal Aviation Administration (“FAA”), State Corporation Commission (“SCC”) or equivalent, and any other agency of the local, state or federal government with the authority to regulate such facilities that are in force at the time of the application.

(19) Any other condition added by the Planning Commission or Board of Supervisors as part of a conditional use permit approval.

(f) Decommissioning.

The following requirements shall be met:

- (1) Solar facilities that have reached the end of their useful life or have not been in active and continuous service for a period of one year shall be removed at the owner’s or operator’s expense, except if the project is being repowered or a force majeure event has or is occurring requiring longer repairs; however, the County may require evidentiary support that a longer repair period is necessary.
- (2) The owner or operator shall notify Essex County by certified mail and in person of the proposed date of discontinued operations and plans for removal.
- (3) Decommissioning shall include removal of all solar electric systems, buildings, cabling, electrical components, security barriers, roads, foundations, pilings, and any other associated facilities, so that any agricultural ground upon which the facility and/or system was located is again tillable and suitable for agricultural or forestall uses. The site shall be graded and re-seeded to restore it to as natural a pre-development condition as possible or replanted with pine seedlings to stimulate pre-timber pre-development conditions as indicated on the Preliminary Site Plan. Any exception to site restoration, such as leaving access roads in place or seeding instead of planting seedlings, must be requested by the landowner in writing and shall be subject to Zoning Administrator approval.
- (4) The decommissioning, to include removal of solar facilities, regrading and reseeding and/or replanting shall be accomplished within 12 months.
- (5) Decommissioning shall be performed in compliance with the approved decommissioning plan. The Board of Supervisors may approve any appropriate amendments to or modifications of the decommissioning plan.
- (6) Hazardous material from the property shall be disposed of through any viable recycling methods and in accordance with federal and state law.
- (7) The estimated cost of decommissioning shall be guaranteed by the deposit of funds in an amount equal to the estimated cost in an escrow account at a federally insured financial institution approved by the County.
  - a. The applicant shall deposit the required amount into the approved escrow account before any building permit is issued to allow construction of the solar energy facility.
  - b. The escrow account agreement shall prohibit the release of the escrow funds without the written consent of the County. The County shall consent to the release of the escrow funds upon on the owner’s or occupant’s compliance with the approved decommissioning plan. The County may approve the partial release of escrow funds as portions of the approved decommissioning plan are performed.
  - c. The amount of funds required to be deposited in the escrow account shall be the full amount of the estimated decommissioning cost without regard to the possibility of salvage value.

- d. The owner or occupant shall recalculate the estimated cost of decommissioning every five years. If the recalculated estimated cost of decommissioning exceeds the original estimated cost of decommissioning by ten percent (10%), the owner or occupant shall deposit additional funds into the escrow account to meet the new cost estimate. If the recalculated estimated cost of decommissioning is less than ninety percent (90%) of the original estimated cost of decommissioning, then the County may approve reducing the amount of the escrow account to the recalculated estimate of decommissioning cost.
  - e. The County may approve alternative methods to secure the availability of funds to pay for the decommissioning of a utility-scale solar energy facility, such as a performance bond, letter of credit, or other security approved by the County.
  - f. If the owner or operator of the solar energy facility fails to remove the installation in accordance with the requirements of this permit or within the proposed date of decommissioning, the County may collect the surety and the County or hired third party may enter the property to physically remove the installation.
- (g) Coordination of local emergency services
- Applicants for new solar facilities shall coordinate with the County’s emergency services staff to provide materials, education and/or training to the departments serving the property with emergency services in how to safely respond to on-site emergencies.
- (h) Conditions
- (1) The Board may include other reasonable conditions as permitted by state law and as otherwise provided for in this Chapter, including, but not limited to:
    - a. A condition(s) that requires (i) dedication of real property of substantial value or (ii) substantial cash payments for or construction of substantial public improvements, the need for which is not generated solely by the granting of a conditional use permit, so long as such conditions are reasonably related to the project.
    - b. The facility shall be constructed, maintained, and operated in substantial compliance with:
      - 1. The development standards under this article.
      - 2. The approved concept plan.
      - 3. Any other conditions imposed pursuant to a conditional use permit.
      - 4. Local, state, and federal requirements.
    - c. The facility shall comply with decommissioning requirements as set forth and described in the application materials.
    - d. The conditional use permit shall require submission and compliance with supplemental plans, including but not limited to, site plans, grading plans, traffic management plans, construction mitigation plans, landscaping maintenance plans.
    - e. The applicant shall consult with the Virginia Department of Conservation and Recreation’s Division of Dam Safety and Floodplain Management to conduct an inspection and evaluation of the dams within the project area and assure compliance with the Dam Safety Regulations (4VAC50-20). The applicant shall make whatever repairs and renovations required by the Dam Safety Division prior to the issuance of final permits for construction of the solar energy facility.

- f. The conditional use permit shall require the applicant to submit an erosion and sediment control plan for review and approval by the County or by a qualified third party, however, the third-party review shall not supersede any requirements imposed by state agencies. The erosion and sediment control plan shall be prepared and implemented as a sequential progression, demonstrating that not more than 25% of the Site be disturbed and unstabilized at any one-time during construction. The erosion and sediment control plan will provide the means and measures to achieve stabilization of the disturbed areas to comply with this condition. The applicant shall construct, maintain, and operate the solar energy facility in compliance with the approved plan.
- g. The applicant shall submit a stormwater management plan for review and approval by the County or by a qualified third party. The applicant shall construct, maintain, and operate the solar energy facility in compliance with the approved plan.
- h. The applicant shall pay additional fees to cover the reasonable and actual cost of any review of the erosion and sediment control plan, the stormwater plan, and inspections performed by County approved qualified third parties.
- i. If the solar energy facility does not receive a building permit within twenty-four (24) months of approval of the conditional use permit, the Permit shall be terminated.
- j. If the solar energy facility is declared out of compliance with any local, state, or federal codes, or any of the Special Use Permit conditions by the Zoning Administrator or the building official, the facility must be brought into compliance within fourteen (14) days or the conditional use permit shall be terminated through Board of Supervisor approval, and the Solar Facilities shall be decommissioned.”
- k. The owner and operator shall give the County written notice of any change in ownership, operator, or Power Purchase Agreement within thirty (30) days.
- l. Applicant agrees to provide County with a list of capital equipment, including but not limited to solar photovoltaic equipment proposed to be installed, whether or not it has yet been certified as pollution control equipment by the State Corporation Commission or Virginia Department of Environmental Quality, all equipment related to any proposed battery storage facilities, and lists of all other taxable tangible property for taxable valuation. Thereafter, on an annual basis, Applicant shall provide County with any updates to this information. Further, Applicant agrees to provide the County all information it may in the future provide to the Virginia State Corporation Commission for the Commission’s use in valuing such property for taxation purposes.
- m. The conditional use permit may require other use and operating requirements, such as requirements for lighting, noise, and vegetation, to mitigate impacts associated with the use.

**Section 36.405. — Solar energy, medium-scale and small-scale.**

- (a) The design and installation of all solar energy facilities shall conform to applicable industry standards, including those of the American National Standards Institute (ANSI), Underwriters Laboratories (UL), the American Society for Testing and Materials (ASTM), or other similar certifying organizations and shall comply with all fire and safety requirements.
- (b) Small and medium scale energy facilities shall comply with all applicable federal, state, and local regulations, ordinances, and codes.
- (c) Any small or medium-scale solar energy facility shall submit a site plan to the Zoning Administrator and any small or medium-scale solar energy facility installed upon a roof top shall also submit an engineering study to the building official’s office for review.
- (d) All small or medium-scale solar energy facilities shall comply with the following performance standards:

- (1) If the solar energy facility is ground-mounted or not flush-mounted on a principal or accessory building, the panel height shall not exceed 15 feet at the tallest point.
  - (2) The solar energy facility shall comply with all setback requirements pursuant to the Dimensional Standards Table.
  - (3) The lowest surface of any panel shall be a maximum of four feet above the finished grade on which the panel is located.
  - (4) All wiring not on the solar arrays shall be underground except where necessary to connect to the public utility.
  - (5) Landscaping and screening shall be provided for ground mounted solar to block visibility of the backside of the panel(s) and ancillary equipment from adjacent properties.
  - (6) All broken or waste solar modules shall be removed from the site within 60 days of being taken out of service and disposed of in an approved site.
- (e) Removal of abandoned solar generating equipment.
- (1) A bond, whose amount shall be approved by the Zoning Administrator, shall be required to assure the removal of an abandoned solar energy facility. Small-scale residential solar is exempt.
  - (2) Any solar energy facility that has not operated for a period of 12 months shall be considered unused and abandoned. The owner of an unused facility shall remove the entire system within six months of receipt of notice from the Zoning Administrator notifying the owner of the equipment removal requirement. Removal includes removing any underground structures or supports and may include electrical transmission wire and disposing in accordance with local, state, and federal codes and regulations. Small-scale residential solar is exempt.

Reserved 36.406 — 36.414

## **Division 8. — Accessory Use Standards**

### **Section 36.415. — Accessory building or structure.**

- (a) Accessory buildings or structures in the A-1 or A-2 district shall meet the setbacks of the principal building for that district.
  - (1) No accessory building or structure shall have a height greater than the principal building unless exempt in Section 36.290.
- (b) Accessory buildings or structures in the B-1, B-2, I-1, or I-2 district shall be subject to the following:
  - (1) The accessory building or structure shall meet the setbacks of the principal building for that district.
  - (2) No accessory building or structure shall have a height greater than the principal building unless exempt in Section 36.290.
  - (3) The accessory building shall be constructed of materials that are not inferior to the principal building.
- (c) Accessory buildings or structures in the R-1, R-2, R-3, R-4, MH-1, or PUD district shall be subject to the following:
  - (1) The total of all accessory structures shall not have a lot coverage that is greater than the principal building square footage (e.g., a home of 1,000 square feet is allowed an accessory structure or multiple accessory structures with a cumulative footprint of 1,000 square feet when setbacks and other restrictions can be met) except that accessory structures for residential townhouse use shall cover no more than 45% of the required rear yard.

- (2) No accessory building or structure shall have a height greater than the principal building unless exempt in Section 36.290.
  - (3) The accessory building shall be constructed of materials that are not inferior to the principal building.
  - (4) Setback and Placement. Accessory buildings or structures shall be placed in the side or rear yards and must meet a minimum setback of five feet from the adjacent lot line. Except for the following:
    - a. Accessory buildings or structures on a lot adjacent to the Rappahannock River may be placed in the front yard but shall meet the front setback requirement for the district.
    - b. Accessory buildings or structures on a corner lot shall meet the required corner side setback for the district.
    - c. For residential townhouse use, accessory structures shall observe the same required front and corner side setbacks as the principal structure. No side or rear setback shall be required.
  - (5) Residential accessory structures including, but not limited to, flag poles, basketball hoops, clotheslines, arbors, swings, structures less than six square feet in area, or residential yard ornaments shall be exempt from the minimum setback, lot area, and certification requirements as specified in this Ordinance.
- (d) Portable storage containers located outside of a fully-enclosed building or structure in a district other than a residential district or planned unit development and visible from adjacent properties or highways must be buffered in compliance with Article VII, Division 4, Section 36.489.
  - (e) Portable storage containers located outside of a fully-enclosed building or structure in a residential district or the planned unit development district are subject to the following:
    - (1) A zoning permit issued by the Zoning Administrator is required for any portable storage container located on a lot for more than 15 calendar days but is not allowed for more than 60 calendar days. There will be no fee for such permit and the permit shall be displayed on the exterior of the portable storage unit at all times.
    - (2) The portable storage container must be placed a minimum of five feet from the property line, or on the driveway of the lot. One portable storage container may be placed in a legal parking place on the street for a period no longer than 15 days with the approval of the Public Works Department and the Fire Department when space is not available on site.
    - (3) Other than the required county zoning permit, no sign shall be attached to a portable storage container except to provide the contact information of the container provider.
    - (4) Portable storage containers shall not be used in conjunction with a Type A or Type B home occupation or used as a principal use or principal building or structure.
    - (5) The vertical stacking of portable storage containers and the stacking of any other materials or merchandise on top of any storage container shall be prohibited.
    - (6) The provisions of this subsection shall not apply to properties where construction is actively occurring under a valid building permit.

**Section 36.416. — Accessory dwelling unit.**

- (a) An accessory dwelling unit is allowed only as accessory to a single-family detached dwelling.
- (b) Only one accessory dwelling is permitted per parcel.
- (c) Such structures shall comply with all dimensional standards that apply to the principal building.
- (d) An accessory dwelling unit shall not be subdivided or otherwise segregated in ownership from the principal single-family dwelling unit.

- (e) A manufactured home, alternative dwelling, or recreational vehicle, travel trailer, camper, or similar vehicle shall not be used as an accessory dwelling unit.
- (f) An accessory dwelling shall obtain all proper permits and comply with all applicable requirements of the Virginia Department of Health and the Virginia Uniform Statewide Building Code.
- (g) An accessory dwelling unit that is contained within a single-family dwelling may equal the existing finished square footage of the primary dwelling, such as a basement, attic, or additional level.
- (h) The floor area of an accessory dwelling unit contained within a separate structure shall be no more than 800 square feet in finished floor area.

**Section 36.417. — Bed and breakfast.**

- (a) A bed and breakfast is allowed only as accessory to a single-family detached dwelling.
- (b) The operator shall hold a valid business license from the County and, where applicable, a septic permit from the Department of Health showing adequate capacity.
- (c) The applicant must provide and sign a statement acknowledging they have appropriate insurance that covers the bed and breakfast unit, the host, and the guests.
- (d) Every room occupied for sleeping purposes shall comply with Uniform Statewide Building Code.
- (e) Signage must comply with the signage regulations of this Ordinance.
- (f) No changes shall be made to the building exterior that would detract from its appearance as a single-family dwelling.
- (g) Off-street parking shall be provided in compliance with this Ordinance. The physical and aesthetic impact of required off-street parking shall not be detrimental to the existing character of the house and lot or to the surrounding neighborhood.
- (h) Any additions or modifications for the bed-and-breakfast shall be residential in appearance and compatible with the original structure and surrounding structures.
- (i) Bed and breakfasts are to be integrated into the residential fabric of the neighborhood in which they are located. A proposed bed and breakfast should not affect the integrity or character of the single-family residential neighborhood for which it is proposed.
- (j) Off-street parking shall be screened from surrounding family residences by landscaping or fencing which is compatible with the neighborhood and minimizes visibility of vehicles and reduces headlight glare on adjacent properties.
- (k) Guest rooms shall not have cooking facilities.
- (l) The maximum stay for a guest shall be 30 consecutive days.
- (m) Bed-and-breakfast establishments are permitted to provide transient accommodations. Food services in connection with the use shall be limited to meals provided to guests taking lodging at the facility. Full restaurant service open to the general public is a separate use, permitted according to the district regulations. Additional activities, including receptions, parties, and other events, are not permitted unless specifically authorized by the conditional use permit. Authorization for additional activities will be based on the suitability of the house and property for hosting such events. Specific consideration will be given to the floor plan of the house, the proximity of the house to neighboring houses, the size of the lot, provisions to buffer the effects of such activities from adjacent property and the ability to provide parking for such events.
- (n) Creation of an event venue or gatherings fitting the definition of Assembly, place of, shall comply with the permit requirements of Assembly, place of, as outlined in this ordinance.



**Section 36.418. — Family health care structure, temporary.**

- (a) Such structures shall comply with all setback requirements that apply to the principal building.
- (b) Only one family health care structure shall be allowed on a lot or parcel of land.
- (c) The structure shall be no more than 300 gross square feet and shall comply with all applicable provisions of the Industrialized Building Safety Law (§ 36-70 et seq.) and the Uniform Statewide Building Code (§ 36-97 et seq.).
- (d) Prior to installing a temporary family health care structure, a permit must be obtained from the County and associated fees paid.
- (e) Any family health care structure shall comply with all applicable requirements of the Virginia Department of Health.
- (f) No signage advertising or promoting the existence of the structure shall be permitted on the exterior of the structure or anywhere on the property.
- (g) Any temporary family health care structure shall be removed within 60 days of the date on which the temporary family health care structure was last occupied by a mentally or physically impaired family member receiving services or assistance.
- (h) The County may revoke the permit if the permit holder violates any provision of this section.

**Section 36.419. — Home occupation, type A and type B.**

- (a) The principal person conducting the home occupation accessory use shall be a full-time resident of the dwelling.
- (b) The area devoted to the home occupation shall not exceed more than the equivalent of one-half of one floor of the dwelling unit.
- (c) Use shall be conducted as an accessory use and shall not change the character of the dwelling unit; the use shall be conducted within the dwelling or an enclosed building and shall not have any exterior evidence of its use.
- (d) The type of traffic generated by a home occupation shall be consistent with the type of traffic of other dwellings in the area. No more than two customers may be on the property at any one time.
- (e) The home occupation shall not increase the demand on public water, public sewer, or garbage collection services to the extent that its use combined with the residential use of the dwelling shall not be significantly higher than is normal for residential uses.
- (f) No more than two vehicles associated with the home occupation shall be parked on the premises. The vehicles shall not exceed 10,000 pounds or have more than two axles.
- (g) Exterior storage of equipment, including open trailers and other business-related equipment, materials, or merchandise is prohibited.
- (h) The equipment used by the home business and the operation of the business shall not create any noise, vibration, heat, glare, dust, odor or smoke discernible at the property lines or use or store hazardous materials in excess of quantities permitted in residential structures.
- (i) The operator of a home occupation use shall secure a County business license and obtain a home occupation use permit.

- (j) Approval of a home occupation use shall be revocable at any time by the County because of the failure of the owner or operator of the use covered by the approval to observe all requirements of law with respect to the maintenance and conduct of the use and all conditions imposed in connection with the approval.
- (k) Approval of a home occupation use shall stand revoked, without any action by the County, if the use authorized has been intentionally abandoned, has ceased for a period of one year, has not commenced within one year of approval, or does not have a current business license.
- (l) One minor sign, not exceeding 3 square feet, in area, may be displayed indicating that the building is being utilized as a business.

**Section 36.420. — Kennel, private.**

- (a) Any pens or kennels shall be setback 100 feet from the property lines of adjoining agricultural zoned property;
- (b) Any pens or kennels shall be setback 400 feet from any property lines adjoining residential zoned property;
- (c) Any pens or kennels shall be setback 400 feet from any dwelling not on the associated parcel;
- (d) Screening, as approved by the Zoning Administrator, shall be provided to visually blocks pens or kennels from the front and closest side property lines.
- (e) Pens and kennels shall be kept free of waste on a regular basis to minimize impacts of odor and reduce propagation of insects.

**Section 36.421. — Outdoor storage.**

- (a) Storage areas shall be screened by a solid wall or fence, including solid entrance and exit gates, not less than six feet nor more than ten feet in height. All fences and walls shall have a uniform and durable character and shall be properly maintained.
- (b) When fences and walls are adjacent to business or residential districts, a landscaped buffer must be provided to break visibility of the fence in accordance with the landscape section of this Ordinance.
- (c) Outdoor storage shall be on the side or rear of the principal structure and screened from view from any adjacent roadway.
- (d) No wall or fence screening a storage area shall encroach into a sight distance triangle.
- (e) Parts, materials, and equipment stored in a storage area shall not be stacked higher than the screening wall or fence.
- (f) No outdoor storage shall be located within 50 feet of a residential district.

**Section 36.422. — Short-term rental.**

- (a) The following definitions shall apply as used in this section:
  - (1) *Booking transaction* means any transaction in which there is a charge to a transient by a host for the occupancy of any dwelling, sleeping, or lodging accommodations.
  - (2) *Guest or transient* means a person who occupies a short-term rental unit.
  - (3) *Host* means the owner of a short-term rental unit, or lessee of the short-term rental unit with a lease agreement that is one year or greater in length.
  - (4) *Host designee* means a person assigned by the host to be available 24/7 to answer problems associated with the short-term rental.

- (5) *Short-term rental* means a residential dwelling unit that is used or advertised for rent for transient occupancy in increments of fewer than 30 consecutive days. This use type does not include bed-and-breakfast establishments and does not apply to month-to-month extensions following completion of a year's lease.
- (6) *Residential dwelling unit* means a residence where one or more persons maintain a household.
- (b) Registration and other requirements.
  - (1) No host shall operate a short-term rental business without having registered with the Zoning Administrator as required by Virginia Code § 15.2-983, as amended.
  - (2) The Zoning Administrator will report all registrations to County Commissioner of the Revenue for business registration and collection of the business license fee.
- (c) The registration form shall include the following information:
  - (1) The name, telephone number, address, and email address of the host.
  - (2) A reminder about the importance of having appropriate levels of insurance that covers the short-term rental unit, the host, and the guests with signature by the applicant acknowledging they understand and have appropriate insurance.
  - (3) A requirement to provide the septic tank capacity from the Virginia Department of Health.
- (d) The registration shall be valid January 1<sup>st</sup> (or from whatever date the registration first occurs) through December 31<sup>st</sup> of the calendar year and shall be renewed annually.
- (e) A logbook shall be maintained for all rentals and be made available for review by the County upon request.
- (f) No signage advertising a short-term rental shall be allowed.
- (g) Registration may be revoked if more than three substantiated complaints are received within a one-year period. Revocation is for a minimum of one year but may be permanent at the discretion of the County.
- (h) Any short-term rental business in violation of zoning regulations, including operation without registering, is subject to all relevant penalties as set forth by the County.
- (j) The physical and aesthetic impact of required off-street parking shall not be detrimental to the existing character of the house and lot or to the surrounding neighborhood.
- (k) Safety.
  - (1) The unit shall meet all applicable building codes for a rental unit. The County may inspect any short-term rental once per year for compliance with applicable building codes.
  - (2) Site address. Building (dwelling) will have an approved address placed in a position that is plainly legible and visible from the street fronting the property. Structures obscured from street view or access roads in excess of one hundred and fifty (150) feet in length shall additionally post the numerical address at the roadway entrance.
- (l) Use regulations.
  - (1) No recreational vehicles, buses, or trailers shall be used in conjunction with the short-term rental use to increase the occupancy of the rental unit.
  - (2) The host shall not permit occupancy of a short-term rental unit for a period of less than overnight.
  - (3) The name and telephone number of the host or the host's designee shall be conspicuously posted within the short-term rental unit. The host shall answer calls 24 hours a day, seven days a week for the duration of each short-term rental to address any problems associated with the short-term rental unit.

- (4) The principal guest of a short-term rental unit shall be at least 18 years of age.
  - (5) The maximum number of adult guests in a short-term rental unit is limited to two adults per bedroom.
  - (6) Creation of an event venue or gatherings fitting the definition of Assembly, place of, shall comply with the permit requirements of Assembly, place of, as outlined in this ordinance.
- (m) Registration suspension or cancellation.
- (1) A registration may be suspended or cancelled for the following reasons:
    - a. Failure to collect and/or remit the transient occupancy tax or county business license fee.
    - b. Three or more substantiated complaints (including, but not limited to, noise and excess trash) within a rolling twelve-month period.
  - (2) Before any suspension or cancellation can be effective, the Zoning Administrator shall give written notice to the short-term rental host. The notice of suspension or cancellation issued under the provisions of this Ordinance shall contain:
    - a. A description of the violation(s) constituting the basis of the suspension or cancellation;
    - b. If applicable, a statement of acts necessary to correct the violation; and
    - c. A statement that if no written response by the host is received by the Zoning Administrator within 30 days from the date of the notice, the registration will be suspended or cancelled.
  - (3) The notice shall be given to the host by delivering a copy of the notice in person. If the host cannot be found, such notice shall be sent to the address of record by:
    - a. Certified mail or e-mail to the addresses in the registration form; and
    - b. A copy of the notice shall be posted in a conspicuous place on the premises.
  - (4) A copy of the notice will be provided to the Commissioner of Revenue to advise the registration and business license may be revoked.
  - (5) Any determination made by the Zoning Administrator may be appealed to the board of zoning appeals in accordance with Article II Division 6 of this Ordinance.
- (n) Penalty.
- It shall be unlawful to operate a short-term rental:
- (1) Without obtaining a registration as required by this Article;
  - (2) After a registration has been suspended or cancelled; or,
  - (3) In violation of any other requirement of this Article.
  - (4) The penalty shall be a fine of \$500.00 per occurrence for an operator required to register who offers for short-term rental a property that is not registered.

**Section 36.423. — Temporary Construction Trailers and buildings.**

- (a) Temporary construction trailers and temporary buildings, used in conjunction with construction work only and not for residential occupancy, may be permitted in any district during the period construction work is in progress.
- (b) All yard requirements of the district for a principal structure in which the temporary building or construction trailer is located are met.
- (c) A zoning permit is issued for a period of twelve (12) months only upon showing by the applicant of a valid and approved building permit for a conventionally built dwelling or a commercial, industrial, or public

structure or development, public facility or public utility. Such temporary permit may be renewed for a maximum of an additional twelve (12) months only if the applicant satisfactorily demonstrates to the Zoning Administrator that unavoidable circumstances caused a delay in the construction.

Reserved 36.424 — 36.434

## ARTICLE VII. — COMMUNITY DESIGN STANDARDS

### Division 1. — Signs

#### Section 36.435. — Purpose and Intent.

- (a) The purpose of this section is to regulate the type, size, material, location, number, and condition of signs in a manner that protects and promotes the health, safety, and welfare of the community. This division shall be interpreted in a manner consistent with the First Amendment guarantee of free speech and in a manner consistent with the comprehensive plan.
- (b) This Division is intended to:
  - (1) Provide for the safety and welfare of pedestrian and wheeled traffic by minimizing visual distractions on public and private streets;
  - (2) Reduce hazards that may be caused by signs overhanging or projecting over public right of ways;
  - (3) Protect property values and encourage economic development;
  - (4) Enhance the physical appearance of the County, minimize sign pollution and preserve the scenic and natural beauty of the community;
  - (5) Promote commerce and trade to create an attractive economic and business climate; and,
  - (6) Protect against destruction and or encroachment on historic areas.

#### Section 36.436. — Permit Required; Application.

- (a) No sign, unless exempted in this division, shall be erected, constructed, posted, painted, altered, maintained, or relocated, without a permit issued by the Zoning Administrator as provided for in this division.
- (b) Before any permit is issued, an application for a sign permit provided by the Zoning Administrator shall be filed, together with sufficient information to determine if the proposed sign is permitted under the Zoning and Subdivision Ordinance and other applicable laws, regulations, and ordinances.
- (c) The application shall contain:
  - (1) The Tax Map and location (Latitude and Longitude or sketch on a site plan or plat) of the sign structure on the property;
  - (2) The name and address of the sign owner and of the sign erector along with the landowner if different than the owner;
  - (3) Three sets of drawings and/or specifications showing the number of signs applied for, dimensions to scale, elevation, design, materials, manner of illumination, method of securing or fastening, and location of the sign; and,
  - (4) Such other pertinent information as the Zoning Administrator may require to ensure compliance with this Ordinance or other Ordinances of the County.
- (d) A nonrefundable fee as set forth in the uncodified fee schedule adopted by the governing body of the County and maintained in the office of the Zoning Administrator shall accompany all sign permit applications.

- (e) All signs which are electrically illuminated shall require a separate electrical permit and inspection. Structural and safety features and electrical systems shall be in accordance with the requirements of applicable codes and Ordinances. No sign shall be approved for use unless it has been inspected by the department issuing the permit and is found to be in compliance with all the requirements of this Ordinance and applicable technical codes.
- (f) The permit for a temporary sign shall state its duration, which is not to exceed 30 consecutive calendar days unless another duration is provided in the Zoning and Subdivision Ordinance.
- (g) Permit revocation.
  - (1) All signs shall be erected on or before the expiration of 90 days from the date of issuance of the permit. After such time, the permit shall become null and void, and a new permit shall be required. Each sign requiring a permit shall be clearly marked with the permit number and name of the person or firm placing the sign on the premises, if other than on the business premise or directly related to the business.
  - (2) A sign permit shall become null and void if the use to which it pertains is not commenced within six months after the date the sign permit is issued. Upon written request and for good cause shown, the zoning administrator may grant one six-month extension.
  - (3) Whenever the use of a building or land is discontinued by the specific business, the sign permit shall become null and void and all signs pertaining to that business shall be removed by the property owner within 30 calendar days of the discontinuance.
  - (4) The Zoning Administrator shall revoke a sign permit if
    - a. The Zoning Administrator determines that the application was materially false or misleading;
    - b. The sign as installed does not conform to the sign permit application; or
    - c. The sign does not comply with applicable regulations of this division, building code, or other applicable law, regulation, or ordinance.

**Section 36.437. — General Requirements for Signs.**

- (a) The regulations contained in this Section shall apply to all signs and all districts.
- (b) All signs shall comply with:
  - (1) The provisions of this division;
  - (2) All applicable provisions of the Uniform Statewide Building Code and all amendments thereto; and,
  - (3) All state and federal regulations pertaining to the display of signage.
- (c) No sign shall be located closer than five feet to any right-of-way line.
- (d) Any illuminated sign shall employ only light of constant intensity, and no sign shall be illuminated by or contain flashing, rotating, intermittent, or moving light or lights. In no event shall an illuminated sign or lighting device be placed or directed so as to permit the beams and illumination therefrom to be directed or beamed upon a public street, highway, sidewalk, or adjacent premises so as to cause glare or reflection that may constitute a traffic hazard or nuisance.
- (e) No sign shall be illuminated in such a way that light may shine into on-coming traffic, affect highway safety, or shine directly into a residential dwelling unit.
- (f) All electronic service lines shall be underground.
- (g) Signs projecting over public walkways shall be a minimum height of 8 feet from grade level to the bottom of the sign.

- (h) Projecting signs shall not extend more than 6 feet beyond the face of the building or beyond a vertical plane two feet inside the curb line.

**Section 36.438. — Sign Area.**

The following method shall be utilized in the calculations of sign area:

- (1) The sign area permitted under this division is determined by measuring the entire face of the sign, including any wall work incidental to its decoration but excluding support elements for the sole purpose of supporting the sign.
- (2) For signs that are regular polygons or circles, the area shall be calculated by the mathematical formula for that polygon or circle. For signs that are not regular polygons or circles, the sign area shall be calculated using the area within up to three rectangles that enclose the sign face.
- (3) The surface area of any sign consisting of individual letters or figures shall include the space between such letters or figures.
- (4) Whenever one sign contains information on both sides, sign area shall be calculated based on the largest sign face. Sides are not totaled.

**Section 36.439. — Exempt Signs.**

The following signs are exempted from the provisions of the regulations of this division and may be erected or constructed without a permit in accordance with the structural and safety requirements of the building code and as outlined in the definitions, tables of sign dimensions, and other portions of this division:

- (1) Signs erected by a governmental body or required by law, including official traffic signs or sign structures, provisional warning signs or sign structures, and temporary signs indicating danger;
- (2) Flags not exceeding 50 square feet in area;
- (3) Changing of the message content on a changeable message sign if such sign is permitted in the district;
- (4) The following small signs:
  - a. Minor signs, not exceeding three square feet each in area. Freestanding minor signs shall be located a minimum distance of twenty-five feet apart.
  - b. Memorial plaques and building cornerstones not exceeding 6 square feet in area and cut or carved into a masonry surface or other noncombustible material and made an integral part of the building or structure.
  - c. Temporary nonilluminated signs not exceeding four square feet in sign area and erected for not more than 90 consecutive days.
- (5) Window signs, subject to the dimension requirements in this division.
- (6) Menu signs.
- (7) On a property under construction or renovation, for sale, or for rent, temporary signs not exceeding four square feet for residential properties, except for multifamily, or 18 square feet for multifamily, nonresidential, or mixed-use properties.
- (8) Signs displayed on an operable vehicle while in use in the normal course of business. This section should not be interpreted to permit parking for display purposes of a vehicle to which signs are attached in a district where such signs are not permitted.

**Section 36.440. — Prohibited Signs.**

The following signs are prohibited:

- (1) Any sign affixed to, hung, placed, or painted on any other sign, fence, cliff, rock, tree, natural feature, public utility pole or structure supporting wire, cable, or pipe, or radio, television, or similar tower;
- (2) Flashing signs, signs with intermittent lights resembling, or seeming to resemble, the flashing lights customarily associated with danger or such as are customarily used by police, fire, or ambulance vehicles, or for navigation purposes;
- (3) Animated signs;
- (4) Off-premise signs;
- (5) Signs or parts of a sign not an integral part of the building design located anywhere on the roof or wall of a building such that they extend above or beyond the roof, wall, or parapet wall of a building;
- (6) Signs attached, painted, or mounted to unlicensed, inoperative, or generally stationary vehicles. Vehicles and trailers shall not be used primarily as static displays, advertising a business, product, or service, nor utilized as storage, shelter, or distribution points for commercial products or services for the general public;
- (7) Signs that emit sound, smoke, flame, scent, mist, aerosol, liquid, or gas;
- (8) Abandoned sign structures;
- (9) Mirrors or mirror devices on, in, or as part of a sign;
- (10) Inflatable signs or other floating signs that are tethered to a structure or the ground;
- (11) Any sign representing or depicting specified sexual activities or specified anatomical areas or sexually oriented goods. Any sign containing obscene text or pictures as defined by the Virginia Code;
- (12) Signs that block visibility, confuse, or dangerously distract the attention of the operator of a motor vehicle or interfere with the purpose of any traffic control signal or directional device, including but not limited to, signs that are constructed, erected, or maintained at or near an intersection or driveway and create a traffic hazard;
- (13) Signs simulating, or which are likely to be confused with, a traffic control sign or any other sign displayed by a public authority; and,
- (14) Signs advertising activities or products that are illegal under federal, state, or county law.

**Section 36.441. — District Sign Standards.**

- (a) District Standards: B-1, B-2, I-1, and I-2 Zoning Districts. Any signs located within a B-1, B-2, I-1, or I-2 shall be subject to the following requirements:
  - (1) One freestanding or wall-mounted sign per lot may be substituted with a changeable message sign subject to the following requirements:
    - a. Location, area, height, and illumination requirements shall be the same as for freestanding or wall signs.
    - b. Any changeable message sign that malfunctions, fails, or ceases to operate in its usual or normal programmed manner, thereby causing motion, movement, flashing or any other similar effects, shall be repaired, covered, or disconnected by the owner or operator of such sign within 24 hours of notice of violation.

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- (2) All permitted signs may be internally lighted or indirectly lighted, unless such lighting is specifically prohibited in this division.
- (3) The size and placement of signs shall be subject to the requirements provided in Table 36.13.

<b>Table 36.13. Maximum Sign Dimensions – B-1, B-2, I-1, and I-2 Zoning Districts</b>			
<b>Sign Type</b>	<b>Number</b>	<b>Area</b>	<b>Height (ft.)</b>
<b>Window</b>	Not limited	25% of window area	Not limited
<b>Canopy</b>	4 per canopy structure	0.5 SF per LF of canopy fascia	Not extending above the cap on the fascia board or below the horizontal plane formed by the bottom of the fascia board
<b>Commercial Flag</b>	1 per lot	50 SF	30 ft.
<b>Freestanding</b>	1 per street frontage	32 SF, or 110 SF for combined freestanding sign	15 ft.
<b>Projecting</b>	1 per occupant per street frontage	15 SF	15 ft. max. above grade level
<b>Wall</b>	1 per occupant per street frontage	1 SF per LF of building frontage associated with the business	N/A
<b>Temporary</b>	Not limited	12 SF per sign, and an aggregate of 60 SF per parcel	4 ft.
<b>Minor</b>	Not limited	3 SF per sign	4 ft.
<b>Notes:</b> <i>SF = square feet; LF = linear feet; ft. = feet</i>			

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(b) District Standards: A-1, A-2, R-1, R-2, R-3, R-4, PUD, and MH-1 Zoning Districts. Individual signs shall be subject to the following requirements:

- (1) All permitted signs may be indirectly lighted, unless such lighting is specifically prohibited in this division.
- (2) The number, size, and placement of signs shall be subject to the requirements provided in Table 36.14. In addition to these requirements, the total cumulative area permitted for all signs on a single parcel located in a R-1, R-2, R-3, R-4, or MH-1 district shall not exceed a maximum area of 16 SF.
- (3) For the purposes of Table 36.14, Agricultural Uses shall be those uses categorized as Agricultural in Table 36.12, Zoning Use Matrix. Non-residential Uses shall be those uses categorized as Public/Civic/Recreation, Commercial, Industrial, or Miscellaneous in Table 36.12, Zoning Use Matrix.

**Table 36.14. Maximum Sign Dimensions – A-1, A-2, R-1, R-2, R-3, R-4, PUD, and MH-1 Zoning Districts**

Residential Uses				Community Signs & Agricultural Uses			Non-Residential Uses		
Sign Type	Number	Area (SF)	Height (ft.)	Number	Area (SF)	Height (ft.)	Number	Area (SF)	Height (ft.)
<b>Freestanding</b>	N/A See Minor Sign Requirements	N/A	N/A	1 per site entrance	16 SF	6 ft.	1 per street frontage	16 SF	15 ft.
<b>Wall</b>	N/A See Minor Sign Requirements	N/A	N/A	1 per street frontage	16 SF	N/A	1 per street frontage	16 SF	N/A
<b>Canopy</b>	Not Permitted	N/A	N/A	Not Permitted	N/A	N/A	4 per canopy	0.5 SF per LF of canopy fascia	Not extending above the cap on the fascia board or below the horizontal plane formed by the bottom of the fascia board
<b>Temporary</b>	4 per parcel	4 SF	4 ft.	4 per parcel	12 SF	4 ft.	2 per street frontage	12 SF	4 ft.
<b>Minor</b>	5 per parcel	3 SF	4 ft.	5 per parcel	3 SF	4 ft.	5 per parcel	3 SF	4 ft.

**Notes:**

*SF = square feet; LF = linear feet; ft. = feet*

See Section 36.441. (b)(2) for the allowed cumulative sign area per parcel

**Section 36.442. — Structural and Maintenance Requirements.**

- (a) All signs shall be maintained in good condition meaning in appearance and structurally safe. Any sign that has deteriorated to a state of peeling, cracking, splitting, fading, or rusting is in violation of this Ordinance and subject to enforcement as outlined in Section 36.444 of this division.
- (b) Should any sign be or become unsafe or be in danger of falling, the owner thereof or the person maintaining the sign, shall be in violation of this Ordinance and subject to enforcement as outlined in Section 36.444 of this division.

**Section 36.443 — Nonconforming Signs.**

- (a) Any sign lawfully in existence on the date of enactment of this division may be maintained even though it does not conform with the provisions of this division.
- (b) The message of a nonconforming sign may be changed.
- (c) No nonconforming sign may be enlarged or altered in such a manner as to expand the nonconformity, nor may illumination be added to any nonconforming sign.
- (d) A nonconforming sign may not be moved or replaced except to bring the sign into complete conformity with this division.
- (e) A nonconforming sign destroyed by any cause may not be repaired, reconstructed, or replaced except in conformity with this division. For the purposes of this section, a nonconforming sign is destroyed if damaged to an extent that the cost of repairing the sign to its former condition or replacing it with an equivalent sign equals or exceeds 50 percent of the appraised value of the sign so damaged.
- (f) A pre-existing sign must be removed if the structure, building, or use to which it is accessory is destroyed, or demolished to an extent exceeding 50 percent of the appraised value of the principal structure, building, or use.

**Section 36.444 — Enforcement.**

- (a) *Violations.* Violations of this division constitute violations of the zoning code and the County may obtain compliance through any of the methods available for other zoning violations.
- (b) *Removal of signs in violation.* The Zoning Administrator may order the removal of any sign erected or maintained in violation of this division. The Zoning Administrator shall give 30 days' notice in writing to the owner of such sign or of the building, structure, or premises on which such sign is located to remove the sign or to bring it into compliance with this division. The Zoning Administrator may remove a sign immediately and without notice if, in his opinion, the condition or placement of the sign is such as to present an immediate threat to the safety of the public. Any surface exposed by the removal of a sign shall be restored to its original condition by the property owner and be compatible with adjacent surfaces.
- (c) *Removal of abandoned signs.* A sign shall be removed by the owner or lessee of the premises upon which the sign is located when the business which it advertises is no longer conducted on the premises. If the owner or lessee fails to remove such sign, the Zoning Administrator shall give the owner 30 days' written notice to remove it. Upon failure to comply with this notice, the Zoning Administrator or his duly authorized representative may remove the sign at cost to the property owner.

**Section 36.445. — Appeals.**

Any person aggrieved by any decision or order of the Zoning Administrator may appeal to the Board of Zoning Appeals by serving written notice to the Zoning Administrator, who, in turn, shall immediately transmit the notice to the Board, which shall meet to hear it within 30 days thereafter. The Zoning Administrator shall take no further action on the matter, pending the Board's decision, except concerning unsafe signs which present an immediate and serious danger to the public.

Reserved 36.446 — 36.454

## Division 2. — Parking and Loading

### Section 36.455. — Purpose and Intent.

- (a) The purpose of this Division is to ensure efficient traffic flow and to reduce hazards to public safety by establishing standards for off-street parking and off-street loading areas.
- (b) This Division is intended to:
  - (1) Ensure adequate parking is designed and constructed during the erection of all new structures and the modifications to existing structures.
  - (2) Provide safe and convenient traffic flow and add to the beautification of the County.

### Section 36.456. — Generally.

- (a) Off-street parking and loading shall be provided in all zoning districts in accordance with the requirements of this division.
- (b) For the purpose of this division, an off-street parking space is a graveled, stone, or hard all-weather surfaced area not in a street or alley.
- (c) Parking shall be provided at the time of the erection of any building or structure, not less than the amount of parking space given in Article VII, Section 36.462, Schedule of Required Spaces. Such space shall be maintained and shall not be encroached upon unless in conformance with the section on reduction below.
- (d) Loading space, as required in Article VII, Section 36.464, Off-street Loading, shall not be construed as supplying off-street parking.

### Section 36.457. — Location in Relation to Use.

- (a) All parking spaces required herein shall be located on the same lot with the building or principal use served; except that:
  - (1) Upon approval of a conditional use permit by the Board of Supervisors.
  - (2) Where an increase in the number of spaces is required where such spaces are/may be provided collectively or used jointly by two or more buildings or establishments.
- (b) A remote parking lot to satisfy the required spaces may be located and maintained not to exceed 600 feet from the served building.
  - (1) Such parking space shall be established by a recorded covenant or agreement as parking space to be used in conjunction with the principal use and shall be reserved as such through an encumbrance on the title of the property to be designated as required parking space.

### Section 36.458. — Joint Use of Spaces.

- (a) Parking spaces may be used by multiple uses and establishments as provided in (1) through (3) below. Approval of joint parking must be approved by the administrator and a record maintained. In such instances, the applicants shall demonstrate that the periods of peak use are separated sufficiently, and shared parking spaces are available to all uses sharing them, so as to not cause a parking demand problem. If a use changes, the owner must confirm with the administrator that the supplied parking is sufficient or establish parking as otherwise supplied in this Division.
  - (1) Religious Assembly parking spaces already provided to meet off-street parking requirements for theaters, stadiums, auditoriums and other places of public assembly, stores, office buildings and industrial establishments, lying within 600 feet of a religious assembly, as measured along lines of public access, that are not normally used between the hours of 6:00

a.m. and 6:00 p.m. on Sundays and that are made available for other parking may be used to meet not more than 75% of the off-street parking requirements of a religious assembly.

- (2) Other places of public assembly. Parking spaces already provided to meet off-street parking requirements for stores, office buildings, and industrial establishments, lying within 500 feet of a place of public assembly, as measured along lines of public access, that are not normally in use between the hours of 6:00 p.m. and 12:00 midnight and that are made available for other parking may be used to meet not more than 50 percent of the total requirements of parking space.
- (3) In the case of mixed or joint uses of a building or premises having different peak parking demands, the parking spaces required may be reduced if approved by the Planning Commission or Zoning Administrator in conjunction with site plan approval.

### **Section 36.459. — Reduction.**

Off-street parking space required under this division may be reduced at a time when the capacity or use of a building is changed in such a manner that the new use or capacity would require less space than before the change. Such reduction may not be to a level below the standards set forth in this division.

### **Section 36.460. — Design Standards for Off-Street Parking.**

- (a) *Surfacing.* Surfacing of off-street parking or driveways shall consist of an improved dustless surface. Areas that include lanes for drive-in windows or contain parking areas consisting of 10 or more parking spaces shall be graded and surfaced with asphalt, concrete, or other material that will provide equivalent protection against potholes, erosion, and dust.
- (b) *Area.* Off-street parking areas shall be marked off into parking spaces with a minimum width of 9 feet and a minimum length of 18 feet; or in the case of parking spaces for trucks, buses, or special equipment, parking spaces of a minimum size to be determined by the Administrator based on the nature of the parked vehicles.
- (c) *Handicap Accessible Parking.* Every land use shall include the number of handicap accessible off-street parking spaces in accordance with the requirements of the Virginia Uniform Statewide Building Code.
- (d) *Separation from Walkways and Streets.*
  - (1) Off-street parking spaces shall be separated from walkways, sidewalks, streets, or alleys by a wall, fence, or curbing.
  - (2) Off-street parking shall not be located within 5 feet of any commercial building.
- (e) *Entrances and Exits.* The entrances and exits to the parking area shall be clearly marked. Interior vehicular circulation by way of access roads shall maintain the following minimum standards:
  - (1) Access roads for one-way traffic shall have a minimum width of 14 feet, except for 45 degree parking in which case the minimum width of the access road shall be 17 feet.
  - (2) Access roads for two-way traffic shall have a minimum width of 24 feet.
  - (3) Parking areas having more than one aisle or driveway shall have directional signs or markings in each aisle or driveway.
- (f) *Drainage and maintenance.* Off-street parking facilities shall be drained to eliminate standing water and prevent damage to abutting property and/or public streets and alleys. Off-street parking areas shall be maintained in a clean, orderly and, to the extent possible, dust-free condition at the expense of the owner or lessee.

- (g) *Marking.* For parking areas consisting of 10 or more spaces, each parking space shall be striped and maintained. Parking spaces shall be marked by painted lines or curbs or other means to indicate individual spaces. Signs or markers shall be used to ensure efficient traffic operation on the lot.
- (h) *Arrangement of Interior Aisles.* All aisles within parking areas shall have a minimum width of 24 feet when the parking spaces are at a 90-degree angle with the aisle; 18 feet when the parking spaces are at 60-degree angle with the aisle; and 12 feet for parallel parking.
- (i) *Lighting.* Adequate lighting shall be provided if off-street parking spaces are to be used at night. Any lights used to illuminate parking areas shall be so arranged as to reflect light away from adjoining premises.
- (j) *Screening.* Whenever a parking area is located in or adjacent to a residential district, it shall be effectively screened on all sides which adjoin or face any property used for residential purposes by an acceptable solid masonry wall, a uniformly painted solid board fence, or evergreen hedge. Such screen shall be maintained in good condition and not less than four feet nor more than 6 feet in height, except in areas requiring natural air circulation, unobstructed view or other technical considerations necessary for proper operation, may submit a screening plan to be approved by the Zoning Administrator.
- (k) *Fleet Vehicles.* Whenever daily or overnight storage of fleet vehicles is proposed, these vehicles shall be parked in off-street parking spaces located to the side or rear of the principal structure and screened in accordance with the requirements of this division. These off-street parking spaces shall be identified on any approved site plan.

**Section 36.461. — Obligations of Owner.**

The requirements for off-street parking space and off-street loading space shall be a continuing obligation of the owner of the real estate on which any structure or use is located as long as such structure or use is in existence and the use requiring vehicle parking or vehicle loading facilities continues. It shall be unlawful for the owner of any structure or use affected by this division to discontinue, change, dispense with, or cause the discontinuance or change of the required vehicle parking or loading space, apart from the alternate vehicle parking or loading space which meets with the requirements of and is in compliance with this division. It shall be unlawful for any firm or corporation to use such structure without acquiring such land or other suitable land for vehicle parking or loading space which meets the requirements of and is in compliance with this Division.

**Section 36.462. — Schedule of Required Spaces.**

Except as otherwise provided in this Ordinance, when any building or structure is hereafter erected or structurally altered, or any building or structure hereafter erected is converted, off-street parking spaces shall be provided according to the requirements for individual uses in the following table. Where fractional spaces result, the parking spaces required shall be construed to be the next highest whole number. Specifications for exemptions to off-street parking requirements are contained in Article VII, Section 36.463, Interpretation of Specific Requirements.

<b>Table 36.15. Minimum Off-Street Parking Requirements</b>	
<b>Uses</b>	<b>Minimum Number of Required Parking Spaces</b>
<b>Residential Uses</b>	
<b>Manufactured dwelling, single-family or two-family dwellings, accessory dwellings, townhouses, and group home</b>	2 for each dwelling unit; 1 for each accessory dwelling
<b>Manufactured home park</b>	2 for each dwelling unit, plus 1 for owner/employee
<b>Multi-family dwellings</b>	2 for each dwelling unit, or 1 for each bedroom, whichever is greater
<b>Shelter, life care facility</b>	1 for each 2 residents
<b>Public/Civic/Recreation Uses</b>	
<b>Cultural facility</b>	3 for each 1,000 square feet of exhibit area, plus 1 for each employee on largest shift
<b>Education facility, high/college</b>	1 for each employee on largest shift, plus 1 per 3 full time equivalent students, if a stadium is built in conjunction with the school, only the parking spaces in excess of the current spaces shall be required.
<b>Education facility, primary/secondary</b>	1 for each employee on largest shift, plus 1 space for each 4 seats in the largest assembly room
<b>Public Park and recreation area</b>	1 space per 4 visitors at peak service
<b>Recreational facility, private, country club, golf club or other private clubs</b>	1 per 5 members, or 1 for each 400 square feet of floor area, whichever is greater

<b>Table 36.15. Minimum Off-Street Parking Requirements</b>	
<b>Uses</b>	<b>Minimum Number of Required Parking Spaces</b>
<b>Religious assembly, place of assembly, day or youth camp</b>	1 per 4 fixed seats in main assembly area or 1 for each 100 square feet of assembly floor space without fixed seating
<b>Commercial Uses</b>	
<b>Automobile and commercial vehicle repair service, car washes and gasoline stations</b>	3 for each bay, stall, rack, or pit, plus 1 for each gasoline pump; minimum 5 spaces
<b>Automobile and equipment sales, rental/leasing</b>	1 customer vehicle space for each 500 square feet of building floor space
<b>Brewery, distillery, winery, tasting room</b>	1 for each 150 square feet of food beverage preparation and consumption area, plus 1 per 800 square feet of operations
<b>Business or trade school</b>	1 per employee on largest shift, plus 1 per 4 students
<b>Commercial indoor amusement and recreation, bowling alleys, skating rinks</b>	1 space for each 3 persons based on maximum occupancy, plus 1 space per employee on largest shift
<b>Commercial indoor entertainment, theaters, concert halls</b>	1 for each 3 seats, plus 1 space per employee on largest shift
<b>Commercial outdoor recreation and amusement, motor vehicle racing, driving ranges, amusement park, shooting range</b>	1 per each 3-person based on maximum occupancy load, plus 1 space per employee on largest shift
<b>Day care center</b>	1 for each 250 square feet
<b>Farmer's market, seasonal outdoor sales</b>	6, plus 1 per 250 square feet
<b>Financial institutions</b>	1 for each 250 square feet of floor area, plus 4 stacking spaces per service window
<b>Funeral homes</b>	1 for each 50 square feet of main assembly area, 30 spaces minimum
<b>Garden center</b>	1 for each 300 square feet

<b>Table 36.15. Minimum Off-Street Parking Requirements</b>	
<b>Uses</b>	<b>Minimum Number of Required Parking Spaces</b>
<b>Hospitals</b>	1 per patient bed
<b>Hotel</b>	1 for each bedroom or unit, plus required parking for any restaurant or assembly space
<b>Nursing homes</b>	1 per 2 beds
<b>Office, general</b>	1 for each 400 square feet of floor area
<b>Offices, medical or clinic</b>	1 per 200 square feet of floor area; 10 spaces minimum for a clinic
<b>Personal services, personal improvement services, consumer repair service, business support service, fine arts studio, tattoo parlor</b>	1 for each 500 square feet of floor area
<b>Restaurants (except drive-in)</b>	1 for each 150 square feet of floor space, including outside seating
<b>Restaurants, drive-in</b>	1 for each 150 square feet of floor area plus stacking spaces as required in the Use Performance Standards section
<b>Retail store (all types)</b>	1 for each 250 square feet of floor area
<b>Tradesperson service, catering facility, janitorial business</b>	1 per 3 employees on maximum working shift plus space for storage of trucks or other vehicles used in connection with business
<b>Veterinary hospital, commercial kennel</b>	1 for each 400 square feet of floor area
<b>Industrial Uses</b>	
<b>Construction yard, junkyard</b>	1 per employee on maximum working shift plus space for storage of trucks or other vehicles used in connection with business
<b>Manufacturing, light or heavy, laboratory research and development</b>	1 per employee on maximum working shift plus space for storage of trucks or other vehicles used in connection with the business or industry

Table 36.15. Minimum Off-Street Parking Requirements	
Uses	Minimum Number of Required Parking Spaces
Warehouses, wholesales sales, distribution	1 for each 1,250 square feet of floor area
<b>Accessory Uses</b>	
Accessory dwelling unit	1 per unit
Bed-and-breakfast, short-term rental	1 for each bedroom in addition to parking spaces required for permanent residents of the building
Family home day care (1-4 individuals)	1 plus residential requirement
Home occupation	<b>Type A:</b> 1 plus residential requirement, <b>Type B:</b> 3 plus residential requirement

**Section 36.463. — Interpretation of Specific Requirements for Table 36.15.**

- (a) The parking requirements above are in addition to space for storage of trucks, campers, recreation vehicles, or other similar vehicles used in connection with the use.
- (b) The parking requirements in this division do not limit other parking requirements contained in the district regulations.
- (c) The parking requirements in this division do not limit special requirements, which may be imposed for approval of a conditional use or special exception.
- (d) For residential uses, the total number of off-street parking spaces provided inside a private garage shall be calculated based on the intended design of the garage.
- (e) Except as otherwise provided, the number of employees shall be compiled on the basis of the maximum number of persons employed on the premises at one time on an average day or average night, whichever is greater. Seasonal variations in employment may be recognized in determining an average day.
- (f) The parking space requirements for a use not specifically listed in the chart shall be the same as for a listed use of similar characteristics of parking demand generation.
- (g) In the case of mixed uses, uses with different parking requirements occupying the same building or premises, or in the case of joint use of a building or premises by more than one use having the same parking requirements, the parking spaces required shall equal the sum of the requirements of the various uses computed separately.
- (h) Whenever a building or use is changed or enlarged in floor area, number of employees, number of dwelling units, seating capacity or otherwise, to create a need under the requirements of this division for an increase in parking spaces of 10 percent or more, such additional spaces shall be provided on a basis of the change or enlargement. No additional spaces shall be required for the first change or enlargement which would result in an increase of spaces of less than 10 percent of those required before the change or enlargement, but this exception shall not apply to a series of changes or enlargements which together result in a need for an increase in parking space of 10 percent or more.

**Section 36.464. – Recreational Vehicle and Boat Parking.**

- (a) Occupied Lots. On lots with a principal structure, no more than two recreational vehicles, boats, trailers, or combination thereof may be parked externally.
- (b) Vacant Lots. On lots without a principal structure:
  - (1) The parking of recreational vehicles, boats, and/or trailers on vacant lots is prohibited except when the owner of the vacant lot owns a contiguous parcel that contains a principal structure.
  - (2) For vacant lots under shared ownership with a contiguous parcel that contains a principal structure, no more than two recreational vehicles, boats, trailers, or combination thereof may be parked externally.
- (c) Location on Lots. All parked recreational vehicles and boats must meet the minimum side and rear setbacks required for an accessory structure and the front setback of the district in which it is placed.
- (d) Exceptions. These standards shall not apply to Recreational vehicle storage, commercial or Outdoor storage where permitted and in compliance with this ordinance.

**Section 36.465. – Off Street Loading Requirements.**

- (a) Off-street loading shall be provided at the time of the erection of any building or structure or at the time any building or structure is altered, enlarged, or increased in capacity by adding dwelling units, guest rooms, floor area, or seats, or a change of use, not less than the amount of loading space given in article VII, section 8, Off-street loading requirements.
- (b) *Location.* All required off-street loading areas shall be located on the same lot as the use served and with the ability to be adequately screened as outlined in the design standards below.
- (c) *Surfacing.* All off-street loading areas shall be surfaced with an improved dustless surface.
- (d) *Utilization.* Space allocated to any off-street loading use shall not be used to satisfy the space requirements for any off-street parking area or portion thereof.
- (e) *Specific Requirements by Use.* Except as otherwise provided in this Ordinance, when any building or structure is hereafter erected, or structurally altered to the extent of increasing the floor area by twenty-five (25) percent or more, or any building in hereafter converted, for the uses listed below, when such buildings contain the floor areas specified, accessory off-street loading spaces shall be provided as required below or as required in subsequent sections of this Division.

Table 36.16. Minimum Off-Street Loading Requirements		
Use or Use Category	Floor Area (SF)	Loading Spaces Required
Commercial and Industrial establishments (except those uses listed below)	0-1,999	None
	2,000-20,000	One
	20,001-100,000	One space, plus one space for each 20,000 sq. ft.
	Each 40,000 over 100,000	One Additional
Dwelling, multifamily; funeral home; hotel; office; hospital or similar institutions; or places of public assembly	0-4,999	None
	5,000-10,000	One
	10,001-100,000	Two
	100,001-200,000	Three
	Each 100,000 over 200,000	One Additional

**Section 36.466. — Interpretation of Specific Requirements for Table 36.16.**

(a) *Loading Requirements.*

- (1) The loading space requirements apply to all districts but do not limit the special requirements which may be imposed in the district regulations.
- (2) The loading space requirements in this division do not limit special requirements which may be imposed in connection with uses permitted by approval of a conditional use or special exception.

(b) *Joint Use of Space.* Where a building is used for more than one use or for different uses, and where the floor area used for each use for which loading space is required is below the minimum for required loading spaced but the aggregate floor area used is greater than such minimum, then off-street loading space shall be provided as if the entire building were used for the use in the building for which the most spaces are required. In such cases, the Administrator may make reasonable requirements for the location of required loading.

**Section 36.467. — Design Standards for Off-Street Loading.**

- (a) *Minimum Size.* For the purpose of the regulations of this division, a loading space is a space within the principal building or on the same lot providing for the standing, loading, or unloading of trucks, and having a minimum area of 480 square feet, a minimum width of 12 feet, a minimum depth of 40 feet, and a vertical clearance of at least 15 feet.
- (b) *Screening.* Whenever an off-street loading area is located in or adjacent to a residential district, it shall be effectively screened on all sides which adjoin or face any property used for residential purposes by an acceptable solid masonry wall, a uniformly painted solid board fence, or evergreen hedge. Such screen shall be maintained in good condition and not less than four feet nor more than 6 feet in height, except in areas requiring natural air circulation, unobstructed view or other technical considerations necessary for proper operation, may submit a screening plan to be approved by the Zoning Administrator.
- (c) *Loading Space for Funeral Homes.* Loading spaces for a funeral home may be reduced in size to 10 by twenty-five (25) feet and vertical clearance reduced to 8 feet.
- (d) *Entrances and Exits.* Location and design of entrances and exits shall be in accord with applicable requirements of the district regulations and traffic regulations and standards. Where the entrance or exit of a building is designed for truck loading and unloading, such entrance or exit shall be designed to provide a least one off-street loading space. Where an off-street loading space is to be approached directly from a major thoroughfare, necessary maneuvering space shall be provided on the lot.

Reserved 36.468 — 36.474.

### **Division 3. — Lighting**

#### **Section 36.475. — Purpose and Intent.**

The purpose of this Division is to:

- (1) Permit the use of exterior lighting at the minimum level necessary for nighttime safety, utility, security, productivity, enjoyment, and commerce;
- (2) Ensure exterior lighting does not adversely impact land uses on adjacent land by minimizing light trespass, obtrusive light, and glare;
- (3) Curtail light pollution, reduce sky glow, and preserve the nighttime environment for astronomy, wildlife, and enjoyment of residents and visitors; and,
- (4) Ensure security for persons and property.

#### **Section 36.476. — Applicability.**

- (a) General. The provisions of division 3 shall apply to all business zoning districts, industrial zoning districts, the R-3 High Density Residential District, the MH-1 Mobile Home Park District, and on any property located within any other zoning district that is used for non-residential purposes through a permitted use, an administrative permit, or a conditional use permit.
- (b) Time of Review. Review for compliance with the standards of this division shall occur as part of the review of an application for a site plan, planned development, certificate of approval, certificate of zoning use, conditional use or variance as appropriate by the Zoning Administrator.
- (c) Existing Development. Compliance with these standards, to the maximum extent practicable, shall also apply to redevelopment of an existing structure, building, or use when it is expanded, enlarged, or otherwise increased in intensity equivalent to or beyond 50 percent.
- (d) Signs. Lighting for signage shall be governed by the standards set forth in the separate division of this Zoning and Subdivision Ordinance regulating signs.
- (e) Exemptions. All lighting must be the minimum light required to serve the purpose, shall not spill beyond the property line, and shall be cast downward where feasible. The following are exempted from the additional exterior lighting standards of Article VII:
  - (1) Lighting within a public street right-of-way or easement that is used principally for illuminating a roadway;
  - (2) Lighting exempt under state or federal law;
  - (3) Lighting for public monuments and statuary;
  - (4) Lighting that is required under the Uniform Statewide Building Code;
  - (5) Construction, emergency, or holiday decorative or festive lighting, provided such lighting does not create unsafe glare on street rights-of-way and is used for 90 days or less;
  - (6) Temporary lighting for circuses, fairs, carnivals, theatrical and other performance areas, provided such lighting is discontinued upon completion of the performance;
  - (7) Security lighting that is directed downward, does not glare onto adjacent property, and is controlled and activated by motion sensor devices for a duration of 15 minutes or less;

- (8) Lighting for flags of the United States of America or the Commonwealth of Virginia, or any department, division, agency or instrumentality thereof, and other noncommercial flags expressing constitutionally protected speech;
- (9) Architectural lighting of 40 watts incandescent or less;
- (10) Lighting for an outdoor athletic facility;
- (11) The replacement of an inoperable lamp or component which is in a luminaire that was installed prior to the date of the adoption of this division;
- (12) The replacement of a failed or damaged luminaire that is one of a matching group serving a common purpose installed prior to the adoption of this division.

**Section 36.477. — Standards.**

- (a) Each outdoor luminaire subject to these outdoor lighting requirements shall be a full cutoff luminaire. The term full cut-off fixture means an outdoor light fixture shielded in such a manner that all light emitted by the fixture, either directly from the lamp or indirectly from the fixture, is projected down below the fixture.
- (b) In addition to being full cut-off lighting, all lighting shall be aimed and controlled such that directed light is directed inward to the property and confined to the object intended to be illuminated. Directional control shields shall be used when necessary to limit stray light and prevent glare to adjacent properties and vehicular public rights-of-way.
- (c) All exterior lights shall be 3,000 Kelvin light color temperature or less.
- (d) High-pressure sodium vapor or light emitting diode (LED) lights shall be the preferred type of exterior site lighting. The use of mercury vapor lights shall be discouraged in any exterior lighting applications, except for under-canopy lighting for gasoline pump islands, bank, or other drive-through or drive-in facilities.
- (e) Light fixtures under any canopy shall be recessed into the canopy ceiling with a flat lens to prevent glare.
- (f) Light fixtures in parking lots shall not be more than 20 feet in height in the Business Districts, High Density Residential District, and no more than 30 feet in height in the Industrial Districts.
- (g) Lighting for buildings, signs, accessways, and parking areas shall be so arranged as not to reflect toward public streets or cause any annoyance to surrounding property owners or residents

**Section 36.478. — Compliance.**

- (a) The lighting standards shall be enforced by the Essex County Zoning Administrator. Modifications of the lighting standards contained herein may be approved by the Zoning Administrator upon a determination that the lighting is necessary for nighttime safety, utility, security, productivity, enjoyment, and commerce and does not adversely impact pedestrians, traffic or adjacent properties.
- (b) An appeal to the Board of Zoning Appeals may be taken by any person aggrieved or by any officer, department, board, or bureau of the County affected by any decision of the Zoning Administrator in enforcement of this division as outlined in Article II, Division 6 of this Ordinance.

Reserved 36.479. — 36.484.

## **Division 4. — Landscaping, Walls, and Fences**

### **Section 36.485. — Purpose and Intent.**

The purpose of this division is to establish standards for landscape architecture, site design, site buffering, landscape screening, and regulate the location, height, and appearance of fences and walls. With the intent of preserving and promoting the health, safety, and general welfare of the County, this division is intended to:

- (1) Preserve and enhance the aesthetic character and visual harmony of the County;
- (2) Protect the quality of the County's natural rivers, streams, and wetlands;
- (3) Enhance erosion control;
- (4) Improve the relationship between adjacent properties through screening, buffering, and proper placement and design of fences and walls;
- (5) Promote economic development in the County's business districts and main thoroughfares; and,
- (6) Ensure the safety, security, and privacy of properties.

### **Section 36.486. — Application of Landscape, Wall, and Fence Standards.**

- (a) These requirements shall apply to:
  - (1) All new developments, or redevelopments, requiring an approved site plan or uses requiring a buffer in the use development standards as specified by this Ordinance.
  - (2) All properties seeking rezoning to R-3, PUD, MH-1, B-1, B-2, I-1, or I-2 zoning.
  - (3) All properties seeking a conditional use permit in a R-1, R-2, R-3, PUD, B-1, B-2, I-1, or I-2 zoning district under the requirements of this Ordinance.
- (b) These requirements shall not apply to parcels containing single-family detached dwellings or two-family dwellings.

### **Section 36.487. — Landscape Plan Requirements.**

- (a) The landscape plan shall:
  - (1) Be prepared and/or certified by a landscape architect, landscape nursery person, horticulturalist, or other design professional practicing within their area of competence; provided, however, that in the case of a single lot disturbing less than 10,000 square feet, the landscaping plan may be prepared by the property owner.
  - (2) Cover the entire project area included in the overall site plan or development plan for which approval is sought.
- (b) The landscape plan shall include:
  - (1) Location, type, size, height, and number of proposed plantings.
  - (2) Planting specifications or installation details.
  - (3) Location and size of all existing plants and trees to be retained during construction, as well as protection measures to be implemented during construction.
  - (4) Location, size, and other related design details for all hardscape improvements, signage, recreational improvements, and open space areas, fences, walls, barriers, and other related elements.
  - (5) Designation of required setbacks, yards, and screening areas.

- (6) Location of other man-made site features, parking lots, hardscape improvements, overhead structures, and underground utilities to ensure that landscape materials will not be in conflict with the placement and operation of these improvements.
- (c) The following factors shall be considered:
  - (1) Location of trees, shrubs, groundcovers, and other landscaping to effectively utilize the natural capacities of plant materials to intercept and absorb airborne and runoff-related pollutants, and to reduce runoff volume, velocity, and peak flow increases caused by development.
  - (2) Preservation and protection of existing viable and mature trees to the maximum extent feasible.
  - (3) Appropriateness of plants and locations for the specific characteristics of the site and the purpose for installation.
  - (4) A preference to design and plant materials which are native and with reduced water needs.
  - (5) An emphasis on landscaping in front of the principal building on the site and on providing appropriate breaks in parking and vehicular areas.

**Section 36.488. — General Standards.**

- (a) Any required landscaping shall be installed prior to the issuance of a certificate of occupancy. When the planting of landscaping conflicts with the planting season, a certificate of occupancy may be issued subject to the owner or developer providing surety in an amount approved by the Zoning Administrator for any remaining plantings. The owner or developer shall provide a development agreement which sets a deadline by which the plantings will be installed to be approved by the Zoning Administrator. The surety and agreement shall be in a form approved by the County attorney.
- (b) Existing healthy trees and shrubs shall be credited toward any minimum landscaping required by this division, provided they meet minimum size standards and are protected before and during construction and maintained thereafter in a healthy growing condition.
- (c) The owner of the property upon which the required landscaping or buffering is installed shall be responsible for maintenance and replacement. If any required tree, shrub, or other landscaping element shall die or be removed after issuance of the certificate of occupancy, the developer, his or her successors or assigns, shall replace each by the end of the next planting season with trees or shrubs of the same or similar species, type, color, or character.
- (d) Landscaping shall not obstruct the view of motorists using any street, private driveway, parking isles, or the approach to any street intersection so as to constitute a traffic hazard or a condition dangerous to the public safety.
- (e) All required landscape materials shall conform to the following minimum size or height standards at the time of planting:
  - (1) Deciduous shade trees: 2” caliper
  - (2) Ornamental and understory trees: 4’ height
  - (3) Coniferous trees: 6’ height
  - (4) Shrubs: 12” spread or height

**Section 36.489. — Buffering.**

- (a) Landscape buffering is intended to provide a year-round visual screen between two or more properties in order to minimize visual and other adverse impacts. Buffering may consist of fencing, evergreens, boulders, mounds, or a combination of materials.

- (b) A landscape buffer area shall be required where:
  - (1) A business zoning district abuts a residential zoning district;
  - (2) Industrial zoned development abuts a residential, business, or Planned Unit Development zoning district;
  - (3) Multi-family residential development abuts any property zoned R-1 or R-2; or
  - (4) Where buffering is required under the Use Performance Standards.
- (c) A landscape buffer area shall be required where accessory outdoor storage use is adjacent to a business or residential district.
- (d) Required buffers shall consist of a continuous six-foot high buffer with a minimum width of 25 feet. Buffers shall be comprised of:
  - (1) A solid masonry wall or opaque fence at least six feet in height and landscaping consisting of two deciduous trees and four evergreen trees per 100 linear feet of buffer; or,
  - (2) Landscaping consisting of:
    - a. One evergreen tree per seven linear feet of buffer, which shall be placed in two staggered rows six feet apart;
    - b. One understory tree per twenty-five linear feet of buffer;
    - c. One deciduous tree per fifty linear feet of buffer; and,
    - d. One shrub per three linear feet of buffer.
- (e) Plants should be sufficiently large and planted in such a fashion that a year-round screen at least 6 feet in height shall be produced within one growing season.
- (f) No buildings, structures, storage of materials, or parking shall be permitted within a buffer area.
- (g) Buffer plantings shall be maintained in perpetuity in such a way as to ensure that the buffering requirements of this Ordinance continue to be met. Any dead or dying plants shall be removed within 30 days of notification by the Zoning Administrator and shall be replaced by the property owner during the next viable planting season.

**Section 36.490. — Parking Lot Landscaping.**

- (a) All vehicle parking areas shall include landscaping, both within the interior of the parking area and around its perimeter, to provide shade, screen views, mitigate runoff, and provide aesthetic appeal. However, the landscape provisions of this division shall not apply to off-street parking for individual single or two-family residential dwellings or for parking structures.
- (b) Parking Lots Adjacent to Lot Lines: For parking lots immediately adjacent to lot lines, the following landscape regulations shall apply:
  - (1) Where a parking lot (or a private driveway providing access to a parking lot or building entry) abuts a property line not common with the right-of-way of a street, a landscaping strip of 10 feet in width shall be located between the parking lot and the abutting property line.
  - (2) A minimum of one tree for each 40 feet of contiguous property line shall be planted in the landscape strip.
  - (3) Parking Lots Adjacent to Public Streets: For parking lots and private access adjacent to public streets, the following landscape regulations shall apply:

- a. Where a parking lot (or a private driveway providing access to a parking lot or building entry) abuts a public right-of-way, a landscaping strip of 10 feet in width (not including the sidewalk) shall be located between the parking lot or private driveway and the right-of-way line.
- b. A minimum of one tree for each 40 feet of property line common with the public right-of-way shall be planted in the landscaping strip.
- (c) Landscaped planting islands (located such that parking spaces are on opposing sides of the planting island) shall be developed in parking lots meeting the following criteria:
  - (1) The total size of the parking lot exceeds 50 total parking spaces or;
  - (2) Parking lot layout incorporates three or more double-loaded or single-loaded parking bays which are contiguous and parallel to each other.
- (d) Parking Lots with Planting Islands: For parking lots with planting islands, the following regulations shall apply:
  - (1) Interior planting islands shall, at a minimum, be provided at both ends of all bays and may also be provided within a continuous landscaped median separating two rows of parking.
  - (2) The minimum landscape area shall be 10 percent of the parking area.
  - (3) One landscape island is required for every 10 spaces.
  - (4) A minimum of one tree for each five spaces of required parking. The remaining area of the island shall be landscaped with shrubs, ground cover, lawn or additional trees.
  - (5) Planting islands shall have a minimum width of 8 feet to allow for bumper overhang and shall otherwise provide adequate width for the growth and maintenance of the intended landscape materials to be planted therein.
  - (6) Except in the case of redevelopment proposals, this parking lot tree requirement is only applicable to those proposals that necessitate additional parking spaces over those that are currently provided.
- (e) The primary landscaping materials used in parking lots shall be trees which provide shade or are capable of providing shade at maturity. Shrubs and other live planting material may be used to complement the primary landscaping.
- (f) The landscaping shall be dispersed throughout the parking lot, with interior dimensions of any planting area (i.e., interior parking median or island) sufficient to protect and maintain all landscaping materials planted therein.
- (g) Parking lot landscaping shall be installed and continuously maintained by the owner according to the requirements contained in this article.

**Section 36.491. — Screening and Enclosure.**

- (a) Screening shall be required to conceal specific areas from both on-site and off-site views. Such areas shall be screened at all times, regardless of adjacent uses, adjacent districts, or other proximate landscaping material. Specific areas to be screened include:
  - (1) Waste receptacles (dumpsters) and refuse collection points (including cardboard recycling containers);
  - (2) Loading and service areas;
  - (3) Outdoor storage areas (including storage tanks);
  - (4) Ground-based utility equipment with size in excess of 12 cubic feet; and,
  - (5) Ground level mechanical units.

- (b) The above-mentioned areas shall be screened using an appropriate combination of landscape plants, solid fencing, or masonry walls to adequately screen them from views both on and off the subject property.
- (c) Waste receptacles and refuse containers shall be fully enclosed with tightly fitting lids.
- (d) Access to all grease containers, recycling and trash containers, and other outside storage shall be through gates capable of closure when not in use. All gates shall be closed and secured when not in use.
- (e) Screening plantings shall be maintained in perpetuity in such a way as to ensure that the screening requirements of this Ordinance continue to be met. Any dead or dying plants shall be removed within 30 days of notification by the Zoning Administrator and shall be replaced by the property owner during the next viable planting season.

**Section 36.492. — Tree and Plant Standards.**

- (a) Recommended Trees and Plants.
  - (1) Landscaping plans and plantings should generally be sustainable and biologically diverse with emphasis on trees and plants native to Virginia and the Tidewater region.
  - (2) Landscape designers shall make every effort to use healthy and locally-sourced trees, shrubs, and other plants, and to create landscapes that minimize the need for maintenance and irrigation. Invasive species are not recommended.
  - (3) Final plant selections should be made by property owners in conformance with the landscape plan regarding type (evergreen or deciduous), height and width at maturity, and in consultation with qualified landscape professionals, and should consider specific site conditions, disease resistance, and other qualities to ensure healthy and beautiful landscapes.
- (b) Tree protection standards.
  - (1) Trees which are to be preserved on site shall be protected before, during, and after the development process utilizing accepted practices. At minimum, the tree protection practices set out in the Virginia Erosion and Sediment Control Handbook, as amended, shall be utilized.
  - (2) Trees selected for preservation in order to obtain landscaping credits shall be shown on the landscape plan and clearly marked in the field. In woodland areas, groups of trees shall be selected for preservation rather than single trees wherever possible.
  - (3) Trees and groups of trees which are to be preserved shall be enclosed by a temporary fence or barrier to be located and maintained five feet outside of their dripline during construction. Such a fence or barrier shall be installed prior to clearing or construction, shall be sufficient to prevent intrusion into the fenced area during construction, and in no case shall materials, vehicles, or equipment be stored or stockpiled within the enclosure. Within the fenced area, the topsoil layer shall not be disturbed except in accordance with accepted tree protection practices.
  - (4) The developer shall be responsible for notifying all construction personnel of the presence and purpose of clearing limits and protective fences or barriers and for ensuring that they are observed.
  - (5) Where grade changes in excess of six inches from the existing natural grade level are necessary, permanent protective structures such as tree wells or walls shall be installed as recommended by the tree preservation and protection standards outlined in the State Erosion and Sediment Control Handbook.
- (c) Tree preservation standards. In determining which trees shall be preserved, consideration shall be given to preserving trees which:
  - (1) Are heritage, memorial, significant, and specimen trees;

- (2) Complement the project design including the enhancement of the architecture and streetscape appearance;
- (3) Can tolerate environmental changes to be caused by development (i.e., increased sunlight, heat, wind, and alteration of water regime);
- (4) Have strong branching and rooting patterns;
- (5) Are disease and insect resistant;
- (6) Complement or do not conflict with stormwater management and best management practice designs;
- (7) Are located in required buffer areas;
- (8) Exist in natural groupings, including islands of trees;
- (9) Do not conflict with necessary utility; and
- (10) Have been recommended by the Commonwealth Department of Forestry, the county cooperative extension service, or a certified arborist or urban forester for preservation.

**Section 36.493. — Walls and Fences.**

- (a) Fences and walls may be used within landscaped areas to provide buffering, privacy, separation, security, or for aesthetic reasons, but may not create an unsightly or unsafe condition on or off of the public or private property on which the fence or wall is proposed.
- (b) The provisions of this section shall apply to all construction, reconstruction, or replacement of fences or walls except:
  - (1) Those required for support of a principal or accessory structure;
  - (2) Engineered retaining walls necessary to the development of a site; or,
  - (3) Temporary fences for construction activities, trees protection, and erosion and sediment control.
- (c) Fences or walls shall not be located within the public right-of-way.
- (d) Fences and walls may be located within any required yard or setback.
- (e) Fences located within an easement shall receive written authorization from the easement holder or the County (as appropriate). The County shall not be responsible for damage to, or the repair or replacement of, fences that must be removed to access such easements or facilities.
- (f) No fence or wall shall be installed in a manner or in a location so as to block or divert a natural drainage flow on to or off of any other land, unless the fence or wall has specifically been approved as part of an approved stormwater management plan.
- (g) Fences and walls within buffers shall be installed so as not to disturb or damage existing vegetation or installed plant material.
- (h) No fence or wall shall be constructed in a manner or in a location that impairs safety or sight lines for pedestrians and vehicles traveling on public rights of way.
- (i) Appearance.
  - (1) *Customary Materials.* Fences and walls shall be constructed of any combination of treated wood posts and vertically-oriented planks, rot-resistant wood, wrought iron, decorative metal materials, brick, stone, masonry materials, or products designed to resemble these materials. Where wood, masonry,

or other opaque materials are specified for particular types of screening or buffering fences or walls, all other fence materials are prohibited.

- (2) *Finished Side to Outside.* Wherever a fence or wall is installed, if one side of the fence or wall appears more “finished” than the other (e.g., one side has visible support framing and the other does not), then the more “finished” side of the fence shall face the perimeter of the lot rather than the interior of the lot.
- (3) *Compatibility of Materials Along a Single Lot Side.* All fencing or wall segments located along a single lot side shall be composed of a uniform style, material, and color compatible with other parts of the fence.
- (4) Chain link fencing shall be allowed, subject to the following requirements:
  - a. Agricultural Districts: Chain link fencing is permitted on lots within agricultural zoning districts.
  - b. Residential Districts: Chain link fencing is permitted on lots within residential zoning districts, provided it does not include opaque slats.
  - c. Industrial Districts: Chain link fencing shall be allowed on lots within “I” zoning districts, provided it is coated with black or dark green vinyl. Where opaque fencing is required, the chain link fencing may include black or dark green opaque slats.
  - d. Business/Planned Districts: Chain link fencing shall only be allowed on lots within “B” or “P” zoning districts where the chain link fencing is not visible from any street right-of-way. The chain link fencing shall be coated with black or dark green. Where opaque fencing is required, the chain link fencing may include black or dark green opaque slats.
- (j) *Prohibited Materials.* Fences or walls made of debris, junk, rolled plastic, sheet metal, plywood, or waste materials are prohibited in all zoning districts unless such materials have been recycled and reprocessed into new building materials.
- (k) All fences and walls and associated landscaping shall be maintained in good repair and in a safe and attractive condition. The owner of the property on which a fence or wall is located shall be responsible for maintenance, including but not limited to, the replacement of missing, decayed, or broken structural and decorative elements.

#### **Section 36.494. — Compliance.**

The landscaping standards shall be enforced by the Essex County Zoning Administrator. Modifications of the layout and design standards contained herein may be approved by the Zoning Administrator upon a determination that the following conditions exist:

- (1) The proposed layout and design provide landscaping which will have the same or similar screening impact, intensity, or variation throughout the year when viewed from adjacent properties or rights-of-way as that which would be required by strict interpretation of the standards contained in this subsection.
- (2) The proposed layout and design fully integrate and complement the existing trees to be preserved on the site.
- (3) Any trees or shrubs installed or preserved on the site which exceed the minimum numerical requirements of this chapter shall not be subject to the species mixture, locational, maintenance or replacement requirements contained herein.

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- (4) The Zoning Administrator may reduce full buffering and screening to partial buffering and screening as deemed appropriate when uses are in-kind with adjacent uses.
- (5) An appeal to the Board of Zoning Appeals may be taken by any person aggrieved or by any officer, department, board or bureau of the County affected by any decision of the Zoning Administrator in enforcement of this Article as outlined in Article II, Division 6 of this ordinance.

Reserved 36.495 — 36.504

## **ARTICLE VIII. — NONCONFORMITIES**

### **Section 36.505. — Intent.**

With the districts established by this Ordinance or amendments that may later be adopted, there exists lots, structures, and use of land and structures in combination which were lawful before this Ordinance was adopted or amended, but which would be prohibited, regulated, or restricted under the terms of this Ordinance or future amendments. It is the intent of this Ordinance to permit these nonconformities to continue as established prior to Ordinance adoption.

### **Section 36.506. — Generally.**

Except as otherwise provided in this Ordinance, any lawful use, building, or structure existing at the time of an amendment to this Ordinance may be continued even though such use, building, or structure may not conform to this Ordinance's provisions and shall be deemed nonconforming. A change in occupancy or ownership shall not affect the right for the use to continue or the building or structure to remain. A building permit or special use permit lawfully granted before November 10, 2022 shall not be affected by this provision.

### **Section 36.507. — Nonconforming Lots of Record.**

In any district, structures may be erected on a nonconforming lot of record at the effective date of adoption or amendment of this Ordinance or land may be used notwithstanding limitations imposed by other provisions of this Ordinance. This provision shall apply even though such lot fails to meet the requirements for area or width, or both, that are generally applicable in the district, provided that yard dimensions and requirements, other than those applying to area or width, or both, shall conform to the regulations for the district in which such lot is located. Variance of yard requirements shall be obtained through the modification or variance processes outlined in Article III of this Ordinance.

A developed nonconforming lot may continue in existence but may not be altered except in accordance with this article.

A nonconforming lot may become a conforming lot by meeting the current minimum lot size, lot width, and lot frontage requirements of the zoning district in which the lot is located through the following actions:

- (1) A consolidation of the nonconforming lot with an adjacent lot;
- (2) A boundary adjustment between two contiguous lots, one being nonconforming and the other being conforming, provided such adjustment does not make the conforming lot nonconforming, does not create an additional lot, and does not increase the nonconforming lot's nonconformity; or
- (3) Rezoning to a different zoning district to meet the lot size, lot width, and lot frontage requirements of that district.

### **Section 36.508. — Nonconforming Use.**

A nonconforming use may continue as it existed when it became nonconforming. A nonconforming use shall not be reconstructed, relocated, altered, or expanded in any manner, including the addition of new accessory uses, except as provided for in this section.

- (1) A nonconforming use may change to a conforming use.
- (2) The nonconforming use may be extended throughout those parts of a building which are lawfully and manifestly arranged or designed for such use at the time of enactment of this Ordinance provided there are no structural alterations, expansion or enlargement except those required by law or lawful order.

- (3) A nonconforming use may be changed to another nonconforming use of the same or of a more restricted classification. Whenever a nonconforming use of land or buildings has been changed to a more restricted use or to a conforming use, such use shall not thereafter be changed to a less restricted use.
- (4) A nonconforming use may reduce its footprint or become lesser in size by up to 50 percent. Whenever a nonconforming use of land has been changed to a more restricted size, such use shall not thereafter be changed to a greater size.
- (5) A nonconforming dwelling unit may have a home occupation subject to the requirements of Article V and VI.
- (6) A nonconforming use shall lose its nonconforming status, and any further use shall conform to the requirements of this Ordinance when:
  - a. The nonconforming use is discontinued for a period of two years, regardless of whether or not equipment or fixtures are removed, shall be deemed abandoned and any subsequent use shall be in conformity with the regulations of the district in which such building or land is located.
    1. However, on application made to the Administrator by the owner or any party in interest, the Administrator may extend the aforesaid two-year period up to an additional two years for good cause.
  - b. The nonconforming use is intentionally abandoned, regardless of the length of time that has passed.
- (7) The casual, intermittent, temporary or illegal use of land or buildings shall not be sufficient to establish the existence of a nonconforming use, and the existence of a nonconforming use on a part of a lot or tract shall not be construed to establish a nonconforming use on the entire lot or tract.
- (8) When evidence available to the Administrator is deemed by him to be inconclusive, whether a nonconforming use exists shall be a question of fact and shall be decided by the Board of Zoning Appeals after public notice and hearing and in accordance with the rules of the Board.

**Section 36.509. — Buildings Nonconforming in Height, Area, or Bulk.**

A building nonconforming only as to height, area, or bulk requirements may be altered or extended, provided such alteration or extension does not increase the degree of nonconformity in any respect.

**Section 36.510. — Nonconforming Buildings, Structures, and Improvements.**

- (a) A nonconforming structure or use to be extended or enlarged shall conform with the provisions of this Ordinance.
- (b) A nonconforming building or structure shall include those circumstances where the county has:
  - (1) Issued a building permit or other permit authorizing construction and the building or structure was constructed in accordance with the building permit, and upon completion, the County issued a certificate of occupancy; or
  - (2) The owner of the building or structure has paid real estate taxes to the County for such building or structure for a period of more than the previous 15 years.

Any such building or structure may be brought into compliance with the Uniform Statewide Building Code without affecting the nonconforming status of the building or structure.

- (c) Additionally, a nonconforming building or structure shall include those circumstances where:

- (1) A permit was not required and an authorized governmental official informed the property owner that the structure would comply with the Zoning and Subdivision Ordinance; and
- (2) The improvements were then constructed accordingly.

In any proceeding when the authorized county official is deceased or unavailable to testify, uncorroborated testimony of the oral statement of such official shall not be sufficient evidence to prove that the authorized county official made such statement.

- (d) If a nonconforming building or structure is damaged or destroyed, even if 50 percent or greater, by fire, natural disaster or other act of God, such building or structure may be repaired, rebuilt or replaced provided that:
- (3) The nonconforming features are eliminated or reduced to the extent possible, without the need to obtain a variance;
  - (4) The owner shall apply for a building permit and any work done to repair, rebuild or replace such building shall be in compliance with the provisions of the Uniform Statewide Building Code;
  - (5) The requirements of the floodplain management regulations in the County Code are met; and
  - (6) The work is done within two years unless the building is in an area under a federal disaster declaration and was damaged or destroyed as a direct result of the disaster, in which case the time period shall be extended to four years.

Owners of property damaged by an accidental fire have the same rights to rebuild such property as if it were damaged by an act of God. Nothing herein shall be construed to enable the property owner to commit an arson and obtain vested rights under this section.

- (e) If a nonconforming mobile home is removed other than by natural disaster or public action, it may not be replaced except as provided for below unless it complies with regulations within the Ordinance.

Nothing in this section shall be construed to prevent the landowner or homeowner from removing a valid nonconforming manufactured home from a mobile or manufactured home park and replacing that home with another comparable manufactured home that meets the current HUD manufactured housing code. In such mobile or manufactured home park, a single-section home may replace a single-section home and a multi-section home may replace a multi-section home. The owner of a valid nonconforming mobile or manufactured home not located in a mobile or manufactured home park may replace that home with a newer manufactured home, either single- or multi-section, that meets the current HUD manufactured housing code. Any such replacement home shall retain the valid nonconforming status of the prior home.

### **Section 36.511. — Repairs and Maintenance.**

On any building devoted in whole or in part to any nonconforming use, work may be done in any period of 12 consecutive months on ordinary repairs or on repairs or replacement of nonbearing walls, fixtures, wiring or plumbing to an extent not exceeding 20 percent of the current replacement value of the structure; provided, that the cubic content of the structure as it existed at the time of passage or amendment of this Ordinance, shall not be increased. Nothing in this Ordinance shall be deemed to prevent the strengthening or restoring to a safe condition of any structure or part thereof declared to be unsafe by any official charged with protecting the public safety, on order of such official.

Reserved 36.512. – 36.519

## ARTICLE IX. — SUBDIVISIONS

### Division 1. — In General

#### Section 36.520. — Title.

This article shall be known and may be cited and referred to as the “Subdivision Ordinance of Essex County, Virginia.”

#### Section 36.521. — Recording of ordinance.

In accord with the Code of Virginia § 15.2-2252, a certified copy of the adopted subdivision Ordinance and any and all amendments thereto shall be filed in the office of the Subdivision Agent (Agent) and in the Clerk's Office of the Circuit Court.

#### Section 36.522. — Amendments.

Per the Code of Virginia, §§ 15.2-2251 and 2253, this article may be amended in whole or in part by the governing body; provided, that any such amendment shall either originate with or be submitted to the Planning Commission for recommendation; further provided, that no such amendment shall be adopted without a public hearing having been held by the governing body in accordance with § 15.2-2204. In no instance shall an amendment be adopted by the governing body of the locality without first seeking the recommendation of the Commission. If no recommendation is made by the Commission, the governing body may take action 60 days from their inquiry.

#### Section 36.523. — Repeal.

Upon the adoption of this Ordinance, all Subdivision Ordinances heretofore adopted by the Board of Supervisors of Essex County are hereby repealed.

#### Section 36.524. — Cumulative Lot Count and Circumvention.

Development of two or more single-lot subdivisions or two or more adjoining minor subdivisions, for the purpose of circumventing subdivision requirements shall not be permitted. Family subdivisions, boundary line adjustments and parent tracks recorded prior to February 17, 1988 shall not be counted towards subdivision cumulative lot totals.

#### Section 36.525. — Exemptions.

Exemption from the term "subdivision" does not mean that an exempted divided property meets the requirements of the zoning ordinance.

(1) Adjoining Properties.

Existing Parcels. The sale or exchange of existing parcels of land between owners and the creation of boundary surveys which do not change or alter any boundary lines of a parcel.

(2) Utility Rights-of -Way; Public, Private Rights-of -Way.

A bona fide division of a tract of land in order that one or more of the resulting parcels may be used as part of a public utility right-of-way or other public or private right-of-way. If a parcel resulting from such division is ever to be used as a building site for other than a hereinabove described right-of-way, then before a building permit may be issued for such other use, the minimum requirement of this Ordinance shall be observed.

(3) Wills, Court Action.

The partition of lands by will, by partition deed of intestate land by the descendants of the deceased former owner or through action of a court of competent jurisdiction.

(4) Minor Subdivisions and Boundary Line Adjustments. These divisions and adjustments will be reviewed for suitability and lot standards through an administrative plat review process.

Reserved 36.526. — 36.534

## **Division 2. — Types of Subdivisions**

### **Section 36.535. — Major Subdivisions.**

Major subdivisions have 6 or more lots and therefore will have greater impact on the environment, highways, and surrounding communities than will smaller subdivisions. Therefore, major subdivisions are permitted in the A-2 Districts only when in areas designated Rural Residential or Development Service by the Comprehensive Land Use Plan Map.

### **Section 36.536. — Minor Subdivisions.**

Minor subdivisions have two to five lots and reduced impact on the environment, highways, and surrounding communities than larger subdivisions.

### **Section 36.537. — Single Divisions.**

Single subdivisions include one division of a single tract or parcel of land.

### **Section 36.538. — Family Subdivisions.**

- (a) Family subdivisions encourage and promote the ability of family members to live in close proximity to one another as housing needs change, to provide opportunities for mutual support and care of family members, and to allow for the preservation of family land holdings which might otherwise be fragmented for economic reasons. Allowing the conveyance of property between immediate family members and beneficiaries of a trust without the necessity of compliance with all of the subdivision requirements imposed on unrelated parties further this purpose. To that end, the subdivision of land for simultaneous conveyance to a member of the immediate family of the property owner shall be considered to be a family subdivision.
- (b) A single division of a lot or parcel shall be permitted for the purpose of its conveyance to a member of the immediate family of the property owner. For the purposes of this Section, a member of the immediate family is defined as any person who is the natural or legally defined offspring, stepchild, spouse, sibling, grandchild, grandparent, or parent of the owner. If the property to be subdivided is owned in joint tenancy, the necessary relationship to the grantee may exist with any one or more of the joint tenants.
- (c) Per the Code of Virginia, §§ 15.2-2244, 2244.1, and 2244.2, all family subdivisions shall be subject to the following provisions and conditions in lieu of the other subdivision regulations imposed by this chapter.
  - (1) Only one such division shall be allowed within Essex County for each immediate family member.
  - (2) The lot or parcel to be divided shall have been titled of record in the name(s) of the owner(s) for a minimum of 15 years prior to the date of recordation of the family subdivision.
  - (3) The grantor of the transferred parcel shall include a restriction in the deed to the transferred parcel that prohibits the transfer of such parcel to a non-member of the immediate family of the grantor for a period of 15 years from the date of the original transfer unless a waiver of such restriction is obtained from the Agent or the Board of Supervisors. Such restriction shall provide that any attempted

conveyance in violation of the restriction shall be null and void, except for conveyances otherwise permitted under this Section.

- (4) All lots or parcels, including the parent tract, created under this Section shall remain titled in the name(s) of an immediate family member of the grantor for a period of not less than 15 years from the date of recordation of the deed of conveyance unless:
  - a. The parcel to be transferred out of the immediate family is the subject of an involuntary transfer such as foreclosure, divorce, death, judicial sale, condemnation, or bankruptcy, in which case, upon application to the Agent, any remaining required holding period shall be waived; or
  - b. The owner(s) of the parent tract dies in which case, upon application to the Agent, any remaining holding period shall be waived for the parent tract; or
  - c. The transferred parcel is later transferred to a subsequent grantee who qualifies as an immediate family member of the original grantor as set forth in this Section, in which case only the remainder of the initial required holding period shall apply to the subsequent grantee; or
  - d. The proposed transfer is submitted to the Agent for approval, and all requirements of the Essex County Zoning and Subdivision Ordinance in effect at the time the application is submitted are met; or
  - e. An exception to these provisions is made by the Board of Zoning Appeals (BZA) upon a determination of injustice or hardship as permitted under the provisions of this Ordinance.
- (5) The minimum width, yard, and area requirements of all lots or parcels, including the remaining property from which the lot or parcel is subdivided, shall be in accordance with the applicable provisions of the Essex County Zoning and Subdivision Ordinance.
- (6) Each lot or parcel shall front on a public road or upon a private driveway or road that is in a permanent easement. Lots less than five acres shall have a right-of-way not less than 20 feet in width. Lots five acres and greater shall have a right-of-way of at least 50 feet in width. Where the parcel being subdivided fronts on an existing right-of-way less than 20 feet in width, a 20-foot right-of-way shall only be required on the parcel to be subdivided and transferred. Prior to the use of any such lot or parcel for residential purposes, the required right-of-way shall include an improved driveway within it consisting of, at a minimum, an all-weather surface or rock, stone, or gravel, with a minimum depth of three inches and a minimum width of 10 feet. The right-of-way shall be maintained by those having a right to use it in a condition passable by emergency vehicles at all times. A notation to this effect shall be placed on the face of the final plat and this provision shall be included in the deed or deeds by which the subdivision is effected. Passable condition refers to not only the surface, but also to horizontal and vertical clearances.
- (7) All provisions of the Zoning and Subdivision Ordinance governing erosion and sediment control and the dedication of drainage and utility easements shall apply to family subdivisions as fully and completely as if set forth herein.

- (8) A final plat shall be submitted to the Agent for approval. The final plat shall conform to all applicable requirements of the Zoning and Subdivision Ordinance. Along with the plat an affidavit, under oath, shall be submitted, in the form prescribed by the Agent, describing the purposes of the subdivision and identifying the member of the immediate family receiving the lot created. Such plat shall be subject to the fees set forth in Section 36.737 of this Ordinance. The proposed deed of conveyance shall be submitted to the Agent and, once approved for compliance with this Section, recorded along with the approved plat. Both the deed and the plat shall contain the following statement set forth so as to be seen readily in a minimum of [twelve] (12) point type:

THIS LOT IS CREATED AS A FAMILY SUBDIVISION PURSUANT TO THE PROVISIONS OF THE ESSEX COUNTY ZONING AND SUBDIVISION ORDINANCE. THE USE AND TRANSFER OF THIS PROPERTY ARE RESTRICTED BY THE TERMS OF THAT ORDINANCE.

- (d) The Agent shall reject any proposed family subdivision if, after investigation of the facts and circumstances involved in the proposed subdivision, the Agent believes that the proposed subdivision is for the purpose of circumventing the requirements of this Chapter and is not in accordance with the purpose and intent of this Section. The burden of proving compliance with the purpose, intent, and conditions of this Section shall be on the property owner. Nothing in this Section shall be deemed to exempt family subdivisions from the requirements of other provisions of the Essex County Code which are deemed to be applicable by the Agent.

Reserved 36.539 — 36.544

### Division 3. — Design Requirements

#### Section 36.545. — Suitability of Land.

The Agent shall not approve the subdivision of land if, from adequate investigations conducted by all public agencies concerned, it has been determined that in the best interest of the public the site is not suitable for platting and development purposes of the kind proposed.

#### Section 36.546. — Land Subject to Flooding.

Land subject to flooding and land deemed to be topographically unsuitable, having unsuitable soils or inadequate light and air shall not be platted for residential occupancy nor for such other uses as may increase danger of health, life or property or may aggravate erosion or flood hazard. Such land within the subdivision shall be set aside on the plat for such uses as shall not be endangered by periodic or occasional inundation or shall not produce conditions contrary to public welfare.

#### Section 36.547. — Residential Density.

The maximum residential densities allowable within residential subdivisions shall be in accordance with the provisions of the zoning district and guided by the Comprehensive Plan and the Future Land Use Map.

#### Section 36.548. — Mandatory Dedication of Open Space.

- (a) In every Subdivision of over five lots, the Board of Supervisors may require the platting and dedication to the governing body, or to a homeowner’s association, of suitable and adequate open space for recreation.
- (b) The Agent shall not recommend the acceptance of any land for dedication unless it finds that such land is suitable to serve the purpose of active or passive recreation by reason of its location, configuration and topography.
- (c) The amount of land necessary for said purposes shall vary, as herein set forth, in accordance with the densities of population permitted in small lot subdivisions, multi-family and PUD districts:
- (d) Recreational areas, whether publicly or privately owned, which are provided in conformance with any form of cluster, lot averaging townhouse, or planned unit development provisions, and which equal or exceed the requirements for dedication as set forth herein, may completely and fully satisfy the above requirements. However, the developer or subdivider shall satisfy the Board of Supervisors that there are adequate provisions to assure retention and future maintenance of said recreational areas.

Table 36.17. Open Space Subdivision Requirements	
Development Type	Amount of Open Space (Minimum)
All single-family dwellings, attached or detached	Ten percent (10%) of the total tract area of land being subdivided, exclusive of floodplain; but not less than one-half (1/2) acre in size.
All multi-family dwellings	Fifteen percent (15%) of the total tract area of land being subdivided but not less than one (1) acre
Cluster Developments, Planned Unit Developments	In accordance with the Planned Unit Development District in the Zoning and Subdivision Ordinance
Subdivisions with 300 or more lots	Net area shall be exclusive of road right-of-way

**Section 36.549. — Lots.**

(a) Lot Size.

Lot area and width shall be in accordance with the provisions of the Essex County Zoning and Subdivision Ordinance.

(b) Lot Shape.

The lot arrangement, design, and shape shall be such that lots will provide satisfactory and desirable sites for buildings, be properly related to topography, and conform to requirements set forth herein. Lots shall not contain peculiarly shaped elongations which would be substantially unusable for normal purposes solely to satisfy necessary square footage or frontage requirements or to provide access to any lot that would otherwise not have road frontage, except to the extent expressly permitted under Section 36.550.

**Section 36.550. — Flag lots.**

The use of flag lots is prohibited except where safety or environmental factors prevent normal lot design and their use improves the quality of the design of the subdivision and provides for a better use of land. The financial cost of road construction or the loss of lots shall not by themselves constitute sufficient reasons to use flag lots. Where flag lots are otherwise permitted under the provisions hereof, single lot and minor subdivisions shall be limited to one such flag lot. In major subdivisions, flag lots shall comprise no more than 10 percent of the total lots in the subdivision (percentages will be rounded to nearest whole number). The restrictions and limitations on the use and number of flag lots permitted hereunder shall not be avoided by the subdivision of land at different times. For purposes of determining the maximum number of allowable flag lots, all subdivisions of the parent tract shall be deemed to be included as part of the same subdivision, regardless of when subdivided. Where flag lots are otherwise permitted hereunder, the number of contiguous parallel narrow lot sections shall be limited to no more than two so as not to create traffic hazards, confusion and dispute with respect to boundary locations. Where a flag lot is permitted, the stem that accesses the street or road shall be no less than 50 feet in width at any point. The length of such stems shall be limited to no more than 300 feet.

**Section 36.551. — Remnants.**

All remnants of lots below minimum size, left over after subdividing a tract, must be added to adjacent lots rather than allowed to remain unusable parcels.

**Section 36.552. — Access.**

- (a) All lots or parcels of land shall have frontage on an existing or proposed street or right of way in accordance with the provisions of the Essex County Zoning and Subdivision Ordinance and shall provide an easement, road, or street to conformance with the provisions of this Ordinance from such lots or parcels of land to a public street. The Agent or Board of Supervisors, after considering VDOT's recommendation, may limit the number of accesses to public streets and secondary roads for major subdivisions if individual access for each lot in the subdivisions could create a traffic hazard due to existing public street/secondary road conditions or configurations.
- (b) If a subdivision or contiguous parent tracts are being developed in such a manner that results in 6 lots or more being accessed by the same subdivision roads, the subdivision shall be developed along an existing public street or the subject roads shall be constructed from such lots or parcels to a public street in accordance with subdivision street standards established by the Virginia Department of Transportation and comply with Section 36.554 of this Ordinance.
- (c) If a subdivision is being developed in such a manner that results in five lots or less, private streets are allowed provided that all private streets will be in conformance with Article VII of this Ordinance. Except private streets in a single lot subdivision shall comply with Article VIII of this Ordinance. Said private streets shall extend from such lots or parcels to a public street.

**Section 36.553. — Blocks.**

(a) Length.

The maximum length of blocks generally shall be 1,200 feet and the minimum length of blocks upon which lots have frontage shall be 500 feet.

(b) Width.

Blocks shall be wide enough to allow two tiers of lots of minimum depth, except where prevented by topographical conditions or size of the property, in which case the Agent may approve a single tier of lots of minimum depth.

(c) Orientation.

Where a subdivision adjoins a major road, the Agent may require that the greater dimension of the block shall front or back upon such major thoroughfare to avoid unnecessary ingress or egress.

**Section 36.554. — Streets.**

(a) Standards.

Any requirements contained herein for streets shall be deemed to be the minimum requirements.

(b) Names.

Proposed streets which are obviously in alignment with others already existing and named, shall bear the name of the existing street. In no case shall the name of proposed streets duplicate existing street names irrespective of the use of the suffix Avenue, Boulevard, Drive, Way, Place, Lane or Court. Street names shall be indicated on the tentative and final plats and shall be approved by the Agent. Names of existing streets shall not be changed except by approval of the Board of Supervisors.

(c) Street Name Signs.

Street name signs of a suitable and County approved design and durable material and lettered on both faces shall be installed by the subdivider on the most visible corner of every intersection. Wooden signs shall not be used.

(d) Major Subdivisions.

(1) Existing Public Streets.

In cases where subdivision lots are created on an existing State maintained road (public street) having a total width of less than 50 feet, a dedication of additional; right of way to Essex County shall be provided. If dedication of additional right-of-way is found to be needed shall require same, so that the street is not less than 25 feet in width on the subdivision side measuring from the centerline of said street.

(2) New Streets.

All roads or streets in a major subdivision shall be public streets and shall be constructed in accordance with alignment, approach angle, access, width, grading, paving, and other specifications established by Virginia Department of Transportation in effect at the time the subdivision is approved. Upon completion such road or street shall follow dedication procedure for adoption into the State Highway System.

a. Alignment and layout.

As required by § 15.2-2241 (2) of the Code of Virginia, the arrangement of streets in new subdivisions shall make provision for the continuation of existing streets in adjoining areas and proposed streets as shown on the adopted plan of land use and major thoroughfares.

1. The street arrangement shall be such as to cause no unnecessary hardship to owners of adjoining property when they plat their own land and seek to provide for convenient access to it. Where, in the opinion of the Agent, based on the adopted Comprehensive Plan or planned long-term use and development of the adjoining property, it is desirable to provide for street access to adjoining property, proposed streets shall be extended by dedication to the boundary line of such property.

b. Alleys.

Alleys should be avoided whenever possible.

c. Cul-De-Sac.

The maximum number of dwelling units allowed on a cul-de-sac shall be twenty (20).

(e) Minor Subdivision.

(1) New Public Streets.

If streets are to be public streets dedicated and accepted in the State Secondary System, said streets shall be improved and constructed in conformance with alignment, approach angle, access, width, grading, paving, and other specifications for Subdivision Street Standards established by Virginia Department of Transportation in effect at the time the subdivision is approved. All streets shall also comply with Section 36.554 (d)(2).

(2) Existing Public Streets.

In cases where subdivision lots are created on an existing State maintained road (public street) having a total width of less than 50 feet, a dedication of additional; right of way to Essex County shall be provided. If dedication of additional right-of-way is found to be needed shall require same, so that the street is not less than 25 feet in width on the subdivision side measuring from the centerline of said street.

(3) Existing Private Streets or Rights-of-Way.

In cases where subdivision lots are created on an existing private street or right-of -way having a total width of 50 feet or less, a dedication of additional right-of-way to Essex County shall be provided. If dedication of additional right-of-way is needed, requirement shall be same so that the street is not less than 25 feet in width on the subdivision side measuring from centerline of said street. Subdivider or developer shall certify to the plat officer that said private street or right-of-way is dedicated for use to the property where subdivision will be created.

(4) New Private Streets.

In cases where minor subdivision lots are created with private streets and not to be taken into VDOT's system, such streets shall be in conformance with the following provisions:

a. Alignment and Layout.

Alignment should fit closely to the existing topography so as to minimize the need for cuts and fills. In purely residential areas serving local traffic, there is advantage in purposely making the alignment of such nature so as to discourage high speed through traffic. Extreme caution, however, should be taken in the design of the alignment to assure that the safety of the facility is not reduced. Whenever possible, streets should intersect at right angles. In all hillside areas, streets running with contours shall be required to intersect at angles not less than 60 degrees, unless approved by Agent.

b. Approach Angle.

Streets shall approach the other streets at an angle of not less than 80 degrees, unless the Agent approves a lesser angle of approach for reasons of contour, terrain or matching of existing patterns. Sight distance at intersecting streets is of paramount importance, and a minimum sight distance of 300 feet should be obtained.

c. Minimum Width.

The minimum width of right of way for proposed streets, measured from lot line to lot line, shall be 50 feet and extend from such lots or parcels to a public street.

d. Grades.

Grades shall follow contours with minimum cut and fills, and maximum grade often percent, unless the Agent approves a greater percent for reasons of contours or terrain. At intersecting streets, a landing not exceeding a three percent grade shall be provided for a distance of 25 feet from the edge of pavement of the street.

e. Base and Pavement.

The street base shall be of sufficient depth to provide a mud-free surface and prevent excessive rutting during inclement weather. The base material shall have sufficient fine material to permit bonding of the base material. Hard surface pavement is not required. When surface treatment or other asphaltic surface material is proposed, a minimum of 6 inches of aggregate base material meeting the requirements of the Virginia Department of Transportation shall be required prior to application of pavement material.

f. Cul-De-Sac.

Each cul-de-sac must be terminated by a turn-around having a right-of-way of not less than one 110 feet in diameter, and a graveled roadway of not less than 90 feet in diameter.

g. Names.

Proposed streets which are obviously in alignment with others already existing and named shall bear the name of the existing street. In no case shall the name of proposed streets duplicate existing street names irrespective of the use of the suffix Avenue, Boulevard, Drive, Way, Place, Lane, or Court. Street names shall be indicated on the plats and shall be approved by the Agent. Names of existing streets shall not be changed except by approval of the Essex County Board of Supervisors.

h. Street Name Signs.

Street name signs of a suitable and County-approved design and durable material and lettered on both faces shall be installed by the subdivider on the most visible corner of every intersection, if applicable.

i. Restrictive Covenants.

The deed of each tract in a private street subdivision shall carry a restrictive covenant to the effect that the streets in a subdivision are private in nature and shall not be maintained by the Virginia Department of Transportation or other public agency and that the maintenance and improvement thereof shall be the mutual obligation of the landowners in the subdivision abutting said roads that such private roads shall not be taken into the State Secondary System unless and until the abutting landowners shall have constructed and dedicated the private road in accordance with the Virginia Department of Transportation's subdivision street requirements in effect at the time of the request, and thereafter the Essex County Board of Supervisors shall have recommended that said road be taken into the State Secondary System of highways.

- j. Plat Certification.

The face of the recorded plat or survey shall show the following statement: Streets in the subdivision are private in nature and shall not be maintained by the Virginia Department of Transportation or other public agency and the maintenance and improvement shall be the mutual obligation of the landowners in this subdivision abutting said roads that such private roads shall not be taken into the State Secondary System unless and until the abutting landowners shall have constructed and dedicated the private road in accordance with the Virginia Department of Transportation's subdivision street requirements in effect at the time of the request, and thereafter, the Essex County Board of Supervisors shall have recommended that said road be taken into the State Secondary System of highways.
- (f) Single Divisions.
  - (1) New Public Streets.

If streets are to be public streets dedicated and accepted in the State Secondary System, said streets shall be improved and constructed in conformance with alignment, approach angle, access, width, grading, paving, and other specifications for Subdivision Street Standards established by Virginia Department of Transportation in effect at the time the subdivision is approved. All streets shall also comply with Section 36.554 (d)(2).
  - (2) Existing Public Streets.

In cases where subdivision lots are created on an existing State maintained road (public street) having a total width of less than 50 feet, a dedication of additional; right of way to Essex County shall be provided. If dedication of additional right-of-way is found to be needed shall require same, so that the street is not less than 25 feet in width on the subdivision side measuring from the centerline of said street.
  - (3) New Private Street.

In cases where a subdivision is created with a private road or street, such street or road shall have a minimum width of right-of-way for the proposed street or road of 50 feet and shall be extended from such lot to a public street. The street shall be constructed in accordance with the provisions in Section 36.554 (e)(4). This private road or street will not be taken into the VDOT system, until such time as the road or street would be re-constructed to meet State specifications.
  - (4) Existing Private Street.

In cases where subdivision lots are created on an existing private street or right-of -way having a total width of 50 feet or less, a dedication of additional right-of-way to Essex County shall be provided. If dedication of additional right-of-way is needed, requirement shall be same so that the street is not less than 25 feet in width on the subdivision side measuring from centerline of said street. Subdivider or developer shall certify to the plat officer that said private street or right-of-way is dedicated for use to the property where subdivision will be created.

**Section 36.555. — Public and Semi-Public Facilities.**

- (a) Plans and Specifications.

Six (6) blue or black line prints of the plans and specifications for all required physical improvements to be installed shall be prepared by an engineer or surveyor. These plans shall be submitted to the Agent for approval or disapproval at least 60 days prior to submission of the Final Plat. If approved, one copy bearing certification of such approval shall be returned to the subdivider upon receipt from the Virginia Department of Transportation and Health Department. If disapproved, all papers shall be returned to the subdivider with the reason for disapproval in writing.

- (b) All improvements as required herein shall be installed within Subdivisions by the subdivider at their own expense. The Subdivider shall provide a bond as required in Division 4 of this Article and said bond shall not be released until construction in conformance with the requirement of this Ordinance, has been inspected and approved by the Agent, highway engineer and/or other regulatory agencies.

- (c) Flood Control and Drainage.

The subdivider shall provide all necessary information needed to determine what improvements are necessary to properly develop the subject property. This information shall include contour intervals, drainage plans and flood control devices in accordance with Sections 36.701(b)(1)b.1.iii and 36.701(b)(1)c.3. of this Article and Virginia Department of Transportation specifications. The subdivider shall also provide plans for all such improvements together with an engineer's or surveyor's statement that such improvements when properly installed will be adequate for proper development. The highway engineer or Agent shall then approve or disapprove said plans. The subdivider shall also provide any additional information required by the resident highway engineer or Agent.

- (d) Easements.

The Agent may require that easements for drainage and utilities through adjoining property be provided by the subdivider. Easements of not less than 16 feet in width shall be provided for water, sewer, power lines and other utilities in the subdivision when required by the Agent.

- (1) Whenever a subdivision is traversed by a natural drainageway through which water flows continuously or intermittently, there shall be provided an easement conforming substantially with the boundaries of such watercourse and such further width as may be necessary for drainage and utilities at this location.
- (2) Any requirement contained herein pertaining to drainage or utility easements are minimal. Hereafter all preliminary plats shall be submitted to both the Virginia Department of Transportation and the appropriate electric utility company for review and comment prior to approval of drainage and electrical easements. Where a specification proposed by either of the above mentioned agencies is more stringent than the above mentioned County specifications and is deemed by the Agent to be compatible with County objectives, the more stringent specifications shall prevail.

- (e) Public Water and/or Sewer.

- (1) Where public water is available, the service shall be extended to all lots within a subdivision. Every subdivision, condominium or cluster development containing any lots of less than 21,500 square feet shall be provided with either a public or centralized water system (Type A or Type B) as defined herein to serve each and every lot.
- (2) Where public sewerage facilities are available, the service shall be extended to all lots within a subdivision and septic tanks shall not be permitted. Every subdivision shall be provided by the subdivider with a satisfactory and sanitary means of sewage collection and disposal meeting the approval of the Agent.

- (f) Private Water and/or Sewer.

Nothing in this regulation shall prevent the installation of privately owned water distribution systems or sewage collections and treatment facilities, provided that such installations meet all requirements of the State Water Control Board, the State Health Department, and any other State, Federal or local regulation having authority over such installation. The location and construction of distribution systems shall be subject to the approval of the County Health Officer.

- (1) Private Sanitary Sewer Systems.

- a. The Agent shall not approve the use of individual septic systems for any subdivision containing lots of less than 21,500 square feet.

- b. The Agent shall not approve the use of individual septic systems in any Subdivision unless it is determined beyond a reasonable doubt that the soils are suitable for such and shall receive in writing from the State Health Department a statement to the effect that the area contained in the subdivision is satisfactory for the installation of septic systems and that they will not create hazards to public health.
- c. On any lot or parcel of land divided for new construction and is not served by a sewerage treatment system requiring a Virginia Pollutant Discharge Elimination System (VPDES) permit shall provide a reserve sewerage disposal site with a capacity at least equal to that of the primary sewerage disposal site. This reserve sewerage disposal site requirement shall not apply to any lot or parcel recorded prior to October 1, 1989, and which lot or parcel is not sufficient in capacity to accommodate a reserve sewerage disposal site, as determined on the area of all sewerage disposal sites until the structure is served by public sewer or an on-site sewerage treatment system which operates under a permit issued by the State Water Control Board.
- d. Conditional septic disposal system permits which limit the use of the subject property to a specific portion of the year are hereby expressly prohibited.
- e. Off-Site/Remote Septic Systems.
  - 1. No more than 20 percent of the lots within any major subdivision shall be permitted to utilize a remote system.
  - 2. No more than one lot within any minor subdivision shall be allowed to utilize a remote system.
  - 3. Use of off-site soil-based septic systems (remote sewage disposal system) are permitted provided the following conditions are met:
    - a. Primary and reserve drainfields are identified for properties within the Chesapeake Bay Preservation Areas.
    - b. Such system meets the requirements of the State Health Department.
    - c. All remote sites shall be deeded with the specified lot served, or granted easements in perpetuity appurtenant to the owner of such lot to the lot or parcel upon which the structure to be served is located for the installation, maintenance, and access to and repair of sewage disposal systems.
    - d. Remote sewage systems must be placed on common ground or out parcels which will not be developed as buildable lots.
    - e. An easement shall be shown on a plat of survey prepared by a certified land surveyor, be recorded among the land records of Essex County, and be permanently monumented in the field.
    - f. Easements are required for conveyance lines of not less than 15 feet in width for all sewage conveyance lines extending from the lots served to the remote sites; and, such easement shall be shown on the plat.
    - g. When multiple remote sewage disposal systems are located upon a common lot, the area for each drainfield shall be at least 10 feet from all other drainfields and 10 feet from the property lines of the subject lot.
    - h. When multiple conveyance lines are proposed to be installed in a single easement, such conveyance lines shall be installed at one time, shall be

identified with magnetic tape or trace lines, shall be permanently marked and color coded at five foot intervals for ease of identification and a copy of this color code shall be delivered to the Essex County Health Department and to the Zoning Administrator. All conveyance lines are to be installed at the time of development and no subdivision shall be approved until lines are installed or bond provided pursuant to Division 4 of this Article. No lots can be sold until conveyance lines are installed. Conveyance lines shall be installed to a minimum depth of 24 inches.

- i. Each subdivision utilizing remote sewage disposal sites shall include a note on the plat and in the deed that "all remote sites shall be properly maintained by the owner of the lot served by the remote site in order to protect the approved sewage disposal systems". Maintenance required hereunder shall include, at a minimum, mowing, removal of vegetation which could cause damage to the system, surface crowing and/or grading to promote drainage, and measures to protect against vehicular traffic.

(g) Fire Protection.

The installation of adequate fire hydrants in Subdivisions may be required at locations approved by the Board of Supervisors, provided necessary public or central water is available.

**Section 36.556. — Home Owners Association (HOA).**

- (a) All private streets in major subdivisions shall be subject to the submission and approval by the Essex County Board of Supervisors of a legal instrument or instruments setting forth a plan or manner of permanent care and maintenance of such private street.
- (b) All subdivisions with dedicated open space for recreation, recreation area, and equipment, central water or central sewer or both central water and sewer, and other communally owned facilities shall be subject to the submission and approval by the Essex County Board of Supervisors of a legal instrument or instruments setting forth a plan or manner of permanent care and maintenance for such communally owned facilities.
- (c) No such instrument shall be acceptable unless and until approved by the County's attorney as to legal form and effect, and the Agent as to suitability for the proposed use of the communal land.
- (d) All communal property shall be deeded to an HOA. The developer shall file a declaration of covenants and restrictions that will govern the HOA with the application for tentative approval. Such covenants and restrictions shall include, but not necessarily be limited to, the following:
  - (1) The HOA including by-laws, covenants and restrictions and articles of the association or corporation must be set up and legally constituted prior to the sale of any lot, dwelling unit or other structure located within the private street subdivision.
  - (2) Such HOA must be effectual prior to the sale of 25 percent of said lots or dwelling units, on whichever assessments are based. The entire cost for maintenance of the open spaces, recreational areas, private streets, or other communally owned facilities shall be borne by the developer until such time as the HOA becomes effectual.
  - (3) All covenants and restrictions must be for a substantial period of time with a minimum of 25 years and run with the land and must apply to all lots and dwelling units located within the subdivision.
  - (4) The HOA must be responsible for liability insurance, local property taxes, and the maintenance of all streets, land, and communally owned facilities;

- (5) Homeowners must pay their pro-rata share of the cost of the above through assessment levied by the HOA which must become a lien on each homeowner's property. Every lot or landowner shall have the right to petition a court of competent jurisdiction to ensure adequate maintenance and upkeep of the HOA's responsibilities.
- (6) The HOA must be able to adjust assessments to meet changing needs;
- (7) The HOA must be organized as a nonprofit unincorporated association or nonprofit corporation, managed by either a trained professional or a Board of Directors elected by the voting member of the HOA. In accordance with the Code of Virginia § 15.2-2256, the Board of Directors or other managing professional charged with collection of fees and the maintenance of common improvements shall provide an annual report to the lot owners of all fees collected and disposition of all funds.
- (8) Lots or dwelling units assessed by the HOA shall only be those indicated on the final plat approved by the Board of Supervisors.
- (9) It shall be mandatory for every lot or landowner to have membership in the HOA.

**Section 36.557. — Obligation of Improvements.**

All improvements and facilities required by this article shall be installed by the subdivider at their cost and is not the responsibility of the locality, as outlined in the Code of Virginia § 15.2-2268. No bond or other performance guarantee posted by the subdivider shall be released until construction has been completed, inspected and approved. Periodic partial release is allowed as outlined in the Code of Virginia § 15.2-2245.

**Section 36.558. — Monuments.**

- (a) Upon completion of subdivision street, sewers and other improvements, the subdivider shall make certain that all monuments required by this Ordinance are clearly visible for inspection and use. Such monuments shall be inspected and approved by the highway engineer or Agent before any improvements are accepted by the Board of Supervisors.
- (b) As allowed by the Code of Virginia §15.2-2241 (7), all lot and block corners shall be marked with solid steel or iron rods not less than five-eighths (5/8) inch in diameter and 30 inches long and driven so as to be flush with the finished grade. When rock is encountered, drill a hole four inches deep in the rock and cement a steel rod one-half (½) inch in diameter whose top shall be flush with the finished grade line. The replacement of any monuments removed or destroyed during the development of the subdivision shall be the responsibility of the subdivider.

Reserved 36.559. — 36.669.

**Division 4. — Guarantees**

**Section 36.670. — Required to be Guaranteed.**

- (a) Guarantees for Improvements Shown on Plat.

Before any subdivision plat will be finally approved the subdivider shall, in lieu of construction, furnish a bond in an amount approved by the Agent to guarantee completion of the public and other site-related improvements in accordance with specifications and construction schedules established. The bond shall be payable to and held by the governing body. However, in accordance with §15.2-2241(B) of the Code of Virginia, any certified check, cash escrow, bond, letter of credit or other performance guarantee furnished pursuant to this article shall only apply to, or include the cost of, any facility or improvement shown or described on the approved plat or plan of the project for which such guarantee is being furnished.

- (b) Guarantees for Dedicated Public Uses.

In accordance with § 15.2-2241.1 of the Code of Virginia, provided the developer and the governing body have agreed on the delineation of sections within a proposed development, the developer shall be required to furnish a bond for construction of public facilities only when construction plans are submitted for the section in which such facilities are to be located.

(c) Guarantees for Street Maintenance.

In the event a street is constructed according to the Virginia Department of Transportation specifications established by the Virginia Department of Transportation for public use, and such street or road, due to factors other than its quality of construction, is not acceptable in the State Highway System, the subdivider or developer shall furnish Essex County with a maintenance and indemnifying bond, with surety satisfactory to the Essex County Board of Supervisors in an amount set by the Essex County Board of Supervisors sufficient for and conditional upon the maintenance of such street or road until such time as it is accepted into the State Highway System. In lieu of such bond, the subdivider or developer may furnish Essex County a bank or savings and loan association's Letter of Credit on certain designated funds satisfactory to the Essex County Board of Supervisors.

[The term] "maintenance of such road" shall be deemed to mean maintenance of the streets, curb, gutter, drainage facilities, utilities or other street improvements, including the correction of defects or damages and the removal of snow, water or debris, so as to keep such road reasonably open for public usage.

(d) Other improvements requiring a guarantee include, but are not limited to:

- (1) Structures necessary to ensure stability of critical slopes, and for stormwater management facilities;
- (2) Erosion and sediment control measures required as a condition to grading, building, or other permits;
- (3) Any private streets to be constructed in a subdivision or other development;
- (4) Any privately-owned site-related improvements, including but not limited to fencing, landscaping, buffering, internal sidewalks, lighting, paving, private recreational facilities and pavement marking, required by this article but not completed prior to issuance of occupancy certificate.

**Section 36.671. — Types of Guarantees.**

Guarantee Type. The following guarantee options are available to the subdivider to provide to the county for acceptance by the Agent or County Attorney:

- (1) Performance Bond. A performance bond shall be executed by a surety company licensed to do business in the state of Virginia.
- (2) Letter of Credit. A letter of credit shall be executed by a bank licensed to do business in the state of Virginia.
- (3) Cash Escrow. The applicant shall provide to the County of Essex cash or cashier's check.

**Section 36.672. — Amount.**

The guarantee shall be provided in the following amount:

- (1) Total estimated cost of construction based on unit prices, approved by the Board of Supervisors or designee;
- (2) Plus, an additional 10% of the total estimated cost of construction to cover administrative costs, inflation, and potential damage to existing roads or facilities, as permitted by the Code of Virginia § 15.2-2241.

**Section 36.673. — Release.**

- (a) As outlined in the Code of Virginia § 15.2-2245, The subdivider may apply for the periodic partial and final complete release of any bond required under this article.
- (1) Periodic Partial Release.
- a. Upon the completion of at least 30 percent of the improvements covered by a performance guarantee, the applicant may file a written request with the Agent for a partial release of such guarantee.
  - b. The Agent may inspect the facilities for conformance with the terms and conditions of the approved plan and specifications for the facilities for which the guarantee is applicable. The Agent shall not refuse to make a periodic partial or final release of guarantee for any reason not directly related to the specified defects or deficiencies in construction of the facilities covered by such bond, escrow, letter of credit or other guarantee.
  - c. The Agent shall act upon the written request for a partial release within 30 days of receipt.
  - d. If no action is taken by the Agent within the 30-day time period, the request for partial release shall be approved, and a partial release shall be granted to the subdivider or developer.
  - e. Up to 90 percent of the original amount of the performance guarantee may be released through periodic partial releases, based upon the percentage of public facilities completed and approved by the County or other agency having jurisdiction.
- (2) Final Release.
- a. Upon final completion of the facilities, the subdivider or developer may file a written request for final release of the guarantee.
  - b. The Agent may inspect the facilities for conformance with the terms and conditions of the approved plan and specifications for the facilities for which the guarantee is applicable.
  - c. The Agent shall either accept the facilities and release the remaining guarantee or notify the applicant that the facilities are not accepted and that there are specific defects or deficiencies in construction.
  - d. If the Agent fails to act within the thirty-day time period, then the applicant may make an additional request in writing for final release, sent by certified mail to the County Administrator. The County Administrator shall act within 10 working days of the request. If no action is taken, the request shall be deemed approved and final release granted to the applicant.
- (b) For the purposes of this section, a certificate of partial or final completion of such facilities from either a duly licensed professional engineer or land surveyor, as defined in and limited to Code of Virginia, § 54.1-400, or from a department or agency designated by the County may be accepted without requiring further inspection of such facilities.
- (c) For the purposes of this section and as defined in the Code of Virginia § 15.2-2245, the term "acceptance" means: when the public facility is accepted by and taken over for operation and maintenance by the state agency, local government department or agency, or other public authority which is responsible for maintaining and operating such public facility upon acceptance.

**Section 36.674. — Extensions for Completion.**

If guaranteed facilities are not timely completed in a manner acceptable to the County of Essex, the Agent may proceed via the provisions for default or allow an extension of time for the completion of facilities, not to exceed one year, provided that:

- (1) All surety consents have been acquired and approved by the County;

- (2) The owner has submitted an acceptable revised schedule for completion; and
- (3) Inspection of existing physical improvements is found to be satisfactory.

**Section 36.675. — Default.**

In the event of default in the construction of guaranteed facilities, the Agent is authorized to take such action as may be required to protect Essex County including, but not limited to:

- (1) Draw or make demand on the owner or developer's security;
- (2) Contract for the completion of the work, following the rules for public procurement; and
- (3) Bring an action at law against the owner, developer, financial institution, or surety.

Reserved 36.676. — 36.684

**Division 5. — Platting Requirements, Generally**

**Section 36.685. — Approval Required Before Sale.**

Whenever any subdivision of land is proposed, and before any permit for the erection of a structure shall be granted, the subdivider or their representative shall apply in writing to the Agent for the approval of the subdivision plat. No lot shall be sold until a final plat for the subdivision shall have been approved and recorded in the manner provided in this article.

**Section 36.686. — Subdivision Name.**

If applicable as determined by the Plat officer, every subdivision shall be given a name which shall not duplicate or closely approximate that of any other subdivision existing or planned.

**Section 36.687. — Changes to Plats.**

No change or erasure or revision shall be made on any plat, nor on accompanying data sheets after approval of the Agent has been endorsed in writing on the plat or sheets, unless authorization for such changes has been granted in writing by the Agent.

**Section 36.688. — Separate Ownership.**

Where the land covered by a subdivision includes two or more parcels in separate ownership, and lot arrangement is such that a property ownership line divides one or more lots, the land in each lot so divided shall be transferred by deed to single ownership, simultaneous with the recording of the plat. Said deed is to be deposited with the Agent and held with the plat until the subdivider is ready to record same, and they both shall then be recorded together.

Reserved 36.689. — 36.699.

## Division 6. — Preliminary Plats

### Section 36.700. — Procedure for Single, Family, and Minor Subdivision Plat Approval.

Prior to submission of a final plat within the jurisdiction of the County of Essex, the Subdivider may have a preliminary conference and provide a sketch plan as outlined in Section 36.701 below.

### Section 36.701. — Procedure for Major Subdivision Plat Approval.

(a) Preliminary Phase.

- (1) All proposed major subdivisions involving more than 50 lots must submit a preliminary plat for approval. When a preliminary plat is not required, such plat may be submitted voluntarily by the subdivider.
- (2) Prior to the submission of a preliminary plat within the jurisdiction of the County of Essex, the Subdivider shall make known their intentions to the Agent. During this preliminary phase, the following actions shall be taken:

a. Application.

The Subdivider or their representative shall file an application to subdivide with the Agent. The application shall establish the Subdivider's intention as to subdivision.

b. Preliminary Conference.

1. The Subdivider, or their representative shall meet informally with the Agent for the purpose of presenting a general sketch plan of their proposal, including, but not limited to:
  - i. Existing physical features such as natural drainageways, swamps, and wooded areas.
  - ii. Existing easements and covenants affecting the property.
  - iii. Surrounding land uses, streets and existing buildings.
  - iv. Sketch plans and a written description regarding future land use, street and lot arrangement, number of lots, and tentative lot sizes; preliminary proposals regarding water supply, sewage disposal, surface drainage, street improvement and land to be dedicated for public streets and other public uses.
  - v. Evidence of consultation with, and tentative approval of, public utility companies concerned.
  - vi. A map drawn from the Essex County Soil Survey showing the location of various soil types underlying the property, color coded as to their limitations on septic tank absorption fields, to a scale not smaller than one inch = 1,320 feet.
2. The Agent shall discuss the proposed subdivision with the Subdivider and advise him of procedural steps, design and improvement standards and general plat requirements. The Agent shall then proceed with the following investigations:
  - i. Advise the Subdivider of existing County plans which might affect the proposed subdivision.
  - ii. Check the existing zoning of the tract and make recommendations if a zoning change is necessary or desirable.
  - iii. Inspect the site or otherwise determine its relationship to existing and proposed streets, utility systems and adjacent land uses and determine any known problems.

- iv. Upon completion of investigations described above, the Agent shall advise the Subdivider in writing of any necessary changes in their sketch plan.

(b) Preliminary Plat.

(1) Filing of the Preliminary Plat.

Its purpose is to show graphically all facts needed to enable the Agent and other public bodies to determine whether the proposed layout of the land in question is satisfactory from the standpoint of the public interest. The submission shall include the following:

a. Application for Approval.

Written application by the owner of their Agent for subdivision plat approval, on forms furnished by the Agent.

b. The Plat.

The preliminary plat shall be prepared by a qualified professional, trained and experienced in the layout of subdivisions. Engineering drawings shall be stamped with the seal of an engineer or surveyor certified in the State of Virginia. Five copies and one digital copy of the preliminary plat shall be submitted to the Board of Supervisors through the Agent. These may be blue-line or blackline prints at a scale of not more than 100 feet to the inch. Said plat shall be drawn on sheets twenty-four by thirty-six inches (24" x 36") (preferred) or thirty by forty-two inches (30" x 42") (maximum). The plat shall contain the following information:

1. Survey Data.

- i. Date, scale, true north point and number of sheets. If shown on more than one sheet, matched lines shall clearly indicate where the several sheets join. Each sheet shall be consecutively numbered (e.g., 1 of 5 etc.)
- ii. A boundary survey with a field error of closure within the limit of one in two thousand five hundred (1' in 2,500') and bearings relating to either true north or magnetic north. The location of all monuments and their type of materials should also be shown. The survey may be related to the U.S. Geological Survey state grid north if the coordinate of two adjacent corners of the subdivision are shown. Dimensions shall be expressed in feet and decimals of a foot.
- iii. If a subdivision borders a lake, the name shall be noted and bearings of the ordinary high water mark of such lake must be established. If an active watercourse, including a periodic stream, lies adjacent to or traverses the property, its name shall be noted and it shall be necessary for the registered engineer to submit cross-sections, drainage, easements, building setback lines and supporting calculations based upon 100-year flood, as shown by Federal Flood Insurance Program. All elevations shall be referred to the County of Essex datum plane.
- iv. Existing and proposed grades entailing contours at vertical intervals of not more than two feet. In cases where the land has less than 3 percent slope, spot elevation shall be required.

2. Persons Responsible.

The name and address of owners(s), the Subdivider, and the surveyor responsible for surveys.

3. Name and Location.

- i. A vicinity or location map to the scale of not less than 1,320 feet to the inch and show the subdivision name and location. It shall also show the relationship of the proposed

subdivision to the existing community facilities which serve or influence it, including main traffic arteries, school(s), parks and playgrounds.

- ii. The proposed subdivision name (must be same as that specified in the application).
  - iii. Location of the subdivision by Magisterial district, Assessor's Parcel Number(s), County and State.
  - iv. When the subdivision consists of land acquired from more than one source of title, the outlines of the various tracts shall be identified and the names of the owners of the respective tracts shall be placed on the plat.
  - v. Location and names of abutting subdivisions and owners of adjoining parcels of unsplit land.
4. Lots and Blocks.
- i. The boundary lines of all existing and proposed blocks and lots located within the subdivision, except that when the lines in any tier of lots are parallel, it shall be sufficient to make bearings of the outer lines on the tier thereof.
  - ii. Easements shall be shown by centerline and width when lines are parallel to a boundary, otherwise boundary bearings and distances shall be shown. Where the exterior boundary lines show bearings or lengths which vary from those recorded in abutting plats or certified surveys there shall be the following note placed along such lines, "recorded as (show recorded bearing or length or both)".
  - iii. Dimensions shall be shown along all boundaries of all lots under one acre in size. All lots over one acre in size shall also have the acreage marked within the lot.
  - iv. All lots in each block shall be consecutively numbered.
  - v. All blocks shall be consecutively lettered in alphabetical order. The blocks in numbered additions to subdivisions bearing the same name shall be lettered consecutively through the several additions.
  - vi. A graphic presentation showing the minimum building setback lines on all lots and parcels and a notation of the distance between such lines and the street right-of-way.
5. Adjacent Streets and Utilities.
- i. The names of adjoining streets, state highways and subdivisions shown in their proper location.
  - ii. Abutting street lines of adjoining subdivisions, shown in their correct locations.
  - iii. Location, width, and names of all existing, proposed utility right-of-way, parks, cemeteries, permanent buildings and bridges located within 300 feet of the subdivision, and other pertinent data as determined by the Agent.
  - iv. Existing sewers, water mains, culverts, and other underground structures within the tract or immediately adjacent thereto. The location and size of the nearest public or semi-publicly owned water main and sanitary and storm sewers are to be indicated in a general way upon the preliminary plat.
6. Dedicated Areas.
- Location and area of all property proposed to be dedicated or reserved for public use or to be reserved by deed covenant for use of all property owners in the subdivision with the conditions, if any, of such dedication or reservation.

7. Location of any mapped dam break inundation zones and any grave, object, or structure marking a place of burial.
8. Approved Space.  
A blank oblong space [three inches by six inches] (3" x 6") shall be reserved for the use of the approving authorities.
9. Zoning on and within 300 feet of the subdivision.

c. Additional Engineering Plans.

These plans will be prepared by a certified engineer or surveyor after conditional approval is given by the Agent of the preliminary plat. One digital copy and five blue or black line prints of engineering plans shall be submitted to the Agent. They shall be reviewed by the Agent and the VDOT Resident Engineer, and may be reviewed by other interested parties. The engineering plans shall include, as a minimum, the complete design of roadways, drainage structures and support calculations, and a plan to control soil erosion and sedimentation. The plan shall contain the following:

1. Layout, profile, centerlines, width, grades and proposed names of all new streets and rights-of way including alleys and highways.
2. Radii of all curves, length of tangents, and central angles on all streets.
3. Proposed utility layouts, profiles, pipe sizes (water, sewers, storm drains), and ditch sections, including connections to any existing or proposed utility system and easements.

(2) Review.

- a. In addition to the below, the Board of Supervisors and Agent will act accordingly with regards to timeframes of resubmittals and other agency reviews, as outlined in § 15.2-2259 of the Code of Virginia.
- b. Upon receipt of all necessary data, recommendations and applications, a preliminary plat shall be reviewed by the Agent to determine its conformity to this Ordinance, the Comprehensive Plan, and all other ordinances and regulations in force which affect subdivisions.
- c. The Agent shall transmit copies of the preliminary plat, or appropriate portions thereof, to the County Administrator, Resident Engineer, appropriate utility companies, the State Air Pollution Control Board, Soil Conservation Agent, and other pertinent County and State Officials and agencies as deemed necessary by the Agent for recommendations. These recommendations in respect thereto shall be submitted to the Agent not later than 10 days before the Planning Commission meeting at which the preliminary plat will be reviewed.
- d. The Agent shall transmit copies of the preliminary plat for any major subdivision to the Planning Commission and Board of Supervisors for review and approval.
- e. The Agent shall, within 60 days of receipt of a completed application for the approval of a preliminary plat, approve or disapprove the plat, or approve it with modifications, noting thereon any changes that will be required. If agreed to by the Subdivider, the time may be extended for no more than 30 days after which one copy shall be returned to the Subdivider with the date of the approval or disapproval, and the reason therefor in letter form, accompanying the plat.
- f. Approval of a preliminary plat shall not constitute approval of the final plat. It shall be deemed as an expression of approval of the layout submitted on the preliminary plat as a guide to the preparation of the final plat.

- g. As dictated by 15.2-2260 (F), An approved preliminary subdivision plat shall be valid for a period of five years, provided the subdivider (i) submits a final plat for all or a portion of the property within three years of such approval, and (ii) thereafter diligently pursues approval of the final plat which shall include that the subdivider has incurred extensive obligations or substantial expenses relating to the submitted final plat or modifications thereto.
- h. Once an approved final plat for all or a portion of the property is recorded, the underlying preliminary plat shall remain valid for a period of five years from the date of the latest recorded final plat of subdivision for the property.

Reserved 36.702. — 36.709

## **Division 7. — Final Plats**

### **Section 36.710. — Plat Requirements for Single, Family, and Minor Subdivisions.**

The following requirements shall be adhered to in preparing plats for a single, family, and minor lot subdivisions:

- (1) Blue line or black line prints at a preferred scale of not more than 200 feet to the inch. The Agent can exercise discretion in approving other scales if circumstances justify an adjustment.
- (2) The plat shall be prepared by a qualified professional with certificates or seals signed by the engineer or surveyor certifying the plat.
- (3) The date, scale and true north point shall be shown on the plat.
- (4) A boundary survey with a field error of closure within the limit of one in ten thousand (1 in 10,000) and bearings relating to either true north or magnetic north. The location to all monuments and their type of material should also be shown. Dimensions shall be expressed in feet and decimals of a foot.
- (5) Location of the subdivision by Magisterial District, Assessor's Parcel Number(s), County and State.
- (6) Location of any mapped dam break inundation zones and any grave, object, or structure marking a place of burial.
- (7) The boundary lines of all existing and proposed blocks and lots located within the subdivision, except that when the lines in any tier of lots are parallel, it shall be sufficient to make bearings of the outer lines on one tier thereof.
- (8) Easements shall be shown by centerline and width when lines are parallel to a boundary, otherwise boundary bearings and distances shall be shown. Where the exterior boundary lines show bearings or length which vary from those recorded in abutting plats or certified surveys, there shall be the following note placed along such lines, "recorded as (show recorded bearing or length or both)."
- (9) Dimensions shall be shown along all boundaries of all lots and the acreage marked within the lots.
- (10) Lots shall be numbered.
- (11) The names of adjoining streets, state highways and subdivisions shown in their proper location.
- (12) Approved Space. A blank oblong space [three inches by four inches] (3" x 4") shall be reserved for the use of approving authorities.
- (13) Delineation of RPA boundary, required buffer areas, RMA wetlands, and RMA boundary.
- (14) Notations shall be added to the plat as follows:
  - a. No land disturbance or vegetation removal is allowed in the Chesapeake Bay buffer area without review and approval by the Zoning Administrator;

- b. On-site septic systems must be pumped out every five years, or a certification must be submitted by a sewage handler permitted by the Virginia Department of Health that the septic system has been inspected, is functioning properly, and the tank does not need to have the solids pumped out.;
- c. 100% reserve drainfield is required for on-site sewage treatment systems; and,
- d. Only water dependent facilities or redevelopment is allowed in Resource Protection Areas, including the 100-foot wide buffer area.

**Section 36.711. — Final Approval Procedure for Single, Family, and Minor Subdivisions.**

- (a) Review. Prior to recordation, all plats of a single, family, or minor subdivision shall be reviewed by the Agent. The Agent shall examine the proposed plat with the subdivider and shall determine the following:
  - (1) Conformity to this Ordinance, the Comprehensive Plan, and all other ordinances and regulations in force which affect divisions. Parameters to check include but are not limited to:
    - a. Check the proposed lot for size, shape, configuration.
    - b. Check the existing or proposed right-of-way for compliance with this ordinance.
    - c. Verification of number of lots divided from tract.
  - (2) The plat is sufficient to accomplish a proper development and to provide adequately for the health, safety, and convenience of the proposed residents therein and for adequate access. Including but not limited to:
    - a. Existing physical features such as natural drainageways, swamps, and wooded areas.
    - b. Existing easements and covenants affecting the property.
    - c. Surrounding land uses, streets and existing buildings.
- (b) Action by the Agent. Upon receipt the Agent shall examine the final plat and all necessary certificates to determine conformance to Section 36.710 and shall within 30 days of its submission, unless the time is extended by the Agent in agreement with the Subdivider, either approve or disapprove said final plat. After the Agent reviews the final plat, such review and the date thereof shall be noted on the plat.

**Section 36.712. — Final Approval Procedure for Major Subdivisions.**

- (a) The plat shall not be approved until the subdivider has complied with the general requirements and minimum standards of design in accordance with this Ordinance, and has made satisfactory arrangements, as hereinbefore provided, to cover the cost of necessary improvements. Approval of final plat shall be written by the Board of Supervisors or Agent on the face thereof.
- (b) Final Plat. During the final plat stage, the following actions shall be taken:
  - (1) Filing of Final Plat. The Subdivider shall file with the Agent the final plat which shall conform to the requirements of this Article.
    - a. Final Plat May Constitute All or a Portion of the Approved Preliminary Plat. A final plat may constitute only a portion of the area contained in the approved preliminary plat provided that the public improvements constructed in the area covered by the plat are sufficient by and of themselves to accomplish a proper development and to provide adequately for the health, safety, and convenience of the proposed residents therein and for adequate access to contiguous areas.
    - b. The Plat. The subdivider shall submit to the Agent 12 prints and one digital drawing drawn with waterproof non-fading black ink, at a scale of not more than 100 feet to the inch for subdivision containing lots any of which are less than five acres or 200 feet to the inch for subdivision containing lots which are more than five acres. Sheets shall be sixteen by twenty-four inches (16" x 24"), including a margin of one-half inch ( $\frac{1}{2}$ " ) outside ruled border lines at top, bottom and right sides, and one and one-half inch ( $1\frac{1}{2}$ " ) for binding on the left sixteen-inch (16" ) end. Each sheet shall bear the name of the subdivision. Each plat shall, as required by the Code of Virginia §15.2-2241, meet the standards for plats under §42.1-82 of the Virginia Public Records act and show correctly on its face sufficient engineering data to reproduce any line on the ground, as well as the following:
      - 1. Name, date of approval, and file number of the preliminary plat upon which the final plat is based.
      - 2. All information required by Section 36.701(b) of this Article.
      - 3. All land to be dedicated to public use, except roads and streets, shall be clearly marked "Dedicated to the Public".
      - 4. The accurate location and dimensions by bearings and distances with all curve data on all lots and street lines and centerlines of streets. All dimensions shown in feet and decimals of a foot to the closest one-hundredth [ $(\frac{1}{100})$ ] of a foot, all bearings, in degrees, minutes and seconds to the nearest ten seconds. The boundary survey shall show in a field error of closure within the limit of one in ten thousand (1' in 10,000') and bearings related to either true or magnetic north. The data of all curves along the street frontage shall be shown in detail at the curve or in a curve data table containing the following: delta, radius, arc length, tangent length, chord length, and chord bearings.
      - 5. One (1) reproducible copy and 6 blue or black line prints of final engineering plans for streets and utilities.
      - 6. A statement to the effect that the subdivision as it appears in this plat is with the free consent and in accordance with the desires of the owners, proprietors and trustees, which shall be signed by the owners, proprietors and trustees, if any, and shall be duly acknowledged before some officer authorized to take acknowledgments of deeds.
      - 7. Certificates signed by the engineer or surveyor setting forth the source of title of the owners of the land subdivided and the place of record of the last instrument in the chain of title.
      - 8. Delineation of RPA boundary, required buffer areas, RMA wetlands, and RMA boundary.

9. Notations shall be added to the plat as follows:
  - i. No land disturbance or vegetation removal is allowed in the Chesapeake Bay buffer area without review and approval by the Zoning Administrator;
  - ii. On-site septic systems must be pumped out every five years, or a certification must be submitted by a sewage handler permitted by the Virginia Department of Health that the septic system has been inspected, is functioning properly, and the tank does not need to have the solids pumped out.;
  - iii. 100% reserve drainfield is required for on-site sewage treatment systems; and,
  - iv. Only water dependent facilities or redevelopment is allowed in Resource Protection Areas, including the 100-foot wide buffer area.

(2) Action by the Agent.

- a. The Agent shall transmit copies of the plat, or appropriate portions thereof, to the County Administrator, Resident Engineer, appropriate utility companies, the State Air Pollution Control Board, Soil Conservation Agent, and other pertinent County and State Officials and agencies as deemed necessary by the Agent for recommendations. These recommendations in respect thereto shall be submitted to the Agent not later than 10 days before the Planning Commission meeting at which the plat will be reviewed.
- b. The Agent shall transmit copies of the final plat for any major subdivision to the Planning Commission and Board of Supervisors for review and approval.
  1. The Planning Commission and Board of Supervisors shall ensure that the plat is in conformance with any approved preliminary plat, and all requirements of this ordinance and other ordinances of the County are met.
  2. The Board of Supervisors shall communicate the result of its review of the Final Plat to the Applicant no later than 60 days after the plat submittal.
    - i. Specific reasons for disapproval shall be contained either in a separate document or on the plat itself. The reasons for disapproval shall identify deficiencies in the plat that cause the disapproval by reference to specific duly adopted ordinances, regulations, or policies and shall identify modifications or corrections as will permit approval of the plat.
    - ii. If the review is favorable, the Board of Supervisors shall authorize the chairperson or agent to approve, sign, and date the final plat.

**Section 36.713. — Recording.**

- (a) As required by the Code of Virginia, §15.2-2254, any owner or developer of any tract of land situated within the County who subdivides the same shall cause a plat of subdivision to be made and recorded in the office of the clerk of the appropriate court. No such plat of subdivision shall be recorded unless and until it shall have been submitted, approved and certified by the Agent in accordance with the regulations set forth in this article.
- (b) As directed by the Code of Virginia § 15.2-2241 (8), after the Agent has approved the final plat, the subdivider shall file such plat for recordation in the clerk's office of the circuit court of the County within 6 months after approval thereof; otherwise, such approval shall become null and void. However, in any case where construction of facilities to be dedicated for public use has commenced pursuant to an approved plan or permit with surety approved by the Board of Supervisors or Agent, or where the developer has furnished surety to the Board of Supervisors or Agent by certified check, cash escrow, bond, or letter of credit in the amount of the estimated cost of construction of such facilities, the time for plat recordation

shall be extended to one year after final approval or to the time limit specified in the approved surety agreement, whichever is greater.

- (c) To entitle a final plat to be entered in the proper books in the Office of the Clerk of Circuit Court of Essex County the certificate of consent as outlined in the Code of Virginia, § 15.2-2264, together with the certificates of approval of the Agent, shall accompany it. These certificates shall be lettered or printed legibly on the face of the final plat. After the final plat shall have been approved by the Agent, the Clerk of Circuit Court shall sign the plat and cause a certified copy of the resolution approving such plat to be attached to the plat and returned to the Subdivider.
- (d) A recorded plat or final site plan shall be valid for a period of not less than five years from the date of approval, as required by the Code of Virginia §15.2-2261.
- (e) If the provisions of a recorded plat or final site plan, which was specifically determined by the Board of Supervisors and not its Agent, to be in accordance with the zoning conditions previously approved pursuant to the Code of Virginia §§ 15.2-2296 through 15.2-2303, conflict with any underlying zoning conditions of such previous rezoning approval, the provisions of the recorded plat or final site plan shall control, and the zoning amendment notice requirements of the Code of Virginia § 15.2-2204 shall be deemed to have been satisfied.
- (f) Recordation of plats shall act as transfer of streets, termination of easements and rights-of-way as outlined in the Code of Virginia § 15.2-2265.

#### **Section 36.714. — Variations and Exceptions.**

Where the Board of Zoning Appeals finds that extraordinary hardships or particular difficulties may result from strict compliance with these regulations, they may approve variations or exceptions to the regulations, provided that such variations or exceptions shall not have the effect of nullifying the intent and purpose of this Ordinance; and further provided the Board shall not approve variations or exceptions to the regulations of this Ordinance unless it shall make findings based upon the evidence presented to it and in compliance with the Code of Virginia §15.2-2309.

Reserved 36.715. — 36.724.

### **Division 8. — Vacation of Plats**

#### **Section 36.725. — Vacation.**

- (a) The Code of Virginia, § 15.2-2278 sets forth that any plat of subdivision recorded in any clerk's office, may be vacated as outlined in the sections below, taken from the Code of Virginia, § 15.2-2270 et seq. The effects of such vacations are outlined in the Code of Virginia, § 15.2-2274.

- (b) Boundary Lines.

As allowed by the Code of Virginia, § 15.2-2275, the Agent may approve, the boundary lines of any lot or parcel of land to be vacated, relocated or otherwise altered as a part of an otherwise valid and properly recorded plat of subdivision or resubdivision approved as provided in this article or properly recorded prior to the applicability of this article, and executed by the owner or owners of the land. The action shall not involve the relocation or alteration of streets, alleys, easements for public passage, or other public areas. No easements or utility rights-of-way shall be relocated or altered without the express consent of all persons holding any interest therein.

- (c) Interest to the County.

Any interest in streets, alleys, easements for public rights of passage, easements for drainage, and easements for a public utility granted to the County as a condition of the approval of a site plan may be

vacated by the Board of Supervisors according to the two methods listed in the Code of Virginia, § 15.2-2270.

(d) Before Sale of Lot.

(1) Single or Minor Subdivision.

- a. An approved and recorded plat of subdivision, or part thereof, may be vacated prior to the sale of any lot therein by the Agent utilizing the procedures set forth in the Code of Virginia, § 15.2-2271 and subsequent amendments thereto.

(2) Major Subdivision.

- a. An approved and recorded plat of subdivision, or part thereof, may be vacated prior to the sale of any lot therein by the Board of Supervisors utilizing the procedures set forth in the Code of Virginia, § 15.2-2271 and subsequent amendments thereto.

(e) After Sale of Lot.

(1) Single or Minor Subdivision.

An approved and recorded plat of subdivision, or part thereof, may be vacated after the sale of any lot by the Agent utilizing one of the two methods specified in the Code of Virginia, § 15.2-2272 and subsequent amendments thereto.

(2) Major Subdivision.

An approved and recorded plat of subdivision, or part thereof, may be vacated after the sale of any lot by the Board of Supervisors utilizing one of the two methods specified in the Code of Virginia, § 15.2-2272 and subsequent amendments thereto.

(f) Fees.

As allowed by the Code of Virginia, § 15.2-2273, the County shall establish a fee for processing an application for vacation of plat. The filing fee shall be paid in accordance with the fee schedule established by the Board of Supervisors, as amended.

(g) Duties of the Clerk.

According to the Code of Virginia, § 15.2-2276, the clerk in whose office any plat so vacated has been recorded shall write in plain legible letters across such plat, or the part thereof so vacated, the word "vacated," and also make a reference on the plat to the volume and page in which the instrument of vacation is recorded.

Reserved 36.726. — 36.734.

## **Division 9. — Enforcement, Violations, and Fees**

### **Section 36.735. — Enforcement.**

As provided in the Code of Virginia § 15.2-2254, the following applies:

- (1) No person shall subdivide land without making and recording a plat of the subdivision and without fully complying with the provisions of state code and this article.
- (2) No plat of any subdivision shall be recorded unless and until it has been submitted to and approved by the local Planning Commission or by the governing body or its duly authorized Agent, of the locality wherein the land to be subdivided is located; or by the commissions, governing bodies or agents, as the case may be, of each locality having a subdivision ordinance, in which any part of the land lies.

- (3) No person shall sell or transfer any land of a subdivision, before a plat has been duly approved and recorded as provided herein, unless the subdivision was lawfully created prior to the adoption of a subdivision ordinance applicable thereto. However, nothing herein contained shall be construed as preventing the recordation of the instrument by which such land is transferred or the passage of title as between the parties to the instrument.
- (4) No clerk of any court shall file or record a plat of a subdivision required by this article to be recorded until the plat has been approved as required herein. The penalties provided by Code of Virginia § [17.1-223](#) shall apply to any failure to comply with the provisions of this subsection.
- (5) No building permit shall be issued nor shall construction be authorized by the County on lands where a subdivision plat is required to be approved and recorded as provided in this article and no certificate of occupancy shall be issued until the compliance with this article and other applicable provisions regarding the use of any structure or land where a subdivision plat is required to be approved and recorded as provided in this article has been approved by the Agent and recorded in the office of the Clerk of the Circuit Court.

**Section 36.736. — Violation and Penalty.**

As allowed by the Code of Virginia, § 15.2-2254, any person violating any provision of this chapter shall be subject to a fine of not more than five hundred dollars (\$500.00) for each lot or parcel of land subdivided, transferred or sold in violation of this chapter and the description of such lot or parcel by metes and bounds in the instrument of transfer or other document used in the process of selling or transferring shall not exempt the transaction from such penalties or from the remedies herein provided.

**Section 36.737. — Fees.**

There shall be a charge to compensate the County for the costs incurred during the examination and approval or disapproval of every subdivision plat or lot required to be reviewed by the Agent or Board of Supervisors. This fee shall be payable to "Treasurer, Essex County," in such amount as set by schedule adopted ordinance of the Essex County Board of Supervisors.

Reserved 36.738. — 36.744

## ARTICLE X. — DEFINITIONS

### Section 36.745. — Word Usage.

For the purposes of this chapter, certain words or terms shall be defined as follows:

- (1) Words used in the present tense include the future. Words in the singular include the plural, and the plural includes the singular.
- (2) The word "shall" or "must" is always mandatory; the word "may" is permissive.
- (3) The words "used for" include "designed for," "arranged for" or "occupied for."
- (4) The word "building" includes "structures" and shall be construed as if followed by the phrase "or part thereof."
- (5) The word "person" includes "individual," "partnership," "company," "profit or nonprofit corporation," "organization" or other similar entities.
- (6) The word "erected" shall be deemed also to include "constructed, reconstructed, altered, placed, or moved".
- (7) The terms "land use" and "use of land" shall be deemed also to include "Building use" and "use of Building".
- (8) Unless otherwise specified, all distance shall be measured horizontally and at right angles to the line in relation to which the distance is tied.
- (9) The term "this chapter" means Chapter 36 of the Code of Essex County, Virginia.

### Section 36.746. — Definitions.

*Accessory building or structure* means a building subordinate to and located on the same lot with a principal building, the use of which is clearly incidental to that of the principal building or to the use of the land, and which is not attached by any part of a common wall or roof to the principal building. The term "accessory building" also includes, but is not limited to, portable storage containers, gazebos, carports, private greenhouses, and sheds which may be modular in nature and are delivered to the site and which may or may not have a foundation. Accessory building or structure does not include alternative dwellings, motorhomes, travel trailers or other recreational vehicles.

*Accessory dwelling unit* means a dwelling that exists as part of a principal dwelling or on the same lot as the principal dwelling and is subordinate in size to the principal dwelling. Accessory dwelling unit does not include alternative dwellings, motorhomes, travel trailers or other recreational vehicles.

*Accessory use (activity)* means a use of a building, lot, or portion thereof which is customarily incidental and subordinate to the principal use of the principal building or the lot.

*Acreage* means a parcel of land, or portion thereof regardless of area, that may be described by metes and bounds but is not necessarily a numbered lot on any recorded subdivision plat.

*Acreage coverage* means the total acres covered by blocks of photovoltaic panels including spaces between panels, buildings, inverters, substation, battery storage, ancillary equipment, and fencing around these items but excluding wildlife corridors, mandated setbacks, wetlands, and other avoided natural or cultural features outside of the security fencing on the project site.

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*Acreage, gross* means a unit of measure, the total land area to be developed including rights-of-way, easements and land set aside for public purpose.

*Administrator* means the official charged with the administration and enforcement of this chapter; also, referred to as the Zoning Administrator.

*Agent, Subdivision* means the Board of Supervisors or Plats officer of Essex County as designated to review and approve the subdivision of land and the plat of such subdivision when wholly or partly within the County.

*Agriculture, intensive* means the commercial, covered confinement, keeping of animals, with litter/manure storage, excluding pastureland having at least 90% of the total area with vegetative cover.

*Agriculture/silviculture* means any operation devoted to the bona fide production of crops, or animals, or fowl including, but not limited to, the production of fruits and vegetables of all kinds, and the production and harvest of products from silvicultural activity. This use does not include *Agricultural, intensive* (*Code of Virginia § 15.2-2288.6*).

*Agritourism* means pursuant to the Code of Virginia § 15.2-2288.6, any activity carried out at a farm winery, farm brewery, farm distillery, or an agricultural operation, that allows members of the general public, for recreational, entertainment, or educational purposes, to view or enjoy rural activities, including farming, wineries, ranching, historical, cultural, harvest-your-own activities, or natural activities and attractions, regardless of whether or not the participant paid to participate in the activity. These rural activities also include, but are not limited to, farm tours, tours of an individual agricultural operation, hayrides, heirloom plant and animal exhibits, crop mazes, and educational programs, workshops, or demonstrations related to agriculture or silviculture.

*Alley* means a public or private way less than 30 feet in width and affording a secondary means of access to abutting property.

*Alternative dwelling* means a structure or combination of structures, considered temporary or permanent, such as tents or yurts, intermodal shipping containers, or tiny houses which are dwelling units that contain less than 600 square feet in floor area, and similar structures intended to be located on a lot or premises for temporary (or permanent) residential occupancy. Alternative dwelling does not include motorhomes, travel trailers or other recreational vehicles.

*Amateur radio antennas* means a freestanding or building mounted structure, including any base, tower or pole, and appurtenances, intended for airway communication purposes by a person holding a valid amateur radio (HAM) license issued by the Federal Communications Commission.

*Applicant* means the person or entity who submits an application to the locality for a permit under this ordinance.

*Aquaculture* means the growing and harvesting of marine or freshwater fish, plants or other organisms in a body of water such as a pond, lake, river, or ocean.

*Assembly, place of* means the use of land for a meeting place where persons gather together for purposes of attending civic, social, or private events on a regular or recurring basis including but not limited to, banquet facilities, conference centers, and event venues. A gathering of less than 25 persons shall not be considered a Place of Assembly provided the gathering is accessory and incidental to the principal use.

*Automobile repair service* means repair and/or maintenance of automobiles, noncommercial trucks, motorcycles, motor homes, recreational vehicles, or boats, including the sale, installation, and servicing of equipment and parts. Typical uses include tire sales and installation, wheel and brake shops, oil and lubrication services, and similar repair and service activities where minor repairs and routine maintenance are conducted.

*Automobile sale, rental/leasing* means a lot arranged, designed or used for the storage and display for sale, lease, or rent of any new or used motor vehicle capable of independent operation or any type of boat, travel trailer and recreation vehicle, provided the travel trailer and recreation vehicle is unoccupied, and where warranty repair work and other major and minor repair service is done wholly within an enclosed building as an accessory use. This definition excludes equipment sales and rental as defined in this ordinance.

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*Aviation facility*, also referred to as an airport, means landing fields, aircraft parking and service facilities, and related facilities for operation, service, fueling, repair, storage, charter, sales, and rental of aircraft, and including activities directly associated with the operation and maintenance of airport facilities and the provision of safety and security.

*Base parcel* means the remaining acreage of a parcel after the subtraction of the acreage of perennial water features. The base parcel is comprised of the land acreage of a parcel. All development standards, density requirements, and submission requirements will be applied to the acreage of the base parcel.

*Battery Energy Storage Facilities* means one or more battery cells for storing electrical energy stored in a Battery Energy Storage System (“BESS”) with a Battery Management System (“BMS”).

*Battery Energy Storage System (BESS)* means a physical container providing secondary containment to battery cells that is equipped with cooling, ventilation, fire suppression, and a battery management system.

*Battery Management System (BMS)* means an electronic regulator that manages a battery energy storage system by monitoring individual battery module voltages and temperatures, container temperature and humidity, off-gassing of combustible gas, fire, ground fault and DC surge, and door access and being able to shut down the system before operating outside safe parameters.

*Bed and breakfast* means a dwelling unit occupied by the owner composed of transient lodging provided within a single family dwelling and/or one or more structures that are clearly subordinate and incidental to the single family dwelling, having not more than five bedrooms wherein food service shall be limited to breakfast and light fare for guests of the Bed and Breakfast.

*Biomass conversion, small-scale* means the conversion of any renewable biomass, including but not limited to, trees and tree residue-chips into heat, power, or biofuels (Code of Virginia § 15.2-2288.01).

*Biomass* means agricultural-related materials including vineyard, grain or crop residues; straws; aquatic plants; and crops and trees planted for energy production.

*Block* means an area of land bounded by streets, or by a combination of streets and public parks, cemeteries, railroad rights-of-way, shorelines of waterways or boundary lines of the County of Essex.

*Board of Supervisors, or Governing Body*, means the County’s legislative body. Board members are elected by popular vote and are responsible for enacting ordinances, imposing taxes, making appropriations, and establishing County policy. The Board adopts the comprehensive plan, zoning, and subdivision regulations.

*Board of Zoning Appeals* means the board appointed to review appeals made by individuals with regard to decisions of the Zoning Administrator in the interpretation of this chapter and to authorize, upon appeal, variances from the terms of this chapter when justified by special conditions.

*Boat yard* means an establishment or site used for the provision of all such facilities as are customary and necessary to the construction, reconstruction, repair or maintenance and accessory sale of boats, marine engines, or marine equipment, supplies, or services including but not limited to rental of covered or uncovered boat slips, or dock space or enclosed dry storage space, lifting or launching services.

*Brewery or distillery* means the use of land, licensed by the commonwealth, where beer or spirits are manufactured for sale. Breweries have a capacity greater than 1,000 barrels a year and distilleries have a capacity greater than 5,000 gallons a year. Consumption on the premises is permitted as an accessory use (Code of Virginia § 15.2-2288.3:1 and § 15.2-2288.3:2).

*Broadcasting or communication tower* means any unstaffed facility for the transmission and/or reception of radio, television, radar, cellular telephone, personal paging device, specialized mobile radio (SMR), and similar services. A broadcasting or communication tower usually consists of an equipment shelter or cabinet, a support tower or other structure used to achieve the necessary elevation, and the transmission or reception devices or antenna. Excluded are amateur radio antennas, which are defined separately. Also excluded are wireless communication antennas

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which fit the definition of Small cell facility and “Administrative review-eligible project” as defined in the Code of Virginia § 15.2-2316.6 and supplied as Utility service, minor by this ordinance.

*Brownfield* means former industrial or commercial sites typically containing low levels of environmental pollution such as hazardous waste or industrial byproducts.

*Buffer area* means an area of natural or established vegetation managed between uses or to protect other components of a resource protection area and state waters from significant degradation due to land disturbances.

*Buildable area* means the area of that part of the lot not included within the yards or open spaces required in this ordinance.

*Buildable width* means the width of that part of a lot not included within the yards or open spaces required in this ordinance.

*Building* means any structure, or part thereof, permanently affixed to a lot or lots and having a roof supported by columns or walls for the housing or enclosure of persons, animals or property of any kind.

*Building official* means an appointed official of the County who is responsible for making and certifying building inspections.

*Building site* means a piece of land consisting of the minimum lot area the zoning district where it is located where a permitted use or structure may be placed.

*Building, completely enclosed* means any building having no outside openings other than ordinary doors, windows and ventilators.

*Building, height of* means the vertical distance measure from the average elevation of the finished grade at the front of the building to the highest point of the roof for flat roofs, to the deck line of mansard roofs, and the mean height between eaves and ridge for gable, hip, and gambrel roofs.

*Building, principal* means the building in which the primary use of the lot on which the building is located is conducted.

*Bulk fuel storage and distribution* means the storage of chemicals, petroleum products and other materials in above-ground containers for subsequent resale to distributors or retail dealers or outlets.

*Bulk* means the size and shape of a building or structure and its relationship to other buildings, to the lot area for a building, and to open spaces and yards.

*Business or trade school* means a use providing education or training in business, commerce, language, or other similar activity or occupational pursuit and not otherwise defined as an Educational facility, either primary and secondary, or college and university.

*Business Support Service* means the use of land for the sale, rental, or repair of office equipment and supplies or the provision of services used by office and service establishments. Typical uses include, but are not limited to, office equipment and supply firms, small business machine repair shops, convenience printing and copying establishments, or information technology support services.

*Camp and campground* means an area that provides recreational opportunities on a daily or overnight basis, upon which are located sites for three or more travel trailers, camping trailers, pickup truck campers, motor homes, tents, or other recreational vehicle for seasonal or temporary recreational occupancy. The term "camps" includes the land and buildings used by recreational vehicle parks and civic, religious and social organizations for social, recreational, educational and/or religious activities on a seasonal basis.

*Camp, day or youth* means an establishment, either publicly or privately owned, with its services designed for the recreation and education of youth.

*Car wash* means a structure or portion thereof containing facilities for washing and/or waxing motor vehicles, typically using production-line automated or semiautomated methods for washing, whether or not employing a

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chain conveyor, blower, steam cleaning or similar mechanical devices operated either by the patron or others. Car washes are a separate use and not treated as an accessory to gasoline stations, automobile service, or other similar uses.

*Catering facility* means an establishment in which food and meals are prepared on premises, and where such food and meals are delivered to another location for public or private entertainment for a fee.

*Cemetery* means any land or structure used or intended to be used for the interment of human remains. Additionally, a cemetery includes mausoleums, columbaria, chapels, administrative offices, and maintenance and storage areas (Code of Virginia § 15.2-2288.5). The sprinkling of ashes or their burial in a biodegradable container on church grounds or their placement in a columbarium on church property shall not constitute the creation of a cemetery.

*Central sewer system* means a publicly or privately owned sewer system, approved by either the State Department of Health or the State Water Control Board, which serves five (5) or more structures and consists of collection and transmission lines or mains, pumping stations if necessary, and a sewage treatment and disposal facility. Such system functions by transmission of sewage away from the points of origin; collection and treatment at a sewage treatment facility, which is not located on any of the lots or parcels served by the system; and disposal or discharge of the treated effluent either on land or in surface waters.

*Central Water Supply and Distribution System (Type A)* means a central-water system serving not more than fifteen (15) connections in the case of residential consumers.

*Central Water Supply and Distribution System (Type B)* means a central water system serving the public, or more than twenty-five (25) individuals, or in the case of residential consumers, to more than fifteen (15) connections.

*Central water system* means a publicly or privately owned water system which meets State Department of Health requirements for an approved water supply, and which serves five (5) or more structures. Such system consists of a well or wells which are not located on any of the lots or parcels served by the system, pump houses, transmission lines or mains, and storage tanks if necessary.

*Certificate of occupancy* means a document issued by the building official allowing the occupancy or use of a building and certifying that the structure or use has been constructed or will be used in compliance with all applicable County codes and ordinances.

*Commercial indoor entertainment* means predominantly spectator uses conducted within an enclosed building. Typical uses include, but are not limited to, motion picture theaters, and concert or music halls.

*Commercial indoor recreation/amusement* means an establishment which provides an enclosed building for indoor sports and/or multiple coin operated amusement or entertainment devices or machines as other than an incidental use of the premises. Typical uses include bowling alleys, ice and roller skating rinks, indoor racquetball, swimming, billiard halls, game rooms, and video arcades.

*Commercial outdoor recreation/amusement* means participant or spectator uses conducted in open or partially enclosed or screened facilities. Typical uses include driving ranges, miniature golf, swimming pools, paintball facilities, sports arenas, motorized model airplane flying facilities, rodeos and outdoor amusement parks.

*Commission* means the Planning Commission of Essex County, Virginia.

*Common open space* means all open space within the boundaries of a planned "cluster" residential development designed and set aside for the common use of all residents of the development.

*Comprehensive plan* means the officially adopted comprehensive plan for the County.

*Conditional use permit* means an approval for a use that may be appropriate in a zoning district, but because of its nature, extent, and external effects, requires special consideration and restrictions relating to its location, design, and methods of operation before it can be deemed appropriate in the district and compatible with its surroundings.

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*Conditional zoning* means a method for rezoning that permits the reasonable and orderly development and use of land with special restrictions in those situations in which unique, specific circumstances indicate that the existing zoning district regulations are not adequate.

*Conservation* means land set aside to achieve the preservation or conservation of water quality, land preservation, and wildlife including associated habitat. Includes game refuge and forest preserve uses.

*Construction footprint* means the area of all impervious surfaces, including, but not limited to, buildings, road and drives, parking areas, and sidewalks and the area necessary for construction of such improvements.

*Construction material sales* means establishment or place of business primarily engaged in retail or wholesale sale, from the premises, of materials used in the construction of buildings or other structures, but this use shall not include automobile or equipment supplies otherwise classified herein. Typical uses include building material stores and home supply establishments.

*Construction yard* means an establishment or place of business primarily engaged in construction activities, including outside storage of materials and equipment. Typical uses are building contractor's yards.

*Consumer repair service* means establishment or place of business primarily engaged in the provision of repair services to individuals, rather than businesses, but this use shall not include automotive and equipment repair use types. Typical uses include repair of electronics, shoes, watches, jewelry, or musical instruments.

*Crematory* means a commercial establishment that specializes in the cremation of corpses, including pets.

*Cul-de-sac* means a local street with only one (1) outlet and having a turnaround for reverse traffic movement.

*Cultural facility* means a use providing for the public display, performance, or enjoyment of heritage, history, or the arts. This use includes but is not limited to: museums, arts performance venues, cultural centers, or interpretive sites, but does not include commercially-operated theatres.

*Day care center* means any facility operated for the purpose of providing care, protection, and guidance during only part of a twenty-four-hour day. This term includes nursery schools, preschools, day care centers for individuals, including adults, and other similar uses. Excluded are public and private educational facilities, family home day care, or any facility offering care to individuals for a full twenty-four-hour period.

*Decommissioning plan* means a plan to disconnect, remove and properly dispose of equipment, facilities, or devices and to restore the property to its original condition.

*Density* means the number of dwelling units or residential lots permitted on a given unit of land. Density is determined by dividing the total number of residential units or lots to be located on the parcel by the area of the base parcel.

*Developer* means any person, group or persons, corporation, or other legal entity who, having an interest in land directly or indirectly sells, leases or develops or offers to sell, lease or develop, or advertises for sale, lease or development any lot, tract, parcel, site, unit or interest for residential, commercial or industrial development as defined herein.

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*Development* means the construction, or substantial alteration, of residential, commercial, industrial, institutional, recreation, transportation, or utility facilities or infrastructures.

*Development standard* means regulations that limit the size, bulk, or siting conditions of particular types of buildings, uses located within any designated district, or permitted as conditional uses.

*Development, Commercial* means the erection or construction of a building or structure intended for use as a business establishment engaged in the storage, cartage, sale or resale of goods, wares or merchandise and/or personal services, either directly or indirectly, to consumers, retailers, wholesalers or jobbers.

*Development, Industrial* means the erection or construction of a building or structure for the production, processing, cleaning, servicing, testing or repair of materials, goods or products.

*District*. Refer to Zoning district.

*Driveway* means a private access for vehicles to a parking space, garage, dwelling, or other structure.

*Dwelling, manufactured* means a structure which: (1) Is transportable in one or more sections; (2) Is eight feet or more in width and 40 feet or more in length in the traveling mode, or is 320 or more square feet when erected on-site; (3) Is built on a permanent chassis; (4) Is designed to be used as a Dwelling Unit for one Family, with or without a permanent foundation, when connected to the required utilities; and (5) Includes the plumbing, heating, air conditioning, and electrical systems necessary for the structure. For purposes of this chapter, a Manufactured Home must meet the standards promulgated by the United States Department of Housing and Urban Development (HUD), published at 24 CFR Part 3280, including the ANSI standards incorporated therein by reference. For purposes of this chapter, a Manufactured Home must bear a data plate declaring that it meets HUD standards. Manufactured dwelling was previously identified and synonymous with mobile homes.

*Dwelling, multifamily* means any building arranged or designed to be occupied by three or more dwelling units for permanent occupancy, regardless of the method of ownership. Included in the use type but not limited to would be garden apartments, low- and high-rise apartments, apartments for elderly housing and condominiums.

*Dwelling, or dwelling unit*, means a room or group of rooms occupied or intended to be occupied as separate living quarters by a single family or other group of persons living together as a household or by a person living alone and having its own permanently installed cooking and sanitary facilities but not including boats, trailers, motor homes and alternative dwellings.

*Dwelling, single-family* means a site built or modular building designed for and used exclusively as one dwelling unit for permanent occupancy by one family, which is surrounded by open space or yards on all sides.

*Dwelling, townhouse* means a row of three or more dwelling units, each separated from one another by a continuous vertical wall without opening from basement floor to roof between units, which is commonly known as a firewall.

*Dwelling, two-family* also referred to as a duplex; means a structure arranged or designed to be occupied by two families, the structure having only two dwelling units.

*Easement* means an authorization by a property owner for use by another of any designated part of his property for one or more specified purposes, which purposes are consistent with the general property rights of the owner.

*Educational facility, college/university* means an educational institution authorized by the Commonwealth of Virginia to award associate, baccalaureate or higher degrees, and facilities associated with it. This term includes academic buildings, administrative facilities, dormitories, special housing, parking areas, dining halls and other physical plants associated with the college or university use.

*Educational facility, primary/secondary* means a public, private or parochial school offering instruction at the elementary, junior and/or senior high school levels in the branches of learning and study required to be taught in the public schools of the Commonwealth of Virginia.

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*Emergency management services facility* means a building operated by a public or private entity for the storage of emergency vehicles and equipment and ancillary operations such as but not limited to fire stations, police stations, and ambulance services.

*Engineer* means an engineer licensed by the Commonwealth of Virginia.

*Equipment repair service, heavy* means general repair and rebuilding of equipment commonly used in commercial, industrial, or construction enterprises, including engine work, body work, framework, and welding.

*Equipment sales and rental, heavy* means establishments primarily engaged in the sale or rental of tools, tractors, construction equipment, commercial equipment, agricultural implements, and similar industrial equipment. Included in this use type is the incidental storage, maintenance, and servicing of such equipment.

*Erected* means built, constructed, reconstructed, moved upon, placed altered, or any physical operations on the premises required for building. Excavations, fill, drainage, and the like shall be considered a part of erection.

*Exploratory well* means any well drilled (i) to find and produce gas, oil, or other similar materials in an unproven area, (ii) to find a new reservoir in a field previously found to be productive of gas, oil, or other similar materials in another reservoir, or (iii) to extend the limits of a known gas, oil, or other similar materials reservoir.

*Family health care structure, temporary* means pursuant to all conditions set forth in the Code of Virginia § 15.2-2292.1, a transportable residential structure, providing an environment facilitating a caregiver's provision of care for a mentally or physically impaired person, that (i) is primarily assembled at a location other than its site of installation; (ii) is limited to one occupant who shall be the mentally or physically impaired person, or in the case of a married couple, two occupants, one of whom is a mentally or physically impaired person and the other requires assistance with one or more activities of daily living as defined in § 63.2-2200, as certified in writing by a physician licensed in the Commonwealth; (iii) has no more than 300 gross square feet; and (iv) complies with applicable provisions of the Industrialized Building Safety Law (§ 36-70 et seq.).

*Family home day care (4 or less individuals)* means a single-family dwelling in which one to four individuals, are received for care, protection, and guidance during only part of a twenty-four-hour day. Individuals related by blood, legal adoption or marriage to the person who maintains the home shall not be counted towards this total (Code of Virginia § 15.2-2292).

*Family home day care (5-12 individuals)* means a single-family dwelling in which more than four but less than 13 individuals, are received for care, protection and guidance during only part of a twenty-four-hour day. Individuals related by blood, legal adoption or marriage to the person who maintains the home shall not be counted towards this total (Code of Virginia § 15.2-2292).

*Family* means a person living alone, or any of the following groups living together as a single housekeeping unit: (1) any number of persons related by blood, marriage, adoption, guardianship, or duly-authorized custodial relationship; (2) up to four unrelated people; (3) two unrelated people and any children related to either of them; (4) residents of an assisted living facility or group home as allowed by the Code of Virginia §15.2-2291. Domestic servants, employed and residing on the premises, shall be considered as part of the family.

*Farm supply and service establishment* means to implement sales, rentals and service, feed and seed store, custom milling, milk depots and creameries, fertilizer storage in bags, or bulk storage of liquid or dry fertilizer in tanks or in a completely enclosed building.

*Farm winery* means an establishment as defined in Va. Code § 4.1-100 Subsection (i) and licensed by the Commonwealth pursuant to Va. Code § 4.1-207 where wine may be sold for on-premise consumption and in closed containers for off-premise consumption. The serving of light snacks (cheese, crackers, peanuts, etc.) is permitted at a farm winery, without regulation. Other food prepared on-site shall be prepared in a facility in compliance with the Virginia State Building Code requirements and licensed by the Virginia Department of Health. The sale of wine-related items that are incidental to the sale of wine is permitted at a farm winery without regulation (Code of Virginia § 15.2-2288.3).

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*Farmer's market* means retail sale of fresh fruits and vegetables, and other food and related items, at a facility with spaces occupied by several different temporary tenants on a short-term or daily basis; indoor or outdoor; but this term does not include Wayside stands.

*Final Plat* means a map and any accompanying material prepared by the subdivider and approved by the Essex County Board of Supervisors or Plats Officer in accordance with the provisions of this Ordinance to be recorded as a Subdivision.

*Financial institution* means an establishment whose principal purpose is the provision of financial services, including but not limited to, an insured depository institution, a credit union, a Federal home loan bank, a small business investment company, a depository institution holding company, a mortgage lending business, or other institutions as defined by federal statute.

*Floodplain* means all lands that would be inundated by flood water as a result of a storm event of a 100-year return interval.

*Frontage, river* means the lot width along the property line parallel to the river, however such term does not dictate the location of the front of the property.

*Frontage, road* means the length of the front lot line measured from side lot line to side lot line.

*Funeral home* means an establishment engaged in undertaking services such as preparing the dead for burial and arranging and managing funerals.

*Garden center* means an establishment or place of business primarily engaged in retail sales from the premises including trees, shrubs, seeds, fertilizers, pesticides, plants, and plant materials primarily for agricultural, residential and commercial consumers. Such an establishment typically sells products purchased from others but may sell material which they grow themselves.

*Gasoline station* means any place of business with fuel pumps and underground or aboveground storage tanks that provides fuels and oil by individual sale for motor vehicles and equipment. A store associated with automobile fuel sales shall be considered a gasoline station.

*Governing Body* means the Board of Supervisors of Essex County, Virginia.

*Greenhouse, commercial* means a structure used for the cultivation and exhibition of plants under controlled conditions in which plants are offered for sale to the public, either at wholesale or at retail.

*Group home* means a licensed residential facility in which no more than eight mentally ill, intellectually disabled, or developmentally disabled persons or no more than eight aged, infirmed or disabled persons reside, with one or more resident counselors or other resident or nonresident staff persons, shall be considered a residential occupancy by a single family. Mental illness and developmental disability shall not include current illegal use of or addiction to a controlled substance as defined in the Code of Virginia § 54.1-3401. Such facility shall be licensed by the Commonwealth of Virginia Department of Behavioral Health and Development Services (Code of Virginia § 15.2-2291).

*Halfway house* means an establishment providing accommodations, supervision, rehabilitation, counseling, and other guidance services to persons suffering from alcohol or drug addiction, to persons re-entering society after being released from a correctional facility or other institution, or to persons suffering from similar disorders. This use is separate from Shelter, residential as defined in this ordinance.

*Health Official* means the Health Officer of Essex County, or his duly authorized representative, the sanitarian.

*Helipad* means an area designated for the landing or departure of helicopters (Code of Virginia § 15.2-2293.2)

*Highway Engineer* means the resident engineer employed by the Virginia Department of Transportation.

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*Home occupation, class A* means an accessory use of a dwelling unit for gainful employment involving the provision of goods and/or services and which does not generate any additional employees or more than five customers daily. Such occupations may require the use of accessory structures.

*Home occupation, class B* means an accessory use of a dwelling unit for gainful employment involving the provision of goods and/or services and which generates not more than two full or part-time employees. No more than ten customers may be allowed on the premises daily. Such occupations may require the use of accessory structures.

*Hospital* means a building or group of buildings, having room facilities for overnight patients, used for providing services for the in-patient medical, surgical, or obstetrical care of sick or injured humans, and which may include related facilities, central service facilities and staff offices; provided, however, that such related facility must be incidental and subordinate to the main use and must be an integral part of the hospital operations.

*Host designee* means a person assigned by a host to be available 24/7 to answer problems associated with a short-term rental.

*Hotel* also referred to as a motel or motor lodge; means the use of land for transitory lodging or sleeping accommodations offered to the public for compensation. Typical uses include hotels, motels, travel lodges, tourist homes, or hostels, but not including a Bed and Breakfast.

*Individual Well* means a well supplying a source of water to one (1) lot.

*Janitorial business* means a cleaning service that may include an office and storage of supplies.

*Junkyard* means an establishment or place of business that is maintained, operated, or used for storing, keeping, buying, or selling junk or for the maintenance or operation of an automobile graveyard. The term "junkyard" shall include the term "automobile graveyard" as defined in Code of Virginia, § 33.2-804.

*Jurisdiction* means the area of territory subject to the legislative control of the governing body.

*Kennel, commercial* means any location where raising, grooming, caring for, or boarding of dogs, cats, or other small animals for commercial purposes is conducted.

*Kennel, private* means keeping of four or more dogs that are all owned and licensed by a single owner and kept on the same property.

*Laboratory, research and development* means an establishment whose principal purpose is the research, compounding and/or packaging of scientific products, or research and development of innovative ideas in technology-intensive fields. Examples include research and development of communication systems, transportation, geographic information systems, multi-media and video technology. Development and construction of prototypes and light manufacturing may be associated with this use.

*Laundry, commercial* means establishments primarily engaged in the provision of laundering, cleaning or dyeing services other than those classified as Personal services. Typical uses include bulk laundry and cleaning plants, diaper services, or linen supply services.

*Life care facility* means a residential facility primarily for the continuing care of the elderly, providing for transitional housing progressing from independent living in various dwelling units, with or without kitchen facilities, and culminating in nursing home type care where all related uses are located on the same lot. Such facility may include other services integral to the personal and therapeutic care of the residents.

*Livestock market* means a commercial establishment wherein livestock is collected for sale and auctioned off.

*Livestock* means any animal customarily kept by humans for the purpose of providing food, clothing, or work, including but not limited to, cows, goats, horses, pigs, and poultry but not including cats, dogs, or other house pets.

*Lot area* means the total horizontal area within the lot lines of the lot.

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*Lot coverage* means that percentage of a lot which when viewed from above would be covered by a structure or structures or any part thereof, excluding roof eaves and steps.

*Lot line, front* means the line separating the lot from a street on which it fronts. On a corner lot, the front shall be deemed to be along the shorter dimension of the lot; and where the dimensions are equal, the front shall be on that street on which a predominance of the other lots in the block front.

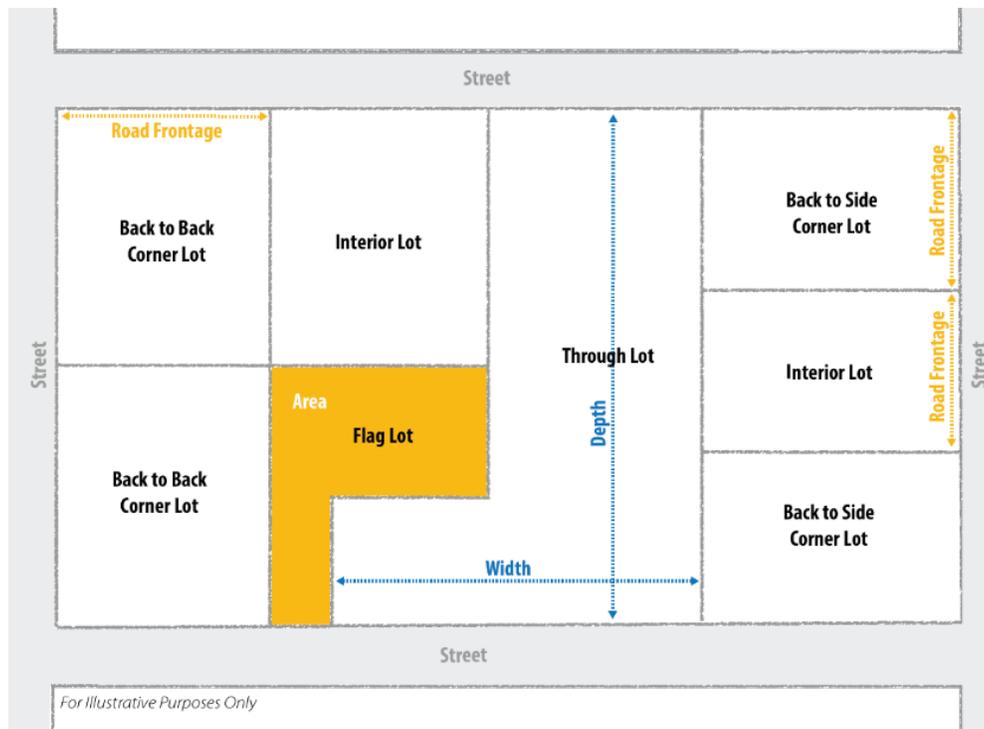
*Lot line, rear* means the lot line which is opposite the front lot line. If the lot is irregular in shape, the following criteria shall be used to determine the rear lot line:

- (a) If a rear lot line is less than 10 feet in length, or if the side lot lines come to a point at the rear, the rear lot line shall be deemed to be a line drawn parallel to the front lot line that is not less than 10 feet long, lying wholly within the Lot and located farthest from the front lot line.
- (b) If the lot has more than four contiguous Lot Lines that are not parallel to the front lot line, but all are greater than 10 feet in length, the rear lot line shall include all the lot lines that have a beginning point greater than 65 feet from the front line and have an interior angle of 135 degrees or less.
- (c) Any lot line 10 feet or less that has both ends intersecting with two lot line with the same designation shall be deemed as being part of the same line.

*Lot line, side* means any lot line other than a front or rear lot line.

*Lot* means a parcel of land intended to be separately owned, developed, or otherwise used as a unit, established by plat, subdivisions or as otherwise permitted by law.

*Lot of record* means a lot shown upon a plan of subdivision or upon a plat attached or referred to in a deed described by metes and bounds and recorded in the Circuit Court Clerk's Office of Essex County.



**Figure 36.1. Lot Types**

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*Lot, corner* means a lot abutting on two or more streets at their intersection. Of the two sides of a corner lot, the front shall be deemed to be the shortest of the two sides fronting on streets.

*Lot, depth of* means the mean horizontal distance between the front and rear lot lines.

*Lot, double frontage* means a lot, other than a corner lot, having frontage on two streets.

*Lot, flag means* any lot, except a lot fronting on a cul-de-sac, that has a street frontage that is less than the minimum lot width required for the zoning district.

*Lot, interior* means any lot other than a corner lot.

*Lot, through* means a lot having a pair of opposite lot lines along two, more or less parallel, roads and which is not a corner lot. Except for a lot in a residential or residential townhouse district which has a buffer along a road, both road lines shall be front lot lines. For a lot with a buffer along a road, the land adjacent to the buffer shall be the rear lot line.

*Lot, width of* means the horizontal distance between side lot lines measured along the front building setback line.

*Manufactured home park* means the use of land for any area designed to accommodate two or more independent Manufactured Homes intended for residential use where residence is exclusively in Manufactured Homes.

*Manufactured home sales* means establishments engaged in the sale or rental of manufactured homes.

*Manufacturing, heavy* means the processing and/or converting of raw, unfinished material and/or products into articles or substances of a different character or for use for a different purpose. Uses may have significant external effects, or which pose significant risks due to the involvement of explosives, radioactive materials, poisons, pesticides, herbicides, or other hazardous materials in manufacturing or other processes. Uses may include, but are not limited to, paper products, plastic products, and pharmaceuticals.

*Manufacturing, light* means establishments primarily engaged in the on-site production of goods by hand manufacturing, assembly, packaging or fabrication of materials and products within enclosed structures without significant external effects such as smoke, noise, soot, vibration, odor, and the like. Uses may include, but are not limited to, a machine shop, bottling, electronic equipment, ceramic products, business machines, musical instruments, furniture, medical appliances, tools or hardware, any other product of a similar nature. Retail sales may be incidental to the manufacturing use.

*Marina* means a commercial, waterfront establishment whose business is offering the sale or rental of boats and marine sporting equipment and the servicing, repair, or storage of same. These establishments may provide boat slip rental, gasoline sales, sanitary pump out service, and food and drink accommodations.

*Micro-brewery* means an establishment primarily engaged in brewing ale, beer, malt liquors, and nonalcoholic beer, with a capacity of not more than 1,000 barrels per year. Micro-brewery may include a restaurant or public tasting room as an accessory use.

*Micro-distillery* means an establishment primarily engaged in distilling and blending potable liquors, including mixing them with other ingredients, with a capacity of not more than 5,000 gallons of finished product per year. A micro-distillery may include a restaurant or public tasting room as an accessory use.

*Mini-warehouse* means a building designed to provide rental storage space in cubicles where each cubicle has a maximum floor area of 400 square feet. Each cubicle shall be enclosed by walls and ceiling and have a separate entrance for the loading and unloading of stored goods. The conduct of sales, business or any other activity within the individual storage units, other than storage, shall be prohibited.

*Motor vehicle racing* means participant or spectator facilities primarily for the sport of racing machines against one another or against time.

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*Nonconforming lot* means an otherwise legally platted lot that does not conform to the minimum area, width, or lot frontage requirements of this Ordinance for the district in which it is located either at the effective date of this Ordinance or as a result of subsequent amendments to the Ordinance.

*Nonconforming structure* means an otherwise legal building or structure that does not conform with the lot area, yard, height, lot coverage, or other area regulations of this Ordinance, or is designed or intended for use that does not conform to the use regulations for this Ordinance, for the district in which it is located either at the effective date of this Ordinance or as a result of subsequent amendments to the Ordinance.

*Nonconforming use* means the otherwise legal use of a building or structure or of a tract of land that does not conform to the use regulations of this Ordinance for the district in which it is located, either at the effective date of this Ordinance or as a result of subsequent amendments to the Ordinance. Any use that was unlawful on the Date of Adoption of This Chapter shall remain unlawful and shall not be a nonconforming use.

*Nursing home* means a use providing bed care and in-patient services for persons requiring regular medical attention but does not include a facility providing surgical or emergency medical services or a facility providing care for alcoholism, drug addiction, mental disease, or communicable disease.

*Office, general* means the use of land wherein the primary use is the conduct of a business or profession such as, but not limited to accounting, tax-preparation, lenders and securities brokers, architecture, computer software, or information systems research and development, engineering, insurance, law, management, organization and association offices, psychology, theology, real estate and travel. Retail Sales do not comprise more than an Accessory Use of the primary activity of a General Office. This definition does not include Office, medical/clinic as defined by this chapter.

*Office, medical/clinic* means the use of a site for facilities which provide diagnoses, minor surgical care and outpatient care on a routine basis, but which does not provide overnight care or serve as a base for an ambulance service. Medical offices are operated by doctors, dentists, or similar practitioners licensed by the Commonwealth of Virginia.

*On-site sewer* means a septic tank or similar installation, approved by the State Department of Health, located on an individual lot or parcel and serving a single dwelling unit or other structure located on that lot, which provides proper and safe treatment and disposal of sewage.

*Operator* means the person responsible for the overall operation and management of a facility.

*Outdoor sales, seasonal* means any business or use (primary or accessory) that is conducted primarily out of doors, which may include but not be limited to: retail sales of fruits, vegetables, plants, flowers, Christmas trees, fireworks; and other similar businesses or uses.

*Outdoor storage* means the keeping, in other than a building, of any goods, materials, or merchandise on the same parcel for more than twenty-four consecutive hours. This use does not include junkyard.

*Owner* means the person or entity who owns all or a portion of a facility.

*Parcel* means a tract of land consisting of one or more lots of record.

*Parent Parcel* means a parcel of land that is proposed to be the subject of a development or subdivision of land.

*Parent Tract* means a separate lot, tract, or parcel of land conveyed by deed, devised by will or passing pursuant to the laws of descent and distribution, the boundaries of which are shown by a plat or described by metes and bounds, and recorded in the Clerk's Office of Essex County, Virginia on or before February 17 1988. However, the parent tract shall not be included as a separate lot unless the remainder is less than five (5) acres.

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*Parking lot, commercial* means a site for surface parking use which is fee based and provides one or more parking spaces together with driveways, aisles, turning and maneuvering areas, incorporated landscaped areas, and similar features meeting the requirements established by this Ordinance. This use type shall not include parking facilities accessory to a permitted principal use.

*Personal improvement service* means establishments primarily engaged in the provision of informational, instructional, personal improvements and similar services. Typical uses include driving schools, health or physical fitness studios, reducing salons, dance studios, handicraft and hobby instruction.

*Personal services* means establishments or places of business engaged in the provision of frequently or recurrently needed services of a personal nature. Typical uses include beauty and barber shops; grooming of pets; seamstresses, tailors, or shoe repairs; florists; and laundromats and dry cleaning stations serving individuals and households.

*Physical Improvements* means any structure such as drainage structures, central water system, central sewage disposal systems, bridges, etc., and such other improvements as the agent may designate.

*Pier, commercial* means a fixed waterfront structure in which the owner of the pier charges a fee for members of the general public to use the pier. Allowed uses include crabbing, fishing, sunning, swimming and similar activities, but not boating or the docking of boats.

*Pier, private* means a waterfront structure, fixed or floating, used for the docking of boats owned and registered by the property owner or a guest visiting the owner, or for recreational uses such as fishing.

*Planning Commission* means a board of the local government consisting of such appointed members whose functions include advisory or nontechnical aspects of planning and may also include such other powers and duties as may be assigned to it by the Board of Supervisors.

*Plat* means a map or plan of a tract or parcel of land which is to be, or which has been subdivided. Includes the term map, plot, replat, or replot. When used as a verb, "plat" is synonymous with "subdivide".

*Portable storage container* means a portable, weather-resistant, receptacle designed and used for the storage or shipment of personal property, building materials or merchandise. Portable storage container is synonymous with shipping container.

*Primary highway* means a highway designated as a State Primary Highway or U.S. Highway by the Virginia Department of Transportation.

*Proffer* means a voluntary offer that addresses an impact or impacts from use of property or development, tendered by an applicant for conditional rezoning.

*Public hearing* means a meeting announced and advertised for soliciting formal public comment on matters under consideration.

*Public park and recreational area* means publicly owned and operated parks, picnic areas, playgrounds, indoor/outdoor athletic or recreation facilities, indoor/outdoor shelters, amphitheaters, game preserves, open spaces, and other similar uses. This use shall not include Public use or campground as defined in this ordinance.

*Public use* means the use of land, exclusively for public purposes, by any department or branch of the federal government, Commonwealth or any political subdivision, public authority, or any combination thereof. This use shall not include Public park and recreational area, Educational facilities, or Utility service (major or minor) as defined in this ordinance.

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*Public water and sewerage systems* means a water or sewerage system owned and operated by the County or an authority or owned and operated by a private individual or a corporation approved by the governing body and properly licensed by the State Corporation Commission, and subject to special regulations as herein set forth.

*Purchaser* means an actual or prospective purchaser or lessee of any lot in a subdivision.

*Rated capacity* means the maximum capacity of a solar energy facility based on the sum total of each photovoltaic system's nameplate capacity.

*Recreation facility, private* means a use specifically for the residents and guests of a particular residential development, planned unit development, or residential neighborhood, including indoor and outdoor facilities. These facilities are usually proposed or planned in association with development and are usually located within or adjacent to such development.

*Recreation playground equipment* means play apparatus such as, but not limited to, jungle gyms, swing sets, slides, and sand boxes.

*Recreational vehicle* means a vehicular type or portable structure without a permanent foundation which can be towed, hauled, or driven and primarily designed as temporary living accommodations for recreational, camping, and travel use and including, but not limited to; travel trailers, truck campers, camping trailers and self-propelled motor homes.

*Recreational vehicle storage, commercial* means an area used for a fee for the storage of recreational vehicles and boats that are not currently being used.

*Recycling center* means a facility used by the general public for the collection of materials for recycling or reuse, including bins, boxes, buildings, self-propelled motor vehicles, trailers and other enclosures or receptacles. Except for County or other governmental sponsored programs to collect and/or recycle household hazardous wastes, this definition shall not include facilities for the collection of non-recyclable materials, such as business and household refuse, garbage, organic materials, medical waste, trash, junk, toxic substances or similar materials.

*Religious assembly* means a use located in a permanent building or in outdoor spaces and providing regular organized religious worship and related incidental activities. This use shall not include Educational facility, primary/secondary schools and Day care facilities.

*Required open space* means land area set aside for recreation, landscaping, or natural preservation, and not used for residences or business activities.

*Resource extraction* means a use involving on-site extraction of surface or subsurface mineral products or natural resources. Typical uses are quarries, borrow pits, sand and gravel operation, mining, soil mining, and other major excavations. Specifically excluded from this use type shall be grading and removal of dirt associated with an approved site plan or subdivision, or excavations associated with, and for the improvement of, a bona fide agricultural or forestry use.

*Resource Management Area, or RMA*, means that component of the Chesapeake Bay Preservation Area that is not classified as the Resource Protection Area. RMAs include land types that, if improperly used or developed, have the potential for causing significant water quality degradation or for diminishing the functional value of the Resource Protection Area.

*Resource Protection Area, or RPA*, means that component of the Chesapeake Bay Preservation Area comprised of lands adjacent to water bodies with perennial flow that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may result in significant degradation to the quality of State waters.

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*Restaurant, drive-in* means an establishment primarily engaged in the preparation of food and beverages, for either take-out, delivery or table service, served in disposable containers at a counter, drive-up, or drive through service facility, or which offers curbside service.

*Restaurant, general* means an establishment in which, for compensation, food or beverages are dispensed for consumption on the premises, including, among other establishments, cafes, tearooms, confectionery shops, eat-in delis and refreshment stands. Excluded from this definition are *Restaurant, drive-in* and *Restaurant, mobile*.

*Restaurant, mobile* means a readily movable wheeled cart, trailer, or vehicle designed and equipped for the preparing, service, and/or selling of food and operated at temporary locations. This definition shall include food trucks, food trailers, and food carts and shall not apply to those selling in short bursts of 30 minutes or less at a single location and moving to multiple properties through the course of a business day, such vehicles may include, but are not limited to, ice cream trucks.

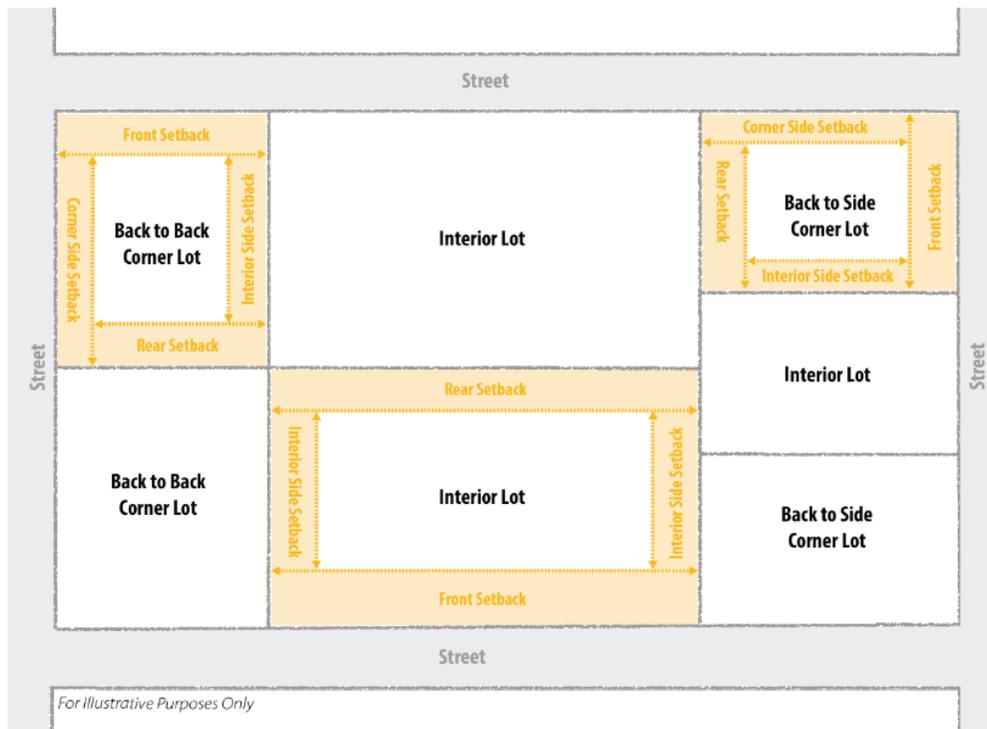
*Right-of-way* means a legally established area or strip of land, either public or private, on which an irrevocable right of passage has been recorded, and which is occupied or intended to be occupied by a street, utility service, water main, sanitary or storm sewer main, or other similar use.

*Sawmill, commercial* means a sawmill permanently located for the purpose of processing timber from the property on which located, from adjoining property, or from other properties removed from the sawmill or its environs without regard to point of origination. Such mill may or may not be held out for the processing of timber bought or sold on a price basis. Facilities may include wood processing and wood manufacturing such as, but not limited to, planing, chipping, pallets or other secondary products.

*Sawmill, mobile* means a portable sawmill located on private property for no more than three days for the processing of timber cut only from that property or from property immediately contiguous and adjacent thereto, or incidental processing of timber transported from other property.

*Secondary highway* means a highway designated as a State Secondary Highway by the Virginia Department of Transportation.

*Setback* means the minimum distance by which any building, structure, or use must be separated from the property line(s) of the lot on which it sits.



**Figure 36.2. Setback Types**

*Setback, corner side* means for corner lots, a line parallel to the right-of-way and side line of the lot denoting the minimum distance by which any structure, excluding open steps and stoops, must be separated from the side property line. The side located along the longer lot frontage shall be considered the corner side.

*Setback, front* means a line parallel to the front line of rectangular lots or, in the case of curved front lot lines, parallel to the chord of the curve, denoting the minimum distance by which any structure, excluding open steps and stoops, must be separated from the front property line. In the case of existing flag lots and irregularly shaped lots, the setback line shall be drawn on the plat in a position acceptable to the agent. In such cases, the setback line shall be perpendicular to the longer axis of the lot insofar as practicable.

*Setback, interior side* means for corner lots and interior lots, a line parallel to the side line of the lot denoting the minimum distance by which any structure, excluding open steps and stoops, must be separated from the side property line. In the case of existing flag lots and irregularly shaped lots, the setback line shall be drawn on the plat in a position acceptable to the agent.

*Setback, rear* means a line parallel to the rear line of rectangular lots or, in the case of curved front lot lines, parallel to the chord of the curve, denoting the minimum distance by which any structure excluding open steps and stoops must be separated from the rear property line. In the case of existing flag lots and irregularly shaped lots, the setback line shall be drawn on the plat in a position acceptable to the agent. In such cases, the setback line shall be perpendicular to the longer axis of the lot insofar as practicable.

*Shelter, residential* means a facility promoting temporary housing and feeding for one or more individuals who are otherwise temporarily or permanently homeless. Ancillary community support services may be provided including, but not limited to, childcare, counseling, food distribution, or vocational training. This definition excludes Halfway House, which is otherwise defined in this ordinance.

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*Shooting range, outdoor* means the use of land for shooting clubs and other facilities for the discharge of firearms or other projectiles for the purposes of target practice, skeet and trap shooting, mock war games, or formal competitions, or in return for compensation.

*Short-term rental* means a residential dwelling unit that is used or advertised for rent for transient occupancy in increments of fewer than 30 consecutive days. This use type does not include bed-and-breakfast establishments and does not apply to month-to-month extensions following completion of a year's lease.

*Sign* mean any object, device, display, or structure, or part thereof, visible from a public place, a public right-of-way, any parking area, or right-of-way open to use by the general public, or any navigable body of water that is designed and used to attract attention to an institution, organization, business, product, service, event, or location by any means involving words, letters, figures, designs, symbols, fixtures, logos, colors, illumination, or projected images.

*Sign area* means the entire area enclosing the extreme limits of writing, representation, pictorial elements, emblems, or a figure of similar character, together with all material, color, or lighting forming an integral part of the display or used to differentiate the Sign from the background against which it is placed.

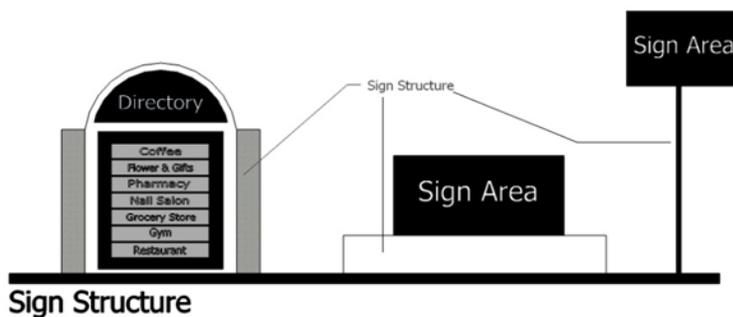
*Sign, abandoned* means a sign structure that has ceased to be used, and the owner intends no longer to have used, for the display of sign copy, or as otherwise defined by state law.

*Sign copy* means those letters, numerals, figures, symbols, logos, and graphic elements comprising the content or message of a sign, exclusive of numerals identifying a street address only.

*Sign face* means the particular area of the sign structure upon which a message, copy, or advertisement is displayed for viewing.

*Sign maintenance* means to prevent through preservation, repair, or restoration, the development of any rust, corrosion, rot, chipping, peeling, or other deterioration in either the physical appearance or the safety of every sign.

*Sign structure* means any structure supporting a sign.



*Sign, animated* means a sign employing actual motion or the illusion of motion. Animated signs, which are differentiated from changeable signs as defined and regulated by this Ordinance, include the following types:

- (1) *Electrically Activated* means an animated signs producing the illusion of movement by means of electronic, electrical or electro-mechanical input and/or illumination capable of simulating movement through employment of the characteristics of one or both of the classifications noted below:

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- a. *Flashing* means an animated signs or animated portions of signs whose illumination is characterized by a repetitive cycle in which the period of illumination is either the same as or less than the period of non-illumination. For the purposes of this Ordinance, flashing will not be defined as occurring if the cyclical period between on-off phases of illumination exceeds four seconds.
  - b. *Patterned Illusionary Movement* means an animated signs or animated portions of signs whose illumination is characterized by simulated movement through alternate or sequential activation of various illuminated elements for the purpose of producing repetitive light patterns designed to appear in some form of constant motion.
- (2) *Environmentally Activated* means an animated signs or devices motivated by wind, thermal changes, or other natural environmental input. Includes spinners, pinwheels, and/or other devices or displays that respond to naturally occurring external motivation but excludes pennants and streamers.
- (3) *Mechanically Activated* means an animated signs characterized by repetitive motion and/or rotation activated by a mechanical system powered by electric motors or other mechanically induced means.

*Sign, awning* See "Sign, canopy".

*Sign, banner* means a sign utilizing a banner as its display surface.

*Sign, billboard* means an off-premises sign or sign structure with display space available for lease and designed so that the copy or poster on the sign can be changed frequently.

*Sign, canopy* means a sign displayed on or attached flat against the surface or surfaces of a canopy. Illuminated canopies, if translucent, are considered part of the total canopy sign area.

*Sign, changeable* message means a sign that includes any changing of the message either electronically or manually in which the message is stationary and does not fluctuate in size or brightness.

*Sign, exterior* means any sign placed outside a building.

*Sign, fascia* See "Wall Sign."

*Sign, flashing* See "Sign, animated, electrically activated."

*Sign, freestanding* means a sign principally supported by a structure affixed to the ground, and not supported by a building, including signs supported by one or more columns, poles, or braces placed in or upon the ground.

*Sign, illuminated* means a sign characterized by the use of artificial light, either projecting through its surface(s) (internally illuminated); or reflecting off its surface(s) (externally illuminated).

*Sign, interior* means any sign placed within a building, but not including "Signs, window" as defined by this Ordinance. Interior signs, with the exception of window signs as defined, are not regulated by this Ordinance.

*Sign, marquee* See "Sign, canopy".

*Sign, minor* means a wall or freestanding sign not exceeding three (3) square foot in area, not exceeding four feet in height, and not illuminated. Examples include not trespassing signs, displays of building address, security warning signs, parking signs, entrance/exit signs, and on-site directional signs.

*Sign, monument* means a "Sign, freestanding" having the appearance of a solid, rectangular, or cylindrical base.

*Sign, off-premise* means a sign which directs attention to a business, commodity, service, activity, or entertainment conducted, sold, or offered on a parcel of land other than the one on which the sign is located.

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*Sign, on-premise* means a sign erected, maintained, or used in the outdoor environment for the purpose of the display of messages appurtenant to the use of, products sold on, or the sale or lease of the property on which it is displayed.

*Sign, pennant* means a sign made with flexible material, with or without lettering for design, usually suspended from one or two corners, and manufactured and placed for the purpose of attracting attention. Also referred to as a streamer.

*Sign, pole* See “Sign, freestanding.”

*Sign, portable* means any sign not permanently attached to the ground or to a building or building surface. For example, an A-frame sign.

*Sign, projecting* means a sign other than a wall sign that is attached to or projects more than 15 inches from a building face or wall or from a structure whose primary purpose is other than the support of a sign.



Projecting/Hanging Sign

*Sign, roof* means a sign mounted on, and supported by, the main roof portion of a building, or above the uppermost edge of a parapet wall of a building and which is wholly or partially supported by such a building. Signs mounted on mansard facades, pent eaves, and architectural projections such as canopies or marquees shall not be considered to be roof signs.



*Sign, temporary* means a sign designed or intended, based on materials and structural components, to be displayed for a specified or limited period of time, regardless of type or style of sign. Examples include real estate signs, yard sale signs, contractor’s signs, and special or one-time event signs per year.

*Sign, wall* means a sign that is in any manner affixed to any exterior wall of a building or structure and that projects not more than 15 inches from the building or structure wall, including signs affixed to architectural projections from a building provided the copy area of such signs remains on a parallel plane to the face of the building or to the face or faces of the architectural projection to which it is affixed.



*Sign, window* means a sign affixed to the surface of a window with its message intended to be visible to and readable from the public way or from adjacent property.

*Site plan* means a plan prepared by a professional engineer or land surveyor licensed by the State of Virginia showing all proposed improvements to the site. The site plan shall include all covenants, grants, or easements and other conditions relating to use, location, and bulk of buildings, density of development, open space, public facilities, and such other information as is required in applicable sections of this ordinance such as with conditional use, rezoning, or variance applications.

*Site, solar facility* means the entire area, including acreage coverage, setbacks, access roads, wildlife corridors, wetlands, and other natural features of a facility that generates electricity from sunlight.

*Small cell facility* means a wireless facility that meets both of the following qualifications: (i) each antenna is located inside an enclosure of no more than six cubic feet in volume, or, in the case of an antenna that has exposed elements, the antenna and all of its exposed elements could fit within an imaginary enclosure of no more than six cubic feet and (ii) all other wireless equipment associated with the facility has a cumulative volume of no more than 28 cubic feet, or such higher limit as is established by the Federal Communications Commission. The following types of associated equipment are not included in the calculation of equipment volume: electric meter, concealment, telecommunications demarcation boxes, back-up power systems, grounding equipment, power transfer switches, cut-off switches, and vertical cable runs for the connection of power and other services (Code of Virginia § 15.2-2316.4).

*Solar energy, community* means a facility that generates electricity from sunlight that was not constructed by an investor-owned utility and that will be part of an investor-owned utility's community solar pilot program. A community solar energy facility does **not exceed two megawatts (2 MW)** alternating current, in accordance with the Code of Virginia [§ 56-585.1:3](#).

*Solar energy, large-scale* means a facility that generates electricity from sunlight which will be used to provide electricity to a utility provider and meets the definition of Community, Multi-family Shared, or Shared Solar Energy Facility.

*Solar energy, medium-scale* means a facility that generates electricity from sunlight primarily to reduce onsite consumption of utility power for commercial and industrial applications. Sites are between one to three acres with maximum capacity of 999 kW.

*Solar energy, multi-family shared* means a facility that generates electricity from sunlight that was not constructed by an investor-owned utility and that will be part of an investor-owned utility's multi-family shared solar pilot program. A multi-family shared solar energy facility does **not exceed three megawatts (3 MW)** alternating current at any single location or that **does not exceed five megawatts (5 MW)** alternating current at contiguous locations

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owned by the same entity or affiliated entities, serves at least three subscribers, is connected to the electric distribution grid serving the Commonwealth, and is located on a parcel of land on the premises of the multi-family utility customer or adjacent thereto, in accordance with the Code of Virginia § 56-585.1:12.

*Solar energy, Power Purchase Agreement (PPA)* means a facility that generates electricity from sunlight that was not constructed by an investor-owned utility and that will be part of an investor-owned utility's power purchase agreement solar pilot program. A facility has a capacity of **no less than 50 kilowatts and no more than three megawatts (3 MW)** alternating current, in accordance with the Code of Virginia § 56-594.02.

*Solar energy, shared* means a facility that generates electricity from sunlight that was not constructed by an investor-owned utility that will be part of an investor-owned utility's shared solar pilot program. A shared solar energy facility does **not exceed five megawatts (5 MW)** alternating current, serves at least three subscribers, has at least 40 percent of its capacity subscribed by customers with subscriptions of 25 kilowatts or less, is connected to the electric distribution grid serving the Commonwealth, and is located on a single parcel, in accordance with the Code of Virginia § 56-594.3.

*Solar energy, small-scale* means a facility that either (a) generates less than 20 kilowatts (kW) electricity from sunlight, consisting of one or more photovoltaic (PV) systems and other appurtenant structures and facilities within the boundaries of the site, or (b) utilizes sunlight as an energy source to heat or cool buildings, heat or cool water, or produce electrical or mechanical power by means of any combination of collecting, transferring, or converting solar-generated energy; and (c) meets at least one of the following criteria: has a disturbance zone equal to or less than one acre; is mounted on or over a building, parking lot, or other previously disturbed area; or utilizes integrated PV only.

*Solar energy, utility-scale* means a facility that generates electricity from sunlight which will be used to provide electricity to a utility provider. Sites are generally over two acres and have a capacity more than one megawatt (1 MW).

*Sportsman club, commercial* means an area of a property devoted to commercial use for a camp dedicated for hunting and/or fishing that often includes a structure for sleeping, but not for permanent a permanent dwelling. The structure may or may not include such features as a kitchen, indoor plumbing, and other amenities found in a typical dwelling unit. A sportsman club may include facilities such as Kennel, private as defined in this ordinance, as an accessory use.

*Sportsman club, private* means an area of a property devoted to the temporary, noncommercial seasonal use for hunting and/or fishing that often includes a structure for sleeping, but not for permanent use. The structure may or may not include such features as a kitchen, indoor plumbing, and other amenities found in a typical dwelling unit. A sportsman club may include facilities such as Kennel, private as defined in this ordinance, as an accessory use.

*Stable, commercial* means the sheltered boarding of horses or ponies, or other livestock, for a revenue generating purpose. Included in this definition are horse riding academies and horse or livestock grooming operations.

*Stable, private* means the keeping, breeding, or raising of horses or ponies, or other livestock, exclusively for the personal use and enjoyment of the owner or occupant of the property or the riding of horses or ponies by the owner or occupant of the property and their guests.

*Store, adult* means an establishment that: offers for sale or rent items from any of the following categories: (a) adult media, (b) sexually oriented goods, or (c) goods marketed or presented in a context to suggest their use for specified sexual activities; and the combination of such items constitutes more than 15 percent of its stock in trade or occupies more than 15 percent of its gross public floor area; and where there is no on-site consumption of the goods, media or performances for sale or rent.

*Store, general* means an establishment for display and sale of merchandise at retail.

*Store, neighborhood convenience* means an establishment primarily engaged in the provision of frequently or recurrently needed goods for household consumption, such as prepackaged food and beverages, and limited

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household supplies and hardware. Neighborhood stores shall not include fuel pumps or the selling of fuel for motor vehicles. Typical uses include neighborhood markets and country stores.

*Store, specialty food* means an establishment, such as a coffee, candy, or ice cream shop, where the primary client consumption is off-site with limited seating and the product is limited to one type or line of food service.

*Store, specialty* means a small-scale (less than 2,500 square feet per business) retail use which offers for sale items of art or crafts, or which offers for sale items related to a specific theme, e.g., kitchen wares, pet care, etc.

*Story* means that portion of a building, other than the basement, included between the surface of any floor and the surface of the next floor above it, or, if it is topmost Story, the portion included between the surface of its floor and the ceiling above it.

*Story, half* means a space under a sloping roof, which has the line of intersection of roof decking and wall face not more than three (3) feet above the top floor level, and in which space not more than two-thirds (  $2/3$  ) of the floor area is finished off for use.

*Street line, or right-of-way line*, means the line between a lot, tract or parcel of land and a contiguous street.

*Street or Alley, Public Use of* means the unrestricted use of a specified area or right-of-way for ingress and egress to two (2) or more abutting properties.

*Street Width* means the total width of the strip of land dedicated or reserved for public travel, including roadway, curbs, gutters, sidewalks and planting strips.

*Street, centerline* means the centerline thereof as shown in any of the official records of the County or as established by the Virginia Department of Transportation. If no such centerline has been established, the centerline of a street shall be a line lying midway between the side lines of the right-of-way thereof.

*Street, Major* means a through street or road that carries a large volume of through traffic, or anticipated traffic exceeding five hundred (500) vehicles per day:

*Street, or road*, means a public or private thoroughfare which affords the principal means of access to abutting properties.

*Street, Private* means a street affording a means of private access to two (2) or more abutting properties, having a right-of-way of not less than fifty (50) feet in width.

*Street, Public* means a thoroughfare, dedicated and accepted by the Virginia Department of Transportation for public use, which affords the principal means of access to abutting property, including road, highway, drive, lane, avenue, place, boulevard, or any other thoroughfare except an alley.

*Street, Service Drive* means a public right-of-way generally parallel and contiguous to a major highway, primarily designed to promote safety by eliminating promiscuous ingress and egress to the right-of-way by providing safe and orderly points of access to the highway.

*Street, Through* means a street, or roadway easement which affords the principal means of access to abutting properties and proving a link between two (2) or more road rights-of-way.

*Studio, fine arts* means a building, or portion thereof, used as a place of work by a sculptor, artist, or photographer; or used as a place to exhibit and offer for sale works of the visual arts (other than film).

*Subdivide* means the process of dealing with land so as to establish a subdivision as defined herein.

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*Subdivider* means any individual, firm, partnership, association, corporation owning any parcel of land to be subdivided.

*Subdivision Agent* means the administrative official, or an authorized agent thereof, responsible for administering and enforcing the Subdivision portion of the Zoning and Subdivision Ordinance of the County, also referred to in the Subdivision Article, as the Agent.

*Subdivision* means the division of a parcel of land into two (2) or more lots or parcels of land for the purpose of transfer of ownership or building development, including any parcel previously separated by the owner or prior owner of such land for such purpose. The sale or exchange of parcels between adjoining lot owners, where such sale or exchange does not create additional building lots, shall be exempt from the provisions of the ordinance.

- (a) *Major Subdivision* - The division of any tract or parcel of land into six (6) or more lots.
- (b) *Minor Subdivision* - The division of any tract or parcel of land into five (5) lots or less.
- (c) *Single Lot Subdivision* - The division of any tract or parcel of land into one (1) lot; and
- (d) *Family Subdivision* means – The division of any tract or parcel of land for gift to any person who is a natural or legally defined offspring, stepchild, spouse, sibling, grandchild, grandparent, or parent of the owner.

*Surveyor* means a certified land surveyor authorized to do business in the State of Virginia.

*Tattoo parlor and/or body piercing salon* means any business that provides tattooing and/or body-piercing as those terms are defined in Virginia Code § 54.1-700, as amended.

*Tradesperson service* means an establishment or place of business primarily engaged in providing a specific trade service to individuals. Typical uses include plumbing, electricians, blacksmith, welding, and taxidermy. This definition does not include automobile repair or construction material sales as otherwise defined in this ordinance.

*Truck/freight terminal* means an area of land used for the switching, storing, assembling, distributing, consolidating, moving, repairing, weighing, or transferring of freight.

*Utility service, major* means service of a regional nature which normally entails the construction of new buildings or structures such as electric generating plants and sources; electrical switching facilities and stations or substations; community wastewater treatment plants; water towers; sanitary landfills; and similar facilities. All overhead transmission lines are included in this definition.

*Utility service, minor* means service which is necessary to support development within the immediate vicinity and involve only minor structures. Included in this use type are small facilities such as “Administrative review-eligible project” as defined in the Code of Virginia § 15.2-2316.6, transformers, relay and booster devices, and well, water and sewer pump stations.

*Variance (Hardship)* - A relaxation or variance of the terms of this Ordinance where such variance will not be contrary to the public interest and where, owing to conditions peculiar to the property and not the result of the actions of the applicant, a literal enforcement of the Ordinance would result in unnecessary and undue hardship.

*Variance* means a reasonable deviation from the provisions of this Ordinance regulating the shape, size, or area of a lot or parcel of land or the size, height, area, bulk, or location of a building or structure when the strict application of the Ordinance would result in unnecessary and undue hardship which is not created by the owner, relief or remedy is not available through this ordinance, and such need for a variance would not be shared generally by other properties, and provided such variance is not contrary to the purpose of this Ordinance.

*Vested rights* mean a right belonging completely and unconditionally to a person as a property interest which cannot be impaired or taken away (as through retroactive legislation) without the consent of the owner. A landowner's rights are vested when the landowner (i) obtains or is the beneficiary of a significant affirmative governmental act

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which remains in effect allowing development of a specific project, (ii) relies in good faith on the significant affirmative governmental act, and (iii) incurs extensive obligations or substantial expenses in diligent pursuit of the specific project in reliance on the significant affirmative governmental act.

*Veterinary hospital/clinic* means an establishment rendering surgical and medical treatment of animals. Boarding of domestic animals shall only be conducted indoors, on a short-term basis, and shall only be incidental to such hospital/clinic use, unless also authorized and approved as a commercial kennel. Agricultural livestock such as horses and cows may be boarded outdoors as appropriate.

*Vicinity map* means the vicinity or location map shall show the relationship of the proposed subdivision to existing community facilities which serve or influence it. The map shall include subdivision name and location, main traffic arteries, schools, parks and playgrounds, scale, north arrow and date.

*Warehousing and distribution* means uses including storage, warehousing, and dispatching of goods within enclosed structures. Typical uses include wholesale distributors, e-commerce fulfillment centers, storage warehouses, data centers, and moving/storage firms.

*Wayside stand* means an establishment for the seasonal retail sale of agricultural or forestal goods and merchandise primarily produced by the operator on the site, or on nearby property. Agricultural goods produced on other properties owned or leased by the operator may also be allowed provided a majority of the produce comes from land surrounding the wayside stand. This use type shall include agricultural products picked by the consumer. Also referred to as a roadside or farm stand or wayside market.

*Yard* means an open space on a lot other than a court, unoccupied and unobstructed from the ground upward, except as otherwise permitted in this Ordinance.

*Yard, corner side* means for corner lots, the yard extending across the side of the lot between the right-of-way and the nearest line of the principal structure, from the front building setback line to the rear property line. The yard located along the longer lot frontage shall be considered the corner side yard.

*Yard, front* means an open space on the same lot as a building between the front line of the building (excluding steps) and the front lot or street line and extending across the full width of the lot. River frontages are not front yard lines. See Frontage, river.

*Yard, interior side* means for interior lots, the yard extending across the side of the lot between the side property line and the nearest line of the principal structure from the front setback line to the rear property line.

*Yard, rear* means an open, unoccupied space on the same lot as a building between the rear line of the building, excluding open steps and stoops, and the rear line of the lot and extending the full width of the lot.

*Yard, side* means an open, unoccupied space on the same lot as a building between the side line of the building, excluding open steps and stoops, and the side line of the lot and extending from the front yard line to the rear yard line.

*Zoning Administrator* means the administrative official, or an authorized agent thereof, responsible for administering and enforcing the Zoning and Subdivision Ordinance of the County, also referred to in this ordinance as the Administrator.

*Zoning district* means a specifically delineated section of the County in which the regulations are uniform and so designated on the zoning map.

*Zoning map* means a legally adopted map depicting the location of each zoning district of the county and all amendments thereto.



*Town Manager*

Eric S. Pollitt

*Town Treasurer*

Tina F. Brock

*Town Clerk*

Patsy K. Scates

*Chief of Police*

Thomas D. Carter

*Town Attorney*

M. Tolley Gwinn

*Mayor*

Roy M. Gladding

*Town Council*

Troy L. Balderson

Katherine B. Carlton

A. Fleet Dillard III

Kenneth A. Gillis

Carolyn Barrett

Anita Latane

## TOWN OF TAPPAHANNOCK

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January 22, 2025

Virginia Department of Conservation and Recreation  
Attention: Virginia Community Flood Preparedness Fund  
Division of Dam Safety and Floodplain Management  
600 East Main Street, 24th Floor  
Richmond, Virginia 23219

### **RE: Letter of Support for the Virginia Department of Conservation and Recreation, Community Flood Preparedness Fund Grant Application**

To Whom It May Concern,

I am writing this letter in support of the Essex County application for the Virginia Department of Conservation and Recreation (DCR) Community Flood Preparedness Fund Grant. The proposal to develop a robust Floodplain Management Administration Plan and the certification of a Certified Floodplain Manager are critical initiatives that promise to have significant and positive impacts on our community's preparedness and resilience in the face of flooding and community preparedness challenges.

Floodplain Management is an ongoing shared effort between the Town of Tappahannock and Essex County. I would like to highlight a few key points that underscore the importance of this shared effort:

1. **Enhanced Preparedness:** A regional approach to Floodplain Administration will help us better understand the specific risks and vulnerabilities our region faces. It will improve how we prepare for and respond to floods, reducing the potential for loss of life and property damage.

2. **Community Engagement:** Developing education and outreach materials will necessitate active community involvement and stakeholder engagement, promoting collaboration and shared responsibility. This inclusive approach ensures that the floodplain administration reflect the needs and concerns of our diverse community.

3. **Access to Funding:** Securing the DCR Community Flood Preparedness Fund Grant will provide essential financial resources to carry out the planning process effectively, making it a more achievable endeavor for our community to pursue other funding opportunities in the future.

I urge the Virginia Department of Conservation and Recreation to strongly consider and approve the grant application submitted by the Crater Planning District Commission. By supporting this initiative, we invest in our community's well-being and disaster response.

Thank you for your attention to this important matter. I am available to provide any additional information or clarification if needed. I look forward to the positive impact that this funding will have on our community.

Sincerely,



Eric Pollitt

Town Manager

Tappahannock