

# THE RAFT

Resilience Adaptation Feasibility Tool

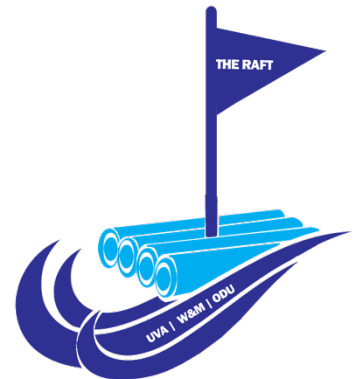
## Northumberland County

Scorecard Report

April 2020

### The RAFT Goal

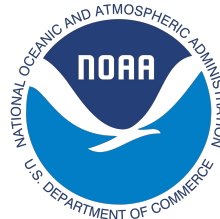
To help Virginia's coastal localities improve resilience to flooding and other coastal storm hazards while remaining economically and socially viable.



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**Virginia Coastal Zone**  
MANAGEMENT PROGRAM



**INSTITUTE for  
ENGAGEMENT & NEGOTIATION**  
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LAW SCHOOL  
VIRGINIA COASTAL  
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**OLD DOMINION UNIVERSITY**  
Resilience Collaborative

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For more information, visit The RAFT website: [raft.ienvirginia.edu](http://raft.ienvirginia.edu)

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# Background

## What is The RAFT?

- “Full-service tool” and collaborative, community-driven process designed to assist coastal localities in increasing their resilience.
- Conceived and developed by an academic interdisciplinary collaborative called the “Core Team”
  - Institute for Engagement & Negotiation (IEN) at the University of Virginia
  - Virginia Coastal Policy Center (VCPC) at William & Mary Law School
  - Old Dominion University (ODU)/Virginia Sea Grant Climate Adaptation and Resilience Program.

## The RAFT has three key components:

1. The RAFT **Scorecard**, completed by the Core Team, provides a comprehensive assessment of the locality’s resilience.
2. A **Resilience Action Workshop** where participants review the assessment findings, identify achievable action items and create a one-year Resilience Action Checklist.
3. **Implementation** in which the Core Team works with a Locality Implementation Team to achieve items identified on the Resilience Action Checklist.

## How does The RAFT help a locality?

1. Open a community conversation about community resilience, including gaps, and needs.
2. Support the community in identifying priority actions for the largest impact in increasing resilience.
3. Improve communication and coordination within the community and with regional and state agencies.
4. Help the community become better positioned to find and apply for relevant funding opportunities.
5. Earn a better Community Rating System (CRS) score, which saves residents money on their flood insurance premiums.

## What is resilience?

The RAFT focuses on coastal community resilience, improving the ability of a community to bounce back from hazardous events such as hurricanes and extreme weather and deal with chronic issues such as flooding.

The RAFT takes a comprehensive approach by including environmental, economic, and social resilience. All three are vital for a community to thrive.

To build resilience, localities need capacities in areas of emergency management, infrastructure, planning, policy, and community well-being.

## The Resilience Cycle



*Adapted from: NOAA Coastal Community Resilience Indicators and Rating Systems, 2015.*

## Locality Total Score

Category	Score Received	Possible Score
<b>1) POLICY, LEADERSHIP, AND COLLABORATION</b> <i>Measures policy and legislation in place for coastal resilience and includes coordination and collaboration between various levels of government, and how accessible and open government data is to the public.</i>	14	20
<b>2) RISK ASSESSMENT AND EMERGENCY MANAGEMENT</b> <i>Examines how well a locality has conducted risk assessments to prepare for coastal storm hazards, identified vulnerable populations and their needs during or after a coastal storm hazard, and developed plans for disaster preparedness, including a Hazard Mitigation Plan.</i>	15	20
<b>3) INFRASTRUCTURE RESILIENCE</b> <i>Assesses how well the locality has identified methods and plans for storm water and protecting critical infrastructure including using natural and nature-based features (NNBF).</i>	10	20
<b>4) PLANNING FOR RESILIENCE</b> <i>Assesses the comprehensive plan and zoning code for resilience, how a locality is using incentives to promote resilience in building and development, how policies protect ecosystems, how they use green infrastructure to improve resilience, and how much resilience has been incorporated into planning.</i>	17	20
<b>5) COMMUNITY ENGAGEMENT, HEALTH, AND WELL BEING</b> <i>Assesses how the community engages with residents in planning for coastal storm hazard including social equity considerations and examines the locality's attention to issues of health and wellness during and after coastal events.</i>	11	20
Total Score:	67%	

### Interpreting the Score

**Low Resilience: Less than 50%-** There are plenty of opportunities for improvement. The locality should decide whether it will be more beneficial to achieve the least difficult improvements first, or to tackle more challenging problems. The key is to decide which of these approaches makes the most sense, as the locality develops their Resilience Action Checklist.

**Moderate Resilience: 50%- 74%** – The locality is actively involved in coastal resilience planning and has achieved some successes. There are still opportunities for strengthening resilience. The Resilience Action Checklist should focus on weak categories and anticipate moderate to difficult improvements.

**High Resilience: 75% or More-** Locality is well prepared! There may still be room for resilience and the Resilience Action Checklist may focus on ways to improve resilience and further engage residents. Examples of locality policies, plans, and activities may assist other localities in the region and beyond.

If you see **CRS** next to an item, action to improve that metric can result in CRS credit.

If you see **\$\$\$** next to an item, action to improve that metric supports economic resilience.

If you see  next to an item, action to improve that metric supports environmental resilience.

If you see  next to an item, action to improve that metric supports engagement with vulnerable populations.

## 1) LOCALITY LEADERSHIP, POLICY, AND COLLABORATION

### 1.1 LOCALITY LEADERSHIP AND PLANNING FOR RESILIENCE:



4 / 4 Points

Collaboration among local government decision makers, officials, departments, academia, and NGOs is important in planning for coastal resilience. Effective collaboration requires identifying local leaders and organizations, establishing the roles of such leaders and organizations, and providing leadership training and educational resources.

Points		Scoring Metric	Notes
1		a. Leadership roles are identified for staff and/or elected officials important for planning for resilience. If staff is limited or nonexistent, the locality has tasked someone with handling resilience efforts for the community.	Per locality staff, the Zoning Administrator is responsible for resilience related items.
1		b. Training and education events are held for elected officials specifically on resilience issues.	Per locality staff, PDC connects with the elected officials through quarterly meetings, where topics often touch on resiliency.
1		c. Training and education events are held for locality staff, or if staff is limited or nonexistent, training of whomever has been tasked with handling resilience efforts for the community.	Per locality staff, training and education events are conducted by the PDC.
1		d. Locality staff and/or elected officials, or whomever has been tasked with handling resilience efforts for the community, are meeting at least once per quarter to coordinate planning specifically on resilience issues.	Per locality staff, PDC meetings held at least once per quarter.



**1.2 LOCALITY LEADERSHIP AND RESPONDING TO EMERGENCY:****4 / 4 Points**

Collaboration among local officials and relevant stakeholders is equally important in responding to a coastal hazard. An organized, coordinated response to a coastal hazard requires identifying stakeholders, establishing roles, creating plans, and publicizing information.

Points		Scoring Metric	Notes
1		a. Locality has identified stakeholders who will require emergency response including socially vulnerable populations.	<a href="#">Northern Neck Regional Hazard Mitigation Plan</a> starting at 3-7.  Per locality staff, the County has a strong network of support for a variety of emergency services and human services from non-profit orgs and volunteers, i.e. Interfaith Service Council, Church Resource Services; very active ARC chapter.
1		b. Locality has established internal emergency response roles (e.g., standing committees, staff titles), and these staff and partners participate in at least one training each year.	Yes, roles are established ( <a href="#">Northern Neck Regional Hazard Mitigation Plan</a> at 1-3)  <a href="#">County website</a> lists one individual in charge. VDEM holds regular trainings (remotely or in person).
1		c. Locality collaborates on resilience planning with the stakeholders who will need emergency response and has provided the public with opportunity to give input from lower income vulnerable populations.	<a href="#">Northern Neck Regional Hazard Mitigation Plan</a> starting at 2-7.
1		d. Locality has a means of communicating these plans to the public during a coastal storm hazard event.	<a href="#">Northern Neck Regional Emergency Operations Plan</a> , Northumberland County, Section B. Communications, Section C. Emergency Public Information.

**1.3 LOCAL COLLABORATION WITH STATE AGENCIES AND REGIONAL PDCs:****4 / 4 Points**

Coastal resilience issues go beyond political boundaries; therefore, localities benefit from regional collaboration. Regular communication between local, multi-jurisdictional, and state officials encourages sharing of information and ideas. Collaboration should include working with agencies that serve socially vulnerable communities. Localities are part of a Planning District Commission (PDC), which coordinates many activities.

Points		Scoring Metric	Notes
1		a. Locality staff and/or officials engage with regional and state agencies on resilience-oriented issues.	<i>See generally</i> <a href="#">Northern Neck Regional Hazard Mitigation Plan</a> ; County's participation in the NNPDC.
1		b. Locality participation in local and regional resilience-oriented committees and initiatives to serve socially vulnerable populations.	Per locality staff, regional resilience-oriented committees and initiatives to serve socially vulnerable populations are by PDC participation.
1		c. Locality elected officials participate on relevant local and regional resilience-oriented commissions.	Per locality staff, locally elected officials participate through the PDC.
1	\$\$\$ 	d. Locality staff work to identify funding opportunities and priorities to address resilience issues at the regional and state level.	<i>See generally</i> <a href="#">Northern Neck Regional Hazard Mitigation Plan</a> at 2-1. Per locality staff, PDC provides technical assistance, grant writing assistance, etc.



**1.4 ADAPTIVE MANAGEMENT:****2 / 4 Points**

Adaptive management involves updating ordinances and plans for coastal resilience based on new findings and emerging strategies. Use of data, scientific analyses, and new information is important to inform local policies to prepare. Adaptive management means incorporating lessons learned from research that informs best methods for addressing the needs of socially vulnerable populations.

Points		Scoring Metric	Notes
1		a. Locality incorporated new data, scientific analyses, and approaches to resilience, within the last five years into the Floodplain Management Ordinance.	<a href="#">Chapter 76 (Floodplain Management)</a> . Updated in 2014.
0		b. Locality incorporated new data, scientific analyses, and approaches to resilience, within the last five years into Zoning Ordinance.	<a href="#">Chapter 148 (Zoning)</a> . Amended in 2013.
0		c. Locality incorporated new data, scientific analyses, and approaches to resilience, within the last five years into Site and Subdivision Ordinances.	<a href="#">Chapter 128 (Subdivision of Land)</a> . Updated in 1996.
1		d. Locality incorporated new data, scientific analyses, and approaches to resilience, within the last five years into Comprehensive Plan.	<a href="#">Northumberland Comprehensive Plan</a> . Updated in 2016.

**1.5 The NFIP's COMMUNITY RATING SYSTEM:****0 / 4 Points**

Communities wishing to go above and beyond the minimums of the National Flood Insurance Program can choose to participate in the Community Rating System (CRS). Participating communities implement higher standards of floodplain management, and, in return, residents are eligible for flood insurance premium reductions. Localities can do many things to improve their scores. For more information, see FEMA's CRS website or the Wetlands Watch website on the subject.

Points		Scoring Metric	Notes
0	CRS	a. Locality has achieved a CRS Score of 9 or higher.	Locality does not participate in CRS
0	CRS	b. Locality has achieved a CRS Score of 8.	Locality does not participate in CRS
0	CRS	c. Locality has achieved a CRS Score of 7.	Locality does not participate in CRS
0	CRS	d. Locality has achieved a CRS Score of 6 or lower.	Locality does not participate in CRS


**TOTAL SCORE FOR SECTION 1:****14 / 20 POINTS**

## 2) RISK ASSESSMENT AND EMERGENCY MANAGEMENT

### 2.1 FLOOD EXPOSURE AND VULNERABILITY ASSESSMENT:





**4 / 4 Points**

Localities should conduct and use an assessment of their flood exposure and vulnerability in developing policies and programs. Localities should be knowledgeable of their flooding risks, raise awareness in the community about vulnerable areas, help target action to assist the most threatened areas and reduce possible damage, and save costs by being preemptive not reactive.

Points		Scoring Metric	Notes
1	CRS 	a. An exposure and/or vulnerability assessment is completed, mapped and updated within the last 5-7 years, available at the locality level, and (as evidence of being used) referenced in locality policy making.	<a href="#">Northern Neck Regional Hazard Mitigation Plan</a> at 4-12.
1	CRS	b. Sources of flooding for both tidally-driven and precipitation-driven events are identified and updated within last 5 years.	They have separate sections for riverine and coastal flooding. <a href="#">Northern Neck Regional Hazard Mitigation Plan</a> at 4-10, 4-25.
1	CRS	c. Flooding for different return period storm events is identified and mapped.	<a href="#">Northern Neck Regional Hazard Mitigation Plan</a> at 4-22, 4-23.
1	\$\$\$ CRS	d. Additional vulnerabilities (see above), including cultural, historic and economic assets, are identified and updated within the last 5 years.	<a href="#">Northern Neck Regional Hazard Mitigation Plan</a> throughout Section 3. Community Profile, and 4-74.


**2.2 RISK ASSESSMENT FOR VULNERABLE POPULATIONS:****4 / 4 Points**

Localities should conduct risk assessments of their socially vulnerable populations. These populations include those in areas of high poverty, elderly, caregivers, veterans, homeless, transient or nomadic communities, children and youth, physically or mentally disabled people, medically fragile people and non-English speakers. Because these populations may not have resources to change their level of vulnerability, it is vital for localities to identify these populations, ways to reduce their risk, and create plans for assistance during and after coastal hazard events. Localities need to conduct outreach to vulnerable populations.

Points		Scoring Metric	Notes
1	CRS 	a. Locality has identified vulnerable populations that are subject to flooding and coastal storm hazards.	<a href="#">Northumberland Comprehensive Plan</a> at 2:17 (mentioning elderly and disabled populations as an issue).
1		b. Locality has engaged vulnerable populations and provided them with meaningful information (e.g., in their own language, relevant to their circumstances) relating to their vulnerability to coastal storm hazards.	<a href="#">Northumberland Comprehensive Plan</a> at 4:39.
1		c. Locality has worked with vulnerable populations to increase their emergency preparedness and evacuation plans so they know their risk and know what steps should be taken during and after an event.	Emergency services hired a full time Chief of Emergency Services and employed career full-time emergency rescue squads. The County also works closely with volunteer agencies to reach vulnerable populations.
1		d. Locality partners with organizations that provide assistance to vulnerable populations before, during and after coastal storm hazards, including food banks or pantries with refrigeration units and backup generators.	<a href="#">Northern Neck Regional Emergency Operations Plan</a> , Basic Plan, starting at 2; Each County's Functional Annex, Section E. Medical and Health, Section G. Rescue/Emergency Medical Services, Section H. Warning, Evacuation and Emergency Transportation, Section I. Shelter Operations

**2.3 BUSINESS AND ECONOMIC RISK ASSESSMENT:****2 / 4 Points**

Localities need to identify local business and economic vulnerabilities to coastal storm hazards. Businesses are differentially affected by these hazards and attention should be paid to making sure that businesses that serve vulnerable populations are considered. Including business and economic vulnerability in a risk assessment and emergency management is important for resilience and recovery after a storm event.

Points		Scoring Metric	Notes
1	\$\$\$	a. Locality has included the business sector in its assessment and mapping of coastal hazard vulnerability.	<a href="#">Northern Neck Regional Hazard Mitigation Plan</a> at 3-12 to 3-15 (top) (beginning with Section 3.12 “Business and Labor”), and at 4-20.
0	\$\$\$	b. Locality has engaged economic development department and/or independent chamber of commerce in locality hazards mitigation and/or resilience planning.	No information available or provided.
0	\$\$\$ 	c. Locality and/or business associations have programs for small businesses, particularly businesses that serve socially vulnerable populations, to encourage each business to be prepared for an emergency and plan for business continuity.	No information available or provided.
1	\$\$\$	d. Locality emergency management communicates with business sector in the event of severe weather emergency or evacuation.	Same as with the general public. <a href="#">Northern Neck Regional Emergency Operations Plan</a> , Northumberland County, Section B. Communications, Section C. Emergency Public Information.





**2.4 HAZARD MITIGATION:****4 / 4 Points**

The Hazard Mitigation Plan (HMP) is required by state code as a condition of emergency assistance. In the coastal region, it is important for the HMP to specifically address coastal storm hazards by identifying what locality resources and areas are at risk, to enable the locality to take actions to reduce future risks. Furthermore, having an HMP is essential to be eligible for certain grants and funding related to coastal storm hazards.

Points		Scoring Metric	Notes
1		a. The locality's HMP specifically addresses coastal resilience.	See generally, <a href="#">Northern Neck Regional Hazard Mitigation Plan</a> .
1		b. The locality is engaging in regional coordination for Hazard Mitigation through a regional plan.	See generally, <a href="#">Northern Neck Regional Hazard Mitigation Plan</a> .
1		c. The locality's HMP details how the locality collaborates with VDEM, DCR Floodplain Management or SHMO.	<a href="#">Northern Neck Regional Hazard Mitigation Plan</a> , starting at 2-3.
1		d. The locality's HMP is approved by FEMA, was developed with meaningful public engagement with socially vulnerable communities and is formally adopted by locality governing body.	<a href="#">Northern Neck Regional Hazard Mitigation Plan</a> at 1-9.

**2.5 RESIDENT EMERGENCY PREPAREDNESS:****1 / 4 Points**

Well-organized emergency preparedness plans save lives and property and help ensure that localities can act in sufficient time. They contribute to faster and more efficient post-hazard recovery. Preparedness for vulnerable populations includes ensuring that residents have the opportunity to learn swimming and water safety skills. Communities should consider participating in regional, national, or state-wide outreach events such as Hurricane Preparedness Week.

Points		Scoring Metric	Notes
0	CRS 	a. Locality has a current resident emergency preparedness plan, updated within the last five years, which identifies resident emergency preparedness risks and needs, including knowledge of water safety.	Last updated 2010. <a href="#">Northern Neck Regional Emergency Operations Plan</a> .
0	CRS 	b. Locality conducts community outreach at least once a year to inform residents about community emergency preparedness.	No information available or provided.
0	CRS 	c. Locality engages resident groups, including schools, hospitals, and other groups, in testing preparedness through emergency drills, disaster simulations, and planning workshops.	No information available or provided.
1	CRS 	d. Locality has implemented early warning signals/systems/emergency warning tools for its residents, particularly those most vulnerable.	<a href="#">Northern Neck Regional Emergency Operations Plan</a> , Northumberland County, Section B. Communications, Section C. Emergency Public Information.




**TOTAL SCORE FOR SECTION 2:****15 / 20 POINTS**

### 3) INFRASTRUCTURE RESILIENCE

#### 3.1 STORMWATER INFRASTRUCTURE:


0 / 4 Points

Stormwater management is regulated by state law, which requires localities either create and operate a stormwater management program or request the state to operate its stormwater management program. Local ordinances must comply with the Virginia Stormwater Management Act and regulations, as well as the Virginia Erosion and Sediment Control Law. Additional stormwater management and flood risks are typically handled at the local level through environmental regulation, site plan approval, and subdivision approval. Localities that go beyond the minimum state requirements are better able to manage stormwater and increase their resilience to coastal storm hazards. Stormwater infrastructure may include use of bioswales, dry ponds, retention basins, rainwater management systems, low impact development, rainwater collection and management systems, green infrastructure, rooftop gardens, and green and open spaces.

Points		Scoring Metric	Notes
0	\$\$\$ 	a. Locality offers at least one official incentive for private property activities that manage stormwater.	Per locality staff, the County is not providing incentives.
0		b. Locality funds stormwater management projects through stormwater utility fees, user fees, grants, or other creative funding mechanisms.	Locality staff is not aware of grants for improvements.
0		c. Locality implements one or more stormwater BMPs on public property for educational demonstration, as shown by signage, tours, or other information.	Locality staff is not aware of any demonstration BMPs.
0		d. Locality stormwater policy goes above and beyond the minimum state requirements.	Per locality staff, does not go beyond state requirements.

**3.2 CRITICAL TRANSPORTATION INFRASTRUCTURE:****2 / 4 Points**

An evaluation of critical transportation infrastructure allows a locality to understand its capacity and preparedness for coastal storm hazards. Although most localities do not manage their own roads, as this is handled at the state level, they nevertheless do have the ability to identify their transportation needs and priorities.

Points		Scoring Metric	Notes
1		a. Locality has identified critical transportation infrastructure and assessed its vulnerability within last 5 years.	<a href="#">Northern Neck Regional Hazard Mitigation Plan</a> , at 3-15. Last updated in 2018. Additional <a href="#">studies/plans</a> – NNK Corridor Improvement Study, NNK Coordinated Human Service Mobility Plan, Rural Transportation Plan, and Transportation Corridor Protection Plan (not necessarily geared toward coastal hazard vulnerability and some may be in need of updating).
0		b. Locality has developed a plan to protect critical transportation infrastructure within last 5 years.	The County's Comprehensive Plan includes an inventory of transportation networks, but mainly focus on traffic flow and safety and not on resilience and/or protecting from flooding.
1		c. Locality has a plan available and has informed residents which critical transportation infrastructure to utilize in the case of coastal storm hazards.	<a href="#">County website</a> has CodeRED and <a href="#">emergency planning kits information</a> for residents.
0		d. Locality has a contingency plan for critical transportation infrastructure. This plan has been created and/or updated in the past 5 years.	Last updated 2010. <a href="#">Northern Neck Regional Emergency Operations Plan</a> .



**3.3 WATER SUPPLY AND WASTEWATER MANAGEMENT SERVICES:****3 / 4 Points**

Communication and coordination between a locality and its municipal water utility and wastewater utility enable a coordinated, cohesive, and synchronized response to a coastal storm hazard.

Points		Scoring Metric	Notes
1		a. Locality conducts an assessment of its drinking water supply and wastewater management, both public sources and private well owners, to identify vulnerabilities to coastal storm hazards.	<a href="#">Northern Neck Regional Emergency Operations Plan</a> at 3-16; Also, the <a href="#">NNPDC Regional Water Supply Plan Update</a> .  Almost all developed sources of potable water in the County are supplied by wells. Some of the denser developed areas are served by privately owned central water system, which comes from the deepest aquifers.
0		b. Locality water supply plan addresses coastal flooding and hazard events to assure safe drinking water supply and water conservation.	<a href="#">NNPDC Regional Water Supply Plan Update</a> does not specifically address coastal flooding and hazard events. Per locality staff, the County does not have a more specific water supply plan.
1		c. Locality conducts a resident education program on safe drinking water to assure post-event public health and safety.	<a href="#">NNPDC Regional Water Supply Plan Update</a> does not specifically discuss resident education programs. The County does not conduct resident education programs, but does support the educational programs of groups such as the Master Gardeners, Master Naturalists, and NAPS.
1		d. Locality communications with municipal water and wastewater utility, to manage ongoing challenges to safe water, including during and after a storm, Alternatively or additionally, the locality has established methods of communication with private well and water system owners, to ensure all are informed about how they can increase their water system resiliency.	<a href="#">NNPDC Regional Water Supply Plan Update</a> does not indicate this. But generally, communication methods would be the same as listed in the <a href="#">Northern Neck Regional Emergency Operations Plan</a> . <a href="#">Northumberland Comprehensive Plan</a> at 5:2.





**3.4 CRITICAL INFRASTRUCTURE FOR EMERGENCY SERVICES:****2 / 4 Points**

An evaluation of critical infrastructure for emergency services including shelters, emergency facilities, medical, electrical, and other essential services that allows a locality to understand its capacity and preparedness for coastal storm hazards. Critical infrastructure ensures that socially vulnerable populations, not just those who can afford it, will have access to quality drinking water, electricity, food, and shelter.

Points		Scoring Metric	Notes
1		a. Locality identifies critical infrastructure for emergency services and assessed its vulnerability within last 5 years.	<a href="#">Northern Neck Regional Hazard Mitigation Plan</a> at 3-15.  <a href="#">Northern Neck Regional Emergency Operations Plan</a> , Northumberland County, Section E. Medical and Health, Section F. Fire Service, Section G. Rescue/Emergency Medical Services, Section H. Warning, Evacuation and Emergency Transportation, Section I. Shelter Operations; All Counties, Section CC. Resource Support
0		b. Locality has a plan to protect critical infrastructure from storms within last 5 years.	Last updated 2010. <a href="#">Northern Neck Regional Emergency Operations Plan</a> .
1		c. Locality informs residents which critical infrastructure they should use during coastal storm hazards.	Communication methods would be the same as listed in the <a href="#">Northern Neck Regional Emergency Operations Plan</a> . County also utilizes CodeRed.
0		d. Locality has a contingency plan for continuing services. This plan has been developed or updated in last 5 years.	Last updated 2010. <a href="#">Northern Neck Regional Emergency Operations Plan</a> .

**3.5 NATURAL AND NATURE-BASED FEATURES:****3 / 4 Points**

Natural and nature-based features (NNBF) are features that define natural coastal landscapes and are either naturally occurring or have been engineered to mimic natural conditions. Examples include beaches and dunes; vegetated forest buffers, salt marshes, freshwater wetlands, and submerged aquatic vegetation; oyster reefs; and barrier islands. Green infrastructure (GI) is similar and complementary, and uses vegetation, soils, and other elements and practices to restore some of the natural processes required to manage water and create healthier urban environments. At the city or county scale, green infrastructure is a patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water. At the neighborhood or site scale, stormwater management systems that mimic nature soak up and store water. Both NNBF and GI may be undertaken by a community in a variety of ways.

Points		Scoring Metric	Notes
1		a. Locality has identified natural and nature-based features that are protective and can assist with coastal resilience.	See <a href="#">Northumberland Comprehensive Plan</a> at Ch. 1(B) (Analysis of Physical and Environmental Conditions). There is also extensive mapping thanks to partnership with NNPDC.
1		b. Locality has developed plans and policies that use natural and nature-based features to enhance coastal resilience.	<a href="#">Northumberland Comprehensive Plan</a> at 2:2-16: Various issues, goals, and strategies discussions concerning preservation of natural resources & flood prone areas. And, at 5:6: Flood Prone Areas, Wetlands and Natural Habitat Areas Policies for Shoreline Conservation Area. See Comp Plan at 3:9. See also Comp Plan at Ch. 5 (Water Quality and Shoreline Protection Plan).
0		c. Locality is implementing projects that are in accordance with the plans and policies developed to utilize natural and nature-based features to increase coastal resilience.	No information available or provided.
1	\$\$\$ 	d. Locality offers incentives for the use of natural and nature-based features to increase coastal resilience.	<a href="#">Northumberland Comprehensive Plan</a> at 2:2-16: Various issues, goals, and strategies discussions concerning preservation of natural resources & flood prone areas. And, at 5:6: Flood Prone Areas, Wetlands and Natural Habitat Areas. <a href="#">County Code</a> offers conservation easements, open space requirements, and buffers.

**TOTAL SCORE FOR SECTION 3:****10 / 20 POINTS**

## 4) PLANNING FOR RESILIENCE

### 4.1 BUDGET, FUNDING AND STATE & FEDERAL ASSISTANCE:


3 / 4 Points

Coastal hazard mitigation efforts, when properly funded, can reduce or prevent damage and decrease costs from storm damage. To ensure proper funding a locality can budget for mitigation efforts, assess the potential economic impact from a coastal storm hazard, and identify sources of funding for mitigation projects.

Points		Scoring Metric	Notes
1		a. Locality has incorporated into its Capital Improvement Plan (CIP) funding for coastal resilience. Projects could include upgrading critical infrastructure, water and wastewater systems, and/or food and health systems, with priority for needs of vulnerable populations.	Investments in <a href="#">Approved FY19-20</a> for Capital Projects involving sewers and public landings systems. Budget at 52.
0	\$\$\$	b. Locality has conducted an economic impacts assessment of coastal storm hazards.	No information available or provided.
1		c. Locality has identified specific actions for coastal resilience (pre/post-flooding mitigation) in Hazard Mitigation Plan.	<a href="#">Northern Neck Regional Hazard Mitigation Plan</a> , Appendix D. 2017-22 Mitigation Actions Update.
1	\$\$\$	d. Locality has identified funding for non-CIP coastal resilience projects, including priority needs of vulnerable populations impacted by coastal storm hazards.	<a href="#">FY19-20 Budget</a> at 64.



**4.2 COASTAL RESILIENCY IN COMPREHENSIVE PLAN:****4 / 4 Points**

A comprehensive plan is a locality's vision for future land use, development, adaptation, and resilience. Coastal resilience can be addressed in comprehensive plans by incorporating elements such as green infrastructure, open space preservation, infill development, the National Flood Insurance Program (NFIP), the Community Rating System (CRS), and stormwater management. The ideal comprehensive plan identifies equity and the need to identify and support socially vulnerable populations as a priority for resilience, as well as a priority preference for restoration, green infrastructure and connectivity.

Points		Scoring Metric	Notes
1		a. The comprehensive plan discusses how community engagement around coastal resilience informed the plan.	<a href="#">Northumberland Comprehensive Plan</a> developed via required public input and participation.
1		b. The comprehensive plan includes clear discussion of coastal resilience and coastal storm hazards and incorporates assessments to inform the development of policies to reduce vulnerability to coastal storm hazards.	See <a href="#">Northumberland Comprehensive Plan</a> at 2:6 (PDF pp 88) (discussing issues, goals, and strategies for flood-prone areas).
1		c. The comprehensive plan includes goals and objectives for preserving and protecting natural resources that mitigate coastal storm hazards.	<a href="#">Northumberland Comprehensive Plan</a> at 2:2-16: Various issues, goals, and strategies discussions concerning preservation of natural resources & flood prone areas. And, at 5:6: Flood Prone Areas, Wetlands and Natural Habitat Areas; and 5:16: Policies Concerning the Use of Tidal Wetlands while Preserving Sensitive Environmental Areas
1		d. The comprehensive plan addresses impacts on critical infrastructure and essential services from coastal storm hazards, particularly for impacts affecting socially vulnerable populations.	<a href="#">Northumberland Comprehensive Plan</a> mentions hiring a Chief of Emergency Services in 2014 at 2:22.  See also <a href="#">Northumberland Comprehensive Plan</a> at 4:34-4:35. The Plan discusses emergency preparedness and mentions critical infrastructure as part of "Lessons Learned" from Hurricane Isabel.

**4.3 LAND USE ORDINANCES:****4 / 4 Points**

A locality's land use ordinances (such as zoning, subdivision, and floodplain) should enact the locality's vision and policies laid out in its comprehensive plan. Land use ordinances can be used to conserve and protect natural resources, ecosystems, agricultural lands, and areas vulnerable to flooding. Localities are required to enact Chesapeake Bay Preservation Act ordinances and going beyond these ordinances provides greater resilience.

Points		Scoring Metric	Notes
1	CRS 	a. Locality land use regulations protect areas vulnerable to flooding by limiting development inside the floodplain or encouraging development outside the floodplain.	County's Floodplain Management Ordinance. See <a href="#">Code</a> , Ch. 76.
1	CRS 	b. Locality land use regulations protect areas vulnerable to flooding by setting higher standards in existing flood zones or by designating additional flood zones beyond those designated by FEMA.	County's Floodplain Management Ordinance, Sec. 76-14(c) requiring construction to be elevated at least two feet above base flood elevation.
1	CRS 	c. Locality land use regulations protect areas vulnerable to flooding by setting buffers, including open space.	Additional regulations for cluster development to include open space requirement. See <a href="#">County Code</a> Sec. 148-30(B) for Agricultural District. Also, County created Conservation Districts. See <a href="#">Code</a> Sec. 148 (Article II: Conservation District C-1). Part of the purpose of these districts is to reduce hazards from flooding.
1	CRS 	d. Locality land use regulations protect areas vulnerable to flooding by using setbacks to protect flood-prone areas.	County created Conservation Districts to preserve natural resources and requires additional setback requirements. See <a href="#">Code</a> Sec. 148 (Article II: Conservation District C-1). Part of the purpose of these districts is to reduce hazards from flooding.

**4.4 INCENTIVES FOR COASTAL RESILIENCE:****2 / 4 Points**

Incentive programs encourage infill development and protect open spaces, while protecting flood-prone areas and critical ecosystems. Incentives should be developed with community input, with particular attention to consulting agencies and organizations working with or providing services to lower income and vulnerable populations as well as agencies and organizations working to build community resilience.


Points		Scoring Metric	Notes
1	\$\$\$	a. Locality offers an incentive for achieving coastal resilience goals: discourage development in areas prone to flooding; protect critical ecosystems; encourage sustainable development; improve resilience in high-risk areas; and preserve natural assets.	County created Conservation Districts. See <a href="#">Code</a> Sec. 148 (Article II: Conservation District C-1).
1	\$\$\$	b. Locality offers a second incentive for achieving the goals listed above.	County allows for cluster development in the Agricultural District. See <a href="#">County Code</a> Sec. 148-30(B) for Agricultural District.
0	\$\$\$	c. Locality offers a three or more incentives for achieving the goals listed above.	No information available or provided.
0	\$\$\$	d. Locality develops incentives in consultation with agencies and organizations working with socially vulnerable populations.	No information available or provided.

**4.5 NATURAL RESOURCE PRESERVATION:****4 / 4 Points**

Natural resources are important to the locality's economy, environment, and quality of life. Natural resources also can help protect against coastal storm hazards and minimize damage from coastal storm events. The preservation of these critical natural resources is paramount to providing resilience for a coastal locality during these events. These actions should go beyond the required Chesapeake Bay Preservation Act Ordinance.

Points		Scoring Metric	Notes
1	CRS 	a. Locality has identified and mapped natural resources that are important for broad ecosystem health and which are at risk of being lost due to flooding and coastal storm hazards.	<a href="#">Comp Plan</a> at Ch. 1 (Physical conditions), pp 1:61 (providing Figure 1.18 map of Shoreline Inventory/Structures in partnership with VIMS); at 1:75 (Figure 1.21, map of Aquatic Resources). See also <a href="#">Comp Plan</a> at Ch. 2 (Issues, Goals & Strategies), pp 2:2 (identifying existing farmlands and croplands near shorelines that should be preserved).
1	CRS 	b. Locality has developed plans and policies that preserve and restore natural resources to increase coastal resilience.	<a href="#">Comp Plan</a> at Ch. 5 (Water Quality Protection Plan), pp 5:6: "Flood Prone Areas, Wetlands, and Natural Habitat Areas"; at pp 5:15: "Tidal Shoreline Preservation"; at pp 5:19: "Soil and Water Conservation Policies".
1		c. Locality has programs with residents, civic organizations, and nonprofit organizations to educate community about the natural resource preservation plan and engage them in helping to implement the plan.	Per locality staff, County probably leans more on NN Soil & Water Conservation District. In <a href="#">FY19-20 Budget</a> , County allocated to NN SWCD \$15,000. (p. 48).

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Points		Scoring Metric	Notes
			Also, the County supports programs conducted by the Master Gardeners, Master Naturalists, and NAPS.
1		d. Locality is funding actions that implement the natural resource preservation plan.	See <a href="#">FY19-20 Budget</a> at 48 and 49. Funding for NN SWCD and Community Development & Forestry.

**TOTAL SCORE FOR SECTION 4:**

**17 / 20 POINTS**




## 5) COMMUNITY ENGAGEMENT, HEALTH, AND WELL-BEING

### 5.1 PUBLIC INVOLVEMENT IN RESILIENCE PLANNING:

1 / 4 Points

For community resilience, it is important to use meaningful engagement strategies where residents are able to provide feedback and suggestions through meetings, workshops, and surveys. To reach people of color and the elderly, media and social media that serves these populations is effective. Public engagement enables residents and other stakeholders to provide input to the locality. Better informed residents are better able to ensure their locality remains resilient to coastal storm hazards.

Points		Scoring Metric	Notes
0		a. Locality has a written policy regarding the role of residents and businesses, schools and educators, institutional, nonprofit, faith-based communities veterans, and other stakeholders in coastal resilience.	Per locality staff, no efforts yet.
0	CRS 	b. Locality has staff dedicated to public engagement on coastal resilience, including a standing committee that addresses coastal resilience as part of its work.	Per locality staff, no efforts yet.
1	CRS	c. Locality holds at least one public meeting per year, including one in vulnerable resident areas to address coastal resilience issues and posts the results of the public meetings. For 75-150,000, at least two such public meetings per year; for 150,000+ at least three per year.	Per locality staff, would come up during regular meeting.
0	CRS	d. Locality informs and engages vulnerable population about coastal resilience by using website, social media, media serving people of color and minorities, and faith-based organizations to enable them to provide suggestions about issues and strategies.	Per locality staff, no efforts yet.

**5.2 PROVIDING COASTAL RESILIENCE INFORMATION TO THE PUBLIC:****2 / 4 Points**

The public needs free and open access to information related to coastal resilience and planning. Information sharing allows residents to understand their risks and the importance of resilience. Information should be shared easily and presented in a manner which is clear and easy to understand, and easy to access in ways that reach different populations in the community.

Points		Scoring Metric	Notes
0	CRS	a. Locality provides to the public localized user-friendly information on coastal resilience, in digital and non-digital formats and in multiple languages where appropriate based on demographics.	No information available or provided.
1	CRS	b. Locality provides to the public localized user-friendly information on coastal resilience, on a website (e.g., interactive maps).	County website does include flood preparation documents – but the links are not working. NNPDC provides <u>several regional (and locality-specific) plans</u> online also.
1	CRS	c. Locality provides localized user-friendly information on coastal resilience in public spaces (e.g., public offices or library).	County provides hard copies of documents upon request.
0	\$\$\$	d. Locality provides the public with localized, user-friendly information about economic costs and risks associated with coastal storm hazards.	No information available or provided.





**5.3 CITIZEN LEADERSHIP & VOLUNTEER NETWORKS FOR COASTAL RESILIENCE:****4 / 4 Points**

Developing resident leaders and strong volunteer networks are important aspects of building a locality's health and wellness resilience. Leaders can be responsible for informing residents, expressing resident concerns, and assisting with local preparedness. Leaders can be called on during emergencies to assist residents in need and to assist with post-hazard recovery. Communities can build this capacity by offering volunteer opportunities to cultivate experienced, local responders.

Points		Scoring Metric	Notes
1		a. Locality supports and invests in community-led initiatives on coastal resilience.	Yes, see below.
1		b. Locality offers training opportunities and education opportunities for resident leaders or volunteers to educate residents on what they can do to increase their resilience on individual properties or in neighborhoods.	County assists with coordination of opportunities with the <a href="#">NN Soil &amp; Water Conservation District</a> . Also, supports Master Gardeners, Master Naturalists, and NAPS.
1		c. Locality supports resident leaders or volunteers in community education and outreach efforts about coastal resilience by providing them with materials, speakers for gatherings, or support for resident action projects.	County provides speakers upon request, as well as meeting space when needed.
1		d. Locality highlights the work of resident leaders or volunteers in supporting and advancing coastal resilience, on its website, through social media, Facebook, awards, or other means.	Per locality staff, while nothing official is in place, individuals might be recognized at a BOS meeting and event flyers might be posted in County offices.





**5.4 RESILIENT SYSTEMS TO PROVIDE FOOD, HEALTH, AND MEDICINE:****4 / 4 Points**

If a community's food, health, and medicine systems are not resilient before a storm, then the community may face a substantially longer recovery. Food, health, and medicine systems must be sustained before, during and after storm events, and are dependent on critical systems, including transportation and utilities. Lower-income and minority populations often already struggle to access food, health, and medicine, and are among the vulnerable populations during a coastal storm hazard.

Points		Scoring Metric	Notes
1		a. Locality has emergency plans for provision of food, health, and medicines to residents, through its comprehensive, hazard mitigation, or other plans.	<a href="#">Northern Neck Regional Emergency Operations Plan</a> , Northumberland County, Section E. Medical and Health, Section F. Fire Service, Section G. Rescue/Emergency Medical Services, Section H. Warning, Evacuation and Emergency Transportation, Section I. Shelter Operations; All Counties, Section CC. Resource Support  And, See <a href="#">Comprehensive Plan</a> at Ch. 4 (Public Facilities and Services).
1		b. Locality has plans for providing food to vulnerable populations, has areas for improvement, has developed partnerships to address these needs, and has provided information to residents on how to access food during emergencies and coastal storm events.	See above.
1		c. Locality has plans for providing healthcare to vulnerable populations, has areas for improvement, has developed partnerships to address these needs, and has provided information to residents on how to access healthcare during emergencies and coastal storm hazards.	See above.
1		d. Locality has plans for providing medicine to vulnerable populations, areas for improvement, has developed partnerships to address these needs, and has provided information to the public on how to access medicine during emergencies and coastal storm hazards.	See above.

**5.5 PHYSICAL AND MENTAL HEALTH FOR SOCIAL EQUITY IN COMMUNITY RESILIENCE: 0 / 4 Points**

To ensure that socially vulnerable and underserved populations do not experience disproportionate impacts from flooding and coastal hazards, a locality needs to be able to predict how its residents may fare during a coastal storm hazard event, and then help those who are most vulnerable. One key measure that can be useful to localities in this effort is the metric for “deaths of despair”— or the prevalence of suicide, cirrhosis of the liver, and overdoses – which can serve as a proxy for the locality’s physical and mental health, as persons who are suffering from depression and addictions are less likely to be able to respond effectively during flooding events. A locality with good physical and mental health will be better able to respond effectively to new or changing conditions as well as to recover from stressful events.

Points		Scoring Metric	Notes
0		a. Locality maintains data on community physical and mental wellbeing and challenges through specific metrics, such as the metrics for “deaths of despair” (suicide, cirrhosis of the liver, overdoses).	No information available or provided.
0		b. Locality has met at least once with community partners to identify “trusted messengers” for communicating with vulnerable populations.	No information available or provided.
0		c. Locality has identified, or maps its vulnerable neighborhoods, and has done this in partnership with NGOs, faith- based organizations, and its health and community services board.	No information available or provided.
0		d. Locality has a plan with these NGOs, faith-based organizations, and health and community services board that helps its physically and mentally challenged vulnerable populations prepare for coastal flooding events, and that provides assistance to them during and after these events.	No information available or provided.

**TOTAL SCORE FOR SECTION 5:****11 / 20 POINTS**

## Opportunities

Example of an Opportunity Action Item Checklist showing possible actions to improve scores in each scorecard category. Opportunity items for your locality will be determined by your implementation team and The RAFT core team.

Locality Action Category	Score	Opportunity Actions for Score Improvement	Potential Time Commitment Short-Term: < 1 year; Mid-Term: 1-3 years; Long-Term: > 3 years
<b>1.5 The NFIP's Community Rating System</b>	≤ 2	Participate in the Community Rating System (CRS)	MT
<b>2.5 Resident Emergency Preparedness</b>	≤ 2	Develop a resident emergency preparedness plan that identifies risks and needs, including knowledge of water safety.	ST
		Conduct community outreach at least once a year to inform residents about community emergency preparedness.	MT – LT
		Engage resident groups, including schools and hospitals, in testing preparedness through emergency drills, disaster simulations, and planning workshops.	ST
		Implement early warning signals/systems/emergency warning tools for residents (especially vulnerable populations).	ST
<b>3.1 Stormwater Infrastructure</b>	≤ 2	Offer at least one incentive for private property activities that manage stormwater.	ST – MT
		Fund stormwater management projects through stormwater utility fees, user fees, grants, etc.	MT
		Implement one or more stormwater BMPs on public property for educational demonstration (i.e. signage, tours, etc.).	MT
		Develop stormwater policies that surpass minimum state requirements.	MT – LT

# Next Steps

## Resilience Action Workshop

- 1) Community leaders work together to create a one-year **Resilience Action Checklist**.
- 2) The RAFT Core team helps to **identify achievable action items** for improving resilience.
- 3) Localities break into focused discussion groups to **identify 3 to 5 top opportunities** for the next year to increase resilience.
- 4) Large group discussion on **regional sharing**, followed by breakout into locality discussion groups to:
  - **Identify a Locality Implementation Team;**
  - **Create a timeline for actions;**
  - **Coordinate logistics;**
  - **Determine next steps for implementation team.**



## Implementation

- **Identify a Locality Implementation Team** made up of local officials and residents that will work with the Core Team to accomplish checklist actions and projects.
- **Work with one of the Core Team members** who will set up periodic check-in meetings or calls to track progress and provide support.
- Assistance from RAFT partners could take the form of:
  - **Communications product development;**
  - **Hazard and critical infrastructure mapping;**
  - **Policy and legal analysis;**
  - **Model ordinance and comprehensive plan language;**
  - **Green infrastructure projects;**
  - **Workshop or meeting facilitation;**
  - **Community engagement recommendations;**
  - **Specific research or data collection projects.**



Photo by Aileen  
Devlin, Virginia Sea  
Grant

## Data Sources Used to Complete Scoring

Data Sources	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	3.4	3.5	4.1	4.2	4.3	4.4	4.5	5.1	5.2	5.3	5.4	5.5
Business Association Website								X																	
Calls to the locality	X	X	X	X		X	X	X	X	X		X	X	X					X			X			X
Calls to the PDC	X	X	X			X	X		X				X												
Capital Improvement Plan																X		X							X
Community Services Board																									X
County Health Rankings and Roadmaps																									X
Dam Management Plan											X														
DCR Floodplain Management Program					X	X															X				
Department of Conservation and Recreation			X		X																	X			
Department of Emergency Management																						X			
Department of Environmental Quality													X												
Department of Health							X						X												
Department of Transportation Road and Bridge Standards												X													
Emergency Management Plans				X																					
Emergency Operations Plan	X	X					X				X										X			X	X
FEMA's CRS website					X																				
Fire Department website		X																							
Flood exposure and vulnerability assessment publications (VIMS, FEMA, and DCR)						X																X			
Hazard Mitigation Plan	X	X				X		X	X	X	X	X	X	X		X			X			X		X	X
Local Assessments of Ecological Assets															X										

Local Boards to advise elected officials																					X				
Local Budget																X									
<b>Data Sources</b>	<b>1.1</b>	<b>1.2</b>	<b>1.3</b>	<b>1.4</b>	<b>1.5</b>	<b>2.1</b>	<b>2.2</b>	<b>2.3</b>	<b>2.4</b>	<b>2.5</b>	<b>3.1</b>	<b>3.2</b>	<b>3.3</b>	<b>3.4</b>	<b>3.5</b>	<b>4.1</b>	<b>4.2</b>	<b>4.3</b>	<b>4.4</b>	<b>4.5</b>	<b>5.1</b>	<b>5.2</b>	<b>5.3</b>	<b>5.4</b>	<b>5.5</b>
Local Chamber Website								X								X									
Local Economic Impact Assessments																X									
Local Ordinances and Comprehensive Plan				X			X						X	X	X		X	X	X	X	X			X	X
Local Public Works Design & Construction Standards												X													
Local Transportation Plan												X													
Local Utility Website													X												
Local Water Supply Plan													X												
Locality Resilience Plan or Strategy	X			X																					
Locality Social Media																				X	X		X		
Locality Website	X	X	X				X	X	X	X	X	X	X	X				X	X	X	X	X	X	X	
School Curriculum																					X				
Social Services							X																		
Planning District Commission (PDC) website	X	X	X			X	X		X																
Public Libraries																						X			
Wetlands Watch					X																				
Zoning Codes																			X						