The RAFT: Maintaining Progress in Coastal Virginia

Grant # NA23NOS4190255 Task 91.02

Virginia Department of Environmental Quality, Coastal Zone Management Program

THE RAFT

Resilience Adaptation Feasibility Tool

City of Hopewell

Scorecard Report

August 2024

The RAFT Goal

To help Virginia's localities and tribal nations improve environmental, economic, and social resilience to climate change and other stresses.

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For more information visit The RAFT website: raft.ien.virginia.edu

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Background

What is The RAFT?

- A "full-service tool" and collaborative, community-driven process designed to assist localities and tribal nations in increasing their resilience to climate impact-influenced hazards including flooding, storms, winter weather, wildfires, and extreme temperatures, and addressing those hazards' impacts on a community, including physical infrastructure, the economy, and social factors such as addiction, unemployment, and outmigration for jobs.
- Conceived and developed by an academic interdisciplinary collaborative called the "RAFT 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 & Resilience Program.

  VCPC was closed in 2023, and Virginia Tech's Coastal Collaborator joined the RAFT Team in June 2023, and ODU now partners on the RAFT through its Institute for Coastal Adaptation and Resilience (ICAR).

The RAFT has three key components:

1. **Quantitative and qualitative assessments of resilience:** The RAFT Scorecard assesses how much a locality or Tribe's programs, ordinances, and policies incorporate resilience to climate impact-influenced hazards. The assessment includes impacts on physical infrastructure, emergency operations, and socio-economic factors. For Tribes, resilience is assessed for Tribal lands. While land utilization as well as member distribution varies widely by Tribe, resilience measures are assessed for a Tribe's capacity to address the needs of affiliated individuals from their respective Tribal lands. A qualitative assessment, including focus groups and interviews complements this quantitative, policy-based assessment.
2. A **Resilience Action Workshop** where participants review the assessment findings, identify achievable action items and create a Resilience Action Checklist (RAC) of items to improve community resilience.
3. **RAC Implementation** in which the RAFT Team works with a locality or Tribe's Implementation Team for one year to achieve items identified on the Resilience Action Checklist, incorporating support from state or federal agencies, university experts, and community organizations when possible.

How does The RAFT help a Locality or Tribe?

1. Opens a community-wide conversation about community resilience, including gaps and needs, and provides local-level information on predicted climate impacts.
2. Supports the locality or Tribe in identifying priority actions for the largest impact in increasing resilience.
3. Improves communication and coordination within the locality or Tribe with regional and state agencies.
4. Helps the locality or Tribe become better positioned to find and apply for relevant funding opportunities.
5. Can enable the locality or Tribe to earn a better Community Rating System (CRS) score, which saves citizens money on their national flood insurance premiums.

The Resilience Cycle

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

What is resilience?

A resilient community is one that is able to anticipate, adapt, endure, and thrive in the face of change, uncertainty, and adversity.

The RAFT focuses on community resilience, improving the ability of a community to bounce back from hazard events such as hurricanes and extreme heat 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 and Tribes need capacities in areas of emergency management, infrastructure, planning, policy, and community well-being.

Total Score

Category	Score Received	Possible Score
1) **POLICY, LEADERSHIP, AND COLLABORATION** *Measures policy and legislation in place for resilience and includes coordination and collaboration between various levels of government, and how accessible and open government data is to the public or members of the Tribe.*	8	20
2) **RISK ASSESSMENT AND EMERGENCY MANAGEMENT** *Examines how well a locality or Tribe has conducted risk assessments to prepare for flood, storm, wildfire, drought, and extreme temperature hazards (as relevant), identified vulnerable populations and their needs during or after a hazard, and developed plans for disaster preparedness and response, including a Hazard Mitigation Plan.*	16	20
3) **INFRASTRUCTURE RESILIENCE** *Assesses how well the locality or Tribe has identified methods and plans for protecting critical infrastructure from climate impact-induced hazards, including using natural or nature-based features (NNBFs).*	10	30
4) **PLANNING FOR RESILIENCE** *Assesses the comprehensive plan and zoning code for resilience, how a locality or Tribe 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.*	7	20
5) **COMMUNITY ENGAGEMENT, HEALTH, AND WELL BEING** *Assesses how the locality or Tribal government and staff engage with residents in planning for flood, storm, wildfire, drought, or extreme temperature hazards, including social equity considerations, and examines the locality or Tribe's attention to issues of health and wellness during and after hazards.*	9	20
Total Score (Percentage of total applicable metrics)	**50**	**110**

Interpreting the Score

Low Resilience: Less than 50%- There are plenty of opportunities for improvement. The locality or Tribe 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 or Tribe develops their Resilience Action Checklist.

Moderate Resilience: 50% - 74% – The locality or Tribe is actively involved in 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- The locality or Tribe 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 or Tribes 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) LEADERSHIP, POLICY, AND COLLABORATION

1.1 LEADERSHIP AND PLANNING FOR RESILIENCE: 2 / 4 Points

Collaboration among local government or Tribal government decision makers, officials, departments, academia, and nonprofits is important in planning for 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 to climate-induced hazards (wildfires, extreme temperatures, drought, and flooding due to sea level rise or increasingly severe storms, as applicable), including planning for socio-economic impacts such as employment, economic development, tourism, and access to housing and healthcare. If staff is limited or nonexistent, the locality or Tribe has tasked someone with handling resilience efforts for the community.	Per locality staff, leadership roles are identified for staff and/or elected officials important for planning resilience. Per locality staff, the emergency operations plan covers initial response and recovery phases.
0		b. Training and education events are held for elected or appointed officials specifically on resilience to climate - induced hazards. For Tribes, this could include traditional cultural trainings that may increase resilience.	Per locality staff, the elected officials do not go through training on resilience issues.
1		c. Training and education events on climate impact resilience are held for locality/Tribe staff, or if staff is limited or nonexistent, training of whomever has been tasked with handling resilience efforts for the community.	Per locality staff, there is training for locality staff who have been tasked with handling resilience efforts. Per locality staff, there is a yearly training and drill on the Emergency Operations Plan.
0		d. Staff and/or elected officials, or whomever has been tasked with handling extreme temperatures, flood, wildfire, drought and storm hazard resilience efforts for the community (as applicable), are meeting at least once per quarter to coordinate planning specifically on these resilience issues.	Per locality staff, there is no meeting once per quarter to coordinate planning specifically on resilience issues.

1.2 LEADERSHIP AND RESPONDING TO EMERGENCY: 3 / 4 Points

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

Points		Scoring Metric	Notes
1		a. Locality or Tribe has identified stakeholders who will require emergency response due to natural hazards (extreme temperatures, drought, wildfire, and flooding due to sea level rise or increasingly severe storms, as applicable), including socio-economically vulnerable populations such as the elderly and medically fragile.	Per locality staff, in response to the COVID-19 pandemic, the locality used Deloitte data from the state to identify vulnerable populations. Per locality staff, the locality has identified all stakeholders. The locality uses an "all hazards" approach. The locality works with populations in areas subject to flooding. Before storms, staff make sure debris is cleared to reduce flooding. According to the locality, most flooding is man-made, infrastructure flooding, not coastal. Along with the city engineering department, the emergency office created the fluid stormwater resilience plan.
1		b. Locality or Tribe has established internal emergency response roles (e.g., standing committees, staff titles) for natural hazards, and these staff and partners participate in at least one training each year.	According to the City website, the Emergency Management Office has one full time position, and operates under the direction of the fire chief. There is also a Local Emergency Planning Committee. Accomplishing the mission of Emergency Management involves: Conducting exercises to test and train on the EOP through simulated emergencies. Per locality staff, the Emergency Management Office takes an all-hazards approach to identify hazards in the city. The Office has identified rules, including backup positions. The locality conducts at least one exercise per year
0		c. Locality or Tribe collaborates on resilience planning with the stakeholders who will need emergency response services for extreme temperatures, drought, wildfire, flood, and storm hazards (as applicable), and has provided the public or Tribal members with opportunity to give input, including input from socio-economically vulnerable populations such as low-income households.	Per locality staff, the locality has done public distribution of personal protective equipment throughout the COVID-19 pandemic. The staff has also distributed information about sheltering in place and how to sign up for emergency notifications. In this process, staff reported that they "essentially knocked on every door in the city," including, but not limited to vulnerable populations. The public has opportunities to comment as the locality helps develop the 2022 DRAFT Hazard Mitigation Plan.
1		d. Locality or Tribe has a means of communicating these plans to the public or Tribal members during such hazardous events.	According to the Richmond-Crater Hazard Mitigation Plan Appendices, Hopewell uses NOAA Weather Radio (p. 282). Per locality staff, the locality uses a reverse 911 system through texts, phone calls, and emails; CodeRED; the locality website; social media; and local media.

1.3 COLLABORATION WITH STATE AGENCIES AND REGIONAL PDCs: 3 / 4 Points

Resilience issues go beyond political boundaries; therefore, localities and Tribes 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 socio-economically vulnerable communities. A locality is part of a Planning District Commission (PDC), which coordinates many activities at the regional level.

Points		Scoring Metric	Notes
1		a. Staff and/or officials engage with regional and state agencies on resilience to natural hazards (such as wildfires, extreme temperatures, drought, and flooding due to increasingly severe storms and sea level rise).	The locality engaged with PlanRVA, the regional convener, planning agency and provider of essential services to the localities of the Richmond Region, to develop the Richmond-Crater Hazard Mitigation Plan.
0		b. Locality or Tribe participates in local and regional resilience-oriented committees and initiatives to serve socio-economically vulnerable populations.	Per locality staff, the locality participates in local and regional resilience-oriented committees and initiatives to serve socially vulnerable populations. As an example, the locality pointed to the public-hearings stage of the process of creating the regional hazard mitigation plan.
1		c. Locality elected officials or Tribe elected/appointed officials participate on relevant local and regional commissions addressing resilience.	Per locality staff, the locality participates in PDC committees and Chesapeake Bay committees. Per locality staff, the Vice Mayor is on a stormwater committee at the PDC level.
1	$$$	d. Staff work to identify funding opportunities and priorities at the regional and state level to address extreme temperatures, wildfire, drought, flood, and storm hazard resilience (as applicable).	Per locality staff, the locality has reviewed the funding opportunities for resilience projects on the Department of Conservation & Recreation website for the Virginia Coastal Resilience Master Plan. The locality has also considered applying for funding from the state's Community Flood Preparedness Fund administered by DCR. The locality has not yet determined if it is going to apply for funding yet. Per locality staff, the emergency response team has also looked at other funding opportunities. The team looks for opportunities to include resilience projects in the Hazard Mitigation Plan. The staff is in the process of finalizing the HMP in the next couple of months. The staff also reported trying to get FEMA funding for flooding issues.

1.4 ADAPTIVE MANAGEMENT: 0 / 4 Points

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

Points		Scoring Metric	Notes
0		a. Locality or Tribe incorporated new data and scientific analyses concerning climate impacts into its Floodplain Management Ordinance within the last five years.	According to the Past Versions tool in MuniCode, Article XV. - Floodplain District of Appendix A Zoning Ordinance has not been updated within the last five years. Per locality staff, the locality typically updates the floodplain ordinance when it receives new floodplain maps. The locality is actively waiting to receive the new floodplain maps.
0		b. Locality or Tribe incorporated new data and scientific analyses concerning climate impacts into its Zoning Ordinance within the last five years.	Per locality staff, the Zoning Ordinance is updated after the Comprehensive Plan; the Comprehensive Plan was updated in 2018. Per locality staff, the Zoning Ordinance does not incorporate new scientific analyses; however, the Ordinance has always included the floodplain district (2 feet above BFE) in the ordinance.
0		c. Locality or Tribe incorporated new data and scientific analyses concerning climate impacts into its Site and Subdivision Ordinances within the last five years.	According to the Past Versions tool in MuniCode, the Subdivision Ordinance Appendix B has not been updated in the last five years.
0		d. Locality or Tribe incorporated new data and scientific analyses concerning climate impacts into its Comprehensive Plan within the last five years.	Yes, Hopewell Comprehensive Plan was updated in 2018, but does not specifically address coastal resilience. There is discussion of the floodplain - see pgs. 244-45, but the discussion does not incorporate SLR data and resilience approaches.

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 and Tribes that are NFIP participating communities for their Tribal lands 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 or NFIP-participating Tribe has achieved a CRS Score of 9 or higher.	Locality does not participate in the CRS.
0	CRS	b. Locality or NFIP-participating Tribe has achieved a CRS Score of 8.	Locality does not participate in the CRS.
0	CRS	c. Locality or NFIP-participating Tribe has achieved a CRS Score of 7.	Locality does not participate in the CRS.
0	CRS	d. Locality or NFIP-participating Tribe has achieved a CRS Score of 6 or lower.	Locality does not participate in the CRS.
		TOTAL SCORE FOR SECTION 1:	**8 / 20 POINTS**

2) RISK ASSESSMENT AND EMERGENCY MANAGEMENT

2.1 EXPOSURE AND VULNERABILITY ASSESSMENT: 4 / 4 Points

Localities and Tribes should conduct and use an assessment of their exposure and vulnerability to climate impacts (such as increased flooding, wildfire, drought, severe storm, and extreme temperature hazards) in developing policies and programs. Localities and Tribes should be knowledgeable of their natural hazard 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. Exposure and/or vulnerability assessments for extreme temperatures, wildfire, drought, flood, and storm hazards (as applicable) are completed, mapped and updated within the last 5-7 years, available at the locality level, and (as evidence of being used) referenced in locality or Tribal policy making.	2022 DRAFT Richmond-Crater Hazard Mitigation Plan at Section 5.4 (Hazard Identification, Risk Assessment (HIRA) and Vulnerability Analysis: Flooding). Figure 5.5b on p. 5-25 maps Repetitive Loss Areas and National Risk Index Ratings of High or Moderate Risk for Prince George County and Hopewell specifically. P. 16 of Hopewell Executive Summary (from the Richmond-Crater Hazard Mitigation Plan) contains a map of Annualized Flood Damage by Census Block for the City of Hopewell specifically.
1	CRS	b. Sources of flooding (for coastal riverine, and/or flash flood events), wildfire, drought and distribution of heat (blacktop/asphalt surfaces and heat islands) are identified and updated within last 5 years as applicable.	2022 DRAFT Richmond-Crater Hazard Mitigation Plan at Section 5.4 (Hazard Identification, Risk Assessment (HIRA) and Vulnerability Analysis: Flooding), p. 5-10, discusses winter flooding (from snowmelt and ice jam breakaway) and spring flooding (from seasonal rain patterns), and also distinguishes between flooding arising from hurricanes and tropical storms and flooding arising from riverine floods or nor'easters. Section 5.6 (Hazard Identification, Risk Assessment (HIRA) and Vulnerability Analysis: Severe Wind Events) also discusses storm surge flooding and riverine flooding on p. 5-54 and 5-55.
1	CRS	c. Flooding for different return period events, wildfire-impacted acreage, drought impacts (as applicable), and number of extreme temperatures days are identified, projected, and mapped.	2022 DRAFT Richmond-Crater Hazard Mitigation Plan, Figure 5.4 on p. 5-14 maps Richmond-Crater Storm Surge Zones; Table 5.3 on p. 5-15 to 5-16 lists History of Flood Events and Damages (from 2011-2020); Table 5.7 on p. 5-23 to 5-23 lists Repetitive Flood Losses and Severe Repetitive Flood Losses (by locality); Figure 5.5b on p. 5-25 maps Repetitive Loss Areas and National Risk Index Ratings of High or Moderate Risk for Prince George County and Hopewell specifically; Table 5.10 on p. 5-36 lists Annualized Flood Events and Losses (from 1993-2020). Pp. 3-4 of Hopewell Executive Summary (from the Richmond-Crater Hazard Mitigation Plan) list significant flooding events in Hopewell specifically.

1	$$$ CRS	e. Additional vulnerabilities, including impacts on social, cultural, historic, and economic assets, are identified, and updated within the last 5 years.	See generally 2022 DRAFT Richmond Crater Hazard Mitigation Plan, Section 4 (Community Profile). P. 2 of Hopewell Executive Summary (from the Richmond-Crater Hazard Mitigation Plan) states that much of the housing was built in the 1900s, and that "a significant part of the City's industrial development is in the floodplain."

2.2 RISK ASSESSMENT FOR VULNERABLE POPULATIONS: 3 / 4 Points

Localities and Tribes should conduct risk assessments of their socio-economically 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 vulnerability, it is vital for localities and tribal governments to identify these populations and ways to reduce their risk and create plans for assistance during and after hazard events. Localities and Tribes need to conduct outreach to vulnerable populations.

Points		Scoring Metric	Notes
1	CRS 	a. Locality or Tribe has identified vulnerable populations that are at increased risk from natural hazards like flooding, severe storms, wildfire, drought and extreme temperatures - both increased physical risks, and social and economic risks such as unemployment, food insecurity, and lack of access to healthcare and safe housing.	2022 DRAFT Richmond-Crater Hazard Mitigation Plan at Section 4.6 discusses the population of the Richmond-Crater region and identifies vulnerable populations that may require special consideration when developing hazard reduction strategies and public outreach programs (see Sections 4.6.2 on Language, 4.6.3 on Age, 4.6.4 on Education, and 4.6.5 on Income). Further, Figure 5.6 on p. 5-37 maps Social Vulnerability to Flood Hazards in the Richmond-Crater region. Further, Section 7 of the 2022 DRAFT Richmond-Crater Hazard Mitigation Plan discusses jurisdictionally specific Mitigation Action Plans (MAPs), and there is a separate ranking for each MAP's impact on socially vulnerable populations.
0		b. Locality or Tribe has engaged vulnerable populations and provided them with meaningful information (e.g., accessible, in their own language, relevant to their circumstances) relating to their vulnerability to natural hazards.	2022 DRAFT Richmond-Crater Hazard Mitigation Plan, p. 6-153 (Hopewell Mitigation Action 3): "Target FEMA's repetitive loss property, and those in the surrounding repetitive loss area, for specialized outreach and mitigation activities." P. 6-29 (Regional Mitigation Action 12) includes a public education/awareness component: "Enhance other outreach efforts to educate the public about hazard risk and regional resilience." Further, Goal 1 on p. 1-3 states the following sub-goal for the region as a whole and for each community: "Conduct outreach and educational opportunities for diverse groups of citizens" (as part of a larger effort to "[e]quitably prepare and protect the whole community against natural hazards." Finally, Section 4.6.4 on p. 4-27 states that demographics on education, age, and English fluency "are important to keep in mind when developing public outreach programs." Per p. 11 of the Hopewell Executive Summary (from the Richmond-Crater Hazard Mitigation Plan), locality Emergency Management staff are engaged in an ongoing, medium-priority effort to "[d]istribute brochures and use other means to educate the public regarding preparedness and mitigation." However, per locality staff, they take an "all-hazard" approach to outreach, so have not engaged in coastal storm-specific outreach to vulnerable populations.

1		c. Locality or Tribe 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 requiring evacuation or sheltering, including seeking refuge in cooling centers during extreme temperatures events.	Per p. 11 of the Hopewell Executive Summary (from the Richmond-Crater Hazard Mitigation Plan), locality staff are engaged in an ongoing, medium-priority effort to "[d]istribute brochures and use other means to educate the public regarding preparedness and mitigation." Per locality staff, they have identified flood-prone areas and utilize the CodeRED notification system to alert individuals located within those areas when there is a flood risk. However, locality staff also noted that, because Hopewell is located on a bluff, their outreach does not focus specifically on evacuation planning (as the flood risk does not rise to the level of requiring evacuation). Locality staff further added that they take a seasonal approach to outreach and engage with citizens about coastal storm preparedness prior to hurricane season.
1		d. Locality or Tribe partners with organizations that provide assistance to vulnerable populations before, during and after hazard events, including medical facilities, transit services, counseling services, and food banks or pantries with refrigeration units and backup generators.	Per locality staff, Hopewell partners with a few organizations including Feed More and Red Cross to assist with feeding operations; also partners with faith communities and non-profits to provide shelter for individuals who may be experiencing homelessness. Locality staff further noted that, if the City is impacted to the point that a significant number of residents are affected, they have plans to provide shelter at high schools (which are equipped with generators).

2.3 BUSINESS AND ECONOMIC RISK ASSESSMENT: 2 / 4 Points

Localities and Tribes need to identify local business and economic vulnerabilities to flood, storm, wildfire, drought, and extreme temperatures hazards, as relevant. Businesses are differentially affected by these hazards and attention should be paid to making sure that businesses that serve socio-economically vulnerable populations are considered. Including business and economic vulnerability in a risk assessment and emergency management plan is important for resilience and recovery after a hazard event.

Points		Scoring Metric	Notes
1	$$$	a. Locality or Tribe has included the business sector (including tourism) in its assessment and mapping of vulnerability to natural hazards such as extreme temperatures, wildfire, drought, flooding, and storms, including considering long-term risks to major industries within the community.	Chapter XI, p. 2 of Comprehensive Plan notes that constraints on development include "areas subject to flooding;" map on p. 6 of Chapter XI displays the City's flood hazard zones in detail. Further, 2022 DRAFT Richmond-Crater Hazard Mitigation Plan, p. 5-11 discusses the impact that flood damage can have on businesses. However, p. 5-12 notes that "much of the land in the region's floodplain is designated for agricultural uses." Locality staff confirmed that businesses in Hopewell are not located in areas subject to coastal flooding.
0	$$$	b. Locality has engaged its economic development department and/or independent chamber of commerce in locality hazard mitigation and/or resilience planning. Tribe has engaged Council and finance staff in hazards mitigation and/or resilience planning.	Chapter VIII, p. 5 of Comprehensive Plan notes that the City works with the Chamber of Commerce and Economic Development Authority, but in the context of increasing recreational opportunities. However, locality staff noted that the Hopewell local emergency planning committee (which meets monthly to discuss preparedness for all hazards, including coastal hazards) involves several businesses.
0	$$$ 	c. Locality and/or business associations have programs for small businesses, particularly businesses that serve socio-economically vulnerable populations, to encourage each business to be prepared for an emergency and plan for business continuity. Tribe has programs for cultural asset management particularly assets that serve socio-economically vulnerable populations, to encourage each asset to be protected in case of an emergency and plan for preservation.	"Local Emergency Information" page on Hopewell city website provides general emergency preparedness tips, but nothing aimed at small businesses/businesses serving vulnerable populations. Locality staff noted that efforts are being made on this front, but not taken advantage of. The Regional Emergency Management Alliance is working on ways to encourage participation from small businesses.

2.3	BUSINESS AND ECONOMIC RISK ASSESSMENT:		2 / 4 Points
1	$$$	d. Locality emergency management staff communicates with business sector regarding businesses' operations, roles and communications with employees during and after hazard events or evacuation. Tribal emergency management communicates with business sector regarding business' operations, cultural preservation, and roles during hazard events or evacuation.	Communication is handled the same as with the general public - via CodeRED Citizen Notification Service, which sends phone notifications to subscribers. Subscribers can sign up as a business or as an individual.

2.4 HAZARD MITIGATION: 4 / 4 Points

The Hazard Mitigation Plan (HMP) is required for local and Tribal governments that are seeking federal hazard mitigation funding. It is important for regional HMPs to specifically address flood, storm, extreme temperatures, wildfire and drought hazards by identifying what resources and areas are at risk, to enable actions to reduce future risks. Furthermore, having an HMP is essential to be eligible for certain grants and funding related to hazards.

Points		Scoring Metric	Notes
1		a. The locality or Tribe has a FEMA-approved HMP that specifically addresses applicable and significant hazards.	See generally 2022 DRAFT Richmond Crater Hazard Mitigation Plan - specifically, see the discussion of resiliency on p. 6-23 and 6-24.
1		b. The locality or Tribe is engaging in regional coordination for Hazard Mitigation through a regional plan.	See generally 2022 DRAFT Richmond Crater Hazard Mitigation Plan.
1		c. The HMP details how the locality or Tribe collaborates with the Virginia Department of Emergency Management (VDEM), Department of Conservation and Recreation Floodplain Management Program, Department of Forestry, and the Federal Emergency Management Agency State Hazard Mitigation Officer.	See generally 2022 DRAFT Richmond Crater Hazard Mitigation Plan, which mentions VDEM and DCR throughout.
1		d. The HMP is approved by VDEM and FEMA, was developed with meaningful public engagement with socio-economically vulnerable communities and was formally adopted by the locality or Tribal governing body.	FEMA Hazard Mitigation Plan Status. See also Richmond-Crater Hazard Mitigation Plan Executive Summary on p. 1-1.

2.5 RESIDENT EMERGENCY PREPAREDNESS: 3 / 4 Points

Well-organized emergency preparedness plans save lives and property and help ensure that localities and Tribes can act in sufficient time. They contribute to faster and more efficient post-hazard recovery. Ensuring that vulnerable populations are prepared for emergencies includes providing them with the opportunity to learn about flooding, wildfire and heat safety, including learning swimming skills. Communities should consider participating in regional, national, or state-wide outreach events such as Hurricane Preparedness Week.

Points		Scoring Metric	Notes
1	CRS	a. Locality or Tribe has a current resident emergency preparedness plan, updated within the last five years, which identifies resident emergency preparedness risks and needs (including education on water safety, flooding risks including nonfunctional septic systems and wells, heat safety including heat related illnesses, and safety measures during wildfires and droughts).	Emergency Operations Plan, pg. 82.
1	CRS	b. Locality or Tribe conducts community outreach at least once a year to inform residents or Tribal members about community emergency preparedness.	Per p. 11 of the Hopewell Executive Summary (from the Richmond-Crater Hazard Mitigation Plan), locality staff are engaged in an ongoing, medium-priority effort to "[d]istribute brochures and use other means to educate the public regarding preparedness and mitigation."
0	CRS	c. Locality or Tribe engages resident groups, including occupants of schools, hospitals, nursing homes, adult group homes, and other group facilities, in testing preparedness through emergency drills, disaster simulations, and risk planning workshops.	Emergency Operations Plan does not detail this kind of community engagement.
1	CRS	d. Locality or Tribe has implemented early warning signals/systems/emergency warning tools for its residents, particularly those most vulnerable.	Hopewell provides emergency notices through CodeRED Citizen Notification Service, which sends phone notifications to subscribers. Locality staff further if weather alerts are automated – every time there's a storm, it is mapped and issues a warning immediately through CodeRED.
		TOTAL SCORE FOR SECTION 2:	**16 / 20 POINTS**

3) INFRASTRUCTURE RESILIENCE

3.1 STORMWATER INFRASTRUCTURE: 3 / 4 Points

Stormwater management is regulated by state law, which requires localities to either create and operate a stormwater management program or request the state to operate one for them. 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 or Tribal government level through environmental regulation, site plan approval, and subdivision approval. Localities and Tribes that go beyond the minimum state requirements are better able to manage stormwater and increase their resilience to storm and flooding 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
1	$$$ 	a. Locality or Tribe offers at least one official incentive for private property activities that manage stormwater.	Hopewell administers a stormwater enterprise fund and offers utility fee credits to any person who installs and achieves a reduction in stormwater flow and pollutant loadings. City Code Ch. 14, Art. III., Sec. 14-39 & 14-41.
1		b. Locality or Tribe funds stormwater management projects through stormwater utility fees, user fees, grants, or other funding mechanisms.	Hopewell's stormwater utility fee funds construction and operation of new stormwater control facilities and the cost of administration of the city's stormwater program (now in its sixth year), among other things. Hopewell City website, Stormwater FAQ and City Code Ch. 14, Art. III., Sec. 14-39.
1		c. Locality or Tribe implements one or more stormwater BMPs on public property for educational demonstration purposes, as shown by signage, tours, or other information.	Hopewell conducts a Tree Stewards Program and Resident Workshops, in addition to a stormwater runoff education campaign which uses signage, brochures and door hangers.
0		d. Locality/Tribal stormwater policy goes above and beyond the minimum state requirements.	Despite comparatively low stormwater management prices, per locality staff, Hopewell matches and does not go beyond minimum state requirements.

3.2 CRITICAL TRANSPORTATION INFRASTRUCTURE: 3 / 4 Points

An evaluation of critical transportation infrastructure allows a locality or Tribe to understand its capacity and preparedness for flood, storm, wildfire, and extreme temperatures hazards. Roads in cities, counties, and on Tribal lands may be administered by various entities at the state or federal level, but it is still important for local and Tribal governments to assess and identify their transportation needs and priorities and communicate them to the appropriate entities.

Points		Scoring Metric	Notes
1		a. Locality or Tribe has identified critical transportation infrastructure and assessed its vulnerability to natural hazards within the last 5 years.	Per locality staff, critical transportation infrastructure is assessed from a regional perspective. The 2022 Draft Richmond-Crater Hazard Mitigation Plan discusses the region's transportation infrastructure vulnerabilities and highlights Hopewell's 2017 mitigation action involving stream channel and road embankment stabilization along the City's primary emergency route and its work along Winston Churchill Drive between High Avenue and Arlington Road to protect adjacent residences. See pgs. 260, 30, 60, 73, 118, 131.
0		b. Locality or Tribe has developed a protection plan and a contingency plan for critical transportation infrastructure within the last 5 years.	Per locality staff, Hopewell has developed a plan to protect underground infrastructure systems like pipes, but not transportation infrastructure.
1		c. Locality or Tribe has a plan available and has informed its residents or Tribal members which critical transportation infrastructure to utilize in the case of flood, storm, drought, wildfire, and extreme temperatures hazards.	Per locality staff, Hopewell takes an "all hazards approach" and plans to use the Code Red system and social media in case of an emergency. Per the 2022 Draft Richmond-Crater Hazard Mitigation Plan, Hopewell has substantially completed a mitigation action involving stream channel and road embankment stabilization along the City's primary emergency route. pg. 260.
0		d. Locality or Tribe has informed residents or its Tribal members about which critical transportation infrastructure are vulnerable to storm, drought, flood, wildfire, and extreme temperatures hazards.	Per locality staff, Hopewell does not have a contingency plan for critical transportation infrastructure.

3.3 WATER SUPPLY AND WASTEWATER MANAGEMENT SERVICES: 0 / 4 Points

Communication and coordination between a locality or Tribe and its residents or Tribal members in areas with private well owners, municipal water utility, and wastewater utility enable a coordinated, cohesive, and synchronized response to a hazard.

Points		Scoring Metric	Notes
0		a. Locality or Tribe conducts an assessment of its water supply (both public sources and private wells), and wastewater management (both municipally provided and in areas with septic systems), to identify vulnerabilities to flood, heat, drought, wildfire and storm hazards.	Per locality staff, since the water system has gone down five times since 2017, the locality has assessed vulnerabilities. Response requested from Virginia American Water, not yet received.
0		b. Locality or Tribal water supply plan addresses flooding, drought, wildfires, extreme temperatures events and other hazards to assure safe, uninterrupted water supply and water conservation.	The Appomattox River Water Authority (ARWA) Water Supply Plan (2011) also notes the flooding of Hopewell's raw water pump station caused by Hurricane Isabel in 2003 (pg. 423) Response requested from Virginia American Water, not yet received.
0		c. Locality or Tribe conducts a resident/Tribal member education program on safe water supplies and septic systems maintenance to assure pre- and post-event public health and safety.	No information found. Response requested from Virginia American Water, not yet received.
0		d. Locality or Tribe communicates with municipal water and wastewater utilities to manage ongoing challenges to safe water supplies and wastewater treatment, including during and after a storm. Additionally, the locality or Tribe has established methods of communication with private water and wastewater system owners, to ensure all are informed about how they can increase their systems' resiliency.	Per locality staff, since the water system has gone down five times since 2017, the locality has spent many hours with private water companies to ensure improvements to water system resilience. Response requested from Virginia American Water, not yet received.

3.4 UTILITIES INFRASTRUCTURE: 0 / 4 Points

The failure of utilities, including electricity, natural gas, broadband, and telecommunications, may be caused by flood, storm, wildfire, and extreme temperatures hazards. Power outages pose health risks, particularly for the elderly and other vulnerable populations. Electricity is generated by private providers within the Commonwealth. Companies are subject to voluntary and mandatory energy production standards and regulations set at the state or federal level and managed by various state agencies. Companies participate in partnerships within their sector for power restoration following a hazard. Additional electricity production matters are typically handled at the local level through fire safety inspection and site plan approval. Localities and Tribes that go beyond the minimum Commonwealth requirements are better able to manage electricity, natural gas, broadband, and telecommunications disruptions, and increase their resilience to flood, storm, wildfire, and extreme temperatures hazards. When there is an electrical outage, back-up infrastructure may include use of generators or on-site fuel storage, and the use of cooling centers and spray parks during extreme heat events.

Points		Scoring Metric	Notes
0	$$$	a. Locality or Tribe fire safety plan has been updated within the last 5 years and addresses flood, storm, wildfire, and extreme heat hazard effects (as applicable) upon utility infrastructure.	Although fire safety plan is regularly updated, references to electrical infrastructure couldn't be confirmed. Fire marshal unavailable during locality's resiliency workshop.
0		b. Locality or Tribe has developed a plan to protect critical electric, natural gas, broadband, and telecommunications infrastructure and address gaps in back-up power provision within the last 5 years.	Backup power provisions not confirmed but locality does intend to address in Resilience Plan drafts. Locality has two power providers; one covers residential, one covers industry.
0		c. Locality or Tribe conducts education program for its residents or Tribal members on back-up power resources, public sites providing broadband and telecommunications access, and electrical safety to assure pre- and post-event public health and safety.	Citizen education program not currently in place but will potentially be addressed via upcoming Resilience Plan, per locality staff.
0		d. Locality or Tribe communicates with electric, natural gas, broadband, and telecommunications utilities to manage ongoing challenges to utilities provision of services, including during and after a heat wave, flood, wildfire, or storm event (as applicable). Additionally, the locality or Tribe has established methods of communication with consumers, to ensure all are informed about how they can increase their utility system resiliency and avoid or respond to power outages.	Representative from Dominion Power was in attendance at Resilience workshop and confirmed tracking of weather-related events and open communication with locality. Communications between locality and consumers on electrical resiliency to be addressed in upcoming Resilience Plan, per locality staff.

3.5 CRITICAL INFRASTRUCTURE FOR EMERGENCY SERVICES: 1 / 4 Points

An evaluation of critical infrastructure for emergency services- including shelters, cooling centers and spray parks, elder care facilities, emergency facilities, and medical, electrical, and other essential services - allows a locality or Tribe to understand its capacity and preparedness for hazards. Critical infrastructure ensures that socio-economically vulnerable populations, not just those who can afford it, will have access to quality drinking water, electricity, telecommunications, the internet, food, and shelter.

Points		Scoring Metric	Notes
0		a. Locality or Tribe identifies critical infrastructure for emergency services, including hospitals, shelters, and cooling centers, and assessed vulnerability within the last 5 years.	Per locality staff, the 2020 Updated Emergency Operations Plan identifies and assesses vulnerabilities for critical infrastructure for emergency services. Emergency Operations Plan does not appear to speak to a vulnerability assessment.
0		b. Locality or Tribe has developed a plan to protect critical infrastructure from storms, floods, wildfires, drought impacts, and extreme heat (as applicable) within the last 5 years.	No information found.
0		c. Locality or Tribe informs its residents or Tribal members which critical emergency infrastructure they should use during flood, storm, wildfire, drought and extreme heat hazards (as applicable).	Per locality staff, Hopewell does not publish lists of shelters but informs citizens of specific shelters to use depending on the type and severity of the hazard.
1		d. Locality or Tribe has a contingency plan for continuing emergency services. This plan has been developed or updated in the last 5 years.	Per locality staff, the most recent continuity of operations plan was implemented during the COVID-19 Pandemic. Emergency Operations Plan, see page 65 (Mass Care, Housing, Human Resources).

3.6 FLOOD CONTROL INFRASTRUCTURE: 0 / 4 Points

Flooding may be caused by seasonal melt, precipitation patterns, storms, accelerating sea level rise, waterway blockages, tides, and impoundment failure, depending on the locality or Tribe. Impounding structures of a certain size are regulated by the state through permitting and reporting requirements. These and other built flood control structures require maintenance to maintain their designed capacity and safety. Localities or Tribes engaged in awareness raising and planning are better able to manage flood hazards.

Points		Scoring Metric	Notes
0	$$$	a. Locality or Tribe has identified flood control and dam safety infrastructure vulnerabilities for current and predicted flooding levels and developed a contingency or emergency plan within the last 5 years.	Locality has unofficially recognized vulnerabilities to flood control, but contingency plan still needed.
0		b. Locality or Tribe has developed plans to maintain and repair flood control infrastructure, including levees and dams if applicable, and other structures, such as nature-based solutions.	No information found; staff could not confirm.
0		c. Locality or Tribe informs its residents or Tribal members which flood control structures, including dams, are vulnerable to breach or overtopping due to flooding.	No information found; staff could not confirm.
0		d. Locality or Tribe communicates with state agencies to manage ongoing challenges to structural safety. Alternatively, or additionally, the locality or Tribe has established methods of communication with structure and adjacent landowners, to ensure all are informed about how they can increase their resiliency and avoid or respond to flooding.	No information found. Potential to establish formal plan for communication with adjacent landowners in upcoming Resilience Plan.

3.7 NATURAL AND NATURE-BASED FEATURES: 3 / 4 Points

Natural and nature-based features (NNBF) are features that define natural 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, parks, greenways, preserves, 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 heat and create healthier urban environments. At the city or county scale or on Tribal lands, green infrastructure is a patchwork of natural areas that provides habitat, flood and wildfire protection, temperature regulation, cleaner air, and cleaner water. At the neighborhood or site scale, stormwater and heat management systems that mimic nature soak up and store water as well as reduce temperatures. Both NNBF and GI may be undertaken by a locality or Tribe in a variety of ways.

Points		Scoring Metric	Notes
1		a. Locality or Tribe has identified natural and nature-based features that are protective and can assist with resilience such as by reducing wind speeds, wildfire spread, flooding, and heat.	Hopewell has identified natural assets including wetlands, shorelines, floodplains, shrinking and swelling soils, and the Appomattox River Walk (Hopewell Comprehensive Plan, pg. 33). Per locality staff, Hopewell also plans to periodically send engineers to identify wetlands that can assist with coastal resilience.
1		b. Locality or Tribe has developed plans and policies that use natural and nature-based features to enhance resilience to flood, wildfire, storm, and extreme temperatures hazards (as applicable).	Per locality staff, Hopewell enforces the VA Department of Conservation Shoreline Manual when considering tree removal and development proposals near city shorelines. Also see Hopewell Comprehensive Plan; pg. 251, 279-280.
1		c. Locality or Tribe is implementing projects that are in accordance with the plans and policies developed to utilize natural and nature-based features to increase resilience to flood, wildfire, storm, and extreme temperatures hazards (as applicable).	Per locality staff, Hopewell's Urban Tree Canopy Program plants trees in strategic areas throughout the City such as public parks, along public right of way, and at school facilities. The program includes major stream restoration efforts and continues smaller planting efforts like introducing bald cypress trees to the Appomattox River Shoreline. The City has hosted multiple tree give-away events to encourage property owners to increase tree canopy on their own, rain barrel workshops, assisted private landowners with adding rain gardens to their properties, and established "conservation corners". See Restoration Design Services, Hopewell Restoration Project - Chesapeake Bay Foundation.
0	$$$ 	d. Locality or Tribe offers incentives for the use of natural and nature-based features to increase resilience to flood, wildfire, storm, and extreme temperatures hazards (as applicable).	Not currently. Per locality staff, Hopewell is considering multiple incentives for the use of natural and nature based features to increase coastal resilience, including changing parking requirements and asphalt paving requirements in industrial areas.
		TOTAL SCORE FOR SECTION 3:	**10 / 30 POINTS**

4) PLANNING FOR RESILIENCE

4.1 BUDGET, FUNDING AND STATE & FEDERAL ASSISTANCE: 2 / 4 Points

Hazard mitigation efforts, when properly funded, can reduce or prevent damage and decrease costs from storms, extreme temperatures, wildfires, drought, and other hazards. To ensure proper funding, a locality or Tribe can budget for mitigation efforts, assess the potential economic impacts from a hazard, and identify sources of funding for mitigation projects.

Points		Scoring Metric	Notes
1		a. Locality or Tribe has incorporated funding for resilience into its Capital Improvement Plan (CIP). Projects include upgrading critical infrastructure, water systems, and food and public health systems, with priority for needs of vulnerable populations.	Per locality staff, there are critical infrastructure projects in the Capital Improvement Plan. CIP includes green infrastructure, marina, and parks projects.
1	$$$	b. Locality or Tribe has conducted an economic and cultural impacts assessment of flood, wildfire, drought, storm, and extreme temperatures hazards (as applicable).	The Richmond-Crater Hazard Mitigation Plan addresses the History of Flood Events and Damages from 2011-2020 (Table 5.3); Flood Damage to Property and Crops, 1993-2020 (Table 5.4); Repetitive Flood Losses and Severe Repetitive Flood Losses (Table 5.7); Repetitive Flood Loss Area Descriptions (Table 5.8); Hazus 100-Year Flood Damage Vulnerability Results (Table 5.9); Annualized Flood Events and Losses, 1993-2020 (Table 5.10). The Plan comprehensively addresses the threat of storms, flooding, and winds.
0		c. Locality or Tribe has identified specific actions for resilience (pre-post extreme temperatures, wildfire, drought, storm, and flooding mitigation) in a Hazard Mitigation Plan.	In the Hazard Mitigation Plan's Executive Summary for Hopewell, Hopewell identifies pre- and post-flooding mitigation (p. 9-13). The 2022 DRAFT Hazard Mitigation Plan incorporates pre- and post-flooding mitigation steps as well (p. 427-445).
0	$$$	d. Locality or Tribe has identified funding for non-CIP resilience projects, including priority needs of vulnerable populations impacted by flood, wildfire, drought, storm, and extreme temperatures hazards (as applicable).	Per locality staff, the locality has not identified funding for non-CIP coastal resilience projects, including priority needs of vulnerable populations impacted by coastal storm hazards.

4.2 HAZARD RESILIENCY IN COMPREHENSIVE PLAN: 1 / 4 Points

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

Points		Scoring Metric	Notes
0		a. The comprehensive plan discusses how community or Tribal member engagement around resilience informed the plan.	Comprehensive Plan was developed via required public input and participation (see Chapter I, p. 9-14, detailing citizen participation), but not specific to coastal resilience.
0		b. The comprehensive plan includes clear discussion of resilience and incorporates assessments to inform the development of policies to reduce vulnerability to hazards.	Chapter XI, Section 3 of Comprehensive Plan discusses the City's Areas of Environmental Vulnerability, including subsections on the City's Floodplains, Wetlands, Soils, Watersheds, Water Supply, and Shoreline. Further, Chapter XI, pp. 12 and 14 specifically note that the shorelines around the Appomattox and James Rivers may suffer erosion during major storm events. However, the Comprehensive Plan does not include a clear discussion of coastal resilience/coastal storm hazards, nor does it identify coastal resilience as a priority. Locality staff agreed with this analysis; however, they clarified that – due to Hopewell's location on a bluff – coastal flooding is not as pressing an issue as it may be for other localities that participate in the RAFT. Locality staff further noted that the Comprehensive Plan was drafted with the aid of the planning commission, consultants, and several other stakeholders, and would have included a discussion of coastal resilience/storm hazards had those parties deemed it necessary (however, because the risk is lower, a full discussion was not included).
1		c. The comprehensive plan includes goals and objectives for preserving and protecting natural resources that mitigate hazards, such as trees to address heat islands, buffer zones to protect against wildfire, and riparian buffers and wetlands to act as flood buffers.	Chapter XI, p. 41 of Comprehensive Plan discusses Hopewell's shoreline preservation strategies, noting: "The recommended shoreline strategies for Hopewell can provide effective shore protection but also have the added

			distinction of creating, preserving, and enhancing wetland, beach, and dune habitat. These habitats are essential to addressing the protection and restoration of water quality and natural resources within the Chesapeake Bay watershed." Further, the 4th section of the "Vision and Goals for Hopewell" listed in Chapter II, p. 13, states the following goal: "Conserve, protect, renew, and enhance the City's environmental resources, placing the highest emphasis on the intrinsic value of its river frontage, stream valleys, wetlands, and vulnerable ecologically sensitive areas."
0		d. The comprehensive plan addresses impacts on critical infrastructure and essential services from flood, storm, wildfire, drought, and extreme temperatures hazards, particularly for impacts affecting socio-economically vulnerable populations.	Comprehensive Plan addresses storm impacts on critical infrastructure and essential services as follows: ● Chapter VII, p. 3: "[M]any … local streets are under-built, having limited stormwater … infrastructure." ● Chapter II, p. 12: Hopewell's land use goals include "[d]evelop[ing] and implement[ing] a City-wide stormwater management (SWM) master plan." ● Chapter II, p. 25: Hopewell's emergency preparedness goals include "develop[ing] a comprehensive strategy and action plan to address water supply emergencies." ● Chapter II, p. 22: Hopewell's transportation goals include "[e]stablish[ing] programs to promote, serve, and coordinate the transportation needs of underserved City populations." However, these observations are not related to coastal storm hazards specifically. Again, locality staff agreed with this assessment, but noted that impacts from coastal storm hazards are less of a concern due to Hopewell's location on a bluff (which is why a more detailed discussion of coastal storm impacts was not included in the Plan).

4.3 LAND USE ORDINANCES: 2 / 4 Points

A locality or Tribe's land use ordinances (such as zoning, subdivision, and floodplain management) should enact the vision and policies laid out in the locality or Tribe's comprehensive plan or equivalent planning document. Land use ordinances can be used to conserve and protect natural resources, ecosystems, agricultural lands, heat-prone areas, and areas vulnerable to flooding. Localities are required to enact Chesapeake Bay Preservation Act ordinances and adopting requirements that go beyond those ordinances provides greater resilience. For Tribes, Chesapeake Bay Preservation Act ordinances serve as a model for achieving greater resilience.

Points		Scoring Metric	Notes
1	CRS 	a. Locality or Tribal land use regulations protect areas vulnerable to flooding by limiting development inside the floodplain or encouraging development outside the floodplain.	Appendix A. Article XV(A) – Floodplain District. "Restricting or prohibiting certain uses, activities, and development from locating within districts subject to flooding; Requiring all those uses activities and developments that do occur in flood-prone districts to be protected and/or flood-proofed against flooding and flood damage; and Protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards."
1	CRS 	b. Locality or Tribal 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.	Appendix A. Article XV(D). — Abrogation and greater restrictions. "To the extent that the provisions are more restrictive, this ordinance supersedes any ordinance currently in effect in flood-prone districts. To the extent that any other existing law or regulation is more restrictive or does not conflict it shall remain in full force and effect."
0	CRS 	c. Locality or Tribal land use regulations protect heat-prone areas and areas vulnerable to flooding by establishing buffers, including open space.	Per locality staff, there are no other buffers outside of the Resource Management Area.
0	CRS 	d. Locality or Tribal land use regulations protect areas vulnerable to flooding by using setbacks to protect flood-prone areas.	Per locality staff, there are no additional setbacks other than RPA and RMA.

4.4 INCENTIVES FOR HAZARD RESILIENCE: 2 / 4 Points

Incentive programs can promote resilience through actions like encouraging infill development and protecting open spaces, while protecting flood- and heat-prone areas and critical ecosystems. Incentives can also build economic and social resilience pre- and post-hazard. Incentives should be developed with community or Tribal member input, with particular attention to consulting agencies and organizations working with or providing services to socio-economically vulnerable populations as well as agencies and organizations working to build community resilience.

Points		Scoring Metric	Notes
1	$$$	a. Locality or Tribe offers an incentive for achieving resilience goals: 1) discourage development in areas prone to flooding or wildfire; 2) protecting critical ecosystems; 3) encourage sustainable development; 4) addressing public health risks for vulnerable populations, promoting resilience-building economic development initiatives, improve resilience (physical, social and economic) in high-risk areas; 5) reduce heat island effects; and 6) preserve natural assets.	(1): Hopewell limits development in flood prone areas as defined by the CBPA – Resource Protection (RPAs) and Management Areas (RMAs) – to redevelopment of existing structures, boathouses and recreation. Point sources of pollution are not to be established in these floodplains. (Hopewell Zoning Ordinance, Article XV and XVI; Hopewell Comprehensive Plan, pg. 276). (2): Hopewell plans to mandate high environmental standards for development (HCP Goal 4 (pg. 38)). Protection foci include eroding shorelines (pg. 35), water quality against pollution (pg. 122) and sensitive lands (pg. 262).
1	$$$	b. Locality or Tribe offers a second incentive for achieving the goals listed above.	(5): Hopewell hopes to preserve natural assets by ensuring the cleanliness of the river and requiring development consider terrain and soils, etc. (Hopewell Comprehensive Plan, pg. 35).
0	$$$	c. Locality or Tribe offers three or more incentives for achieving the goals listed above.	(3): Hopewell hopes to encourage sustainable development through reducing commercial sprawl (Hopewell Comprehensive Plan, pg. 65) and zoning enhancements/neighborhood planning (pg. 67). Per locality staff, the city does not offer incentives for sustainable development beyond the CBPA.
0	$$$	d. Locality or Tribe develops incentives in consultation with agencies and organizations that work with socio-economically vulnerable populations.	Per locality staff, incentives were not developed in consultation with agencies and organizations working with socially vulnerable populations.

4.5 NATURAL RESOURCE PRESERVATION: 0 / 4 Points

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

Points		Scoring Metric	Notes
0	CRS 	a. Locality or Tribe has identified and mapped natural resources that are important for broad ecosystem health and heat reduction, and which are at risk of being lost due to extreme temperatures, wildfire, drought, flooding, and storm hazards (as applicable).	Per locality staff, except for the city's Flood Insurance Rate Map (FIRM) (see Hopewell Comprehensive Plan, pg. 243), Hopewell has not identified or mapped natural resources that are important for broad ecosystem health which are at risk of being lost due to flooding and coastal storm hazards (e.g. riparian buffers and wetlands).
0	CRS 	b. Locality or Tribe has developed and is implementing plans and policies that preserve and restore natural resources to increase resilience to extreme temperatures, wildfire, drought, floods, and storms.	No, but Re: CBPA – City stated its desire to do so in the Comprehensive Plan. See 4.15– Implementation of CBP Act (pg. 38).
0		c. Locality or Tribe has programs with residents and/or Tribal members, civic organizations, and nonprofit organizations to educate the community about natural resource preservation planning and engage them in helping to implement the plan.	No, but Re: CBPA – City stated its desire to do so in the Comprehensive Plan., See HCP 4.3–to pursue public education efforts about the CBP Act (pg. 37).
0		d. Locality or Tribe is funding actions that implement natural resource preservation plans.	No, but Re: CBPA – see HCP 4.15–Implementation of CBP Act (pg. 38). Also see improving signage (pg. 40), prioritization of funding for critical RPA maintenance (pg.272).
		TOTAL SCORE FOR SECTION 4:	**7 / 20 POINTS**

5) COMMUNITY ENGAGEMENT, HEALTH, AND WELL-BEING

5.1 COMMUNITY INVOLVEMENT IN RESILIENCE PLANNING: 0 / 4 Points

For community resilience, it is important to use meaningful engagement strategies where residents or Tribe members 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 serve these populations is effective. Public engagement enables residents/Tribal members and other stakeholders to provide input to the locality or Tribe. Better informed residents or Tribal members are better able to ensure their locality or Tribe remains resilient to hazards.

Points		Scoring Metric	Notes
0		a. Locality or Tribe has a written policy regarding the role of residents/Tribal members and businesses, schools and educators, local institutions, nonprofit organizations, faith-based communities, veterans, and other stakeholders in developing resilience to extreme temperatures, wildfire, drought, flood, and storm hazards (as applicable).	Per locality staff, there is no written policy.
0	CRS	b. Locality or Tribe has staff dedicated to public engagement on resilience to extreme temperatures, flood, wildfire, drought, and storm hazards (as applicable), including a standing committee or council that addresses resilience as part of its work.	Per locality staff, there is a very active LAPC; however, it addresses all hazards, not coastal resilience specifically.
0	CRS 	c. Locality or Tribe holds at least one public meeting per year, including one for residents/Tribal members in vulnerable areas to address extreme temperatures, flood, wildfire, drought, and storm hazard resilience issues (as applicable); provides residents/Tribal members with the opportunity to provide input at the meetings; and posts the results of the public meetings. For 75-150,000 residents/Tribal members, at least two such public meetings per year; for 150,000+ residents/Tribal members, at least three per year.	Per locality staff, the locality does not hold at least one public meeting per year to address coastal resilience issues.
0	CRS 	d. Locality or Tribe informs and engages vulnerable populations about extreme temperatures, flood, wildfire, drought, and storm hazard resilience and associated socioeconomic risks (as applicable) by using locality or Tribe 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, the locality does not inform and engage vulnerable populations about coastal resilience using their website, social media, media serving people of color and minorities, and faith-based organizations to enable them to provide suggestions about issues and strategies.

5.2 PROVIDING HAZARD RESILIENCE INFORMATION TO THE COMMUNITY: 1 / 4 Points

The public and Tribal members need free and open access to information related to resilience and planning. Information sharing allows residents and Tribal members 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 or Tribe provides to the public/its Tribal members localized, user-friendly information on extreme temperatures, flood, wildfire, drought, and storm resilience (as applicable), in digital and non-digital formats and in multiple languages where appropriate based on demographics.	Per locality staff, the locality does not provide to the public localized user-friendly information about coastal resilience.
0	CRS	b. Locality or Tribe provides to the public/Tribal members with localized, user-friendly information on extreme temperatures, wildfire, drought, flood, and storm resilience (as applicable), on a website (e.g., interactive maps).	Per locality staff, the locality does not provide to the public localized user-friendly information about coastal resilience on a website.
1	CRS	c. Locality or Tribe provides localized, user-friendly information on extreme temperatures, wildfire, drought, flood, and storm resilience (as applicable) in public spaces (e.g., public offices, community centers or libraries).	Per locality staff, the locality provides some information about flooding and flooding risks in the Public Development Office. This information is FEMA information about flooding. The locality also provides a planning guide to the public about personal preparedness in the event of disasters.
0	$$$	d. Locality or Tribe provides the public/Tribal members with localized, user-friendly information about economic costs and risks associated with extreme temperatures, wildfire, drought, flood, and storm hazards (as applicable).	The Richmond-Crater Hazard Mitigation Plan addresses the History of Flood Events and Damages from 2011-2016 (Table 5-6); Flood Damage to Property and Crops, 1993-2016 (Table 5-7); TEIF 2.0 (Oct 2016) Flood Risk (Table 5-11); Annualized Flood Events and Losses, 1993-2016 (Table 5-12); History of Wind Events and Damages, 2011-2016 (Table 5-14); Annualized Thunderstorm (with Hail and Lightning) Events and Losses, 1956-2016 (Table 5-23). The Plan comprehensively addresses the threat of storms, flooding, and winds. It does not, however, address the hazard of stormwater flooding. Per locality staff, the locality does not provide the public with localized, user friendly information about economic costs and risks associated with coastal storm hazards.

5.3 COMMUNITY LEADERSHIP & VOLUNTEER NETWORKS FOR RESILIENCE: 1 / 4 Points

Developing community leaders and strong volunteer networks are important aspects of building a locality or Tribe's health and wellness resilience. Leaders can be responsible for informing residents or Tribal members, expressing community concerns, and assisting with local preparedness. Community leaders can be called on during emergencies to assist residents/Tribal members 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 or Tribe supports and invests in community-led initiatives on extreme temperatures, wildfire, drought, flood, and storm hazard resilience, and relevant socioeconomic knock-on effects (as applicable). For Tribes, this may also include traditional cultural trainings that increase resilience.	Per p. 194 of the Virginia Coastal Resilience Master Plan, Hopewell is partnering with FOLAR (Friends of the Lower Appomattox River) to develop "a 25-mile blueway and greenway that will span through six localities bordering the lower Appomattox River."
0		b. Locality or Tribe offers training opportunities and education opportunities for resident/Tribal member leaders or volunteers to educate the community on what they can do to increase their extreme temperatures, wildfire, drought, flood, and storm hazard resilience (as applicable) on individual properties or in neighborhoods. For Tribes, this may also include traditional cultural trainings that increase resilience.	Per locality staff, nonprofit organizations may offer such training, but Hopewell itself does not. Hopewell does make brochures available about knowing one's risk for coastal storm hazards but does not offer education opportunities beyond that.
0		c. Locality or Tribe supports resident/Tribal member leaders or volunteers in community education and outreach efforts about extreme temperatures, wildfire, drought, flood, and storm hazard resilience (as applicable), and relevant socioeconomic knock-on effects by providing them with materials, speakers for gatherings, or support for resident/Tribal member-led action projects. For Tribes, this may also include traditional cultural trainings that increase resilience.	Per locality staff, Hopewell makes brochures about flooding generally available and provides a manual about how to remove invasive species/mitigate shore erosion issues to individuals located along the bluff area. However, the City does not otherwise work with local leaders to provide them with additional materials.
0		d. Locality highlights the work of resident/Tribal member leaders or volunteers in supporting and advancing extreme temperatures, wildfire, drought, flood, and storm hazard resilience (as applicable), on its website, through social media, Facebook, awards, or other means.	Per locality staff, no.

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

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

Points		Scoring Metric	Notes
1		a. Locality or Tribe has plans for providing food to populations, has developed partnerships to address needs, and has provided information to residents or Tribal members on how to access food during emergencies, through its comprehensive plan, emergency operations plan, or other relevant plans.	Such emergency plans are not addressed in the Comprehensive Plan or regional Hazard Mitigation Plan; however, they are addressed in Hopewell's Emergency Operations Plan.
1		b. Locality or Tribe has plans for providing healthcare to populations, has developed partnerships to address needs, and has provided information to residents/Tribal members on how to access healthcare during emergencies, through its comprehensive plan, emergency operations plan, public health plan, or other relevant plans.	Yes – per locality staff, Hopewell complies with FEMA Emergency Support Function (ESF) 6 requirements for mass care, emergency assistance, housing, and human services, which include the provision of food and medical care to residents that need assistance during/after emergencies. Hopewell also complies with ESF 14 requirements for long-term community recovery and mitigation – locality staff noted that there is a regional long-term recovery plan (developed by a contractor), and that they are in the process of localizing that plan.
1		c. Locality or Tribe has plans for providing medicine to populations, has developed partnerships to address needs, and has provided information to the public/Tribal members on how to access medicine during emergencies, through its comprehensive plan, emergency operations plan, public health plan, or other relevant plans.	Yes – per locality staff, Hopewell complies with FEMA Emergency Support Function (ESF) 6 requirements for mass care, emergency assistance, housing, and human services, which include the provision of food and medical care to residents that need assistance during/after emergencies. Hopewell also complies with ESF 14 requirements for long-term community recovery and mitigation – locality staff noted that there is a regional long-term recovery plan (developed by a contractor), and that they are in the process of localizing that plan.

City of Hopewell

1	d. Locality or Tribe has plans for providing cooling centers or temporary shelter to vulnerable populations, to address needs during an extreme temperatures, drought, wildfire, flood, or storm event (as applicable), and has provided information to the public/Tribal members on how to obtain access, through its comprehensive plan, emergency operations plan, or other relevant plans.	Yes – per locality staff, Hopewell complies with FEMA Emergency Support Function (ESF) 6 requirements for mass care, emergency assistance, housing, and human services, which include the provision of food and medical care to residents that need assistance during/after emergencies. Hopewell also complies with ESF 14 requirements for long-term community recovery and mitigation – locality staff noted that there is a regional long-term recovery plan (developed by a contractor), and that they are in the process of localizing that plan.

5.5 PHYSICAL AND MENTAL HEALTH FOR SOCIAL EQUITY IN COMMUNITY RESILIENCE: 3 / 4 Points

To ensure that socio-economically vulnerable and underserved populations do not experience disproportionate impacts from flooding, extreme temperatures, and other hazards, a locality or Tribe needs to be able to predict how its residents or Tribal members may fare during a hazard event, and then help those who are most vulnerable. One key measure that can be useful to localities and Tribes 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 or Tribe's physical and mental health, as persons who are suffering from depression and addictions are less likely to be able to respond effectively during storm, flood, and extreme temperature events. A locality or Tribe 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
1		a. Locality or Tribe maintains data on community physical and mental wellbeing and challenges through specific metrics, such as the number of "deaths of despair" (suicide, cirrhosis of the liver, overdoses) and hazard-related deaths and injuries (drowning, debris impact, heat stroke).	Hopewell actively maintains Building Blocks, an app to map various data sets from federal, state and local data sources. 11-16-20 Hopewell City Council Minutes. Per locality staff, metrics include census, demographics, police and fire calls, code violations, housing voucher use, alcoholism, overdoses, and COVID-19. Hopewell also maintains data on diabetes, smoking and alcoholism from the City Health Dashboard.
1		b. Locality or Tribe has met at least once with community partners to identify "trusted messengers" for communicating with vulnerable populations that are at greater risk due to physical and mental challenges.	An example provided by locality staff was partnership with the Hispanic Community Liaison and the Mexican Consulate, who assisted the city in translating COVID-19 information flyers and conducting the census.
0		c. Locality or Tribe has identified or mapped its vulnerable neighborhoods, areas, and populations, and has done this in partnership with nonprofits, faith-based organizations, or its health and community services board.	Per locality staff, Hopewell has mapped minority and low-income populations and is working to map fire hazards and hunger through the Building Blocks app. Hopewell worked to map areas with less than favorable health outcomes during the COVID pandemic to assist with PPE distribution. No confirmation that this process was completed in partnership with local organizations or groups.
1		d. Locality or Tribe has a plan with these nonprofits, faith-based organizations, or its health and community services board that helps its economically, physically and mentally challenged vulnerable populations to prepare for flood, storm, wildfire, drought and extreme temperature events, and that provides assistance to them before, during and after these events.	Per locality staff, Hopewell works with the Housing authority and its facilities to provide vulnerable and disabled residents and residents with other functional/access needs information and classes to be resilient in response to all hazards.
		TOTAL SCORE FOR SECTION 5:	**9 / 20 POINTS**

Opportunities

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

Next Steps

Resilience Action Workshop

1) Community leaders work together to create a one-year **Resilience Action Checklist.**

2) The RAFT Team helps to **identify achievable action items** for improving resilience.

3) Localities or Tribes 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**, if applicable, followed by breakout sessions discussion groups to:
    a. **Identify a Locality/Tribe Implementation Team;**
    b. **Create a timeline for actions;**
    c. **Coordinate logistics;**
    d. **Determine next steps for implementation.**

Implementation

- **Identify a Locality or Tribe Implementation Team** made up of local officials or Tribal Council members, and residents or Tribal members, community groups and nonprofits, and state or federal agencies if desired that will work with the RAFT Team and Locality/Tribe Implementation team to accomplish checklist actions and projects.

- **Work with one of the RAFT 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.**

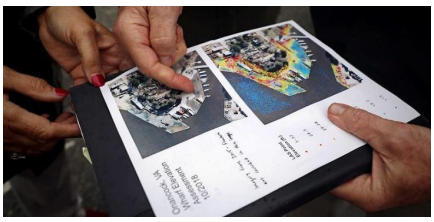

Photo by Aileen Devlin, Virginia Sea Grant

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																									
Calls to the locality/Tribe																									
Calls to the PDC if applicable																									
Capital Improvement Plan																									
Community Services Board																									
County Health Rankings and Roadmaps																									
Dam Management Plan																									
DCR Floodplain Management Program																									
Department of Conservation and Recreation																									
Department of Emergency Management																									
Department of Environmental Quality																									
Department of Health																									
Department of Transportation Road and Bridge Standards																									
Emergency Management Plans																									
Emergency Operations Plan																									

FEMA's CRS website																									
Fire Department website																									
Flood exposure and vulnerability assessment publications (VIMS, FEMA, and DCR)																									
Hazard Mitigation Plan																									
Local Assessments of Ecological Assets																									
Local Boards to advise elected officials																									
Local Budget																									
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**
Local Chamber Website																									
Local Economic Impact Assessments																									
Local Ordinances and Comprehensive Plan																									
Local Public Works Design & Construction Standards																									
Local Transportation Plan																									
Local Utility Website																									
Local Water Supply Plan																									
Locality or Tribe Resilience Plan or Strategy																									

Locality or Tribe Social Media																									
Locality or Tribe Website																									
School Curriculum																									
Social Services																									
Planning District Commission (PDC) website																									
Public Libraries																									
Wetlands Watch																									
Zoning Codes																									
Other [please insert]																									

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