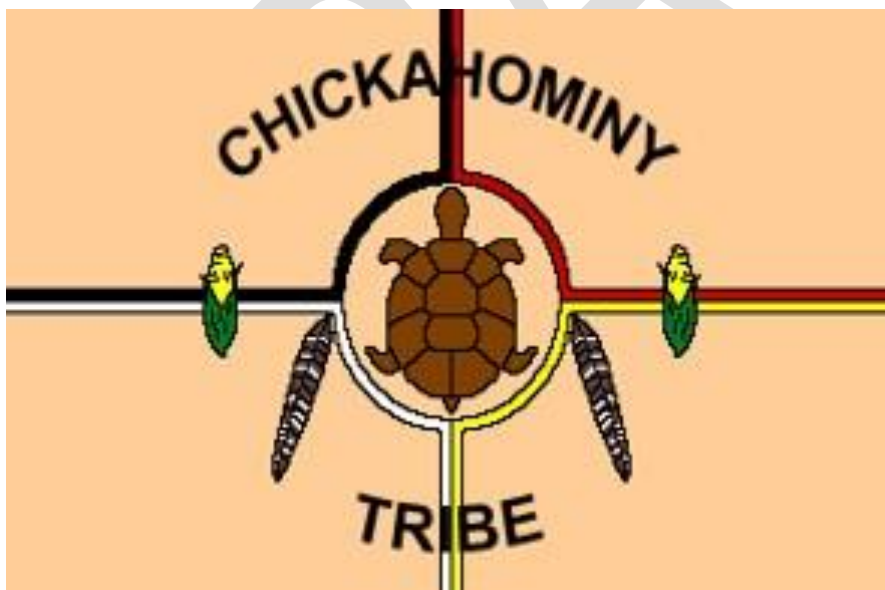


2021

# Chickahominy Indian Tribe Multi-Hazard Mitigation Plan



# **Chickahominy Indian Tribe Multi-Hazard Mitigation Plan**

## **Charles City County, Virginia**

### **Acknowledgements**

Ralph Northam – *Governor*

Stephen R. Adkins – *Chief/Tribal Administrator, Chickahominy Indian Tribe*

### **Virginia Emergency Management Agency**

Curtis Brown – *State Coordinator of Emergency Management*

### **Chickahominy Indian Tribe Emergency Management Department**

Wayne Adkins – *Emergency Management Director (Interim)*

### **Members of the Chickahominy Indian Tribe**

#### **Tribal Hazard Mitigation Committee**

Stephen Adkins - Chief/Tribal Administrator

Wayne Adkins - Assistant Chief/Tribal Finance Officer/Emergency  
Management Director (Interim)

Reggie Stewart - Second Assistant Chief

Rufus Elliott - Housing Program Manager

Dana Adkins - Tribal Environmental Officer

Lindsey Johnson - Deputy Tribal Administrator/Public Information Officer

Susann Brown – Child Care and Development Director

C. Lenora Adkins – CARES Manager, Project Director

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Nelson Andrews Jr. – Project Manager/Consultant

Carl Simons, Consultant – Horsley Witten Group, Inc.

Craig Pereira, Consultant – Horsley Witten Group, Inc.

**Formal Adoption Letter  
(Tribal Council)  
Comes after FEMA approval of DRAFT**

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## Section 1 Introduction

### 1.1 Overview

Hazard mitigation is defined by the Federal Emergency Management Agency (FEMA) as “any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event.” The results of a three-year, congressionally mandated independent study to assess future savings from mitigation activities provides evidence that mitigation activities are highly cost-effective. On average, each dollar spent on hazard mitigation saves the nation an average of \$6 in future disaster costs in addition to saving lives and preventing injuries (National Institute of Building Science Multi-Hazard Mitigation Council 2017).

Hazard mitigation planning is the process of determining how to reduce or eliminate the loss of life and property damage resulting from natural, human-caused, and technologic hazards such as floods, earthquakes, hurricanes, biological, chemical, or infrastructure failure. Hazard mitigation means to permanently reduce or alleviate injuries or the loss of life and property resulting from multi-hazards through long-term strategies. These long-term strategies include planning, policy changes, programs, projects, and other activities.

This plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations set forth by the Interim Final Rule published in the *Federal Register* on February 26, 2002 (44 CFR §201.7) and finalized on October 31, 2007 (hereafter, these requirements and regulations will be referred to collectively as the Disaster Mitigation Act). The *Tribal Mitigation Planning Handbook* (May 2019) and the *Tribal Mitigation Plan Review Guide* (December 5, 2018), used by FEMA to assess tribal governments’ mitigation plans in a fair and consistent manner and to ensure that approved tribal mitigation plans meet the requirements of the Robert T. Stafford Disaster Relief and Emergency Act (Public Law 93-288), was also utilized as a guide in developing the plan.

Chief Stephen Adkins, in collaboration with the Tribal Hazard Mitigation Committee, provided the lead in soliciting the participation of Tribal departments, state agencies, and other stakeholders to form the Chickahominy Indian Tribe Tribal Hazard Mitigation Committee (THMC) and undertaking a comprehensive planning process to create the 2021 plan. The Chickahominy Indian Tribe, with the assistance of Nelson Andrews (Project Manager) and the Horsley Witten Group, Inc. (HW), developed this Multi-Hazard Mitigation Plan utilizing Tribal funds. Tribal input on assets, vulnerabilities, preferred mitigation strategies, and the plan was also solicited throughout the evolution of the project. As a result, this plan represents the work of Tribal members, elected officials, and other interested stakeholders within the Chickahominy Indian Tribe’s service area. This plan demonstrates the Tribe’s commitment to reducing risks from hazards

and serves as a tool to help decision makers direct and coordinate mitigation activities and resources, including local land use policies.

## **1.2 What Hazard Mitigation Can Do for the Chickahominy Indian Tribe**

A primary benefit of hazard mitigation is that preventative measures taken now can significantly reduce the cost of post-disaster cleanup tomorrow. In addition, mitigation actions conducted before hazards occur greatly reduces the impact and costs associated with the aftermath of a hazard event. By planning, the Tribe will minimize the economic and social disruption that can result from floods, snowstorms, and hurricanes and other natural disasters.

The adoption and implementation of this plan will assist the Tribe in becoming eligible to receive assistance from FEMA in both pre- and post-disaster assistance such as: FEMA's Community Rating System (CRS), FEMA's Building Resilient Infrastructure and Communities (BRIC), Flood Mitigation Assistance (FMA) Program, and FEMA's Post-Disaster Hazard Mitigation Grant Program (HMGP).

## **1.3 Chickahominy Indian Tribe's Mission Statement**

The purpose of the Chickahominy Indian Tribe Multi-Hazard Mitigation Plan is to preserve and enhance the quality of life, property values, and historic/cultural/natural resources and traditions by identifying all potential natural, human-caused and technological hazards impacting Tribal citizens and the community and mitigating their effects to reduce the loss of life, as well as losses of economic, natural, historical, and cultural resources.

## **1.4 Goals**

The THMC met to develop goals for the 2021 plan and determined that broad-brush goals would be appropriate. The goals of the Tribal Multi-Hazard Mitigation Plan are to:

1. Protect the Tribal health, safety and welfare of Tribal citizens and the community at large living in the service area
2. Minimize/Reduce property damages to Tribal assets, Tribal citizens' and community members' personal property caused by hazard impacts.
3. Minimize social distress and economic losses/disruption for Tribal citizens and community members at large.
4. Provide an ongoing forum for the education and awareness of natural, human-caused and technological hazard mitigation issues, programs, policies, projects and resources.

## 1.5 Planning Process

A hazard mitigation plan should be considered a living document that must grow and adapt, keeping pace with a community's growth and change. The DMA of 2000 places high priority on the continuation of the planning process after the initial submittal, requiring communities to seek and receive re-approval from FEMA in order to remain eligible for assistance. The evaluation, revision and update process are also a means to create an institutional awareness and involvement in hazard mitigation as part of daily activities.

The Chickahominy Indian Tribe, with the assistance of HW developed this Multi-Hazard Mitigation Plan.

Members of the Chickahominy Indian Tribe THMC include:

- Stephen Adkins, Chief – Chickahominy Indian Tribe
- Wayne Adkins, Assistant Chief/Tribal Finance Officer
- Reggie Stewart, Second Assistant Chief
- Rufus Elliott, Housing Program Manager
- Dana Adkins, Tribal Environmental Officer
- Lindsey Johnson, Deputy Tribal Administrator/Public Information Officer
- Nelson Andrews Jr., Consultant
- Carl Simons, Consultant – Horsley Witten Group, Inc.
- Craig Pereira, Consultant – Horsley Witten Group, Inc.

HW conducted a series of meetings from September 2020 through October 2021 with the Chickahominy Indian Tribe THMC, Tribal elected officials and members, and representatives of VDEM. The Tribal workshops were held in an open public forum and in accordance with M.A.G.L. c. 30A, Sections 18 - 25 in complying with the requirements of the Federal Disaster Mitigation Act of 2000 (DMA 2000). Due to the COVID-19 Pandemic, Tribal Workshops were held virtually.

A project webpage was designed and hosted on the Tribe's website to announce the project, inform and engage the Tribe before, during and after plan development, and to serve as a repository of project documents, presentations, and summaries. A PDF of the project webpage layout is included in Appendix B.

A series of Tribal interviews (telephone) were conducted early in the update process for the development of the 2021 Multi-Hazard Mitigation Plan and preliminary identification of mitigation measures for consideration in the plan.

### Interviews:

- Dana Adkins , Environmental Director
- Stephen Adkins, Chief Chickahominy Indian Tribe
- Lindsey Johnson, Health Services/Deputy Tribal Administrator
- Wayne Adkins, Assistant Chief/Cultural Resources Dept../Interim Emergency Management Director



The THMC first met (virtually) on September 8, 2020 to review the project scope and revised schedule, discuss project coordination, review proposed layout for the plan, and discuss the plan's mitigation measures layout (utilization of hazard mitigation categories) and identification of risks content (to include climate change).

The THMC met for a second time (virtually) on November 5, 2020 to confirm the hazards for consideration, risk assessment rubric and methodology, review the revised project schedule, review data collection needs and discuss the Tribal outreach approach. A complete set of meeting materials is included in Appendix B.

The first Tribal Workshop was held (virtually) on December 2, 2020. Announcements were sent via email and posted in the Tribal newsletter and on the project webpage. The presentation included an overview of the project's scope of work, why plan for hazard mitigation, the hazard mitigation process, and preliminary hazards classification and probability. Tribal members were provided the opportunity to comment and ask questions. A complete set of meeting materials is included in Appendix B.

The THMC met for a third time on July 1, 2021 to discuss coordination with FEMA Region 3 officials, development of the mission statement and goals for the plan, closure on the online survey, and to initiate considerations for mitigation actions for inclusion in the plan. A complete set of meeting materials is included in Appendix B.

The THMC met for a fourth time on August 19, 2021 to conduct the Benefit Cost Analysis (BCA review). The Project Consultant reviewed the draft Mitigation Actions (Table 4-1). The THMC completed the BCA review to prioritize/rank the action items, assigned time frames and responsible parties, and agreed on the proposed methodology/schedule for plan maintenance and plan update (based on FEMA requirements). A complete set of meeting materials is included in Appendix B.

The second Tribal Workshop was held on \_\_\_\_\_, virtually. A brief description of the process to date and mitigation actions included in the plan were discussed. Announcements were sent via email and posted on the project webpage. A full set of meeting materials are included in Appendix B.

#### Online Survey

The survey link was opened and available beginning December 2020 and closed on June 16, 2020 and included a total of sixty responses. A brief summary of responses collected is included below. The full Survey Summary is included in Appendix B.

- Most respondents have experienced wind, winter, and communicable disease hazard events in the past 20 years.
- Approximately 13% of respondents feel they are at least adequately prepared to deal with a natural hazard event, with most getting their information from local news/social media or informational brochures (81%).
- Most respondents are 'Very Concerned' with communicable disease-related hazards (46%), followed by wind-related hazards (39%) and then winter-related hazards (28%).
- Over half of respondents (60%) are unsure whether their property is in/near a FEMA –designated floodplain.
- Just over (78%) of respondents are interested in making their home, business or neighborhood more resilient, with 51% willing to spend their own money to do so: and
- The top four choices to reduce damage/destruction of natural hazards on tribal lands and for tribal members living in the service area include:
  - Work to improve utility resilience: electric; communications; water/wastewater facilities (85%).
  - Assist vulnerable property owners with securing funding to make their properties more resilient (66%).
  - Retrofit public infrastructure, such as elevating roadways and improving drainage systems (63%).
  - Inform property owners of ways they can reduce damage caused by natural events (60%); and,
  - Retrofit/Strengthen essential facilities such as Police, fire/emergency, schools/Provide better information about hazard risks and high hazard areas, both at 44%.

With this information, the project consultant prepared the draft Chickahominy Indian Tribe Multi-Hazard Mitigation Plan which was available for Tribal citizens/public comment from \_\_\_\_\_ through \_\_\_\_\_ (online, on the Tribe's website and hard copies available at the Tribe's Community Center.

It was sent to representatives of Charles City County, including:

- Board of Supervisors
  - Gilbert Smith – Chairman, District 1
  - William Coady – Vice Chairman, District 2
  - Byron M. Adkins, Sr. – District 3
- Emergency Management
  - Jimmy Johnson – Director Fire/EMS, Fire Marshall, Emergency Management Coordinator

It was also sent to representatives of New Kent County, Including:

- Board of Supervisors
  - Ron Stiers – District 4

- Emergency Management
  - Richard Opett – Emergency Management Director

And finally, it was sent to the Richmond Regional Planning Commission, including:

- Sarah Stewart – Planning Manager

See Appendix C for Notice of Availability of draft) with \_\_\_\_\_ comments returned.

The THMC approved the draft plan as presented and the draft was submitted to FEMA for consideration. It is the intention of the THMC that the Multi-Hazard Mitigation Plan be an available and pertinent source of information to a wide variety of individuals and interests. The plan also has a specific and pragmatic function. By identifying and prioritizing local mitigation needs, the plan has already served, and will continue to serve, as a basis for amendments to Tribal policies and regulations.

State authorities will incorporate information compiled in this document into the State Hazard Mitigation Plan, to strengthen the statewide knowledge and idea-base for mitigation planning. A well-prepared and locally adopted plan can demonstrate understanding and commitment, two important variables when vying for limited, high-demand resources.

## **1.6 Tribal People, Lands, Facilities and Infrastructure**

### Post-Contact Era (1500 – 1900)

The Chickahominy originally lived in permanent villages along the Virginia River that still bears our name.

The Treaty of 1646 displaced the Chickahominy people from this area and set aside land for them in the Pamunkey Neck area of Virginia. As the settlers prospered, they crowded the Chickahominy Tribe out of this area as well. The Chickahominy families began a gradual migration to the area called the Chickahominy Ridge, where they now reside. This area, between Richmond and Williamsburg, is only a few miles from one of their 1607 village sites. In 1901, the Chickahominy Tribe established Samaria Indian Baptist Church, which serves as an important focal point for the community to this day.

The Chickahominy Tribe are an Algonquin people: one of the largest cultural and linguistic groups in North America. Algonquin lands once stretched all the way from the southeastern coastal plain to near the Arctic Circle. Like other Algonquins in this area, the Chickahominy are often called Powhatan Indians. However, their villages were always independent—never under the control of Chief Powhatan, known to his people as Wahunsunacock.

Throughout the post-contact era the Chickahominy people have maintained their independence, while remaining close to other Native people in this area.

#### 20<sup>th</sup> Century

The 20th century was a time of great change for the Chickahominy people. Under the Racial Integrity Act, Virginia's policies of segregation were among the most severe in the nation. Officials went so far as to destroy documents and records of Native people – including birth, marriage, census, and death records. According to state policy, Virginia's Native peoples no longer existed.

Higher education was not available for Indians in Virginia until the 1960s, so Tribal members built schools and raised funds to pay teachers' salaries. Even so, the Tribe's children were barred by state law from receiving a diploma in Virginia. Many of the children went to Oklahoma to complete high school and attend college.

In time, the Chickahominy saw the repeal of the Racial Integrity Act and the disgrace of those who championed it. The Tribe was granted official recognition by the Commonwealth of Virginia in 1983 and is now pursuing federal recognition.

Today, Tribal members contribute to surrounding communities by serving on boards and commissions and local government agencies. In addition, the Chickahominy contribute to local economies through private business ownership.

#### The Future

As the Chickahominy move into a new century, the Tribe is excited about the future. The Tribe waited more than 400 years for federal recognition of the Tribe and are excited about the opportunities that have opened as a result of recognition.

As America comes to terms with issues of sustainable lifestyle, responsible energy usage, and environmental stewardship, we see the Tribe's ancient ways gaining renewed respect and value. They believe that our vision of life in harmony with creation offers hope for our nation and our world. They believe that their people can help lead the way into a better future.

#### Physical Setting

Charles City County is a quiet, rural haven of 7,256 residents located in the east-central portion of the Commonwealth of Virginia. In 1634, the colonial General Assembly met at Jamestown and divided the Virginia Colony into eight shires, similar to those in England. These were Accomack, Charles River, Henrico, Elizabeth City, James City, Warwick River, Warrosquyoake and Charles City. The Charles City shire was named for the English King's son, Charles, who later became King Charles I. When first established, Charles City comprised a large area on both sides of the James River, but gradually it lost land area to the formation of other counties.

Settlement in Charles City County began as early as 1613. Many of the famous estates were patented in these early years. Charles Carter built Shirley Plantation about 1769. It is believed to be the first Virginia plantation. Today the Carter family still owns Shirley Plantation. Benjamin Harrison IV built the Berkeley Plantation mansion in 1726. Berkeley was the birthplace of Benjamin Harrison V, a signer of the Declaration of Independence and Governor of Virginia. Berkeley was also the home of William Henry Harrison, the ninth President of the United States. John Tyler, tenth President of the United States, purchased Sherwood Forest in 1842. William Byrd III, a notable Virginia planter, author, and colonial official constructed Westover Plantation about 1730. Evelynnton Plantation was originally part of William Byrd's expansive Westover Plantation. Since 1847, it has been the home to the Ruffin family. Also of historic interest is Westover Parish Church. Erected in 1737, Westover Church has counted among its membership the families of William Byrd II, President William Henry Harrison and President John Tyler.

Charles City County reflects America's past. Its historic and archaeological resources provide important data concerning the development of early settlements of Native Americans, the entry of the Europeans and African-Americans into the New World, and the colonial and plantation periods. Many of the historic and archaeological resources can be seen in a pristine setting. The Washington Post has called Charles City County "the land lost in time" because it remains virtually untouched by new development. Now, Charles City County stands of pine and hardwood trees greeting visitors at every entrance to the County. Small residential communities are nestled within the County's predominant land-use forest. Stately plantations and other historic sites remind visitors and residents alike of the long history of the County.

Charles City County has a County Administrator and a three-member Board of Supervisors. The County has a comprehensive plan and zoning and subdivision ordinances. Charles City is the county seat. There are no incorporated towns within the county.<sup>1</sup>

Today the Chickahominy Tribe is the second largest of eight Virginia Indian tribes. Most of the Chickahominy live on a high ridge in the vicinity of the river. The heart of the tribal community is the Tribal Center and the adjoining Samaria Baptist Church. The Tribe also owns a farm in the vicinity of the Tribal Center which has been subdivided into 5-acre lots for sale to Tribal families.

#### Tribal Government and Leadership

Before European contact, the Chickahominy Tribe was ruled by a council of elders called the mungai or "great men." Today, a Tribal Council of twelve men and women, including a chief and two assistant chiefs, are elected by vote of the tribe. Since gaining official recognition from the Commonwealth of Virginia in

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<sup>1</sup> <https://www.co.charles-city.va.us/235/About-the-County>.

1983, the Chickahominy Tribe has been working for federal recognition. The Chickahominy and Eastern Chickahominy Tribes were granted federal status through passage of the Thomasina E. Jordan Indian Tribes of Virginia Federal Recognition Act of 2017 on January 30, 2018. Over 850 people are enrolled in the Chickahominy Tribe, the majority of whom still live within 5 miles of the tribal center – which is located near the site of a pre-contact village. Stephen R. Adkins was elected Chief in 2001. He has worked tirelessly on behalf of the Virginia Indian Tribes to gain federal recognition and to assure that America's leadership includes a Native American voice. First Assistant Chief Wayne Adkins has also been very active in Chickahominy community leadership and the drive for federal recognition.

#### Tribal Lands and Facilities

The Chickahominy Indian Tribe has land holdings in both Charles City County and New Kent County, Virginia. Tribal properties are listed in Table 1-1 and identified by ownership, location, size and current use, and shown on Figure 1-1. There are no Tribal members living on tribally owned property presently, and the Tribe does not maintain any flood insurance policies for these structures/properties.

**Table 1-1 Tribal Lands, Facilities and Cultural Resources – Charles City County and New Kent County, VA**

Ownership	Map/Lot No.	Location	Size (acres)	Current Use
<b>Charles City County</b>				
Chickahominy Indian Tribe	4-6-2	2401 Roxbury Road	12.22	Commercial/Industrial
Chickahominy Indian Tribe	14-121		0.96	Vacant
Chickahominy Indian Tribe	14-123	8200 Lott Cary Road	10.37	Commercial
Chickahominy Indian Tribe	15-44		105.56	Vacant
Chickahominy Indian Tribe	14-78		16.66	Vacant
Chickahominy Indian Tribe	52-3-A1		7.14	Vacant
Chickahominy Indian Tribe	52-3-A2		4.39	Pier
Chickahominy Indian Tribe	52-3-A3		7.57	Vacant
Chickahominy Indian Tribe	52-3-A4		8.59	Vacant
Chickahominy Indian Tribe	52-3-B1		8.16	Vacant
Chickahominy Indian Tribe	52-3-B2		9.4	Vacant
Chickahominy Indian Tribe	52-3-B3		13.4	Residential Dwelling
Chickahominy Indian Tribe	52-3-B4		21.23	Residential Dwelling
Chickahominy Indian Tribe	52-3-C1		5.86	Vacant
Chickahominy Indian Tribe	52-3-C2		5.26	Vacant

Chickahominy Indian Tribe	52-3-C3		6.46	Vacant
Chickahominy Indian Tribe	52-3-C4		7.33	Vacant
<b>New Kent County</b>				
Chickahominy Indian Tribe/Chickahominy Eastern Division	41A1-2- 12E	3521 North Courthouse Road	0.24	Office

Source: Chickahominy Indian Tribe, Charles City County/New Kent County Assessor's Office.

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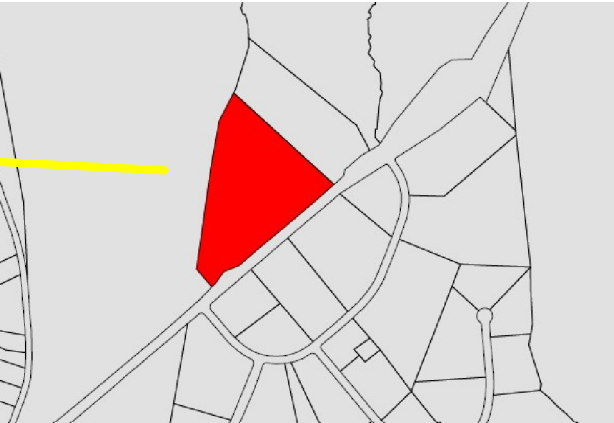
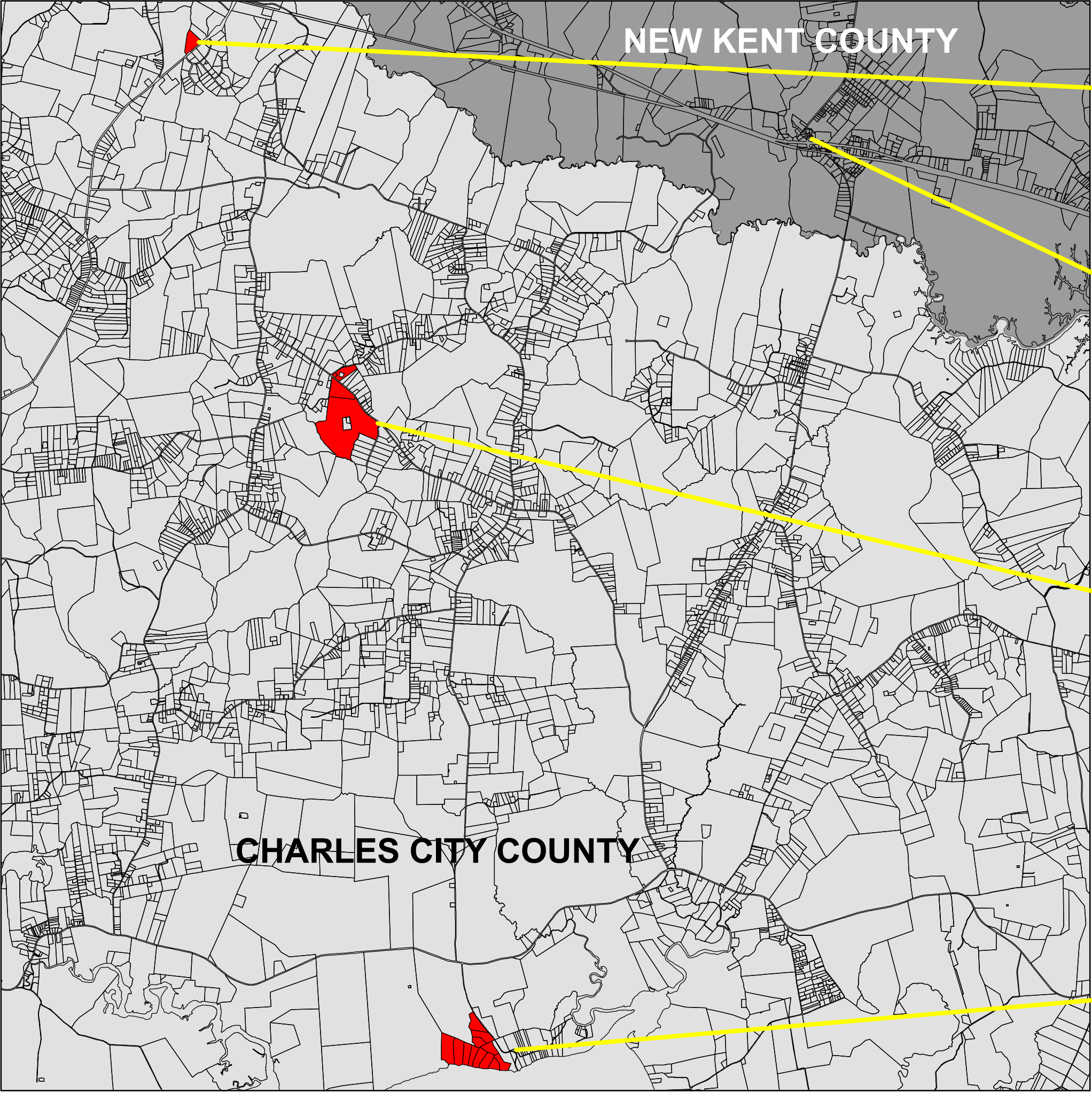
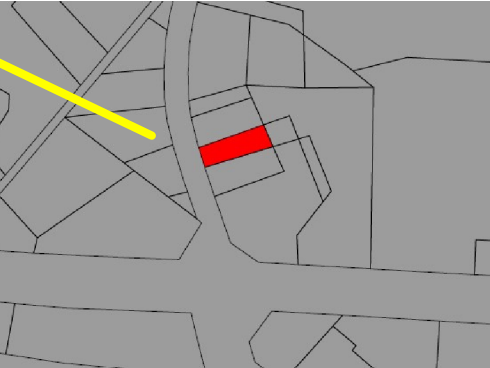
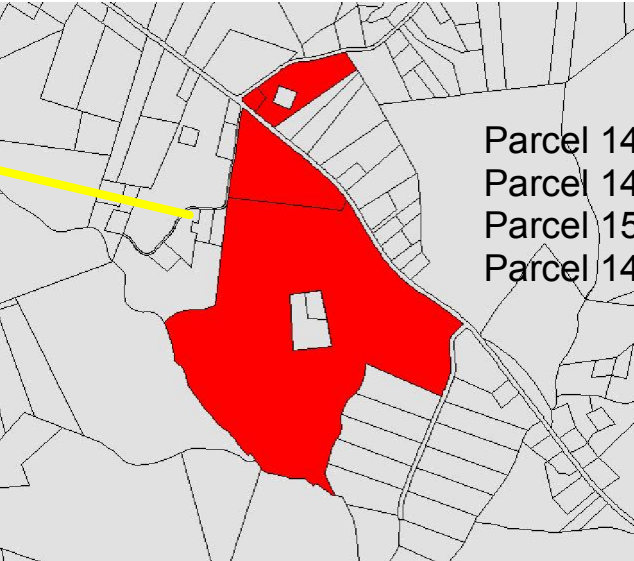


Figure 1-1

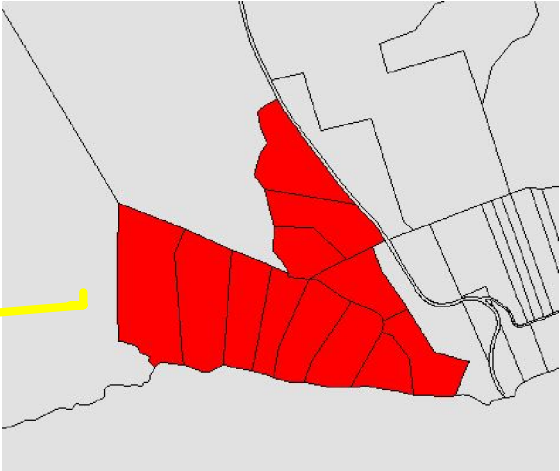
2401 Roxbury Road...  
Parcel 4-6-2



3521 North Courthouse Road  
Tax Map 41A1-2-12E



Parcel 14-121...no address  
Parcel 14-123...8200 Lott Cary Road  
Parcel 15-44...no address  
Parcel 14-78...no address



Parcels:

- 52-3-A1
- 52-3-A2
- 52-3-A3
- 52-3-A4
- 52-3-B1
- 52-3-B2
- 52-3-B3
- 52-3-B4
- 52-3-C1
- 52-3-C2
- 52-3-C3
- 52-3-C4



## 1.7 History of Disaster Declarations

The following information ( Table 1-2 below) gives an overview of the most significant past federal emergency and major disaster declarations for Virginia (and in Charles City County/New Kent County), and including Tribal lands and Tribal members living in the service area):

**Table 1-2 Significant Federal Emergency and Major Disaster Declarations, Charles City County/New Kent County, VA**

ID Number	Type	Date
DR-339	Tropical Storm Agnes	June 1972
EM-3046	Drought	July 1977
DR-525	Ice Storm	January 1977
EM-3112	Severe Winter Storm	March 1993
DR-1086	Blizzard	January 1996
DR-1135	Hurricane Fran	September 1996
DR-1293	Hurricane Floyd	September 1999
DR-1318	Winter Storm	January 2000
DR-1491	Hurricane Isabel	October 2003
DR-1544	Severe Storms/Flooding/Tornadoes Tropical Depression Gaston	September 2004
EM-3240	Hurricane Katrina Evacuation	September 2005
DR-1661	Severe Storms/Flooding Tropical Depression Ernesto	September 2006
DR - 4024	Hurricane Irene	August 2011
EM-3359	Hurricane Sandy	October 2012
EM-3403	Hurricane Florence	September 2018
DR-4401	Hurricane Florence	September 2018
DR-4214	Severe Winter Storm/Snow/Flooding	January 2015
EM-3448	COVID-19	March 2020
DR-4512	COVID-19 Pandemic	April 2020

Source: <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>

## 1.8 Recent Disaster Declarations

Charles City County (including Tribal lands and Tribal members living in the service area) have experienced significant losses during several recent storms that have warranted FEMA to declare these storms as disasters. The following are descriptions of each of the recent event declarations that have been declared as disasters by FEMA and which have affected Charles City County, Tribal lands and Tribal members living in the service area.

### **1.8.1 Hurricane Irene – August 2011 (FEMA DR-4024)**

Hurricane Irene moving northward over the outer banks of North Carolina and just off the Virginia and Maryland coasts produced tropical storm force winds across portions of central and south-central Virginia from August 27<sup>th</sup> into August 28<sup>th</sup>. Tropical storm force winds knocked down several trees and power lines, as well as caused some structural damage. In addition, heavy rains contributed to significant crop damage. Storm total rainfall generally ranged from five to nine inches.<sup>2</sup>

Hurricane Irene was a large tropical cyclone affecting the Caribbean and east coast of the U.S. The Commonwealth experienced the second highest number of power outages ever with 2.5 million citizens without power after the storm. Irene is ranked as the seventh costliest hurricane in U.S. history, costing approximately \$15.8 billion. Initially, Hurricane Irene was announced as an emergency declaration. After the hurricane hit and damages were assessed, this hurricane was declared a major disaster, resulting in federal funding.<sup>3</sup>

### **1.8.2 Hurricane Sandy – October 2012 (FEMA EM-3359)**

Hurricane Sandy was one of the most destructive hurricanes in history to hit the U.S. Originally devastating the Caribbean, killing 75 people, it then turned north and approached the East Coast causing significant storm surge and flooding along the East Coast.

Hurricane Sandy was declared a major disaster in Virginia on November 26, 2012, after damage assessment surveys were conducted. The declaration included Individual Assistance for Accomack County, Public Assistance for 25 counties and three independent cities, and Hazard Mitigation Assistance for all jurisdictions in the Commonwealth. Damage assessments found that approximately 245 residential structures were affected and that the primary impact was damage to utilities. \$10.5 million was obligated under the Public Assistance Program for affected jurisdictions.<sup>4</sup>

### **1.8.3 Hurricane Florence – September 2018 (EM-3403/DR-4401)**

Hurricane Florence made landfall near Wrightsville Beach, North Carolina weakening to a tropical storm just north of Myrtle Beach. It then turned westward and moved slowly across central and northern South Carolina, weakening to a tropical depression. The depression continued northward just east of the Outer Banks and passed over western North Carolina, eastern Tennessee, and western Virginia, before reaching western West Virginia where it became

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<sup>2</sup> <https://www.ncdc.noaa.gov/stormevents/eventdetails.jsp?id=345122>

<sup>3</sup> Commonwealth of Virginia Hazard Mitigation Plan, Section 3.3, p.9.

<sup>4</sup> Ibid.

extratropical. The system continued north, eventually dissipating over Massachusetts.

#### **1.8.4 Severe Winter Storm/Snow/Flooding – January 2015 (FEMA DR-4214)**

Colder air combined with an upper-level disturbance on the back side of strong low pressure off the southern New England coast produced one half inch to two inches of snow across portions of central and eastern Virginia. The storm was well-forecast, with Blizzard Watches and Winter Storm Watches issued 2 days before the snow began. Low pressure tracked northeast from the Carolinas and strengthened rapidly as it slowly passed southeast of Nantucket on Monday evening, January 26<sup>th</sup>.

#### **1.8.5 COVID-19 Pandemic – April 2, 2020 (FEMA DR-4512)**

The President declared on April 2, 2020 that a major disaster exists within the Commonwealth of Virginia pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Pub. L. No. 93-288 (1974) (codified as amended at 42 U.S.C. § 5121 *et seq.*) (“Stafford Act”) as a result of COVID-19 beginning on January 20, 2020 and continuing. Under this declaration, FEMA will provide financial and/or direct assistance to the Commonwealth of Virginia under Category B of the Public Assistance Program as authorized by Section 403 of the Stafford Act. Eligible emergency protective measures taken to respond to the COVID-19 disaster at the direction or guidance of public health officials may be reimbursed under Public Assistance Category B. State and local government entities and certain private nonprofit organizations throughout the entire Commonwealth of Virginia are eligible to apply for Public Assistance.<sup>5</sup>

The first confirmed case of COVID-19 was reported in the Commonwealth of Virginia on March 7, 2020. Within one week, some municipal schools, colleges and universities, and out-of-state travel for public employees were shut down. On March 12, 2020 Governor Northam declared a state of emergency. By the end of March 2020, Governor Northam issued a stay-at-home order. Mid-summer brought additional restrictions imposed on restaurants and bars, and social distancing regulations in public spaces. By August 11, 2020, there were 15 outbreaks of COVID-19 at poultry and meat processing plants in Virginia, resulting in a total of 1,224 confirmed cases, 49 hospitalizations and 10 deaths.

The Tribe initially coordinated with the Chickahominy Health District and the Virginia Dept. of Health in response to the pandemic. Since, the Tribe has coordinated closely with Indian Health Services on their response (testing and vaccinations). During the testing phase push, the Tribe reached a 90% testing rate with only a 5% positivity rate. In the early stages of vaccine distribution, several Tribal staff and Tribal members living in the service area were vaccinated

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<sup>5</sup> <https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>

at New Kent Hospital (for New Kent County and the Chickahominy Health District area residents), and at the Charles City County Recreation Center (for Charles City County area residents). Later, still during vaccine distribution, the Tribe worked with Indian Health Services to establish a vaccination clinic at the Tribal Center (CARES Act funding channeled through Indian Health Services to the Tribe), for both Tribal members (approximate 70% vaccination rate) as well as to the general public. The Chickahominy Indian Tribe Health Dept. distributed literature on vaccine efficacy and confidence, conducted outreach to provide guidance/information on vaccine availability, and distributed care packages (masks, hand sanitizer, gloves and face shields).

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## Section 2 Risk Assessment

### 2.1 Introduction

Identifying potential hazards is the first step in any effort to reduce vulnerability. The subsequent identification of the risk and vulnerability for a community are the primary factors in determining how best to allocate finite resources to address what mitigation might take place. The FEMA documents titled *Tribal Mitigation Planning Handbook* (May 2019) and *Tribal Mitigation Plan Review Guide* (December 2018) were used in developing this strategy plan as a basic template to identify the various natural hazard types. As previously discussed in Section 1, the hazards identification and analyses for this plan focus on those hazards that potentially threaten the Tribe's properties, facilities, natural and cultural resources.

By collecting and analyzing information for each potential hazard that may affect the Tribe, several determinations have been made:

- Which hazards merit special attention
- What actions might be taken to reduce the impact(s) of those hazards
- What resources are likely to be needed

### 2.2 Hazard Identification

The THMC evaluated each of the natural, human-caused, and technological hazards that may affect the Tribe, including climate change, and similarly to those identified in the Commonwealth of Virginia Hazard Mitigation Plan (March 2018) and Report on the Commonwealth Threat Hazard Identification and Risk Assessment (C-THIRA), October 31, 2014), and the Richmond-Crater Hazard Mitigation Plan 2017. The THMC elected to organize hazards into the following categories with associated hazards as listed in Table 2-1 below.

**Table 2-1 Hazard Identification and Hazard Groupings**

Natural Hazards	Human-Caused Hazards	Technological Hazards
Wind-Related	Terrorism (intentional)	Infrastructure/Utility Failure
Hurricane	Biological	Water Supply Shortage/Contamination
Tornado	Hazardous Material Release	
High Wind	Cyber	
Thunderstorm	WMD/Explosive	
	Radiological/Nuclear	
	Civil Disturbance	
Winter-Related	Other (Accidental)	
Winter Weather	Fire	
Flood-Related	Mass Casualty Incident	

Flash Flood	Railroad Derailment
Riverine Flood	Airplane Accident
Flood (Heavy Rain)	Dam Failure
	Structure Collapse
<b>Wildfire/Drought-Related</b>	Special/VIP Events
Drought	
Extreme Heat	
Wildfire	
<b>Geologic-Related</b>	
Earthquake	
Landslide	
Karst/Sinkhole	
<b>Mass Evacuation</b>	
Mass Evacuation	
<b>Communicable</b>	
Infectious Disease	

The Project Team created new Geographical Information Systems (GIS) mapping (Appendix A) including Flood Hazard Areas (Map 2-1).

### 2.3 Hazard Profiles: Location, History and Probability of Future Occurrence

In assessing the hazards that may impact an area, both the risk and the vulnerability must be considered. A hazard is the actual event that poses danger to Tribal property and Tribal members living in the service area (e.g. the hurricane, tornado, earthquake, etc. that threatens the Tribe). The term “risk” refers to the predicted impact that a hazard would have on the people, services, specific facilities and structures in the Tribe’s service area. The term “vulnerability” refers to the characteristics of the society or environment affected by the event that resulted in the costs from damages (Heinz Center Report, 1999, p. 105). The vulnerability of an area refers to its susceptibility to a hazard. The areas of Tribal property and Tribal members living in the service area affected by extreme events are identified by the hazard risk assessment. In determining the risk and vulnerability of the Tribe, the likelihood, frequency and magnitude of damage from identified hazards are assessed.

In developing the Risk Assessment, the THMC defined the risks that the Tribe could face and followed up with an assessment of the vulnerability of the at-risk areas, and the implications of experiencing natural, human-caused, and technological disasters (e.g., loss of life, damage to the natural environment, property damage, and economic losses). A risk assessment determines the likelihood of adverse impacts associated with specific hazards, and a vulnerability assessment is concerned with the qualitative or quantitative examination of the exposure of some societal component (i.e. economy,

environment, social). The result of this process was the preparation of a Risk Assessment Rubric (Tables 2-2 and 2-3) that quantifies the probability, severity, and overall risk of these hazards impacting the Tribe. The Risk Assessment Rubric was then used to establish mitigation benefits and develop mitigation strategies (Section 4).

### **Risk Assessment Rubric**

The THMC evaluated each of the natural, human-caused, and technological hazards collectively determined the likelihood of occurrence, locations affected, and potential impacts of each. This information was used to establish the relative threat each poses to Tribal Lands and Tribal members living in the service area.

Due to variations in the availability of data for specific hazards, the Project Team utilized a range of research methods/data sources, based on the best available data. For natural hazards, information from the National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information's (NCEI) Storm Event Database was used to understand hazard events at the county level (Charles City County). Next, the criteria and methodology used in the Richmond-Crater Hazard Mitigation Plan (FEMA's Hazard Priority Ranking Criteria) and associated scores were obtained for natural hazards.

#### **Probability**

- 0.5: Unlikely: No documented NCEI occurrences with annual probability < 0.01
- 1: Somewhat Likely: Infrequent occurrence with at least one NCEI documented event and annual probability between 0.5 and 0.01
- 1.5: Likely: Frequent occurrence with at least some NCEI documented events and annual probability between 1 and 0.5
- 3: Highly Likely: Common events with annual probability > 1

#### **Vulnerability**

- 1: Limited Rank: by 2017 HMTAC Preliminary Ranking
- 2: Moderate Rank: by 2017 HMTAC Preliminary Ranking
- 3: High Rank: by 2017 HMTAC Preliminary Ranking

#### **Maximum Impact (Annual Damages)**

- 0: No NCEI data found to evaluate. Does not mean there were no damages
- 0.01 – 3: Based on NCEI data, score award by percent of total annual damages done by event. Hazards receive their percent of points from 0.01 to 3 max.

#### **Warning Time**

- 1: Extended – three days or more
- 2: Limited – 2 days

- 2: Minimal – 1 day
- 3: No Notice - < 24 hours

After scores were assigned to each hazard, the scores were then summed together and divided by 4 (representing the 4 categories) to find the average score. Scores between 2.5 and 3.0 were given 'significant', 2.0 to 2.5 were assigned 'moderate', and everything else less than 2 were assigned 'limited'.

For human-caused and technological hazards, the associated scores were obtained from the Emergency Operations Plan for Charles City County, Virginia (January 2015 Update). Finally, the THMC provided input (as indicated) on several hazard scores and confirmed the overall Risk Assessment Rubric (tables 2-2 and 2-3) included below.

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**Table 2.2 Natural Hazards Risk Assessment Rubric**

Event	Probability/ History	Vulnerability	Maximum Impact	Warning Time	Ranking Category
<b>Score</b>	0.5 = <i>Unlikely</i> 1 = <i>Somewhat Likely</i> 1.5 = <i>Likely</i> 3 = <i>Highly Likely</i>	1 = <i>Limited</i> 2 = <i>Moderate</i> 3 = <i>High</i>	0 = <i>No Data</i> 0.01 - 3 = <i>Percent of Total Damages</i>	1 = <i>Extended Notice</i> 2 = <i>Limited/Minimal Notice</i> 3 = <i>No Notice</i>	
<b>Wind-Related</b>					
Hurricane <sup>2</sup>	3	3	3	2	<b>Significant</b>
Tornado <sup>2</sup>	3	3	1.92	3	<b>Significant</b>
High Wind <sup>2</sup>	1.5	3	0.68	2	<b>Limited</b>
Thunderstorm <sup>2</sup>	3	3	1.34	2	<b>Moderate</b>
<b>Winter-Related</b>					
Winter Weather <sup>2</sup>	3	3	1.33	1	<b>Moderate</b>
<b>Flood-Related</b>					
Flash Flood <sup>3</sup>	N/A	N/A	N/A	N/A	<b>Significant</b>
Riverine Flood <sup>3</sup>	N/A	N/A	N/A	N/A	<b>Moderate</b>
Flood/Heavy Rain <sup>2</sup>	3	2	1.94	2	<b>Moderate</b>
<b>Wildfire/Drought-Related Hazards</b>					
Drought <sup>2</sup>	3	1	2.23	1	<b>Limited</b>
Extreme Heat <sup>2</sup>	3	1	2.23	1	<b>Limited</b>
Wildfire <sup>2</sup>	0.5	1	0	3	<b>Limited</b>
<b>Geologic-Related</b>					
Earthquake <sup>2</sup>	0.5	1	0	3	<b>Limited</b>
Landslide <sup>2</sup>	0.5	1	0	3	<b>Limited</b>
Karst/Sinkhole <sup>2</sup>	0.5	1	0	3	<b>Limited</b>
<b>Mass Evacuation</b>					
Mass Evacuation <sup>2</sup>	0.5	1	0	1	<b>Limited</b>
<b>Communicable</b>					
Infectious Disease <sup>1</sup>	3	3	1	1	<b>Moderate</b>

1. Ranked by Tribal Hazard Mitigation Committee utilizing the County's methodology

2. Data Obtained from Richmond-Crater Hazard Mitigation Plan 2017

3. Data obtained from Emergency Operations Plan for Charles City County, Virginia January 2015 Update

**Table 2.3 Human-Caused Hazards Risk Assessment Rubric**

Event	Probability/ History	Vulnerability	Maximum Impact	Warning Time	Ranking Category
<b>Score</b>	0.5 = Unlikely 1 = Somewhat Likely 1.5 = Likely 3 = Highly Likely	1 = Limited 2 = Moderate 3 = High	0 = No Data 0.01 - 3 = Percent of Total Damages	1 = Extended Notice 2 = Limited/Minimal Notice 3 = No Notice	
<b>Terrorism (intentional)</b>					
Biological <sup>3</sup>	N/A	N/A	N/A	N/A	Limited
Hazardous Material Release <sup>3</sup>	N/A	N/A	N/A	N/A	Significant
Cyber <sup>1</sup>	1.5	2	0.08	2	Limited
WMD/Explosive <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Radiological/ Nuclear <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Civil Disturbance <sup>3</sup>	N/A	N/A	N/A	N/A	Limited
<b>Other (accidental)</b>					
Fire <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Mass Casualty Incident <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Railroad Derailment <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Airplane Accident <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Dam Failure <sup>3</sup>	N/A	N/A	N/A	N/A	Limited
Structure Collapse <sup>3</sup>	N/A	N/A	N/A	N/A	Limited
Special/VIP Events <sup>3</sup>	N/A	N/A	N/A	N/A	Limited

**Table 2.4 Technologic Hazards Risk Assessment Rubric**

Event	Probability/ History	Vulnerability	Maximum Impact	Warning Time	Ranking Category
<b>Score</b>	0.5 = Unlikely 1 = Somewhat Likely 1.5 = Likely 3 = Highly Likely	1 = Limited 2 = Moderate 3 = High	0 = No Data 0.01 - 3 = Percent of Total Damages	1 = Extended Notice 2 = Limited/Minimal Notice 3 = No Notice	
<b>Infrastructure/Utility Failure</b>					
Water Supply Shortage/ Contamination <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate

1. Ranked by Tribal Hazard Mitigation Committee utilizing the County's methodology

2. Data Obtained from Richmond-Crater Hazard Mitigation Plan 2017

3. Data obtained from Emergency Operations Plan for Charles City County, Virginia January 2015 Update

The THMC formed the consensus that the following hazards are the major (significant) causes of risk to Tribal lands and Tribal members living in the service area:

### **Natural Hazards**

- Hurricanes
- Tornadoes
- Flash Floods

### **Human-Caused/Technological Hazards**

- Hazardous Material Release

It should be noted that the above hazards are not a complete listing of hazards that may impact Tribal lands and Tribal members living in the service area. The THMC agreed that this listing accurately represents those hazards that could impact Tribal lands and Tribal members living in the service area most frequently and have the potential to cause fatalities, injuries, property and infrastructure damage, agricultural loss, damage to the environment, interruption of business, or other types of harm or loss. The following hazards will not be addressed in this 2021 plan:

- Storm Surge
- Coastal/Shoreline Erosion
- Sea Level Rise
- Land Subsidence
- Non-Rotational Wind
- Solar Storm

These hazards were considered and discussed during THMC meetings, where it was determined these hazards would not be considered for the following reasons:

- Lack of frequency in which they occur (likely based on geography).
- The minimal probability of their occurrence; and/or
- The lack of resources to devote any amount of time to further research the likelihood or potential occurrence or impact.

The hazard-specific tables that follow after each section represent the various significant natural hazard events that have occurred in and around Tribal lands and Tribal members living in the service area (Charles City County, VA), utilizing the NOAA NCEI's Storm Event Database (<http://www.ncdc.noaa.gov/>). All events are county wide (Charles City County), unless otherwise noted.

### **Climate Change**

Climate change is one of the most pressing issues of our time and its effects are increasingly impacting the nation. Since climate change has both direct and

indirect impacts on the range of natural hazards that Tribal lands and Tribal members living in the service area are vulnerable to, the THMC determined it was most appropriate to include a 'climate change impacts on' section to each natural hazard profiled in this plan.

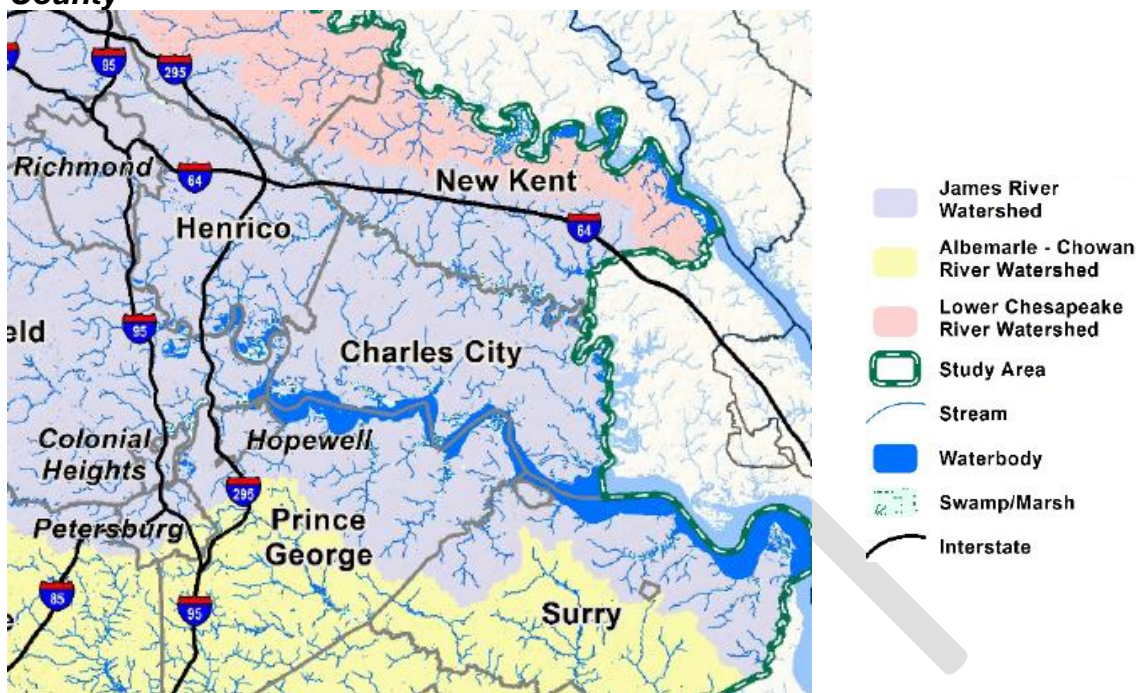
### **2.3.1 Flood-Related Hazards**

Flooding is the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands (FEMA, Multi Hazard Identification and Risk Assessment, 1997). The floodplain is the land adjoining the river/stream channel, ocean or other watercourse or water body that is susceptible to flooding.

Flooding results from: large-scale weather systems generating prolonged rainfall; onshore winds; locally intense thunderstorms; dam failures; or significant snow melt. Floods are capable of undermining buildings and bridges, eroding shorelines and stream banks, uprooting trees, washing out access roads, and causing loss of life and injuries. Also, flash floods (characterized by rapid onset and high velocity waters) carry large amounts of debris that further exacerbate conditions.

Charles City County lies within the James River Watershed (Figure 2-1), also the largest in Virginia. The James River and Chickahominy River run through Charles City County with associated Queen's Creek and Buckland Creek stemming from the James River in the south, and Old Forge Pond associated with the Chickahominy River system in the north. Flooding in the region impacts the areas immediately adjacent to these waterways, including the smaller tributaries. The James River is tidal along stretches as far inland as Charles City County.

**Figure 2-1 Watershed Boundaries Charles City County and New Kent County**



Source: Richmond-Crater Hazard Mitigation Plan, p. 5-17.

Under the NFIP, FEMA is required to develop flood risk data for use in both insurance rating and floodplain management. FEMA develops this data through Flood Insurance Studies (FIS). Detailed analyses are used to generate flood risk data only for developed or developing areas of communities. For undeveloped areas FEMA uses approximate analyses to generate flood risk data. Flood hazard areas are identified in the FEMA FIRMs. Flood hazard areas are divided into zones (V, X, AO, etc.) depending on the severity and type of flood threat. These zones are those areas subject to inundation (shallow or deep) by a flood (and/or velocity wave action) that has a 1 percent chance of occurring during any given year.

Floodplains in Charles City County include 'AE', 'VE', and 'X' Zones (Map 2-1), and 'AE' and 'X' Zones in New Kent County as depicted in Map 2-1. 'AE' Zones are areas that would be inundated by the 100-year flood. The 100-year flood is a regulatory standard used by federal agencies and most states to administer floodplain management programs and is also used by the NFIP as the basis for insurance requirements nationwide. 'VE' Zones are velocity zones that are subject to breaking wave action where waves greater than 2.9 feet are forecasted during a 100-year flood or storm surge. 'X' Zones are areas that would be inundated by the 500-year flood.

Table 2-4 below represents the various significant flood-related hazard events that have occurred in and around Tribal lands and Tribal members living in the service area over time, utilizing NOAA's NCEI Storm Event Database

(<http://www.ncdc.noaa.gov/>). All events are county wide (Charles City County), unless otherwise noted.

**Table 2-4 Significant Flood-Related Events, Charles City County**

Hazard Type	Date	Level/ Description	Damages	Notes
<i>Riverine/Flash Flood</i>				
	8/4/2000			Heavy rain flooded Route 607
	8/30/2004	4 - 8"		Numerous road closures
<i>Inland/Urban Flood/Heavy Rain</i>				
	1/27/1998	2 - 4"		Street flooding
	10/24/2007	2 - 4"		
	9/6/2008			Tropical Storm Hannah
	12/10/2008	1 - 4"		
	11/11/2009	4 - 7"		
	3/28/2010	1 - 3"		
	9/29/2010	5 - 9"		
	8/28/2011	5 - 9"		Numerous road closures
	11/9/2015	1.5 - 2.5"		
	9/19/2016	1 - 4"		
	9/28/2016	3 - 7"		
	10/8/2016	2 - 5"		
	5/19/2018			Numerous road closures
	10/11/2018	2 - 5"		

Source: NOAA National Centers for Environmental Information, [www.ncdc.noaa.gov](http://www.ncdc.noaa.gov/).  
Data current through December 2020.

### **Riverine/Flash Flooding**

Riverine or inland flooding often occurs after heavy rain, particularly in areas of the state with high water tables. These areas are also particularly susceptible to flash flooding caused by rapid runoff occurring after heavy precipitation events, and in combination with spring snowmelt. Frozen ground conditions can also contribute to low rainfall infiltration and high runoff events that sometimes result in river flooding.

Flooding magnitude increases with increasing recurrence intervals. Tribal lands and Tribal members living in the service area can be uniformly affected by riverine/flash flooding events, dependent upon the location (amount of impervious surfaces within the area), existing/incoming weather conditions, and time of year (frozen ground conditions exacerbate flooding). Based on the high score of flash flooding events identified in the Emergency Operations Plan for Charles City County, Virginia (although only a limited number of events identified by the NCEI in Table 2-4), Tribal lands and Tribal members living in the service area are considered at significant risk for future flash flooding events. Based on the medium score of riverine flooding events identified in the Emergency Operations Plan for Charles City County, Virginia (although only a limited number

of events identified by the NCEI in Table 2-4), Tribal lands and Tribal members living in the service area are considered at moderate risk for future riverine flooding events.

#### *Climate Change Impacts on Riverine/Flash Flooding*

Riverine flooding will likely be exacerbated by increased storm intensity, as well as by increased precipitation. It is also important to note that riverine flooding due to sea level rise can have a coupling effect. Rising seas can set a new flood stage in riverine systems, thus increasing flood risk in inland areas adjacent to rivers.

#### **Flooding/Heavy Rain**

Heavy rains that cause inland and urban flooding are often exacerbated by stormwater-related issues. Thunderstorms, winter storms, coastal storms and hurricanes all contribute to interior flood-related hazards due to the large amounts of precipitation associated with them. Development often compounds the magnitude and frequency of urban flooding by increasing impervious surfaces, also increasing the rate of drainage collection, reducing the carrying capacity of the land, and often overwhelming sewer system infrastructure. Based on the highly likely probability and moderate vulnerability/impact/and warning time score of flood/heavy rain events identified in the Richmond-Crater Hazard Mitigation Plan (and high number of events identified by the NCEI in Table 2-4), Tribal lands and Tribal members living in the service area are considered at moderate risk for future floods/heavy rain events.

#### *Climate Change Impacts on Floods/Heavy Rain*

Heavy precipitation events are becoming more frequent and intense. Whether a hurricane or tropical storm, there has been a global increase in both the frequency and the intensity of heavy precipitation events. This trend is consistent with physical responses to a warming climate, such as an increased amount of moisture in the atmosphere.

#### **Flood Hazard Areas**

##### *FEMA Flood Zones*

HW performed a Vulnerability Analysis that considered Tribal properties impacted by the various flood zones according to land use type, critical facilities, and critical infrastructure. An Economic Analysis of the impacts based on FEMA's flood zones follows later in this section (Table 2-15).

#### **AE/100-Year Flood Zone**

The AE zone or 100-year flood zone (has a 1% chance of flooding occurring each year) is a regulatory standard used by federal agencies and most states to administer floodplain management programs and is also used by the NFIP as the basis for insurance requirements nationwide. Five Tribal properties along the James River (Charles City County) are partially impacted by the 100-year flood zone.



### **X/500-Year Flood Zone**

The X zone or 500-year flood zone is a flood that has a 0.2% chance of occurring each year. All Tribal properties (including the one located in New Kent County) are impacted by the 500-year flood zone.

### **VE/Velocity Flood Zone**

The VE Zones are velocity zones that are subject to breaking wave action where waves greater than 2.9 feet are forecasted during a 100-year flood or storm surge. Three Tribal properties along the James River (Charles City County) are impacted by the velocity flood zone, while five additional Tribal properties (also Charles City County) are directly adjacent to the velocity zone.

### **Property at Risk from Flood-Related Hazards**

Although the James River is tidal along stretches as far inland as Charles City County, review of NOAA's Office for Coastal Management: Digital Coast, Sea Level Rise Viewer shows that Tribal properties recently purchased along this stretch of the James River are not subject to impacts from various sea level rise scenario projections (impacts from sea level rise scenario projections end northeast of Weyanoke Point, prior to the location of Tribal properties).<sup>6</sup> However, review of NOAA's Sea Level Rise Viewer did show intermittent impacts to the same Tribal properties along the James River from high tide flooding (Figure 2-2). These properties are undeveloped or in agriculture use.

***Figure 2-2 Impacted Areas from High Tide Flooding, Charles City County***



Source: <https://coast.noaa.gov/slr/#/layer/slr/0/-8578121.189770076/4488611.86498593/10/satellite/none/0.8/2050/interHigh/midAccretion>

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<sup>6</sup> <https://coast.noaa.gov/slr/#/layer/slr/0/-8578121.189770076/4488611.86498593/10/satellite/none/0.8/2050/interHigh/midAccretion>



As previously discussed, several Tribal properties are partially impacted by the various FEMA flood zones (all Tribal properties are impacted by the X/500-Year flood zone), including:

AE/100-Year Flood Zone

- 52-3-A1
- 52-3-B3
- 52-3-B4
- 52-3-C1
- 52-3-C2

VE/Velocity Flood Zone

- 52-3-B2
- 52-3-B3
- 52-3-B4

**Probability of Future Occurrence of Flood-Related Hazards**

Based on the history and impacts for flash flooding, Tribal properties and Tribal members living in the service area continue to be at significant risk of flash flooding. Based on the history and impacts for riverine flooding, and in particular, heavy rain, Tribal properties and Tribal members living in the service area continue to be at moderate risk of riverine flooding and flooding due to heavy rain.

**2.3.2 Winter-Related Hazards**

Winter weather events can include heavy snow, ice, sleet/freezing rain and extreme cold and can affect Tribal lands and Tribal members living in the service area. Heavy snow can bring a community to a standstill by inhibiting mobility (transportation networks, pedestrian travel), knocking down trees and utility lines, and cause structural collapses in older buildings. Ice buildup can down utility lines and communication towers. The impacts of both events can cause indirect issues such as freezing/rupturing pipes from lack of heat, while also changing the ground's frost level, creating problems for underground infrastructure.

Table 2-5 below represents the various significant winter-related hazard events that have occurred in and around Tribal lands and Tribal members living in the service area over time, utilizing NOAA's NCEI Storm Event Database (<http://www.ncdc.noaa.gov/>). All events are county wide (Charles City County), unless otherwise noted.

**Table 2-5 Significant Winter-Related Events, Charles City County**

Hazard Type	Date	Level/ Description	Damages	Notes
<i>Extreme Cold/Wind Chill/Freeze</i>				
	11/10/2003	24 - 32 degrees		

	4/5/2016	25 - 28 degrees		Widespread crop damage
	4/10/2016	28 - 30 degrees		Widespread crop damage
<i>Blizzards/Heavy Snow/Winter Weather/Nor'easters</i>				
	1/6/1996			
	2/2/1996			
	2/16/1996			
	3/7/1996			
	1/19/2000	2 - 3"		
	1/25/2000	15"		Airport closed and school closings, Nor'easter
	2/22/2001	1 - 4"		Several accidents and school closings
	1/2/2002	5 - 8"		Several accidents and school closings
	12/4/2002	1 - 4"		Power outages, school closings, several accidents
	1/6/2003	1"		
	1/16/2003	4 - 8"		Several accidents and school closings
	1/30/2003	1"		Some accidents
	2/15/2003	1 - 3"		Sleet/ice
	1/25/2004	3 - 5"		Several accidents and school closings
	2/15/2004	1 - 3"		
	2/17/2004	0.5 - 2"		Some accidents
	12/19/2004	0.5 - 3"		Several accidents
	1/19/2005	0.5 - 2"		Several accidents
	1/20/2005	0.5 - 3"		Several accidents
	1/22/2005	0.5 - 1"		Several accidents + power outages, ice
	1/29/2005	0.10"		Some accidents, ice
	2/3/2005	0.5 - 2"		Several accidents
	3/8/2005	0.5 - 2"		
	12/5/2005	1 - 3"		Several accidents
	3/21/2006	0.5 - 1.5"		
	1/19/2008	0.5 - 1"		
	3/1/2009	4 - 7"		
	12/18/2009	4 - 8"		Nor'easter
	1/30/2010	8 - 11"		
	2/5/2010	2 - 5"		Nor'easter
	2/9/2010	1 - 2"		

	2/13/2010	1"		
	12/13/2010	0.5 - 2"		
	12/16/2010	1 - 2"		
	12/25/2010	5 - 8"		
	2/19/2012	1 - 4"		
	1/17/2013	1 - 2"		
	1/25/2013	1 - 2"		
	2/16/2013	0.5 - 1"		
	12/8/2013	0.10"		ice
	1/21/2014	2 - 3"		
	1/28/2014	2 - 4"		
	2/12/2014	3 - 6"		
	3/3/2014	3 - 5"		
	1/14/2015	0.10"		ice
	1/26/2015	0.5 - 1"		
	2/16/2015	4 - 6"		
	2/26/2015	4 - 7"		
	3/1/2015	0.10"		ice
	1/22/2016	5 - 10"		
	2/14/2016	1 - 2"		
	3/3/2016	0.5 - 1"		
	1/7/2017	6 - 11"		
	12/8/2017	1 - 3"		
	1/3/2018	6 - 10"		
	1/17/2018	1 - 2"		
	3/12/2018	1 - 2"		
	3/21/2018	1 - 3"		
	12/9/2018	5 - 10"		
	2/20/2020	0.5 - 2"		
<b>Ice Storms</b>				
	12/23/1998	0.5 - 1 inch		power outages and road closures
	1/30/2000	0.5 inch	\$25 K	
<b>Frost/Freeze</b>				
	5/15/1981			
	5/8/1998			
	8/20/1999			

Source: NOAA National Centers for Environmental Information, [www.ncdc.noaa.gov](http://www.ncdc.noaa.gov).  
Data current through December 2020.

### **Snow/Blizzards/Winter Storms/Nor'easters**

Winter storms often include natural hazards such as extreme winds, coastal erosion and flooding. Utility and power lines can break from the weight of snow or ice coupled with strong winds. This could put residents at risk of losing heat,

electricity, and water (if using well water). Snow melting poses problems as well such as road flooding in low lying areas. Usually, the impact and vulnerability of winter weather is measured in terms of the financial costs associated with preparing for, responding to, and recovering from the event. Tribal lands and Tribal members living in the service area uniformly continue to experience winter weather, as reported by the NCEI and indicated in Table 2-5. Based on the highly likely probability and vulnerability, moderate impact and extended notice warning time scores identified in the Richmond-Crater Hazard Mitigation Plan (and number of events identified by the NCEI in Table 2-5), Tribal lands and Tribal members living in the service area are considered at moderate risk for future snow, blizzards and severe winter storms.

Virginia's biggest winter weather threat comes from a storm pattern known as a Nor'easter or Nor'easter. These large storms usually originate to the south and travel northward along the Atlantic coast. Warm, moist air from the ocean combined with cold air from the north can produce significant snowstorms throughout the mid-Atlantic and northeast coastal states. Depending on the specifics of each storm, the event may result primarily in rain, snow, or some combination thereof. Strong winds also characterize Nor'easters, often resulting in coastal flooding and erosion. The combination of heavy frozen precipitation and strong winds is destructive and often damaging to trees and utility lines. Nor'easters may occur from November through April, but are usually at their worst in January, February, and March.<sup>7</sup>

### **Ice Storms**

Ice storms result from the accumulation of freezing rain, or rain that becomes super-cooled and freezes upon impact with cold surfaces. Most commonly, freezing rain occurs in a narrow band within a winter storm that is also producing heavy amounts of snow and sleet in other locations. Infrastructure (utility lines/power outages, roads, and bridges) are at great risk from ice storms. Tribal lands and Tribal members living in the service area are uniformly susceptible to the impacts of ice storms.

### **Extreme Cold**

Extreme cold events often accompany winter storms, may be left in their wake, or occur without any associated storm activity, and can lead to hypothermia and frostbite. Extreme cold temperatures vary dependent on the normal climate of the region however, Tribal lands and Tribal members living in the service area can expect to be uniformly affected.

### ***Climate Change Impacts on Winter Weather Events***

Climate change will result in increased average global temperatures, which will likely decrease the number of extreme cold days. This decrease in extreme cold days has already been documented and is expected to continue.

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<sup>7</sup> Commonwealth of Virginia Hazard Mitigation Plan, March 2018.

### **Property at Risk from Winter-Related Hazards**

All Tribal lands and Tribal members living in the service area are equally susceptible to winter weather events.

### **Probability of Future Occurrence of Winter-Related Events**

According to past history and climatic conditions, and the inability to predict winter weather events, Tribal lands and Tribal members living in the service area are considered to be at moderate risk for winter storms and nor'easters.

### **2.3.3 Wind-Related Hazards**

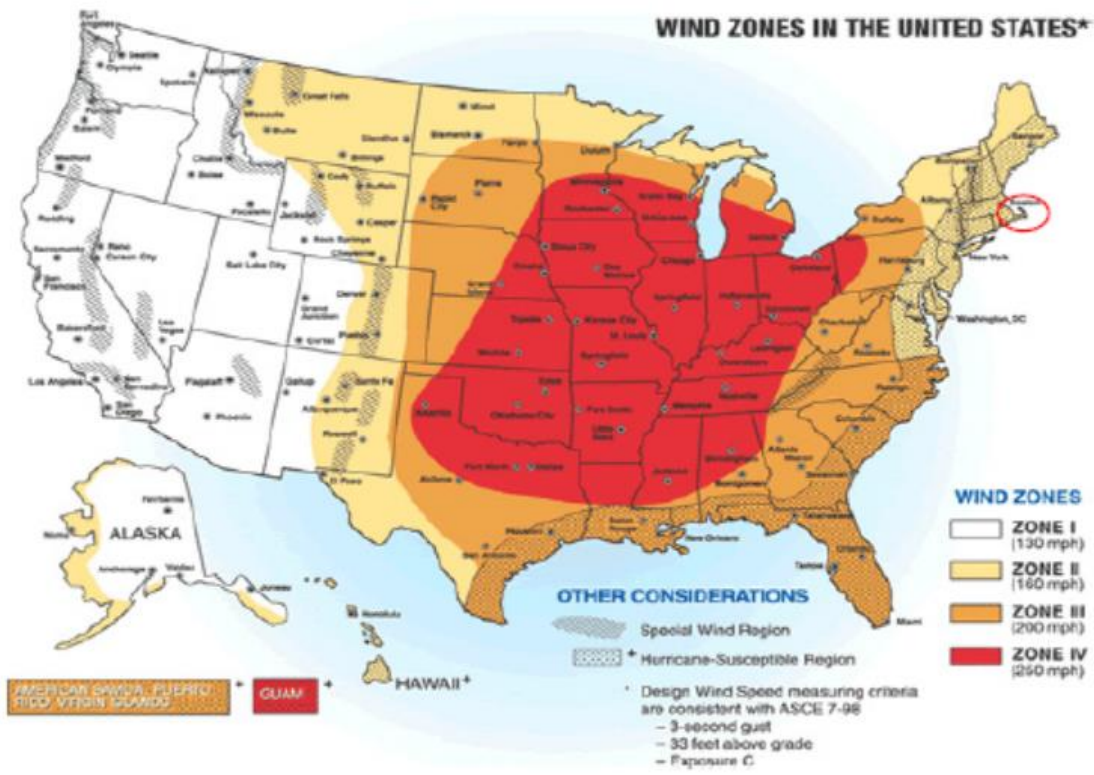
Wind is the movement of air caused by a difference in pressure from one place to another. Local wind systems are created by the immediate geographic features in each area, such as mountains, valleys, or large bodies of water. Wind effects can include blowing debris, interruptions in elevated power and communications utilities, and intensification of the effects of other hazards related to winter weather and severe storms.

Charles City County is susceptible to high winds from several types of weather events before and after frontal systems, hurricanes and tropical storms, severe thunderstorms and tornadoes. Based on historical tornado and hurricane data, FEMA has produced a map that depicts maximum wind speeds for design of safe rooms. Charles City County is located within Wind Zone II, with speeds up to 180 mph (Figure 2-3). The area is categorized by the American Society of Civil Engineers in its *Minimum Design Loads for Buildings and Other Structures* (ASCE 7) as located in a 90-mph wind zone, based on a 50-year recurrence interval. Based on ASCE 7, the potential windspeed for an event with a 100-year recurrence interval, was estimated to be 107% of the 50-year wind speed, or 93 miles per hour (mph). The Virginia Uniform Statewide Building Code requires a 90-mph minimum design wind speed.<sup>8</sup>

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<sup>8</sup> Richmond-Crater Hazard Mitigation Plan, p. 5-39.

**Figure 2-3 Wind Zones in the United States**



Source: FEMA

Table 2-6 below represents the various significant wind-related hazard events that have occurred in and around Tribal lands and Tribal members living in the service area over time, utilizing NOAA's NCEI Storm Event Database (<http://www.ncdc.noaa.gov/>). All events are county wide (Charles City County), unless otherwise noted.

**Table 2-6 Significant Wind-Related Events, Charles City County**

Hazard Type	Date	Level/Description	Damages	Notes
<b>Hail</b>				
	5/15/1981	1"		
<b>High/Strong Winds</b>				
	9/16/1999		\$3 K	Power outages
	3/2/2018	50 kts. EG	\$25 K	Structural damage, power outages
	10/11/2018	50 kts. EG	\$3 K	Structural damage
<b>Tornado</b>				
	3/19/1975	F1	\$25 K	
<b>Tropical Storm</b>				
	8/27/2011	5 -9"	\$730 K	Power outages, structural damage, significant crop damage

	9/4/2011	4 - 8"		
<b>Hurricanes</b>				
	9/18/2003	3 - 7"		Power outages, road closures, damaged houses, several thousand evacuated, 7 deaths directly by storm
	8/27/2011	Cat. 1		Hurricane Irene. Trees down, power outages
	9/4/2011			Hurricane Lee.
	10/26/2012			Hurricane Sandy
<b>Lightning/Thunderstorms</b>				
	7/21/1983			
	5/8/1984			Power outages
	6/5/1985			
	5/25/1995			Power outages
	5/11/1996		\$6 K	Power outages
	6/13/1998		\$1 K	
	4/9/1999		\$2 K	Trees down, power outages
	8/1/1999		\$2 K	Trees down
	7/19/2000		\$1 K	Trees down
	6/6/2001		\$2 K	Trees down
	5/7/2002		\$2 K	Power outages
	6/6/2002		\$2 K	Trees down
	8/21/2005		\$5 K	
	8/4/2006		\$3 K	Trees down, power outages
	4/27/2007		\$10 K	Trees down
	6/28/2007		\$2 K	Trees down
	3/5/2008		\$1 K	
	8/5/2010		\$2 K	Trees down
	6/29/2012		\$3 K	Trees down, power outages

Source: NOAA National Centers for Environmental Information, [www.ncdc.noaa.gov](http://www.ncdc.noaa.gov).  
Data current through December 2020.

## **Hurricanes**

Hurricanes are defined as a large circulating windstorm covering hundreds of miles that forms over warm ocean water. To be officially classified as a hurricane, the wind speeds must exceed 74 miles per hour. In the northern hemisphere winds circulate in a counterclockwise direction. A great dome of water as much as fifty miles in diameter (called the "storm surge") is pushed ahead of the storm by its winds. In some coastal locations, this can result in tides 20 feet higher than usual. Occasionally, storm surge is responsible for damage to property and potential deaths.

The winds that accompany hurricanes have the potential to cause serious damage. Downed power lines leave residents without electricity and can impede

business for days. Fallen trees can damage buildings and block roadways. Unsecured building components including gutters, screened enclosures, roof coverings, shingles, car ports, porch coverings, overhangs, siding, decking, windows, walls, gables can be blown off structures and carried by the wind to cause damage in other places. Wind driven rain often causes water damage in roof and wall envelopes.

### ***Measuring the Intensity of a Hurricane***

Hurricane damages come from wind, rain, tornadoes, floods/storm surge, and the effects of very low air pressure. The Saffir-Simpson Hurricane Wind Scale (SSHWS) intensity category system was developed in the 1970's to characterize a hurricane's destructive potential by indicating wind speeds and range of damage, see Table 2-7 below. The SSHWS category system measures sustained wind speed, central pressure, storm surge height, and coastal damage potential within five intensity categories.

**Table 2-7 Saffir-Simpson Hurricane Wind Scale**

Scale No. (Category)	Wind (mph)	Potential Damage
1	74 - 95	Minimal: Damage is primarily to shrubbery and trees, mobile homes, and some signs. No real damage is done to structures.
2	96 – 110	Moderate: Some trees topple, some roof coverings are damaged, and major damage is done to mobile homes.
3	111 – 130	Extensive: large trees topple, some structural damage is done to roofs, mobile homes are destroyed, and structural damage is done to small homes and utility buildings.
4	131 – 155	Extreme: Extensive damage is done to roofs, windows and doors; roof systems on small buildings completely fail; and some curtain walls fail.
5	> 155	Catastrophic: Roof damage is considerable and widespread, window and door damage are severe, there are extensive glass failures, and entire buildings could fail.
Additional Classifications: Tropical Storm 39 – 73, Tropical Depression < 38		

Source: NOAA.

The National Weather Service (NWS) will issue a hurricane warning when sustained winds of 74 mph or higher are reached and expected within a coastal area within 24 hours. On average, there are approximately 10 named tropical storms along the east coast of the U.S. each year, six of which are likely to develop into hurricanes, with only two or three likely to reach category 3 on the SSHWS. The SSHWS has undergone a minor modification for 2012 in order to resolve awkwardness associated with conversions among the various units used for wind speed in advisory products. The change broadens the Category 4 wind speed range by one mile per hour (mph) at each end of the range, yielding a new range of 130-156 mph.



The NOAA Coastal Services Center maintains historic track data for hurricanes, tropical storms and tropical depressions over time. Figure 2-4 shows the tracks of named hurricanes and tropical storms 1950 – 2015. Most of the tropical systems to pass directly over the region have been at either tropical storm or tropical depression strength, but several hurricanes have directly impacted the area including Irene and Lee.<sup>9</sup>

**Figure 2-4 Named Hurricanes and Tropical Storms 1950 - 2015**



Source: Richmond-Crater Hazard Mitigation Plan.

Based on the highly likely probability and high vulnerability/impact and limited warning time score of hurricane events identified in the Richmond-Crater Hazard Mitigation Plan (and number of events identified by the NCEI in Table 2-6), Tribal lands and Tribal members living in the service area are considered at significant risk for future hurricane events.

#### *Climate Change Impacts on Hurricanes*

Climate change is expected to result in the increased frequency and intensification of hurricanes and tropical storms worldwide. Rising sea levels, coupled with potentially higher hurricane wind speeds, rainfall intensity, and storm surges will combine to create more intense hurricanes, resulting in

<sup>9</sup> Ibid, p. 5-41.

increased impacts to coastal communities, including riverine systems located further inland . Research predicts a global increase in the intensity of such storms on average, by 2% to 11%, based on the IPCC mid-range emission scenario projections, as well as a poleward expansion in the latitude at which storms will reach their highest intensity.

Hurricanes and tropical storms are expected to result in more rainfall. This increase has been observed and is expected both globally (IPCC 2014) and for the Atlantic basin, including the U.S. east coast. Based on a synthesis of current science, NOAA predicts that Atlantic hurricanes and tropical storms in the coming century will have higher rainfall rates than present storms, especially near the center of the storm. Hurricane Harvey, which resulted in a record 51.9 inches of rainfall at one station west of Houston, Texas, is one recent example of this trend.

### **Tornadoes/High Winds**

Tornadoes are violently rotating columns of air in contact with and extending between a cloud and the surface of the earth. Generally, winds in most tornadoes are 100 mph or less, but can exceed 250 mph in the most violent and least frequent tornadoes. Several conditions are required for the development of tornadoes and associated thunderstorm clouds, including abundant low-level moisture to contribute to the development of a thunderstorm, along with a trigger/cold front to lift the moist air. Tornadoes usually form in areas where strong winds are turning in a clockwise direction and can be in the traditional funnel shape, or in a slender rope-like form. They typically begin in a supercell (severe thunderstorm), primarily in the month of May.

### ***Measuring the Intensity of a Tornado***

Typically, tornadoes are categorized by frequency values from historic data and area impacted based on the length and width of the damage path. Tornado damage severity is measured by the Fujita Tornado Scale, where wind speed is estimated from the amount of damage. As of February 1, 2007, the National Weather Service began rating tornadoes using the Enhanced Fujita-scale (Table 2-8). The Enhanced Fujita scale is more complicated than the original F-scale, allowing for more precise assessments of tornado severity.

***Table 2-8 Enhanced Fujita Scale***

Fujita Scale			Derived		Operational EF Scale	
F Number	Fastest $\frac{1}{4}$ mile (mph)	3-second gust (mph)	EF Number	3-second gust (mph)	EF Number	3-second gust (mph)
0	40 - 72	45 - 78	0	65 - 85	0	65 - 85
1	73 - 112	79 - 117	1	86 - 109	1	86 - 110
2	113 - 157	118 - 161	2	110 - 137	2	111 - 135

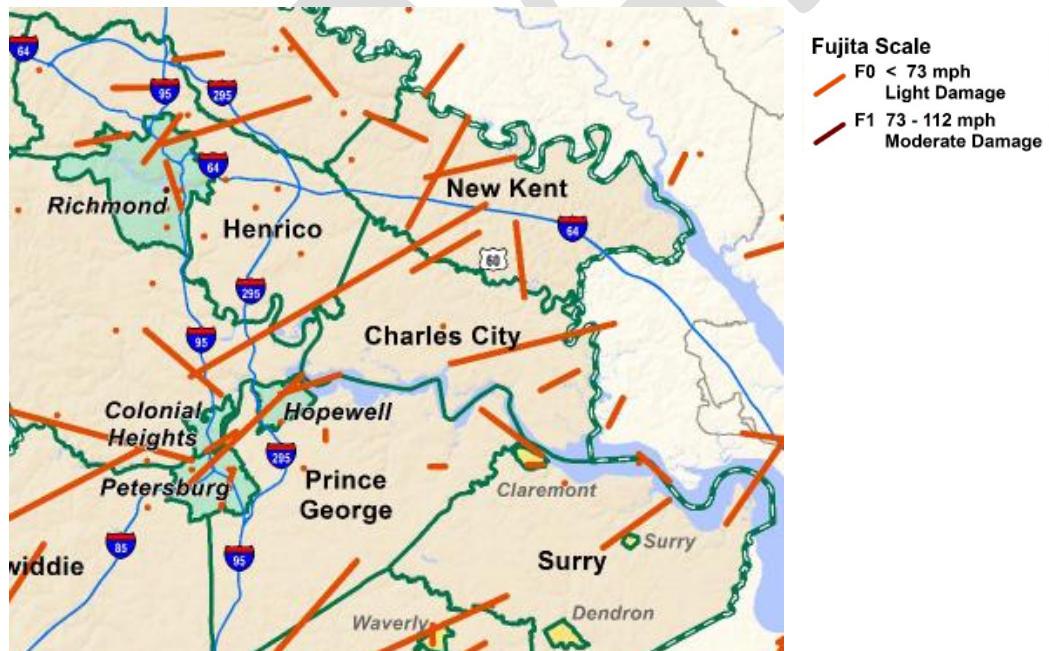
3	158 - 207	162 - 209	3	138 - 167	3	136 - 165
4	208 - 260	210 - 261	4	168 - 199	4	166 - 200
5	261 - 318	262 - 317	5	200 - 234	5	Over 200

Source: NOAA.

Electrical utilities and communications infrastructure are vulnerable to tornadoes. Damage to power lines or communication towers has the potential to cause power and communication outages for residents, businesses and critical facilities. In addition to lost revenues, downed power lines present a threat to personal safety. Further, downed wires and lightning strikes have been known to spark fires. A structure's tornado vulnerability is based on building construction and standards. In general, mobile homes and wood-framed structures (also the predominant building type for the area) are more vulnerable to damage in a tornado than steel framed structures. Other factors, such as location, condition and maintenance of trees also plays a significant role in determining vulnerability.

Figure 2-5 shows the tornado occurrences in the Richmond-Crater Region (more specifically Charles City and New Kent Counties) since 1950, with two tornado touchdowns in Charles City County and thirteen in New Kent County between 1950 and 2017.

**Figure 2-5 Tornado Touchdowns 1950 – 2016**



Source: Richmond-Crater Hazard Mitigation Plan.

Based on the highly likely probability and high vulnerability/impact/warning time score of tornado events identified in the Richmond-Crater Hazard Mitigation Plan, Tribal lands and Tribal members living in the service area are considered at

significant risk for future tornado events. Based on the likely probability and moderate vulnerability and lower impact/warning time score of high wind events identified in the Richmond-Crater Hazard Mitigation Plan (and number of events identified by the NCEI in Table 2-6), Tribal lands and Tribal members living in the service area are considered at limited risk for future high wind events.

### **Lightning/Thunderstorms (including Hail)**

Thunderstorms are formed when the right atmospheric conditions combine to provide moisture, lift, and warm unstable air that can rise rapidly. Thunderstorms occur any time of the day and in all months of the year but are most common during summer afternoons and evenings and in conjunction with frontal boundaries. Thunderstorms affect a smaller area compared with winter storms or hurricanes, but they can be dangerous and destructive for several reasons. Storms can form in less than 30 minutes, giving very little warning; they have the potential to produce lightning, hail, tornadoes, powerful straight-line winds, and heavy rains that produce flash flooding.

All thunderstorms produce lightning, and therefore all thunderstorms are dangerous. Lightning often strikes outside of areas where it is raining and may occur as far as 10 miles away from rainfall. It can strike from any part of the storm and may even strike after the storm has seemed to pass. Hundreds of people across the nation are injured annually by lightning, most commonly when they are moving to a safe place but have waited too long to seek shelter. Tribal lands and Tribal members living in the service area are uniformly affected by lightning and thunderstorms, dependent upon the time of day, existing/incoming weather conditions, and time of year.

Building construction, location, and nearby trees or other tall structures will have a large impact on how vulnerable an individual facility is to a lightning strike. A rough estimate of a structure's likelihood of being struck by lightning can be calculated using the structure's ground surface area, height, and striking distance between the downward-moving tip of the stepped leader (negatively charged channel jumping from cloud to earth) and the object. In general, buildings are more likely to be struck by lightning if they are located on high ground or if they have tall protrusions such as steeples or poles which the stepped leader can jump to. Electrical and communications utilities are also vulnerable to direct lightning strikes. Damage to these lines has the potential to cause power and communications outages for businesses, residences, and critical facilities.

Hail is formed in towering cumulonimbus clouds (thunderheads) when strong updrafts carry water droplets to a height at which they freeze. Eventually, these ice particles become too heavy for the updraft to hold up, and they fall to the ground at speeds of up to 120 MPH. Hail falls along paths called swaths, which can vary from a few square acres to up to 10 miles wide and 100 miles long. Tribal lands and Tribal members living in the service area can be uniformly affected by hail, dependent upon the existing/incoming weather conditions, and time of year.

Structure vulnerability to hail is determined mainly by construction and exposure. Metal siding and roofing is better able to stand up to the damages of a hailstorm than many other materials, although it may also be damaged by denting. Exposed windows and vehicles are also susceptible to damage. Crops are extremely susceptible to hailstorm damage, as even the smallest hail stones can rip apart unsheltered vegetation.

Based on the high frequency and serious severity of lightning/thunderstorm events over time (19 events since 1983), as reported by the National Centers for Environmental Information in Table 2-6, the risk of future lightning/thunderstorm events is considered medium-high.

Based on the highly likely probability, high vulnerability and limited impact/warning time score of lightning/thunderstorm/hail events identified in the Richmond-Crater Hazard Mitigation Plan, Tribal lands and Tribal members living in the service area are considered at limited risk for future lightning/thunderstorm/hail events.

#### **Property at Risk from Wind-Related Events**

In the winter months, Tribal lands and Tribal members living in the service area are susceptible to high winds from nor'easters and winter storms. Spring and summer seasons usually bring several severe thunderstorms to the region. During the late summer and fall seasons, the area is at risk from a hurricane or tropical event. Extended power outages pose serious health and housing dislocation impacts to Tribal members. The elderly and members with health problems or needing special assistance are particularly vulnerable.

#### **Probability of Future Occurrence of Wind-Related Hazards**

Based on the highly likely probability and high vulnerability of hurricanes and tornadoes, Tribal properties and Tribal members living in the service area are at significant risk of future hurricane and tornado events. Based on the likely probability and high vulnerability of high winds, Tribal properties and Tribal members living in the service area are at limited risk. Based on the highly likely probability and high vulnerability of lightning/thunderstorms, Tribal properties and Tribal members living in the service area are at moderate risk for future events.

### **2.3.4 Geologic-Related Hazards**

#### **Earthquakes**

An earthquake is the sudden release of strain energy in the Earth's crust, resulting in energy waves that radiate outward from the earthquake source. The point on the Earth's surface directly above the focus is called the earthquake epicenter. The severity of earthquake effects is dependent upon magnitude of energy released; proximity to the epicenter; depth to the epicenter; duration; geologic characteristics; and type of ground motion.



When earthquakes occur, much of the damage is a result of structures falling under the stress created by the ground movement. Another significant effect is damage to the public and private infrastructure (i.e. water service, communication lines, drainage system). Because earthquakes are highly localized it is difficult to assign regional boundaries that share the same relative degree of risk.

#### *Measuring the Intensity of an Earthquake*

An earthquake's severity can be expressed in terms of intensity and magnitude. Intensity is defined by the observed effects of ground shaking on people, buildings, and the natural environment, which varies dependent upon the location of the observer with respect to the epicenter. Currently in the U.S., the Modified Mercalli (MMI) Intensity Scale is used to evaluate the effects of earthquakes – specifically, it describes how strongly an earthquake was felt at a location, Table 2-9 below. Magnitude is defined by the amount of seismic energy released at the hypocenter of the earthquake, based on the amplitude of the earthquake waves recorded on seismographs (using the Richter Magnitude Scale, Table 2-10). Another measure of the relative strength of an earthquake is the expanse of area the shaking is noticed.

**Table 2-9 Modified Mercalli Intensity Scale**

<b>Mercalli Intensity</b>	<b>Description</b>
I	Felt by very few people, barely noticeable.
II	Felt by few people, especially on upper floors.
III	Noticeable indoors, especially on upper floors, but may not be recognized as an earthquake.
IV	Felt by many indoors, few outdoors. May feel like passing truck.
V	Felt by almost everyone, people have trouble standing. Small objects move, trees and poles may shake.
VI	Felt by everyone, people have trouble standing. Heavy furniture can move, plaster can fall off walls. Chimneys may be slightly damaged.
VII	People have difficulty standing. Drivers feel cars shaking. Some furniture breaks. Loose bricks fall from buildings. Damage is slight to moderate in well-built buildings; considerable in poorly built buildings.
VIII	Buildings suffer slight damage if well-built, severe damage if poorly built. Some walls collapse.
IX	Considerable damage to specially built structures; buildings shift off their foundations. The ground cracks. Landslides may occur.
X	Most buildings and their foundations are destroyed. Some bridges are destroyed. Dams are seriously damaged. Large landslides occur. Water is thrown on the banks of canals, rivers, lakes. The ground cracks in large areas.
XI	Most buildings collapse. Some bridges are destroyed. Large cracks appear in the ground. Underground pipelines are destroyed.
XII	Almost everything is destroyed. Objects are thrown into the air. The ground

	moves in waves or ripples. Large amounts of rock may move.
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Source: USGS, 2012.

**Table 2-10 Richter Magnitude Scale**

Richter Magnitude	Earthquake Effects
2.5 or less	Not felt or felt mildly near the epicenter, but can be recorded by seismographs
2.5 to 5.4	Often felt, but only causes minor damage
5.5 to 6.0	Slight damage to buildings and other structures
6.1 to 6.9	May cause a lot of damage in very populated areas
7.0 to 7.9	Major earthquake; serious damage
8.0 or greater	Great earthquake; can destroy communities near the epicenter

Source: USGS, 2012.

Figure 2-6 shows the significant earthquakes that have impacted Virginia from 1568 – 2009, none of which have been centered in either Charles City or New Kent Counties.

**Figure 2-6 Earthquake Activity**



Source: Richmond-Crater Hazard Mitigation Plan.

Based on the unlikely probability, limited vulnerability and extended notice warning time score of earthquake events identified in the Richmond-Crater Hazard Mitigation Plan, and no events reported by the NCEI Storm Event

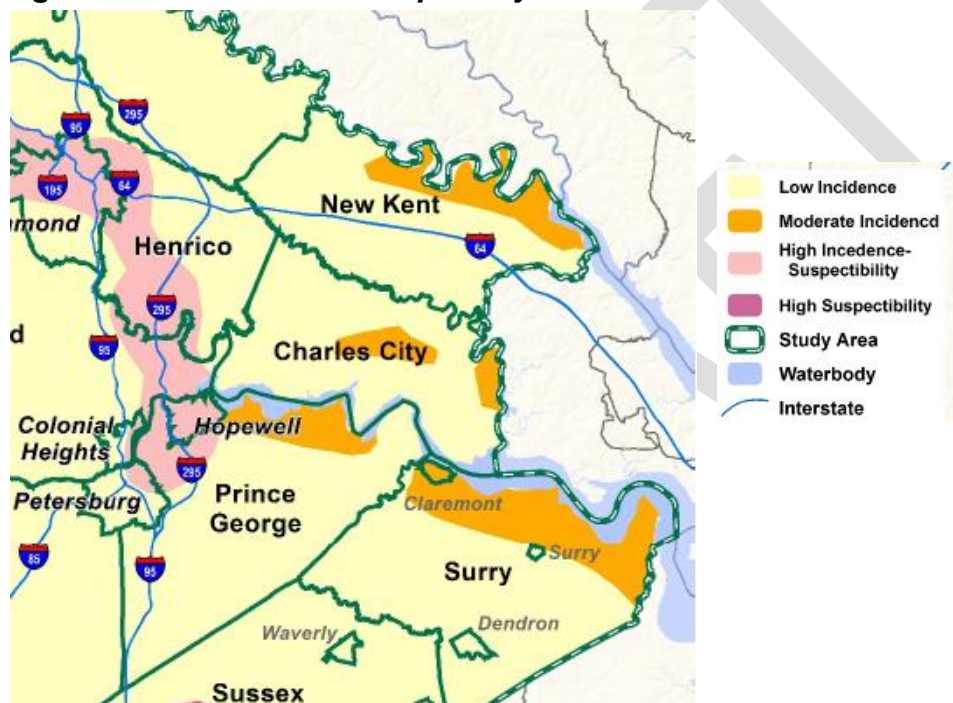
Database, Tribal lands and Tribal members living in the service area are considered at limited risk for future earthquake events.

### **Landslides**

Landslides include a wide range of ground movements, including rock falls, deep failure of slopes, and shallow debris flows. Often caused by a combination of unfavorable geologic conditions (silt clay or thick till deposits), the majority of landslide hazards are located in higher elevations, particularly western and southwestern Virginia.

Figure 2-7 shows the landslide susceptibility and incidence in the Richmond-Crater Area.

***Figure 2-7 Landslide Susceptibility and Incidence***



Source: Richmond-Crater Hazard Mitigation Plan.

Based on the unlikely probability, limited vulnerability and extended notice warning time score of landslide events identified in the Richmond-Crater Hazard Mitigation Plan, and no events reported by the NCEI Storm Event Database, Tribal lands and Tribal members living in the service area are considered at limited risk for future landslide events.

### **Karst**

Karst is a type of topography formed from the dissolution of soluble rocks such as limestone, dolomite, and gypsum, often characterized by sinkholes, caves and underground drainage. Sinkholes are formed from the collapse of land in karst topography.



Based on the unlikely probability, limited vulnerability and extended notice warning time score of karst topography identified in the Richmond-Crater Hazard Mitigation Plan, and no events reported by the NCEI Storm Event Database, Tribal lands and Tribal members living in the service area are considered at limited risk for future karst topographies.

### **Property at Risk from Geologic-Related Hazards**

Tribal lands and Tribal members living in the service area are potentially vulnerable to seismic ground shaking, as no events within either county have been reported. The most vulnerable are wooden and historic buildings constructed of unreinforced masonry. Other critical facilities or infrastructure at risk are unknown; their construction determines their ability to withstand seismic shaking.

### **Probability of Future Occurrence of Geologic-Related Hazards**

Due to the absence of any reported geologic events, Tribal properties and Tribal members living in the service area are considered to be at limited risk for shaking, with potential severity of catastrophic damage should an earthquake occur.

## **2.3.5 Drought - Related Hazards**

### **Drought**

Drought is a temporary irregularity characterized by long durations of below normal precipitation. Drought occurs in virtually all climatic zones yet varies significantly from one region to another, due to its relationship to normal precipitation in that specific region. Drought can affect agriculture, water supply, aquatic ecology, wildlife, and plant life.

Drought can be defined or grouped by the following:

- Meteorological drought is a measure of departure of precipitation from normal, defined solely on the degree of dryness.
- Agricultural drought links various characteristics of meteorological (or hydrological) drought to agricultural impacts with a focus on precipitation shortages, differences between actual and potential evapo-transpiration, soil water deficits, reduced groundwater or reservoir levels, etc.
- Hydrological drought is associated with the effects of precipitation (including snowfall) shortfalls on surface or subsurface water supply and when water supplies are below normal.
- Socioeconomic drought is associated with the supply and demand of some economic goods with elements of meteorological, hydrological, and agricultural drought.

Many factors, such as water supply sources, population, economic factors (i.e., agriculture-based economy), and infrastructure, contribute to the severity and length of a drought event. Tribal lands and Tribal members living in the service area can expect to be uniformly affected by drought conditions. Table 2-11 below

represents the significant drought-related hazard events that have occurred in and around Tribal lands and Tribal members living in the service area (Charles City County) over time, utilizing the NOAA NCEI Severe Storm Database (<http://www.ncdc.noaa.gov/>). All events are county wide (Charles City County), unless otherwise noted.

**Table 2-11 Significant Drought-Related Events, Charles City County**

Hazard Type	Date	Level/ Description	Damages	Notes
<i>Drought</i>				
	9/1/1997		\$2.12 million	Significant crop damage
	11/1976 - 9/1977			10-month drought
	6/1998 - 11/1998			
	12/2001 - 11/2004			
	1/1/2007			10th driest season on record
	7/21/2011			
	7/5/2012			
<i>Extreme/Excessive Heat</i>				
	5/18/1996	90 - 98 degrees		Heat exhaustion; school closings
	7/21/2011	96-103 degrees		Heat index from 110-119
	7/5/2012	96 - 103 degrees		

Source: NOAA National Centers for Environmental Information, [www.ncdc.noaa.gov](http://www.ncdc.noaa.gov/).

Data current through December 2020.

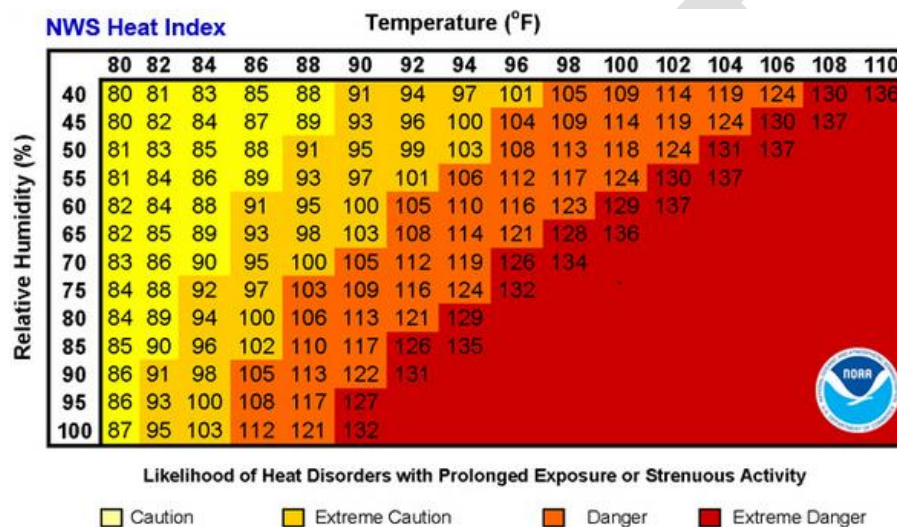
### **Extreme Heat**

Extreme heat occurs when a system of high atmospheric pressure moves into an area. In such a high-pressure system, air from upper levels of our atmosphere is pulled toward the ground, where it becomes compressed and increases temperatures. This high concentration of pressure makes it difficult for other weather systems to move into the area, which is why periods of extreme heat can last for several days, or even weeks. The longer the system stays in an area, the hotter temperatures become. The high pressure inhibits winds, making them faint to almost non-existent. Because the high-pressure system also prevents clouds from entering a region, sunlight can become punishing, increasing temperatures even more. The combination of all these factors come together to create what is known as a heat wave. Typically, a heat wave can last two or more days with significant impacts on human health and/or infrastructure. Heat waves can also cause catastrophic crop failures, cause roads to crumble, and can cause the ground around residences to dry out, leaving them susceptible to subsidence.

NOAA's NWS maintains a Heat Index (Figure 2-8), which is a measure of how hot it really feels when relative humidity is also factored in with actual air temperatures. As an example, if the air temperature is 96°F and the relative humidity is 65%, the heat index, how hot it feels, is 121°F. The NWS also initiates alert procedures when the Heat Index is expected to exceed 105°-110°F (depending on local climate) for at least two consecutive days:

- Caution – fatigue possible,
- Extreme Caution – sunstroke, muscle cramps, and/or heat exhaustion possible,
- Danger – sunstroke, muscle cramps, and/or heat exhaustion likely, and
- Extreme Danger – heat stroke or sunstroke highly likely.

**Figure 2-8 NOAA's National Weather Service Heat Index**



Source: <https://www.weather.gov/phi/heatcond>

Based on the likely probability, limited vulnerability, moderate impact and extended notice warning time score of drought-related events identified in the Richmond-Crater Hazard Mitigation Plan, and number of events reported by the NCEI Storm Event Database, Tribal lands and Tribal members living in the service area are considered at limited risk for future drought-related events.

#### *Climate Change Impacts on Drought-Related Events*

More intense and prolonged heat waves are predicted with climate change. The frequency of days with high temperatures at or above 90°F has already increased (Vallee and Giuliano, 2014).

#### **Property at Risk from Drought-Related Hazards**

Tribal lands and Tribal members living in the service area are uniformly vulnerable to drought with varying impacts based on the degree of moisture deficiency, the duration, and the size and location of the affected area.

Tribal lands and Tribal members living in the service area are uniformly susceptible to extreme heat events. Extreme heat events can cause health problems for Tribal elders and others with health issues. They can also impact the Tribe's agricultural operations and individual home gardens.

### **Probability of Future Occurrence of Drought-Related Hazards**

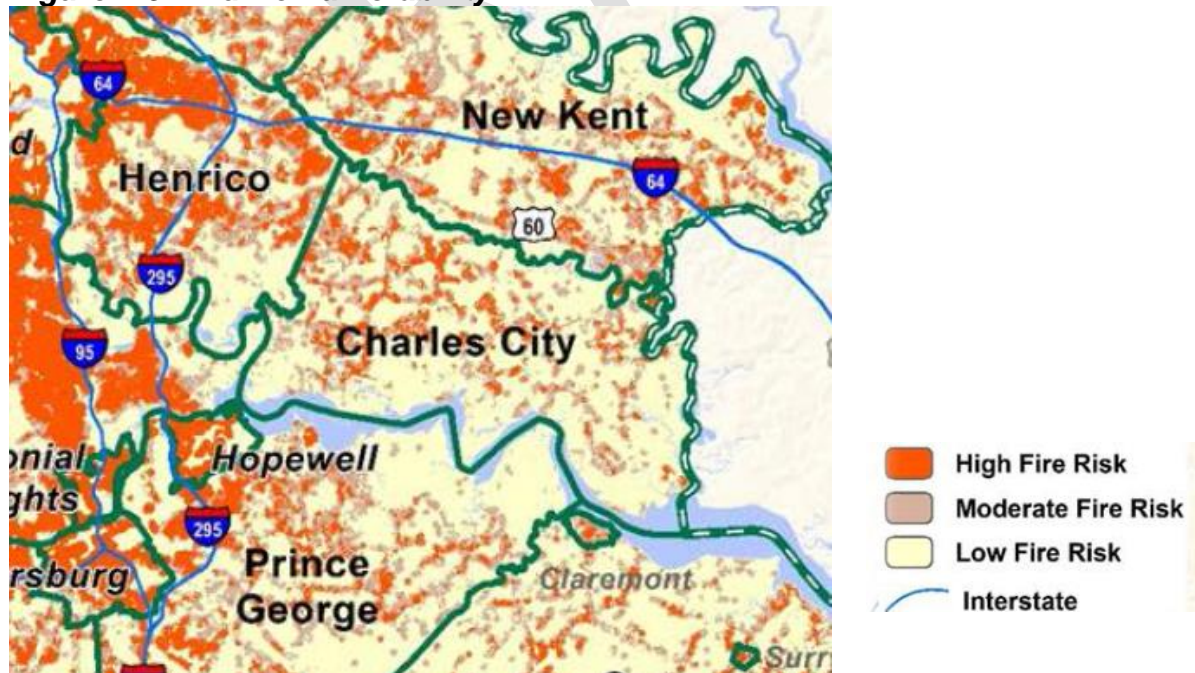
Tribal lands and Tribal members living in the service area are considered at limited risk to future drought-related events.

### **2.3.6 Wildfire – Related Hazard**

Wildfires are defined as any non-structure fire that occurs in the vegetative wildland, including grass, shrub, leaf litter/debris, and forested tree fuels. Small wildfires can be common throughout the State, especially when drought or near-drought conditions warrant, the potential for spreading wildfires is real. The State's Wildland Urban Interface (WUI) – the area where structures and human development meet and intermingle with undeveloped wildland, creates an environment in which fire can move readily between structural and vegetative fuels. The State's WUI includes the Intermix WUI – areas where housing and vegetation intermingle.

Wildfire season in Virginia is typically in March and April (Spring), and again in October and November (Fall) when humidity is lower, and winds are higher. According to the Virginia Department of Forestry, Charles City County is primarily at low risk to wildfire, with interspersed areas of high vulnerability (Figure 2-9).

**Figure 2-9 Wildfire Vulnerability**



Source: Virginia Department of Forestry



Based on the unlikely probability, limited vulnerability, and no notice warning time score of wildfire events identified in the Richmond-Crater Hazard Mitigation Plan, Tribal lands and Tribal members living in the service area are considered at limited risk for future wildfire events.

### **Property at Risk from Wildfire-Related Hazards**

Although there are no physical structures on any of the Tribal properties along the James River, there is a range of flammable vegetation environments which are susceptible to wildfire.

### **Probability of Future Occurrence of Urban Fire/Wildfire Hazards**

The probability of a fire occurring on Tribal properties is unlikely, however the threat is real and potential severity serious. All Tribal properties and Tribal members living in the service area are considered at limited risk for future wildfire-related events.

## **2.3.7 Mass Evacuation – Related Hazard**

The need for a mass evacuation depends on the likelihood, timing and location of a hazard (e.g. hurricane, explosion/terrorist incident, etc.). Mass evacuation from urban areas can strain a community's resources and cause gridlock on major transportation routes, overcrowding of hospitals and shelters, and increased load on local utilities' infrastructure leading to potential failure.<sup>10</sup> The Virginia Department of Transportation (VDOT) has identified evacuation routes in collaboration with various localities, implementing the Emergency Alert System (EAS) to provide information on evacuation within the Richmond Extended EAS area.

Based on the unlikely probability, limited vulnerability, and extended notice warning time score of mass evacuation events identified in the Richmond-Crater Multi-Regional Hazard Mitigation Plan, Tribal lands and Tribal members living in the service area are considered at limited risk for future mass evacuation events.

### **Property at Risk from Mass Evacuation Hazards**

Due to the unpredictability of mass evacuation events, it is difficult to identify vulnerable areas that may be impacted. Typically, mass evacuations have the potential to overload transportation systems, shelters, and medical care facilities depending on the type, severity and duration of the hazard event. As a result, Tribal lands and Tribal members living in the service area along interstates and major highways are more likely to be impacted. The Charles City County properties are located far enough away from the major interstates, and thus, do not pose a threat to Tribal lands and Tribal members living in the service area.

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<sup>10</sup> Richmond-Crater Multi-Regional Hazard Mitigation Plan, p. 5-81.

The New Kent property is located several miles south of Interstate 64 on North Courthouse Road in Providence Forge and does not pose a threat to Tribal lands and Tribal members living in the service area.

### **Probability of Future Occurrence of Mass Evacuation Hazards**

In anticipation of Hurricane Floyd in September 1999, more than three million people were evacuated from Florida to the North Carolina coastline, and to a lesser extent from the Virginia coast.<sup>11</sup> A major concern for the region is the possibility of a mass evacuation of the coastal areas of Virginia and North Carolina due to a hurricane threat, or from the Northern Virginia/Washington D.C. metro area due to a potential or actual terrorist attack.<sup>12</sup> Based on the unlikely probability, limited vulnerability, and extended notice warning time score of mass evacuation events identified in the Richmond-Crater Multi-Regional Hazard Mitigation Plan, Tribal lands and Tribal members living in the service area (Charles City County) are considered at limited risk for future mass evacuation events.

Similarly to the Charles City County properties, based on the unlikely probability, limited vulnerability, and extended notice warning time score of mass evacuation events identified in the Richmond-Crater Multi-Regional Hazard Mitigation Plan, Tribal lands and Tribal members living in the service area (New Kent County) are considered at limited risk for future mass evacuation events.

### **2.3.8 Communicable (Infectious) Disease – Related Hazard**

An infectious disease is an illness due to a specific infectious agent or its toxic products that arises through transmission of that agent or its products from an infected person, animal, or inanimate source to a susceptible host, either directly or indirectly through an intermediate plant or animal host, through a vector, or through contact with the inanimate environment. Diseases such as pertussis, and most recently, COVID-19, are examples of infectious diseases that can pose a threat to a community's population. To gauge the potential impact of disease on the state's human population, it is helpful to classify disease occurrences according to the following:

- **Isolated case of a high-consequence disease:** One or more cases of a particularly serious disease whose further spread is unlikely yet place significant strain on the resources required to isolate and provide treatment.
- **Institutional outbreak:** Two or more cases of similar illness with a common exposure at an institution.
- **Epidemic:** An increase, often sudden, in the number of cases of a disease above what is normally expected in the population.

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<sup>11</sup> Richmond-Crater Multi-Regional Hazard Mitigation Plan, p. 5-81.

<sup>12</sup> Ibid, p. 5-82.

- **Pandemic:** An epidemic that has spread over several countries or continents affecting many people.

The extent of an infectious disease's impact depends greatly on a number of factors, including:

- The disease's transmissibility, virulence, and pathogenesis,
- Environmental conditions,
- Modes of transmission,
- Individuals' vulnerability factors, such as population densities and/or underlying medical conditions/comorbidities,
- Quality, availability, and equity of healthcare services,
- Immunization history, and
- Availability/accessibility of medical treatment to protect against and treat the disease.

The Chickahominy Health District Emergency Preparedness and Response Team (facilitated through the Virginia Department of Health (VDOH) is responsible for disaster planning throughout Charles City, Goochland County, Hanover County, and New Kent County.

Table 2-12 presents data from the Chickahominy Health District's top communicable diseases for 2018. According to the VDOH, the top communicable diseases for Charles City County in 2018 was Hepatitis C and Salmonellosis with 5 cases each.

**Table 2-12 Infectious Disease Outbreaks, Charles City County, 2009 - 2018**

Condition	Number of Cases									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Anaplasma/ Ehrlichiosis						1				1
Campylobacteriosis	2		1		1			1	2	
Giardiasis									1	
Hepatitis B, Chronic	1	1			1		1		3	
Hepatitis C, Acute			1							
Hepatitis C, Chronic	15	6	5		4	6	8	4	6	5
Lead, Elevated Levels										2
Legionellosis		1				1			1	
Lyme Disease	1	1		1	1				1	1
Pertussis			4							
Salmonellosis	6	4		3	4	1	4	1	3	5
Streptococcus, Group A								1		

Shigellosis										1
Spotted Fever Rickettsiosis		1	2	1	1	1			1	
Tuberculosis				1						
Varicella (Chickenpox)	3						2			
Shigellosis										

Source: <https://www.vdh.virginia.gov/data/communicable-diseases/>.

Most recently (January 2020) the Corona Virus pandemic was circulating the world. The first confirmed case of COVID-19 was reported in the Commonwealth of Virginia on March 7, 2020, and within a week, school and businesses began to close, and travel was limited. A state of emergency was declared in early March, and by the end of March, Governor Northam issued a stay-at-home order. Mid-summer brought additional restrictions imposed on restaurants and bars, and social distancing regulations in public spaces. By August 11, 2020, there were 15 outbreaks of COVID-19 at poultry and meat processing plants in Virginia, resulting in a total of 1,224 confirmed cases, 49 hospitalizations and 10 deaths. As predicted by federal, state and local public health officials, the fall of 2020 brought unprecedented surges in outbreaks, hospitalizations and deaths. As of January 14, 2021, 417,839 positive cases and 5,626 deaths have been reported by the Virginia Department of Health. The COVID-19 pandemic has been a threat to the continuity of businesses and government, given the number and severity of mandated lockdowns, and in turn, a continued threat to job, home and food insecurities.

Based on the highly likely probability and vulnerability, and extended notice warning time score of communicable (infectious) disease-related events, in addition to the frequency and probability of continued COVID strains, Tribal lands and Tribal members living in the service area are considered at moderate risk for future communicable (infectious) disease-related hazards.

### **Population at Risk from Communicable (infectious) Disease-Related Hazards**

Charles City County and New Kent County are equally susceptible to the spread of infectious diseases, however, in crowded urban centers where people are in close-proximity and contact with one another, transmission can be exacerbated.

### **Probability of Future Occurrence of Communicable (infectious) Disease-Related Hazards**

Until the federal government, and in turn, State of Virginia, roll out a reliable vaccination plan for COVID-19, and supplies of vaccines are accelerated, the County will continue to be at moderate risk to future occurrences (infected residents, increased hospitalizations and increased number of deaths.



The probability of incidents (Charles City County/New Kent County) that result from infectious disease is difficult to predict, however, with such incidents occurring every year, the probability of an incident over the next year has a highly likely probability, particularly given the transmissibility of COVID-19. The probability of an event progressing to the epidemic or pandemic stage within the same time period, is clearer than ever now.

### 2.3.9 Terrorism (Intentional) - Related Hazards

The term terrorism most often refers to intentional, criminal, malicious acts that originate from human activity. Although there is no single, universally accepted definition of terrorism, the Code of Federal Regulations (CFR) defines terrorism as “the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.”<sup>13</sup>

#### **Biological Incident**

A biological incident can be characterized by the accidental or intentional release of naturally occurring biological diseases by way of a biological agent, including:

- **Bacteria:** single-cell organisms that are the causative agents of anthrax, brucellosis, tularemia, plague, as well as other diseases.
- **Rickettsia:** micro-organisms that resemble bacteria in their form and structure, however, differ in that they can reproduce inside animal cells as intracellular parasites (Typhus, Rocky Mountain spotted fever, and Q fever).
- **Viruses:** intracellular parasites that are about 100 times smaller than bacteria infecting humans, crops, and domestic animals.
- **Fungi:** can cause severe disease in humans, such as coccidioidomycosis (valley fever) and histoplasmosis.
- **Toxins:** poisonous substance made by a living system, or a synthetic analogue of a naturally occurring poison (ricin and botulinum toxin).

Biological agents used as weapons fall into three groups: bacteria; viruses; and toxins. Many are difficult to grow and maintain, while many become non-toxic when exposed to environmental factors such as sunlight. On the other hand, others can be very long-lived. Biological agents are deadly in and of themselves, however, the method and accuracy of their delivery determines the overall severity of their damage.

The severity of a biological incident depends on the routes of exposure and means of delivery, including:

- **Inhalation:** The biological agent is aerosolized in a particle size that could be inhaled by an individual.

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<sup>13</sup> 28 CFR, Section 0.85.

- **Injection:** The introduction of an agent into an individual by penetrating the skin barrier (syringe).
- **Ingestion:** Swallowing the agent or toxin.
- **Absorption:** Absorption of an agent by an individual's body, most readily through the mucous membranes.
- **Person-to-person:** Infecting an individual through a variety of means (including those listed above), with the hope of further community spread.

Based on the limited ranking score identified in the Charles City County Emergency Operations Plan, Tribal lands and Tribal members living in the service area are considered at limited risk to future biological incident-related hazards.

### **Population at Risk from Biological Incident-Related Hazards**

Charles City County and New Kent County are equally susceptible to a biological incident dependent upon the route of exposure and means of delivery, as described above. In crowded areas where people are in close-proximity and contact with one another, risks can be elevated.

### **Probability of Future Occurrence of Biological Incident-Related Hazards**

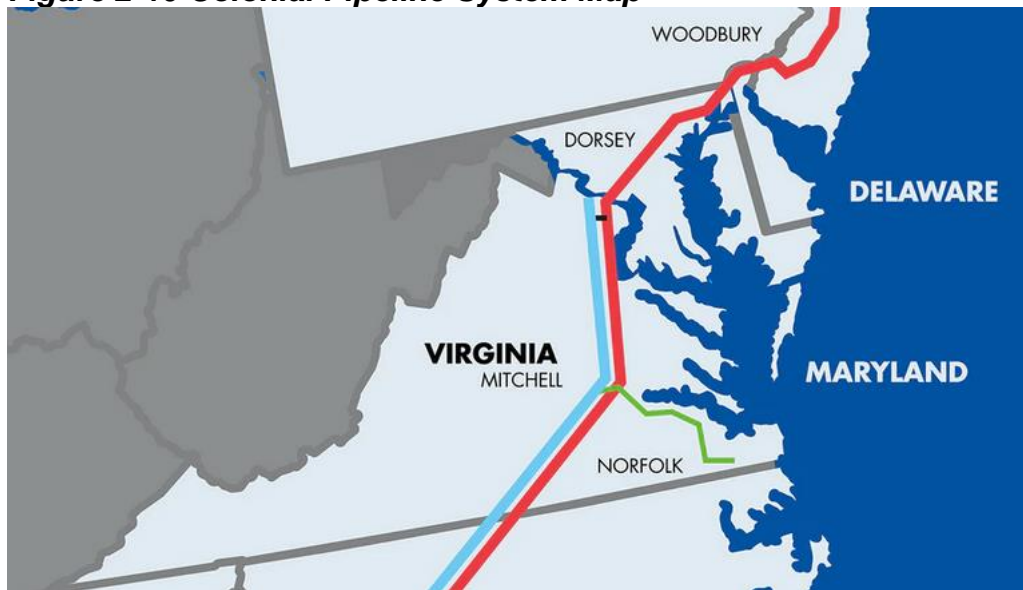
There is an unlikely probability of a biological incident occurring in either Charles City County or New Kent County.

### **Chemical/Hazardous Materials Release Incident**

A chemical/hazardous material release incident is characterized as an unexpected uncontrolled release of a chemical from its containment, and typically occur at fixed-site facilities that manufacture, store, process, or otherwise handle hazardous materials. Also, chemical/hazardous materials release incidents can also occur along major roadways, railways, waterways, and pipelines.

Directly to the west of Tribal lands and Tribal members living in the service area is the Colonial Pipeline, the largest refined pipeline in the U.S. The pipeline transports over 100 million gallons of petroleum products (e.g. gasoline, distillate, kerosine and jet fuel) each day from Houston, Texas to New York Harbor (Figure 2-10). Colonial maintains an Incident Command System (ICS), Hazardous Waste Emergency Response protocols, and contractual relationships with Oil Spill Removal Organizations (OSROs) to support an emergency response effort.

**Figure 2-10 Colonial Pipeline System Map**



Source: <https://www.colpipe.com/about-us/our-company/system-map>

The Charles City County Emergency Operations Plan includes Emergency Support Function (ESF) #10 Hazardous Materials which refers to a 'Response to hazardous material incidents, preventing or minimizing the loss of life and property and to assist with the rescue, warning and other operations required. Responses at the Federal level: U.S. Environmental Protection Agency (EPA), State level: Virginia Department of Environmental Management (VDEM), and local level: County Fire/Emergency Management Services, Environmental Engineering.

Based on the significant ranking score identified in the Charles City County Emergency Operations Plan, Tribal lands and Tribal members living in the service area are considered at significant risk to future chemical/hazardous materials release incident-related hazards.

#### **Population at Risk from Chemical/Hazardous Materials Release Incident-Related Hazards**

Charles City County and New Kent County are equally susceptible to a chemical/hazardous materials release incident-related hazard as shipments of these materials move through the State at any given time via roadway networks, rail, air and water.

#### **Probability of Future Occurrence of Chemical/Hazardous Materials Release Incident-Related Hazards**

Based on the range of facilities, and transportation routes in and through Charles City County and New Kent County there is a likely probability of a chemical/hazardous materials release incident occurring.

### **Cybersecurity Incident**

A cybersecurity incident can be characterized as any incident that threatens the confidentiality, integrity, and accessibility of an information system or its' processes, in violation of security policies and practices. Often, cybersecurity incidents require effective response to minimize loss of critical information, but also for continuity of services and security. Although cybersecurity incidents occur frequently, the type of attacks vary significantly and can be classified into three categories:

- **Hacktivists/Petty Criminals:** Constitute most cyber-attacks on the Internet, typically conducted by single individuals or unaffiliated groups using little technical skill and sophistication.
- **Organized Crime/Cyber-terrorists:** Target a specific person or entity for financial gain, intellectual property, or blackmail. These structured attacks tend to be more organized and planned, relying on insider knowledge.
- **Sophisticated Nation States:** Although limited in number, these attackers conduct reconnaissance over long periods of time, with sophisticated preparation and organization.

The risks associated with cybersecurity attacks range from data breaches, personal financial loss, and disruptive actions that carry out social and/or political objectives, including:

- **Internet of Things (IoT):** Presents unique security challenges (data breaches) due to the number of interconnected devices and systems present, and not created with security in mind.
- **Cyber theft:** Cyber thieves hacking customer accounts, stealing names, credit and debit card numbers, encrypted PIN data, and card expiration dates (personal financial loss).
- **Advanced Persistent Threat (APT):** Threat actors gaining unauthorized access to computer systems as a means of carrying out various disruptive actions to achieve political or social objectives.

In August 2019, the New Kent Public School system was the victim of a cyber security attack. The breach was a Ransomware Cyber Attack of files located on the school systems' internal hard drive that were encrypted to become inaccessible without a ransom payment. The school system hired cyber security experts and a technical team to both investigate the breach and to bring the technology back online.<sup>14</sup>

Based on the limited ranking score identified by the THMC, Tribal lands and Tribal members living in the service area are considered at limited risk to future cybersecurity incident-related hazards.

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<sup>14</sup> <http://nkccnews.com/local-news/2019/08/26/new-kent-public-schools-victim-cyber-security-attack/>

### **Population at Risk from Cybersecurity Incident-Related Hazards**

Charles City County and New Kent County are equally susceptible to a cybersecurity incident-related hazard.

### **Probability of Future Occurrence of Cybersecurity Incident-Related Hazards**

Because cybersecurity incident related hazards are difficult to predict, there is a likely probability of a cybersecurity incident occurring in either or both counties.

### **Explosive Incident**

The Federal Bureau of Investigation (FBI) defines terrorism as the “the unlawful use of force or violence against persons or property to intimidate, or coerce a government, civilian population, or any segment thereof in the furtherance of political and social objectives.”<sup>15</sup> A more recent trend in terrorist threats is the use of weapons of mass destruction (WMD) and improvised explosive devices (IEDs) which require a relatively low level of skill to produce. Vehicle borne improvised explosive devices (VBIED) have also become a trend in terrorist attacks.

The threat an IED poses begins within an adversary’s motives and intent to do harm. It becomes a “credible” threat if and when the adversary has the “capability” of doing the intended harm, and if the target has the vulnerability that will facilitate the harmful contact. Specific to IED attacks, ‘capability’ would include possessing (1) knowledge to build, place, and function an explosive device, and (2) access to materials needed to construct the device (possibly to manufacture the explosive itself). Components consistent with IED threat capabilities include financial support, physical support networks, size of cell with direct operational responsibility, amounts of constituent materials reasonably accessed for the device, gadgeteering skills in construction, technical expertise, and tactical proficiency. If the adversary possesses all the necessary capabilities to carry out the intended threat, they then become limited only by their imagination.

While damages from VBIEDs are directly related to the materials used, the amount of the materials, the placement of the vehicle, the vulnerability of the structure, and other considerations such as occupancy, they have the potential to kill hundreds, create significant social impacts, damage or destroy critical infrastructure and key resources, and undermine confidence in government.<sup>16</sup>

Based on the moderate ranking score identified in the Charles City County Emergency Operations Plan, Tribal lands and Tribal members living in the service area are considered at moderate risk to future WMD/explosive incident-related hazards.

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<sup>15</sup> Federal Bureau of Investigation, 2005, Terrorism 2002 – 2005.

<sup>16</sup> Report on the Commonwealth Threat Hazard Identification and Risk Assessment (C-THIRA), p. 18.

### **Population at Risk from WMD/Explosive Incident-Related Hazards**

Charles City County and New Kent County are equally vulnerable to WMD/explosive incident-related hazards.

### **Probability of Future Occurrence of WMD/Explosive Incident-Related Hazards**

It is difficult to predict when and where the next WMD/explosive incident is likely to occur. Based on the civil unrest recently experienced at our nations' Capitol, there is always the potential for a WMD/explosive incident to occur in and around either or both counties.

### **Radiological/Nuclear Incident**

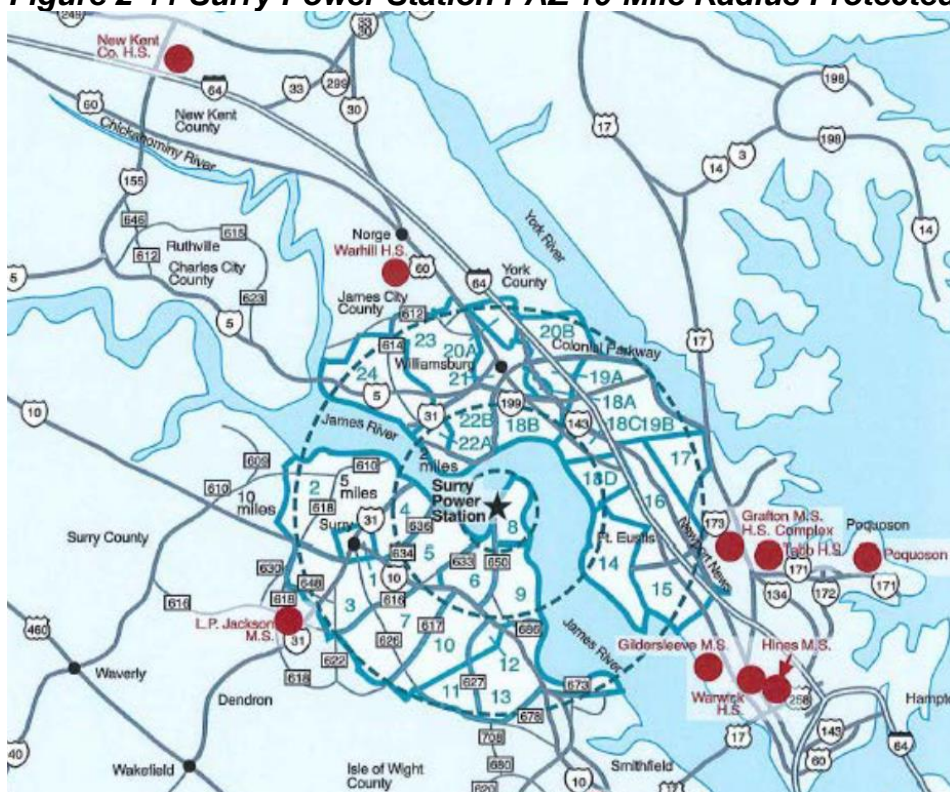
A radiological/nuclear incident can be characterized as the uncontrolled release of radioactive material that can harm people or damage environmental resources. They typically involve nuclear assemblies, research, production, or power reactors and chemical operators. The Nuclear Regulatory Commission (NRC) provides guidance on these facilities and requires the development of response priorities and processes for a radiological event. The potential impacts from a nuclear event rely heavily on the nature of the event, as well as the weather conditions experienced during the time of the event. The NRC has developed an emergency classification system to indicate the risk of a radiological incident to the public, including:

- **Notification of Unusual Event:** Events are in process or have occurred which indicate potential degradation in the level of safety of the plant (no release of radioactive material requiring offsite response/monitoring).
- **Alert:** When declared, events are in process or have occurred which involve an actual or potential substantial degradation in the level of safety of the plant (releases of radioactive material are expected to be limited to a small fraction of the Environmental Protection Agency (EPA) Protective Action Guidelines (PAG) exposure levels).
- **Site Area Emergency:** Involves events in process, or which have occurred that result in actual or likely major failures of plant functions needed for protection of the public (releases of radioactive material not expected to exceed the EPA PAG exposure levels except near the site boundary).
- **General Emergency:** Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential loss of containment integrity (releases can reasonably be expected to exceed the EPA PAG exposure levels offsite).

Dominion Energy owns and operates two nuclear reactors for power generation, the Surry Nuclear Power Station located in Surry, Virginia (southeastern Virginia along the bank of the James River) and the North Anna Power Station located in Louisa County. Both Charles City and New Kent Counties are located outside the 10-mile radius Protected Action Zone (PAZ) for both plants, however, portions of both fall counties fall within the 50-mile Ingestion Exposure Pathway (Figure 2-11) of the Surry Power Station.



**Figure 2-11 Surry Power Station PAZ 10-Mile Radius Protected Action Zone**



Source: <https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/global/nuclear/surry-power-station/protective-action-zones-and-evacuation-assembly-centers.pdf?la=en&rev=8978af8f17ad4fa28ff5eadfb3d36d33&hash=635FD11FF638FA252EA2B161210EE8CE>

Currently, no Virginia nuclear power plant has had an event that has been classified as greater than a 'Notification of an Unusual Event'. That notification occurred as a result of the Louisa Earthquake that forced the shutdown of the North Anna reactors, 11 miles from the epicenter of the quake. However, historical events such as the Chernobyl, Three Mile Island, and more recently Fukushima and their subsequent impacts illustrate the need to identify this as a hazard and risk.<sup>17</sup>

Based on the moderate ranking score identified in the Charles City County Emergency Operations Plan, Tribal lands and Tribal members living in the service area are considered at moderate risk to future radiological/nuclear incident-related hazards.

### **Population at Risk from Radiological/Nuclear Incident-Related Hazards**

Both counties are vulnerable to radiological/nuclear incident-related hazards.

<sup>17</sup> Ibid, p. 18.

### **Probability of Future Occurrence of Radiological/Nuclear Incident-Related Hazards**

Though the risk remains, there is an unlikely probability of a radiological/nuclear incident occurring in the near future for Charles City County or New Kent County.

### **Civil Disturbance Incident**

FEMA defines civil disturbance activity as “an activity such as a demonstration, riot, or strike that disrupts a community and requires intervention to maintain public safety.”<sup>18</sup> Often, civil disturbances arise from spontaneous acts by individuals or a group seeking to gain attention for something they feel is unjust, such as a political grievance, social justice conflict, or response to the demand for goods and services. Citizens have the right to peaceful assembly, and not all assemblies result in violence. The public safety concern is for those assemblages that cause an immediate danger or result in damage or injury to property or person(s) participating or passersby.

As civil disturbances are often spontaneous in nature, it is difficult to predict when and where they may occur. With advancements in technology, such as social media, small gatherings can quickly turn into large, disruptive gatherings. The severity of a civil disturbance incident varies and depends on the nature of the disturbance as well as the size of the crowd gathered. A low severity disturbance often results when police are dispatched to control traffic. A moderate severity disturbance is considered when businesses are disrupted or the result of property damage, requiring police intervention to restore order. Severe disturbance incidents typically involve some form of rioting, arson, assault, and potential death, warranting aggressive police intervention.

Based on the limited ranking score identified in the Charles City County Emergency Operations Plan, Tribal lands and Tribal members living in the service area are considered at limited risk to future civil disturbance incident-related hazards.

### **Population at Risk from Civil Disturbance-Related Hazards**

Charles City County and New Kent County are vulnerable to civil disturbance incident-related hazards.

### **Probability of Future Occurrence of Civil Disturbance Incident-Related Hazards**

Though the risk remains, there is an unlikely probability of a civil disturbance incident occurring in the near future for Charles City County or New Kent County.

### **2.3.10 Other (Accidental) Hazards**

This section incorporates human-related hazards considered to be ‘accidental’ in nature rather than intentional or acts of terrorism previously discussed.

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<sup>18</sup> FEMA, n.d. Glossary: Civil Disturbance.



## **Fire**

Fire and rescue services for Charles City County are provided by volunteers of the Charles City County Volunteer Fire/EMS Department, with additional support under a supplemental contract with Emergency Training Systems (ETS) Inc. Together, they are the only two firefighting and emergency medical service providers operating from three stations in Charles City County:

- Station 1: 7100 Adkins Road
- Station 2: 106 Roxbury Industrial Center
- Station 3: 14330 Wilcox Nueck Road

According to the National Fire Incident Reporting System (NFIRS), annual structure fire counts for the Charles City Volunteer Fire Department averaged eight structure fires annually from 2010 – 2016<sup>19</sup> in addition to a number of other service calls (Table 2-13).

**Table 2-13 Incident/Call Summary, Charles City County 2011 - 2015**

<b>Incident Type</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>Total</b>
Fires	38	40	30	44	29	181
EMS/Rescue	73	485	540	613	241	1,952
Hazardous Condition	22	12	5	5	4	48
Service Calls	9	19	16	11	6	61
Good Intent	21	44	41	47	23	176
False Alarm	18	19	6	10	3	56
Other	0	2	3	0	0	5
<b>Total Incidents</b>	<b>181</b>	<b>621</b>	<b>641</b>	<b>730</b>	<b>306</b>	<b>2,479</b>
Aid Given	8	3	10	47	2	70
Exposures	0	0	0	0	0	0
<b>Total</b>	<b>184</b>	<b>625</b>	<b>651</b>	<b>777</b>	<b>308</b>	<b>2,545</b>

Source: Charles City County Fire and EMS Study Report of Findings and Recommendations, May 2016, p. 28.

In May 2016, the Charles City County Board of Supervisors commissioned the *Charles City County Fire and EMS Study* to provide guidance on the challenges with fire and rescue services, as well as increasing operational capabilities. Primary findings from study focused on the steady decline in the number of volunteer firefighters and emergency medical service providers in Charles City County, while the demand for services continues to increase. Recommendations include:

- Implement a Fire District Tax Levy to generate funds,
- Renegotiate the contract with ETS for improved accountability,

<sup>19</sup> <https://firecares.org/departments/77171/charles-city-volunteer-fire-department>

- Develop a data-driven Strategic Plan,
- Adopt Standard Operating Procedures (SOPs) and Guidelines, and
- Implement methods to increase human capital, recruitment and retention.

The Charles City County Emergency Operations Plan includes ESF #4 Fire Fighting which ‘Directs and controls operations regarding fire suppression, technical rescue, hazardous materials and emergency medical services’.

Based on the moderate ranking score identified in the Charles City County Emergency Operations Plan, Tribal lands and Tribal members living in the service area are considered at moderate risk to future fire-related hazards.

### **Population at Risk from Fire-Related Hazards**

Both counties are equally vulnerable to fire-related hazards.

### **Probability of Future Occurrence of Fire-Related Hazards**

Structural fires are difficult to predict. Given the limited number of structural fires annualized over time, balanced with the challenges identified regarding both County’s ability to maintain volunteers/manpower to staff emergencies, structural fires will continue to be likely, at varying degrees of severity.

### **Mass Casualty**

FEMA defines a mass casualty incident as “any event, planned or unplanned, that results in the need to provide medical care to patients outside of traditional hospital settings. Broadly, incidents are divided into planned events (special events—like a sporting event or political protest) and unplanned incidents (such as terrorism, earthquakes, natural disasters, or weather-related triggering mechanisms).”<sup>20</sup> Typically, a mass casualty incident is an emergency situation where the number of patients overwhelms available resources and triggers a change in the way patients are handled to more efficiently allocate resources to treat those most in need as quickly as possible. Often, this means patients are handled in order of severity rather than first come, first served (also known as triage).

Based on the moderate ranking score identified in the Charles City County Emergency Operations Plan, Tribal lands and Tribal members living in the service area are considered at moderate risk to future mass casualty-related hazards.

### **Population at Risk from Mass Casualty Incident-Related Hazards**

Both counties are equally susceptible to a mass casualty incident.

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<sup>20</sup> FEMA Operational Templates and Guidance for EMS Mass Incident Deployment, June 2012.

## Probability of Future Occurrence of Mass Casualty Incident-Related Hazards

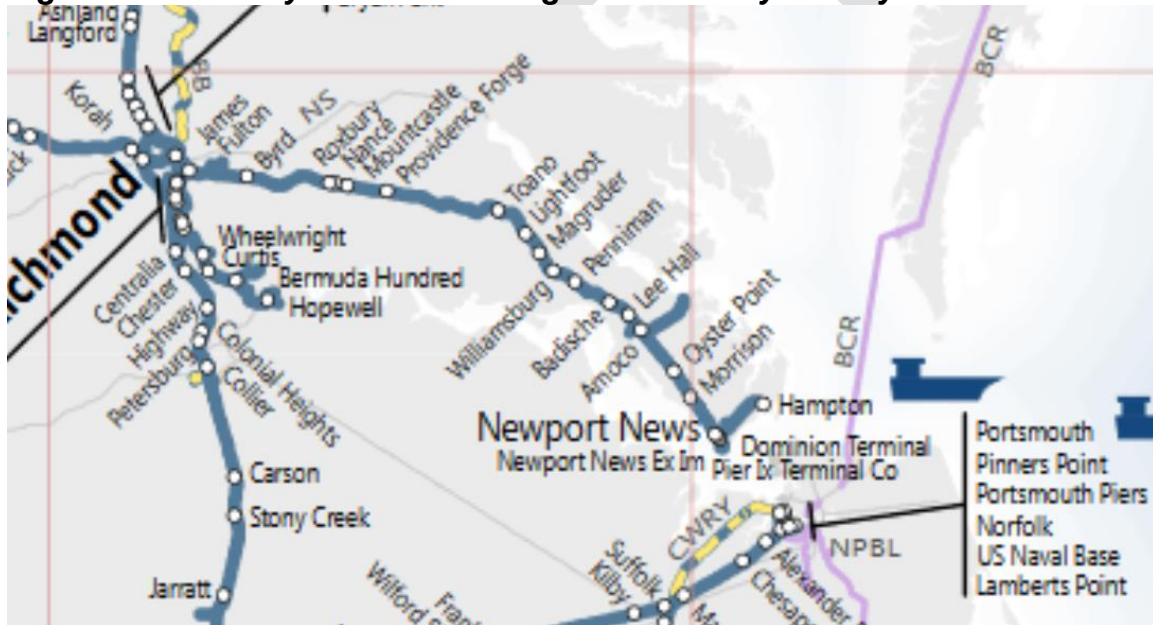
Although Charles City County and New Kent County have not experienced any mass casualty incidents, the risk remains as a low probability for future mass casualty incidents.

### Railroad Derailment

A railroad derailment is characterized when a train runs off its rails as a result of a collision with an object, an operational or mechanical failure, or a mechanical failure of tracks.

CSX operates a rail line that runs through the northwest section of Charles City County (Figure 2-12).

**Figure 2-12 CSX System Line through Charles City County**



Source: <https://www.csx.com/index.cfm/library/files/customers/maps/printable-system-map/>

The last reported railroad derailment in the County was back in 1994 when a truck crossing route 106 slammed into a moving CSX train, derailing 15 of the 150 empty coal cars. The driver was killed, and cause of the accident was assumed to be brake failure, due to witness accounts and the lack of skid marks on the road.<sup>21</sup>

Based on the moderate ranking score identified in the Charles City County Emergency Operations Plan, Tribal lands and Tribal members living in the

<sup>21</sup> <https://www.dailypress.com/news/dp-xpm-19941004-1994-10-04-9410040319-story.html>

service area are considered at moderate risk to future railroad derailment-related hazards.

### **Population at Risk from Railroad Derailment-Related Hazards**

The northwest section of Charles City County is equally susceptible to a railroad derailment-related incident, while the southwest section of New Kent County is equally susceptible to a railroad derailment-related incident.

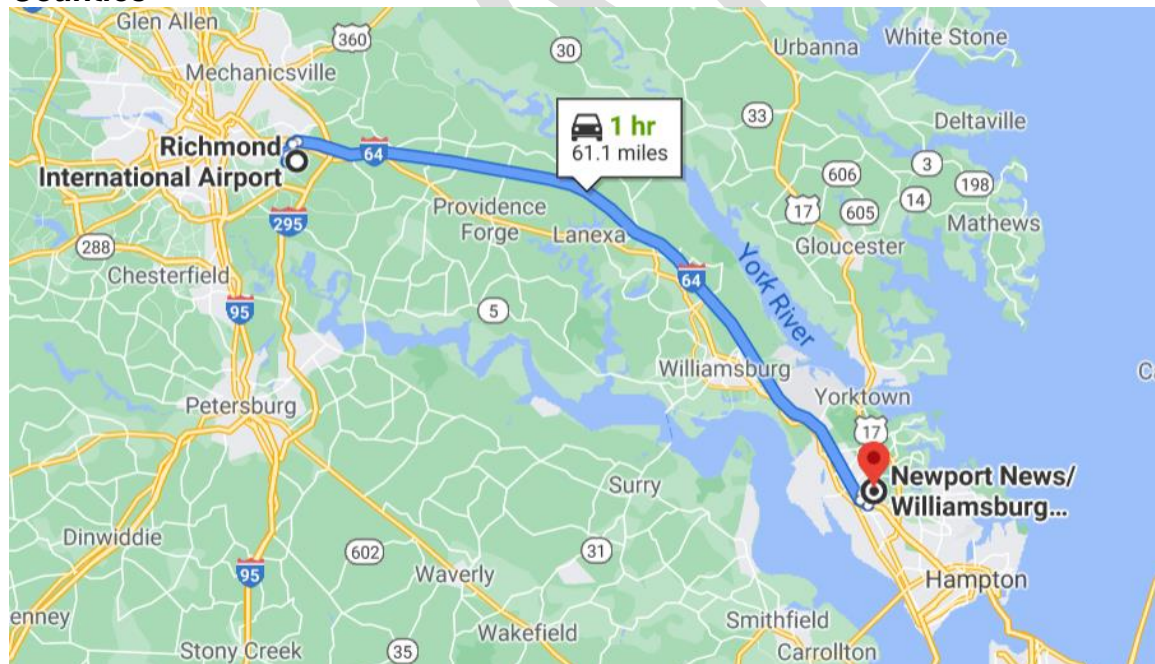
### **Probability of Future Occurrence of Railroad Derailment-Related Hazards**

Railroad derailments are historically low in numbers, the risk remains as a low probability for future railroad derailment-related incidents in either county.

### **Airplane Crash**

Airplane crashes can occur for a variety of reasons including pilot/operator error, mechanical failure, severe weather, or from an impact with another aircraft or bird (s). There are no airfields located in Charles City County, however, the Richmond International Airport is located northwest of Charles City and New Kent Counties, while the Newport News/Williamsburg Airport is located to the southeast of both counties (Figure 2-13).

**Figure 2-13 Location of Regional Airports to Charles City/New Kent Counties**



Source: Google Earth

Based on the moderate ranking score identified in the Charles City County Emergency Operations Plan, Tribal lands and Tribal members living in the service area are considered at moderate risk to future airplane crash hazards.

### **Population at Risk from Airplane Crash-Related Hazards**

Dependent upon specific flight patterns associated with the two airports in and around Charles City and New Kent Counties, both are equally susceptible to a future airplane crash incident.

### **Probability of Future Occurrence of Airplane Crash-Related Hazards**

No airplane crashes have been reported for either counties, therefore there is a low probability for future airplane crash-related incidents.

### **Dam Failure**

A dam is any artificial barrier with the ability to impound water, wastewater, or any liquid-borne material for the purpose of storage or water control. Dam inundation/failure can be a catastrophic type of failure characterized by the sudden, immediate, and uncontrolled release of impounded water, or the likelihood of such an uncontrolled release with secondary impacts to downstream structures within the inundation zone.

The Virginia Department of Conservation and Recreation's division of Dam Safety and Floodplain Management (Virginia DSFPM) is the key regulatory entity for dams in Virginia. The Virginia Department of Conservation and Recreation (VDCR) lists four reasons for dam failure, including:

- Lack of attention and maintenance,
- Days of rain plus weakened dams,
- Inadequate spillway size, and
- Extreme event (precipitation or seismic) or other means:
  - Contractor error and/or
  - Equipment malfunction.<sup>22</sup>

VDCR classifies dams based on a determination of the effects that a dam failure would likely have on people and property in the downstream inundation zone, including:

- High – dams that upon failure would cause probable loss of life or serious economic damage,
- Significant – dams that upon failure might cause loss of life or appreciable economic damage, and
- Low – dams that upon failure would lead to no expected loss of life or significant economic damage. Special criteria: This classification includes dams that upon failure would cause economic damage only to property of the dam owner.<sup>23</sup>

Out of 313 dams in Virginia classified as 'high hazard' by the Virginia DSFPM, two are located in New Kent County:

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<sup>22</sup> Report on the Commonwealth Threat Hazard Identification and Risk Assessment, October 2014, p. 17.

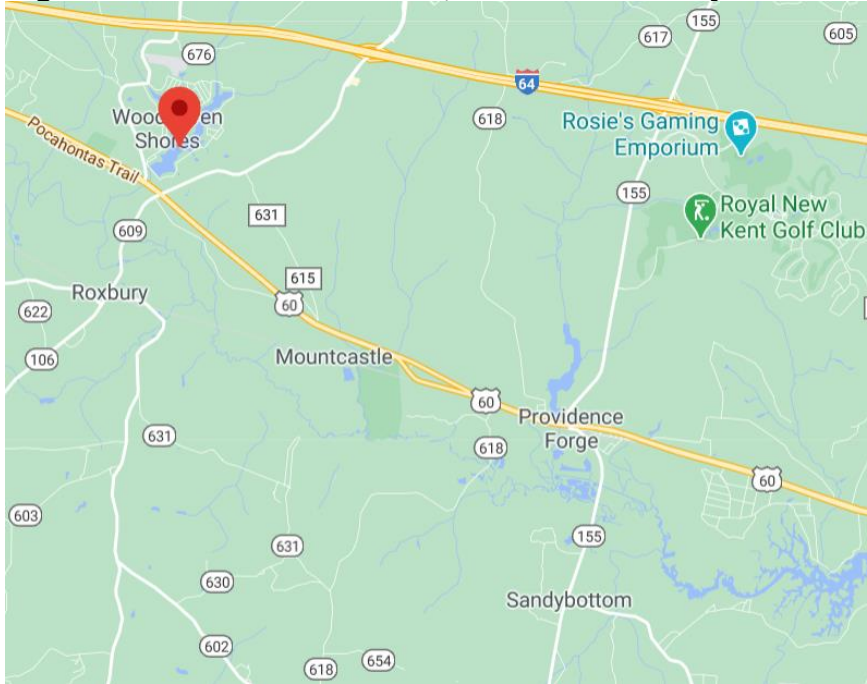
<sup>23</sup> <https://www.dcr.virginia.gov/dam-safety-and-floodplains/damclass>



- Woodhaven Dam (#127001) – Woodhaven Property Owners Association (Figure 2-14)
- Diascund Dam (127003) – City of Newport News Waterworks (Figure 2-15)

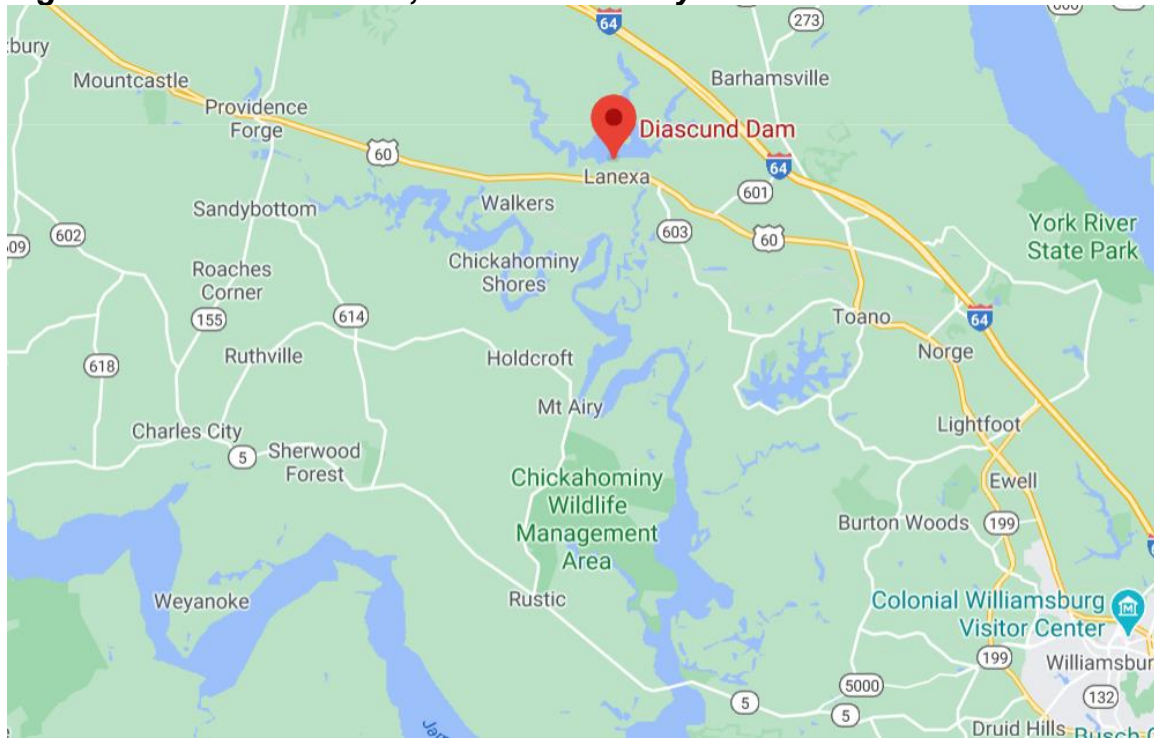
The Woodhaven Dam is located northwest of Tribal lands and Tribal members living in the service area, while the Diascund Dam is located east of Tribal lands and Tribal members living in the service area.

**Figure 2-14 Woodhaven Dam, New Kent County**



Source: Google Earth

**Figure 2-15 Diascund Dam, New Kent County**



Source: Google Earth

Based on the limited ranking score identified in the Charles City County Emergency Operations Plan and geographic locations of the dams away from Tribal assets, Tribal lands and Tribal members living in the service area are considered at limited risk to future dam failure-related hazards.

#### *Climate Change Impacts on Dams*

The increase in precipitation and frequency of intense rainfall events, which will cause an increase in river discharge, peak flows, and water detention levels, may also lead to overtopping and damage of aging dams or structures in need of repair and maintenance.

#### **Population at Risk from Dam Failure-Related Hazards**

Tribal lands and Tribal members living in the service area associated with the northwest section of Charles City County are more susceptible to dam failure-related hazards due to their geographic proximity to the Woodhaven Dam. The geographic location of the Diascund Dam in New Kent County property is far enough to the west of this dam therefore it is not susceptible to dam failure-related hazards.

#### **Probability of Future Occurrence of Dam Failure-Related Hazards**

No dam failure incidents have been reported for either dams in the immediate area, therefore there is a low probability for future dam failure-related incidents.



### **Structure Collapse**

When internal load bearing structural elements fail, a building will collapse into itself, and exterior walls are pulled into the falling structure. This scenario may be caused by construction activity, an earthquake, or fire, and may result in a dense debris field with a small footprint. Alternatively, if the structural failure is caused by an explosion or natural forces such as weather, the building may collapse in an outward direction, resulting in a less dense and more scattered debris field.<sup>24</sup>

Based on the limited ranking score identified in the Charles City County Emergency Operations Plan, Tribal lands and Tribal members living in the service area are considered at limited risk to future structure collapses.

### **Population at Risk from Structure Collapse-Related Hazards**

Structural collapses are difficult to predict and occur due to a range of causes. Charles City County and New Kent County are equally susceptible to a future structure collapse incident.

### **Probability of Future Occurrence of Structure Collapse-Related Hazards**

No structural collapses have been reported for Charles City County or New Kent County, therefore there is a low probability for future structural collapse-related incidents.

### **Special/VIP Events**

Most Special/VIP events go off without interruption, however, publicizing the appearance of a high-profile speaker or a cultural/municipal festival mandates having a risk management plan to handle any disturbance should one arise. In addition, the assembly of people in confined spaces combined with advancements in technology, small gatherings can quickly turn disruptive.

Based on the limited ranking score identified in the Charles City County Emergency Operations Plan and limited number of special/VIP events annually, Tribal assets, Tribal lands and Tribal members living in the service area are considered at limited risk to future special/VIP event-related hazards.

### **Population at Risk from Special/VIP Event Hazards**

Should a Special/VIP event turn disruptive, for whatever reason, the immediate geographic area encompassing the event would be vulnerable.

### **Probability of Future Occurrence of Special/VIP Event Hazards**

Special/VIP events occur throughout the year, and often in the case of cultural/arts festivals, on an annual basis. There is a low probability that a

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<sup>24</sup> <https://www.osha.gov/SLTC/emergencypreparedness/guides/structural.html>

Special/VIP event would turn to civil disobedience/unrest in either county in the immediate future.

### **2.3.11 Technological Hazards**

This section incorporates technological-related hazards including infrastructure/utility failure (Water Supply Shortage/Contamination).

#### **Water Supply Shortage/Contamination<sup>25</sup>**

The majority of Charles City County residents (and Tribal members living in the service area) obtain drinking water from private wells. There are several confined aquifers in Charles City County. These aquifers are confined because they are separated from each other by thick layers of clay. These clay layers hold the water, only allowing water to be transferred between the aquifers very slowly. The clay layers also add pressure to the water because the water wants to move faster than the clay allows. When the confined aquifers are tapped by a deep well, the pressure can force the water to spring upward as an artesian well.

Throughout Charles City, there is also an unconfined aquifer. This aquifer is found between the ground and the first confined aquifer. Rain, creeks and rivers supply the water to this shallow aquifer. The unconfined aquifer provides water for shallow wells. Because the aquifer is shallow and receives water directly from the surface, it is very susceptible to contamination. Substances that can filter through the ground can quickly reach the shallow aquifer.

All major county uses (agriculture, residential, business and industry) have the potential to introduce contaminants to ground or surface water through either direct pathway, leaching, or stormwater runoff.

Based on the moderate ranking score identified in the Charles City County Emergency Operations Plan and limited water supply conveyances (private wells), Tribal assets, Tribal lands and Tribal members living in the service area are considered at moderate risk to future water supply/contamination-related hazards.

#### **Population at Risk from Water Supply Shortage/Contamination**

Given that all Tribal lands and Tribal members living in the service area obtain drinking water from private wells, residents of Charles City County and New Kent County are equally susceptible to a future water supply/contamination hazard, dependent upon the location and severity of the point source.

#### **Probability of Future Occurrence of Water Supply Shortage/Contamination**

Given the projected increase in frequency and intensity of precipitation events, and the relatively flat geography of the area, stormwater runoff will likely

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<sup>25</sup> Charles City County Comprehensive Land Use Plan, August 26, 2014.

continue, if not increase. Since the unconfined aquifer is shallow and receives water directly from the surface, it is very susceptible to contamination. There is a moderate probability of a water supply/contamination issue to arise in either county in the immediate future.

## **2.4 Vulnerability**

Vulnerability indicates what is likely to be damaged by the identified hazards and how severe that damage could be. After identifying types and areas of risk, a vulnerability analysis can help to determine the gaps in an area. This section examines the vulnerability of Tribal lands and Tribal members living in the service area, such as structures, utilities, roads, and bridges, as well as social and environmental vulnerability. A vulnerability analysis also estimates the number of Tribal members exposed to hazards, including Tribal elder populations and concentrated populations. This also includes such things as whether the shelter capacity is enough for the affected population, and whether businesses are likely to face temporary closure due to natural disasters. Historical damages are often good indicators for current exposure and potential damage.

A vulnerability chart was developed based on the identification and profile of the natural hazards that have occurred throughout Charles City and New Kent Counties as presented earlier in Section 2.3. Below, Table 2-14 Vulnerability Matrix 2021 describes the expected probability of occurrence, and the potential vulnerability of the damage resulting from each individual hazard evaluated for this plan. Coordination with the State Plan was also a consideration in the development of the Vulnerability Matrix.

**Table 2-14 Vulnerability Matrix 2021**

<b>Hazard</b>	<b>Probability</b>	<b>Vulnerability</b>
Flood-Related Hazards	Highly Likely	Moderate
Winter-Related Hazards	Highly Likely	High
Wind-Related Hazards	Highly Likely	High
Geologic-Related Hazards	Unlikely	Limited
Drought	Highly Likely	Limited
Wildfire	Unlikely	Limited

### **2.4.1 Land Use/Development Trends**

Charles City County is mainly rural with some pocketed areas of suburban development. As required by the Code of Virginia, all jurisdictions in the Richmond-Crater region maintain local Comprehensive Plans that include a land use element and manage land development through zoning and subdivision regulatory ordinances. In addition to local authority, state and regional programs and processes encourage regional coordination when planning for land use, transportation, economic and environmental matters.

The county is heavily forested with small residential communities scattered throughout. As of 2014, about 80% of the county was used for agricultural or forestry purposes or was otherwise in a natural state. Development tends to be clustered at road intersections or along the James and Chickahominy Rivers. Much of the undeveloped land is in large tracts under single ownership.

Based on Virginia Economic Commission projections, the county's population is expected to increase by eight percent between 2020 and 2030 and six percent between 2030 and 2040. The total state population is projected to grow at the rate of nine percent between the time periods 2020 to 2030 and 2030 to 2040.

### **Residential Development Trends<sup>26</sup>**

Most of the housing stock in Charles City County is single-family homes. Given trends in surrounding areas and the rapid increase in the cost of stick-built homes, it is likely the number of manufactured homes in Charles City County will continue to increase. There are no Tribal members living on tribally owned property presently.

### **Tribal Assets Development Trends**

As presented in Section 1.6, Tribal lands are primarily located in Charles City County with two commercial sites (Tribal Community Center and warehouse), two residential dwellings (currently unoccupied), and thirteen vacant properties (majority of which are located along the James River. One property in New Kent County includes a former dentist office (currently vacant).

The Tribe is considering the Tribal Community Center as the Tribal emergency shelter in the future. The Tribe has not solidified plans for the other commercial site (warehouse) to date. A small agricultural operation currently exists on several properties along the James River. The Tribe has considered the development of a campground here, however, the properties are under a conservation easement, so development is limited.

## **2.4.2 Economic Vulnerability**

### **National Flood Insurance Program**

Communities participate in the National Flood Insurance Program (NFIP) by adopting and enforcing floodplain management ordinances to minimize future damage from flooding. Participation in the NFIP is voluntary. Charles City County (September 1990) and New Kent County (December 1990) both participate in the NFIP. Tribal lands and Tribal members living in the service area (in addition to all property owners) are required to purchase flood insurance for any federally-backed mortgages located in a FEMA floodplain. In coordination meetings with the THMC, no Tribal lands are required to purchase

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<sup>26</sup> Ibid.

flood insurance, either because there are no federally-backed mortgages in place, or the properties are located outside of the floodplain.

### Impacts of FEMA Flood Zones

HW performed an analysis to estimate the total land and building values within FEMA 100- and 500-year, and velocity flood zones. The number and types of Tribally owned properties are quantified in Table 2-15 below and shown on Map 2-1 (Appendix A).

**Table 2-15 Total Vulnerability FEMA Flood Zones Summary, Charles City County/New Kent County**

Flood Zone	VE Zone		100-Year		500-Year	
Land Use	No. of Parcels Impacted	Total Value	No. of Parcels Impacted	Total Value	No. of Parcels Impacted	Total Value
<b>Charles City County</b>						
Commercial					2	\$1,510,300
Residential	2	\$550,600	1	\$280,000	2	\$550,600
Vacant	1	\$237,800	3	\$288,300	13	\$1,979,600
<b>New Kent County</b>						
Office					1	\$296,600
<b>Total</b>	<b>3</b>	<b>\$788,400</b>	<b>4</b>	<b>\$568,300</b>	<b>18</b>	<b>\$4,337,100</b>

Source: Charles City County/New Kent County Assessor's database accessed March 10, 2021

### Impacts of Sea Level Rise

As previously discussed in Section 2.3.1, although the James River is tidal along stretches as far inland as Charles City County, review of NOAA's Office for Coastal Management: Digital Coast, Sea Level Rise Viewer shows that Tribal properties recently purchased along this stretch of the James River are not subject to impacts from various sea level rise scenario projections (impacts from sea level rise scenario projections end northeast of Weyanoke Point, prior to the location of Tribal properties).<sup>27</sup>

### 2.4.3 Social Vulnerability

A critical step in assessing risk and vulnerability of Tribal lands and Tribal members living in the service area to natural, human-caused, and technological hazards is to identify the links between the potential destructive impacts to the built and natural environments and that relationship to the social structure of the Tribe. The social assets/potential losses continue to be key components of the

<sup>27</sup> <https://coast.noaa.gov/slr/#/layer/slr/0/-8578121.189770076/4488611.86498593/10/satellite/none/0.8/2050/interHigh/midAccretion>

community and include the closure of institutions, loss of vital services (communication and transportation systems), disruption in the movement of goods and services, loss of cultural assets and emotional strain from financial and physical losses.

The vulnerability of a community obviously includes the potential for direct damage to Tribal lands and Tribal members living in the service area. However, it also includes the potential for disruption of communication and transportation following disasters. Any disruption to the infrastructure, such as a loss of electric power or break in gas lines, can disrupt lives and cause stress to affected families. This is especially the case where Tribal members are forced to evacuate their homes and become subject to shortages of basic supplies.

#### Tribal Community Government Center

Serving as the heart of the Tribal community, the Tribal Community Center serves as the mainstay of operations for the Tribe.

Church services continue to be held 'curbside' in personal vehicles in the Center's parking lot throughout the pandemic.

#### Cultural Properties

Adjoining the Tribal Community Center is the Samaria Baptist Church and cemetery.

### **Non-Tribal Infrastructure and Emergency Lifelines**

#### Roads<sup>28</sup>

In Charles City County there are no roads designated by Virginia Department of Transportation as principal arterial or interstate. Interstate access is available nearby, however. Route 5 intersects with Interstate 295 in Henrico County, just west of the county. Interstate access is also available north at the intersection of Route 106 and Interstate 64 near Talleyville and Route 155, and Interstate 64 north of Providence Forge.

Route 5 (John Tyler Memorial Highway) is considered by residents to be the main highway in the county. Located in the southern portion of the county, it is the primary east-west corridor for local traffic. This route also serves as the link between Williamsburg and Richmond. Numerous tourists travel Route 5 to visit the historical sites of national and state prominence located along this road. This road is also well known for its aesthetic value. The landscape along the corridor varies from open fields to trees overhanging the road. The land along the road has not been intensely developed and exists, for the most part, in the same condition as it did hundreds of years ago.

Route 106 (Roxbury Road), running north-south, is located in the western portion of the county. The road not only handles local traffic but serves a regional

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<sup>28</sup> Ibid.

purpose by handling traffic between Hopewell and Interstate 64. County officials have established the road as an industrial corridor.

There are also a number of collector roads (major and minor), and local roads throughout the county. Route 155 (Courthouse Road), running north-south, plays a significant role by providing both access to residential growth areas, and government and business centers, as well as providing regional access to Route 60 and Providence Forge. Route 603 (Old Union Road), located in the northwestern part of Charles City County, is an important road in terms of residential development. The road extends from Charles City Road (Route 600) to Bartletts Road (Route 609). The road crosses Roxbury Road (Route 106) near the Roxbury Industrial Center.

#### Electricity<sup>29</sup>

Dominion Virginia Power, the electrical service provider for Tribal lands and Tribal members living in the service area (and the County overall), operates a substation on Chambers Road, just off Roxbury Road (Route 106) near the company's transmission lines. Three phase industrial electric service is available in several areas in the county. Adequate electric power is available to meet future development needs.

#### Gas and Oil<sup>30</sup>

Columbia Gas Pipeline has a 100-foot-wide easement and gas line running west to east in the central part of the county. An additional natural gas line is proposed to be constructed parallel to Route 155, from Providence Forge to Charles City County Courthouse area. Propane gas is currently available to the Roxbury Industrial Center at natural gas prices. Fuel oil is also provided by several distributors within Charles City County and adjoining communities.

#### Communications

- Telephone – Under 2% of households in the county lack telephone service.<sup>31</sup>
- Cell Phones – Most residents have cell phones with good reception in most parts of the county, however, some portions still have no cell phone reception.<sup>32</sup>
- Broadcast Television – the stations currently available in Charles City County include:
  - CBS6, NBC12, ABC8, and FOX35
  - Tidewater 3/10
  - Public Broadcasting Service 35 & 65<sup>33</sup>

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<sup>29</sup> Charles City County Comprehensive Land Use Plan, August 2014.

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

<sup>32</sup> Ibid.

<sup>33</sup> Ibid.



- Cable Television – Cable television is available in portions of Charles City County, with service provided by Comcast. Satellite television is also available, provided by Hughes Net (also includes high-speed internet service).
- Internet – Dial-up is available with service provided by Verizon, Cavalier, and NetZero. Broadband internet is not currently available widespread.
- Radio – there are currently several radio stations with transmitters in the county.

### **Evacuation/Population at Risk**

The use of mass care facilities during an emergency is dependent on a variety of circumstances, including warning time, Tribal citizen awareness of the hazard, the level of encouragement from Tribal and public officials and the availability of shelters. Tribal citizens currently have the Charles City County High School (10039 Courthouse Road) identified as the local shelter. The Charles City County High School includes:

- Sleeping accommodations for up to 150 people
- Showers
- Food Service (provided by the Red Cross)
- ADA-accessibility
- Backup generators

Charles City County is also working on developing the Charles City County Social Center (8320 Ruthville Road) as the backup up shelter.

Shelter use is not easily predicted because each emergency has different variables such as the length of the warning period, official encouragement of the evacuation, Tribal member awareness of the location and availability of shelter, and the severity of the approaching hazard. Shelter use may be higher in the winter, such as an ice storm, since Tribal members living in the service area could be without heat. Historically, shelter use has not been high since Tribal members seek safety at the homes of friends or family.

#### **2.4.4 Environmental Vulnerability**

Hurricanes, earthquakes, nor'easters, floods or any weather-related hazard event, will have impacts on the natural and built environment. Differences in storm size, speed of movement, wind speeds, and landfall location relative to vulnerable resources makes for high variability in impacts and related costs associated with weather-related events.

When the natural environment is impacted there are both direct and indirect costs. Impacts of severe weather events to the natural environment include both direct (loss of habitat and salinization of land/ groundwater) and indirect costs (widespread inland damage to the built environment, threats to ecosystems/ species, and contamination of potable water supply).

### Natural Resources and Environmental Facilities

The Tribe recently purchased a number of wooded, undeveloped parcels along the James River. A small agricultural operation currently exists on several parcels through an agreement with the Tribe and a local farmer.

The Tribe is also working on building capacity for both air and water quality. Water quality efforts have been difficult as many funding opportunities are limiting to existing water systems and Tribal members access private well water supplies. Air quality efforts are associated with indoor air quality, mainly articulate matter for those Tribal members who rely on wood/wood stoves for heat, and the growth of mold within individual homes.

### **2.5 FEMA Disaster Grant Assistance**

The Tribe has not received any grant assistance/funds from FEMA following any declared disasters.

## Section 3 Capability Assessment

### 3.1 Introduction

The Capabilities Assessment section has been restructured to better document Tribal, local, state, and federal department, agency and program capabilities in terms of pre- and post-disaster activities. It has been organized into three (3) main sections: Planning and Regulatory capabilities, Administrative and Technical capabilities, and Financial capabilities to better define the programs, policies, and funding opportunities each department or agency is implementing to reduce risk and work towards implementing hazard mitigation programs targeted at increased resiliency.

Charles City County implements several hazard mitigation policies and procedures, current state laws, executive orders, and regulations to promote the safety of its residents and minimize risk to community assets. This section presents a brief description of each of the primary mitigation programs currently in place.

### 3.2 Planning and Regulatory Capabilities

#### Charles City County Comprehensive Land Use Plan, 2014

The Comprehensive Land Use Plan is a planning document intended assist in implementing various goals, objectives, and strategies describing how and where Charles City County wants to grow.

- **Objective:** Work with public agencies and private developers to assure that necessary facilities and services are provided to support the Development Goals and economic health of the county.
  - **Public Safety:** County citizens desire emergency services similar to those provided in neighboring localities. Services include both professional training and rapid response times.
    - Prepare a feasibility study that addresses emergency service delivery.
    - Prepare an assessment of reverse E911 implementation.
    - Renew Commonwealth Public Broadcasting memorandum of understanding for emergency notifications by radio.

#### Charles City County Floodplain Ordinance

The purpose of this ordinance to prevent or reduce damage or loss of property due to flooding and prevent the creation of health and safety hazards in Charles City County, Virginia. The ordinance tries to prevent this by the following:

- Regulating uses, activities, and development, which along or in combination with other existing or future uses, activities, and development, will cause unacceptable increases in flood heights, velocities, and frequencies.

- 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.
- Protecting individuals from buying land and structures which are unsuited for intended purposes because of the flood hazards.

The Ordinance also covers the designation of a Floodplain Administrator who is in charge of implementing and enforcing the ordinance. The ordinance establishes various special flood hazard districts prepared by FEMA as the Flood Insurance Rate Map (FIRM), as well as local flood hazard or ponding areas that are not delineated from FIRM.

### **Charles City County Subdivision Ordinance**

The purpose of this ordinance is to establish certain subdivision standards and procedures for Charles City County, Virginia. Among others, the County uses these regulations to promote the public health, safety, convenience, and general welfare, and to promote safety from fire, flood, failure of impounding structures and impacts within dam break inundation zones, panic, and other dangers.

#### *General Regulations – Land Deemed Inappropriate for Residential Development*

- Lots subject to flooding and land deemed to be topographically unsuitable for residences shall not be platted for residential occupancy, unless there is sufficient land within each lot that is free from flooding and is otherwise suitable for the proposed use, nor for such other uses as may increase danger of health, life or property, or aggravate erosion or flood hazard. Such lots within the subdivision shall be set aside on the plat for such uses as shall not be endangered by periodic inundation or shall not produce conditions contrary to public health and welfare.
- Land types that shall remain undeveloped, as open space, to the extent possible.
  - Unique and/or fragile areas, such as wetlands, as defined in the Chesapeake Bay Preservation Act.
  - Lands located in the floodplain, as defined by the most recent Federal Emergency Management Act flood plain maps as adopted by the County.

#### *General Regulations – Fire Protection*

- The installation of adequate fire hydrants in a subdivision at locations approved by the Subdivision Agent shall be required if central water (either public or private) is available. The Subdivision Agent shall consult with the proper authority before approving such location and spacing of hydrants.

### *Preliminary Plat Review, Minor Subdivision Review Procedures*

- For these reviews, there must be a map showing the location of the proposed subdivision or plat with respect to any designated flood plain district, including, but not limited to, the 100-year flood elevations, boundaries of the flood plain districts, proposed lot sites, fills, flood or erosion protective facilities, and areas subjected to special deed restrictions.

### **Charles City County Wetlands Ordinance**

The purpose of this ordinance is to regulate the use and development of wetlands in Charles County, Virginia by the Virginia Marine Resource Commission. Permitted uses in wetlands include:

1. The construction and maintenance of noncommercial catwalks, piers, boathouses, boat shelters, fences, duck blinds, wildlife management shelters, footbridges, observation decks and shelters and other similar structures, provided that such structures are so constructed on pilings as to permit the reasonably unobstructed flow of the tide and preserve the natural contour of the wetlands.
2. The cultivation and harvesting of shellfish, and worms for bait.
3. Noncommercial outdoor recreational activities, including hiking, boating, trapping, hunting, fishing, shell fishing, horseback riding, swimming, skeet and trap shooting, and shooting on shooting preserves, provided that no structure shall be constructed except as permitted in subdivision 1 of this section.
4. Other outdoor recreational activities, provided they do not impair the natural functions or alter the natural contour of the wetlands.
5. Grazing, haying, and cultivating and harvesting agricultural, forestry or horticultural products.
6. Conservation, repletion and research activities of the Commission, the Virginia Institute of Marine Science, the Department of Game and Inland Fisheries and other conservation-related agencies.
7. The construction or maintenance of aids to navigation which are authorized by governmental authority.
8. Emergency measures decreed by any duly appointed health officer of a governmental subdivision acting to protect the public health.
9. The normal maintenance and repair of, or addition to, presently existing roads, highways, railroad beds, or facilities abutting on or crossing wetlands, provided that no waterway is altered, and no additional wetlands are covered.
10. Governmental activity in wetlands owned or leased by the Commonwealth or a political subdivision thereof; and
11. The normal maintenance of manmade drainage ditches, provided that no additional wetlands are covered. This subdivision does not authorize the construction of any drainage ditch.

## **Charles City County Zoning Ordinance**

The purpose of this ordinance is to promote the health, safety, and general welfare of the public. The ordinance is also designed to:

- Provide for adequate light, air, convenience of access, and safety from fire, flood, crime and other dangers.
- Facilitate the provision of adequate police and fire protection, disaster evacuation, civil defense, transportation, water, sewerage, flood protection, schools, parks, forests, playgrounds, recreational facilities, airports, and other public requirements.

## **Virginia Construction Code (USBC, Part 1)**

Charles City County and New Kent County enforce the Virginia State Building Code which includes detailed regulations regarding fire and smoke protection, wind loads, rain loads, earthquake resistant design, flood-proofing and snow loads.

- Chapter 7: Fire and Smoke Protection
  - Provisions govern the materials, systems and assemblies used for structural fire resistance and fire-resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings.
- Chapter 16 Structural Design
  - Chapter 1608, Section 1608.1 Snow Loads. Design snow loads shall be determined in accordance with Chapter 7 of ASCE, but the design roof load shall not be less than that determined by Section 1607.
  - Chapter 1609, Section 1609.1 Wind Load. Wind loads on every building or structure shall be determined in accordance with Chapters 26 to 30 of ASCE 7 or provisions of the alternate all-heights method in Section 1609.6. The type of opening protection required, the ultimate design wind speed, and the exposure category for a site is permitted to be determined in accordance with Section 1609 or ASCE 7. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.
  - Chapter 1611, Section 1611.1 Rain Loads. Each portion of a roof shall be designed to sustain the load of rainwater that will accumulate on it if the primary drainage system for that portion is blocked plus the uniform load caused by water that rises above the inlet of the secondary drainage system at its design flow. The design rainfall shall be based on the 100-year hourly rainfall rate indicated in Figure 1611.1 or on other rainfall rates determined from *approved* local weather data.
  - Chapter 1612, Section 1612.1 Flood Loads. Within flood hazard areas as established in Section 1612.3, all new construction of buildings, structures and portions of buildings and structures, including substantial improvement and restoration of substantial

damage to buildings and structures, shall be designed and constructed to resist the effects of flood hazards and flood loads. For buildings that are located in more than one flood hazard area, the provisions associated with the most restrictive flood hazard shall apply.

- Chapter 1613, Section 1613.1 Earthquake Loads. Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7, excluding Chapter 14 and Appendix 11A. The seismic design category for a structure is permitted to be determined in accordance with Section 1613 or ASCE 7.

### **3.3 Administrative and Technical Capabilities**

#### **Emergency Operations Plan for Charles City County 2015**

Charles City County's Emergency Operations Plan (EOP) provides a framework for a community-wide emergency management system to ensure a coordinated response to emergencies and coordinated support of certain pre-planned events. The EOP addresses the roles and responsibilities of all community departments, agencies, government organizations, volunteers and community partners that may be involved in response operations, and identifies how regional, state, private sector, and other resources may be activated to address disasters and emergencies in the community.

The EOP is intended to accomplish the following goals:

- Establish the legal and organizational basis for emergency operations that include preparedness, response, and recovery from all hazards and emergencies in Charles City County.
- Identify the responsibilities of County departments, local agencies, partnering stakeholders and organizations during emergencies or events.
- Identify lines of authority and coordination for the management of an emergency or event; and
- Assign responsibilities to agencies, organizations and individuals for carrying out specific actions during an emergency or event.

The EOP is structured in the following parts:

- Part I – Basic Plan
  - Overview of mitigation, preparedness, response and recovery activities.
- Part II – Emergency Support Functions
  - Descriptions of the purpose, activities and responsibilities of emergency management organizations and other organizations that support disaster response
- Part III – Hazard-Specific Annexes



- The management of specific hazards, emergencies and disasters affecting the Charles City County.

#### *Emergency Operations Center*

The County maintains a primary and alternate (in the event that the primary location is rendered or deemed unusable) Emergency Operations Center (EOC) which serve as the central point for coordination of the community's emergency management and response activities, maintaining situational awareness about the emergency situation, and facilitating requests for deployment of resources.

Primary EOC:	Charles City County Sheriff's Office 10780 Courthouse Rd Charles City, VA 23030 (804) 829-9265
Alternate EOC:	Charles City County Government and School Board Administrative Building 10900 Courthouse Rd Charles City, VA 23030 (804) 652-4701

#### *Mutual Aid Agreements*

Charles City County has mutual aid agreements in place with local volunteer and nongovernmental agencies for use of facilities, food, equipment, etc. during disaster response and recovery operations. Charles City County also participates in the Statewide Mutual Aid (SMA) Agreement, which provides for requesting goods, services, personnel, and equipment through the Virginia Emergency Operations Center. This operates under the Commonwealth of Virginia Emergency Services and Disaster Law of 2000, (Title 44, Chapter 3.2 of the Virginia Code). Mutual agreements currently include:

- Virginia State Police
- Virginia Department of Emergency Management
- Governor's Declaration of a State of Emergency
- Virginia Emergency Operations Center
- Virginia National Guard
- Emergency Management Assistance Compact (EMAC)
- Commonwealth of Virginia Emergency Operations Plan

#### **Charles City County Website**

The County's Emergency Management Department maintains a webpage hosted on the County's website that includes a variety of local, state, and regional emergency program information.

- Civic Alert Mass Notification System (<https://www.co.charles-city.va.us/217/Civic-Alert-Mass-Notification-System>)
  - Allows the public to sign up for County alerts in the event of an emergency.

- Community Emergency Response Team (CERT):  
(<https://www.co.charles-city.va.us/211/Community-Emergency-Response-Team-CERT>)
  - A community-based volunteer team trained in disaster preparedness and emergency response in Charles City County, Virginia

The County's Fire Department maintains a webpage hosted on the County's website that includes a variety of local, state and regional emergency program information.

- Fire Safety Checklist (<https://www.adt.com/resources/fire-safety-checklist>)
- U.S. Consumer Product Safety Commission (<https://www.cpsc.gov/>)
- U.S. Fire Administration – National Fire Incident Reporting System (<https://www.usfa.fema.gov/data/nfirs/>)
- U.S. Fire Administration (<https://www.usfa.fema.gov/index.html>)

The County's Health Department maintains a webpage hosted on the State of Virginia's Department of Health website that includes a variety of local, state and regional emergency program information.

- Chickahominy Health District Emergency Preparedness and Response Team: (<https://www.vdh.virginia.gov/chickahominy/emergency-preparedness>)  
Responsible for public health disaster planning throughout Charles City, Goochland County, Hanover County, and New Kent County. Their mission is to effectively respond to an emergency impacting public health through preparation, collaboration, education, and rapid intervention. Programs involve state, regional and local emergency response partners working together to enhance readiness to respond to bioterrorism, infectious disease outbreaks, weather-related events, and other public health emergencies.
- Henrico and Chickahominy Medical Reserve Corps: (<https://www.vdh.virginia.gov/chickahominy/emergency-preparedness>)  
Mission: To sustain a community-based volunteer organization which provides education to the public on health and safety; and to support the Chickahominy Health District in emergency preparedness, mitigation, and response. The Henrico & Chickahominy Medical Reserve Corps promotes a partnership between professional emergency personnel and the people they serve. If a disaster overwhelms or delays a community's professional emergency response, Henrico & Chickahominy MRC volunteers may assist by applying the response and organizational skills they learned during training.

### **Region 1 Richmond Voluntary Organizations Active in Disaster**

The Virginia Voluntary Organizations Active in Disaster (VAVOAD) maintains a number of regional offices dedicated to identifying needs and resources quickly

and efficiently to communities. Region 1 – Richmond covers both Charles City County and New Kent County (<https://vavoad.org/regional/region1/>).

The Richmond VOAD meets on a regular basis to plan for and to educate the members about how they may serve their community during and after a disaster. The organization seeks to prevent the duplication of effort by coordinating the availability of needed services in disasters such as fires, hurricanes, tornadoes, flash floods and hazardous materials spills. Examples of their resources include:

- Food or clothing distribution,
- Search and rescue,
- Temporary housing,
- Childcare,
- Talent bank, and
- Stress disorder counseling

### **County Administration and Staff**

The County's municipal officials, staff, various government departments all work well together to develop, implement and update policies and plans to promote the safety of its residents and minimize risk to the community.

### **Tribal Website**

The Chickahominy Indian Tribe has been redeveloping their website, located at: <https://www.chickahominytribe.org/>.

### **Tribal Emergency Preparedness Equipment**

The Chickahominy Indian Tribe maintains emergency supplies and equipment, including:

- Several John Deere vehicles/ATVs for mobility when roadways are closed
- Generator for the Tribal Community Center in anticipation it becomes a shelter for the Tribe/Tribal members living in the service area
- Several mobile kitchens, showers and restrooms
- Mobile communications equipment (walky-talky, cell phones and several laptops)
- The Roxbury Road property was purchased due to the existing warehouse onsite, potentially for a Tribal food bank/food service area and to store Personal Protective Equipment (PPE) due to COVID

### **Coordination with Neighboring Municipalities**

The Chickahominy Indian Tribe coordinates with Charles City County staff regularly. The Tribe will continue to coordinate on multi-hazard mitigation planning, specifically any shared resource plans and evacuation plans.

### **Tribal Administration and Staff**

Tribal Administration and staff all work well together to develop, implement and update policies and plans to promote the safety of Tribal members and minimize risk to the Tribe.

### **3.4 Financial Capabilities**

#### **Federal/State Grant Opportunities**

The Tribe, across all Tribal departments, considers and pursues all applicable federal, state and local grant opportunities to assist in implementing hazard mitigation programs, such as FEMA, EPA, Housing and Urban Development (HUD CDBG Program, United States Department of Agriculture – Natural Resources Conservation Service (NRCS), and U.S. Economic Development Administration (EDA).

FEMA Hazard Mitigation Assistance (HMA) Program (HMGP, BRIC, and FMA).

EPA Indian Environmental General Assistance Program provides General Assistance Program (GAP) grants to federally recognized tribes and tribal consortia for planning, developing and establishing environmental protection programs in Indian country, and for developing and implementing solid and hazardous waste programs on tribal lands.

USDA NRCS – provides Conservation Technical Assistance, Financial Assistance, and Conservation Innovation Grant programs.

HUD CDBG Program – a flexible program that provides communities with resources to address a wide range of unique community development needs, particularly the Disaster Recovery Assistance Program which provides grants to help cities, counties, and States recover from Presidentially-declared disasters, especially in low-income areas, subject to availability of supplemental appropriations.

### **3.5 Existing Protection Matrix**

A summary of the main identified existing and future protection measures presented above are summarized on Table 3-1. These measures constitute the baseline protection that was further evaluated by the THMC to determine gaps in the Tribe's protection from natural disasters. Goal statements and specific actions were then developed to mitigate the identified gaps in the existing protection. These identified protection measures facilitate the Tribe to implement various hazard mitigation programs, ultimately making the Tribal community more resilient.

**Table 3-2 Existing Protection Matrix Chickahominy Indian Tribe, VA**

Existing Protection	Description	Area Covered	Effectiveness and/or Enforcement	Improvements or Changes Needed
<b>Planning and Regulatory</b>				
<b>Charles City County Comprehensive Land Use Plan 2014</b>				
	Includes goals, objectives and strategies describing how and where Charles City County wants to grow.	County-wide	Effectiveness: Very Good Enforcement: Community Development/County Staff	Continue to Utilize
<b>Charles City County Floodplain Ordinance</b>				
	Includes the prevention and/or reduction of damage/loss of property due to flooding and the prevention of health and safety hazards in the county.	County-wide	Effectiveness: Very Good Enforcement: Board of Supervisors/County Staff	Continue to Utilize
<b>Charles City County Subdivision Ordinance</b>				
	Establishes standards and procedures to promote the public health, safety, convenience and general welfare and to promote safety from fire, flood, failure of impounding strutures and impacts within dam break inundation zones, panic and other dangers.	County-wide	Effectiveness: Very Good Enforcement: Board of Supervisors/County Staff	Continue to Utilize
<b>Charles City County Wetlands Ordinance</b>				
	Includes requirements to protect and preserve the shores, rivers, ponds, wetlands, and other water bodies and related resources by controlling activities that can have significant impacts on wetlands functions and values.	County-wide	Effectiveness: Very Good Enforcement: Virginia Marine Resource Commission/County Staff	Continue to Utilize
<b>Charles City County Zoning Ordinance</b>				
	Promotes the health, safety and general welfare of the public.	County-wide	Effectiveness: Very Good Enforcement: Board of Supervisors/County Staff	Continue to Utilize
<b>Virginia Construction Code (USBC, Part 1)</b>				
	Includes detailed regulations regarding fire and smoke protection, wind loads, rain loads, earthquake-resistant design, flood-proofing and snow loads.	County-wide	Effectiveness: Very Good Enforcement: Board of Supervisors/County Staff	Continue to Monitor

**Table 3-2 Existing Protection Matrix Chickahominy Indian Tribe, VA**

Existing Protection	Description	Area Covered	Effectiveness and/or Enforcement	Improvements or Changes Needed
<b>Administrative and Technical</b>				
<b>Emergency Operations Plan for Charles City County 2015</b>				
	Provides a framework for a community-wide emergency management system to ensure a coordinated response to emergencies and coordinated support of certain pre-planned events.	County-wide	Effectiveness: Very Good Enforcement: Emergency Management/County Staff	Continue to Utilize
<b>Charles City County Website</b>				
	A County website that includes a variety of local, state and regional emergency program information for residents, business owners and tourists.	County-wide	Effectiveness: Very Good Enforcement: IT/County Staff	Continue to Utilize
<b>Region 1 Richmond Voluntary Organizations Active in Disaster</b>				
	Seeks to prevent the duplication of efforts by coordinating the availability of needed services during and after disasters.	County-wide	Effectiveness: Very Good Enforcement: VAVOAD	Continue to Monitor
<b>County Administration and Staff</b>				
	County officials, staff, Boards and Commissions all work together to develop, implement and update policies and plans to promote the safety of residents and minimize risk to the county.	County-wide	Effectiveness: Very Good Enforcement: Board of Supervisors/County Staff	Continue to Monitor
<b>Tribal Website</b>				
	A Tribal website that includes a variety of Tribal, local, state and regional information.	Chickahominy Indian Tribe	Effectiveness: Very Good Enforcement: Deputy Tribal Administrator/Public Information Officer	Continue to Improve
<b>Tribal Emergency Preparedness Equipment</b>				
	Includes a number of emergency supplies and equipment in case of emergencies.	Chickahominy Indian Tribe	Effectiveness: Very Good Enforcement: Tribal Emergency Management Director	Continue to Expand
<b>Coordination with Neighboring Municipalities</b>				
	Coordination to identify applicable efficiencies (resource-sharing and Mutual Aid agreements).	County-wide	Effectiveness: Very Good Enforcement: Tribal Emergency Management Director	Maintain

**Table 3-2 Existing Protection Matrix Chickahominy Indian Tribe, VA**

Existing Protection	Description	Area Covered	Effectiveness and/or Enforcement	Improvements or Changes Needed
<b>Administrative and Technical</b>				
<b>Tribal Administration and Staff</b>				
	Tribal officials and staff all work together to develop, implement and update policies and plans to promote the safety of Tribal members and minimize risk to the community.	Tribal members living in the service area	Effectiveness: Very Good Enforcement: Tribal Council	Maintain
<b>Financial</b>				
<b>Federal/State Grant Opportunities</b>				
	FEMA HMA Program <a href="https://www.fema.gov/grants/mitigation">https://www.fema.gov/grants/mitigation</a>	County-wide		Continue to utilize
	EPA Indian Environmental General Assistance Grants <a href="https://www.epa.gov/tribal/indian-environmental-general-assistance-program-gap">https://www.epa.gov/tribal/indian-environmental-general-assistance-program-gap</a>	Tribal Lands		Explore Opportunities
	HUD CDBG Disaster Recovery Assistance: <a href="https://www.hud.gov/hudprograms/disaster-recovery">https://www.hud.gov/hudprograms/disaster-recovery</a>	County-wide		Continue to utilize
	USDA, Natural Resources Conservation Service (NRCS) Conservation Technical Assistance: <a href="http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/cta">http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/cta</a> Financial Assistance: <a href="http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/">http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/</a> Conservation Innovation Grant Programs:	County-wide		Continue to utilize



## **Section 4 Mitigation Strategy**

### **4.1 Introduction**

Removing and precluding development from hazardous areas is the best method of mitigation. However, this cannot be the sole focus of hazard mitigation for Tribal lands and Tribal members living in the service area. The Tribe's character and functionality require a level of intimacy with the areas of greatest risk – flood-related, winter-related and wind-related hazard events.

### **4.2 Mitigation Activities**

In completing the risk and vulnerability analyses, the THMC considered projects and actions that would reduce the Tribe's vulnerability to the identified hazards. The Risk Assessment Matrix (Table 2-1) is the basis for the mitigation actions presented in Section 4.3.

### **4.3 Mitigation Action Plan**

The THMC considered the goals of this plan and prioritized the matrix and the associated actions based on historical damage, safety of the population, property protection and consistency with Tribal goals and objectives. Issues and objectives were aligned to Tribal health risks, evacuation and mass care considerations, disruption of essential services and potential economic losses to the Tribe.

The THMC determined that the identified objectives could be met by considering actions aligned to the following Mitigation Categories:

- Public Education and Awareness
- Property Protection
- Natural Resource Protection
- Structural Projects
- Emergency Services
- Planning and Prevention

The THMC has worked to set goals and objectives that are bounded by a time frame and are compatible and consistent with state hazard mitigation goals. Upon submittal of this plan to MEMA, the State Hazard Mitigation Committee (SHMC) is expected to review and approve these goals and objectives to ensure consistency with the statewide goals and objectives. The time frames used for this strategy are as follows:

- Short Term = 0 to 6 Months
- Medium Term = 6 to 18 Months
- Long Term = 18 Months to 5 Years

The following actions use the Risk Assessment Matrix (Table 2-1) to identify areas at risk, offer mitigation strategies and consider benefits. Each action offers a discussion of the project and if applicable, includes the options considered. Multiple actions associated with a vulnerable area reflect Tribal priorities and are simply prioritized high, medium or low. If known, the actions include cost estimates and assign responsible parties to lead the efforts to complete the action. The cost ranges used for this strategy are as follows:

- Staff Time – Tribal personnel time
- Minimal – less than \$5,000
- Moderate – more than \$5,000, but less than \$25,000
- Significant – over \$25,000

Other relevant departments/agencies that can offer support to the project are also listed. Finally, possible finance options are offered. Once the 2021 plan receives FEMA's 'Approved Pending Adoption', the mitigation strategy will be put into motion.

### **Evaluation/Selection of Mitigation Actions**

After reviewing the Tribe's identified risks and vulnerabilities to natural hazards, the input/feedback from the Tribal workshops and recommendations from the Tribe, and the local Capability Assessment, the THMC selected mitigation actions to incorporate into the 2021 plan.

### **Prioritization of Actions**

Due to budgetary constraints and other limitations, it is often impossible to implement all mitigation actions. The THMC needed to select the most cost-effective actions for implementation first to use resources efficiently and develop a realistic approach toward mitigation risks. The Disaster Mitigation Act 2000 (DMA) supports this principle of cost-effectiveness by requiring action plans to follow a prioritization process that emphasizes benefits over costs. DMA 2000 states:

*"The mitigation strategy section shall include an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs."*

### **Part 1: Review Benefits and Costs**

As part of the planning process, the THMC utilized Review Tools 1, 2, and 3 associated with each action identified.

## Part 2 Prioritize Actions – Qualitative Method, Relative Score

The THMC utilized Method B: Prioritization using the Social, Technical, Administrative, Political, Legal, Economic, and Environmental (STAPLEE) criterion Relative Scores, suggested in FEMA's Hazard Mitigation Planning How-to-Guide Series (Table 4-1).

**Table 4-1 STAPLEE Review and Selection Criteria**

Category	Criteria
Social	Is the proposed action socially acceptable to the community?
	Are there equity issues involved that would mean that one segment of the community is treated unfairly?
	Will the action cause social disruption?
Technical	Will the proposed action work?
	Will it create more problems than it solves?
	Does it solve a problem or only a symptom?
	Is it the most useful action considering other community goals?
Administrative	Can the community implement the action?
	Is there someone to coordinate and lead the effort?
	Is there enough funding, staff, and technical support available?
	Are there ongoing administrative requirements that need to be met?
Political	Is the action politically acceptable?
	Is there public support both to implement and to maintain the project?
Legal	Is the community authorized to implement the proposed action? Is there a clear legal basis or precedent for this activity?
	Are there legal side effects? Could the activity be construed as a taking?
	Is the proposed action allowed by a comprehensive plan, or must a comprehensive plan be amended to allow the proposed action?
	Will the community be liable for action or lack of action?

	Will the activity be challenged?
Environmental	How will the action affect the environment?
	Will the action need environmental regulatory approvals?
	Will it meet local and state regulatory requirements?
	Are endangered or threatened species likely to be affected?
Economic	What are the costs and benefits of this action?
	Do the benefits exceed the costs?
	Are initial, maintenance, and administrative costs considered?
	Has funding been secured for the proposed action? If not, what are the potential funding sources (public, non-profit, and private)?
	How will this action affect the fiscal capability of the community?
	What burden will this action place on the tax base of the local economy?
	What are the budget and revenue effects of this activity?
	Does the action contribute to other community goals, such as capital improvements or economic development?
	What benefits will the action provide?

### Part 3 Documentation of the Process

Each of the mitigation actions were scored against each of the STAPLEE criteria outlined above with a numerical score. These numbers were then totaled and developed into an overall priority score (Table 4-2). The ranking of the Priority Score is a guideline for when the Tribe should begin acting on the identified strategies, or actions.

The STAPLEE Method includes a cost-benefit review as part of the Mitigation Actions prioritization process. A more detailed cost-benefit analysis will be done, at the time of application, for those proposed Mitigation Actions that the Tribe applies for funding under the BRIC and Hazard Mitigation Grant Programs.

**Table 4-2 STAPLEE Analysis**

2021 Action Number	Title	Cost/ Benefit	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total	Prioritization
TRIBAL EDUCATION AND AWARENESS											
2021 - 1	Distribute informational natural hazards pamphlet.	Cost	2	1	-1	1	0	1	0	4	16
		Benefit	2	2	0	2	2	2	2	12	
2021 - 2	Expand the capacity of the Tribal website to promote hazard mitigation/disaster awareness/preparedness for Tribal citizens.	Cost	0	-1	-1	1	0	1	0	0	12
		Benefit	2	2	2	2	0	2	2	12	
STRUCTURAL PROJECTS											
2021 - 3	Conduct feasibility study of stormwater drainage solutions around Tribal properties/assets.	Cost	0	2	-1	1	-1	2	0	3	14
		Benefit	2	2	0	2	1	2	2	11	
2021 - 4	Work with the County/FEMA to encourage the construction/use of safe rooms for Tribal citizens living in the service area.	Cost	-1	1	-1	1	-1	-1	0	-2	10
		Benefit	2	2	2	2	2	2	0	12	
PLANNING AND PREVENTION											
2021 - 5	Develop a Tribal Emergency Operations Plan.	Cost	2	2	2	2	2	2	2	14	28
		Benefit	2	2	2	2	2	2	2	14	
2021 - 6	Develop a Tribal Continuity of Operations Plan.	Cost	2	2	2	2	2	2	2	14	28
		Benefit	2	2	2	2	2	2	2	14	
2021 - 7	Work with County, State, and Federal agencies to explore/acquire security measures and develop an education/outreach campaign for Tribal assets and Tribal citizens living in the service area on ways to mitigate cyber threats affecting personal, private, and Tribal security and other sensitive data/information.	Cost	2	-1	-1	1	0	1	0	2	14
		Benefit	2	2	2	2	2	2	0	12	
2021 - 8		Cost	-1	0	-1	0	0	-1	0	-3	9

	Work with the Chickahominy Health District and Virginia Department of Health to identify safe standards for indoor air quality/particulate matter for Tribal citizens who rely on wood stoves for heat and experience mold growth inside their homes.	Benefit									
			2	2	2	2	0	2	2	12	
2021 - 9	Develop Geographic Information System (GIS) capacity to manage Tribal assets and to better understand/track hazards and vulnerabilities.	Cost	2	1	-1	1	0	1	0	4	16
		Benefit									
			2	2	2	2	0	2	2	12	
EMERGENCY SERVICES											
2021 - 10	Acquire Generators for critical Tribal infrastructure facilities.	Cost	1	2	-1	1	0	2	0	5	15
		Benefit	2	2	2	2	0	2	0	10	
2021 - 11	Strengthen emergency communications capability (internal and external linkages).	Cost	-1	0	-1	1	0	1	0	0	10
		Benefit	2	2	2	2	0	2	0	10	
2021 - 12	Develop a comprehensive job description, advertise for, and hire an Emergency Operations Director for the Tribe.	Cost	1	1	-1	1	0	-1	0	1	13
		Benefit	2	2	2	2	2	2	0	12	
2021 - 13	Work with the County and State to better understand the various protocols/SOPs should there be a chemical/hazardous spill.	Cost	2	2	-1	1	0	2	2	8	20
		Benefit	2	2	2	2	0	2	2	12	
PROPERTY PROTECTION											
2021 - 14		Cost	0	0	-1	0	0	-1	0	-2	10



Work with County, State, and Federal agencies and NFIP to develop and implement a public outreach program to educate Tribal citizens in A- and V-zones of the requirements to comply with floodplain standards, understand the benefits of flood insurance, and practical ways to protect their properties.	Benefit	2	2	2	2	0	2	2	12
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## TRIBAL EDUCATION AND AWARENESS

### Action #1

#### Distribute Informational Natural Hazards Pamphlet

Develop a pamphlet to be distributed to all Tribal citizens that describes the natural hazards that threaten Tribal lands and Tribal citizens living in the service area, as well as steps they can take for each hazard to mitigate damages to their property. Include evacuation routes and shelter locations along with items that can and cannot be taken to the shelters.

- Action Type: Planning, Pre-Disaster
- Priority Score: 16
- Lead: Emergency Operations Director
- Supporting: Public Information Officer
- Time Frame: Short Term
- Financing Options: Tribal Operating Budget
- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Individual Tribal citizen's health, Tribal lands/Tribal citizens living in the service area.

### Action #2

#### Expand the capacity of the Tribal website to promote hazard mitigation/disaster awareness/preparedness for Tribal citizens.

Utilize the Tribal website as a means to convey important hazard mitigation awareness and preparedness information regarding Tribal citizens vulnerabilities to natural, human-caused, and technological hazards. This should include evacuation routes, shelter/mass care facility locations, and procedures in the event of a radiological/nuclear incident at the Surry Power Station (Tribal citizens are within the 50-mile Ingestion Exposure Pathway).

- Action Type: Planning, Pre-Disaster
- Priority Score: 12

- Lead: Emergency Operations Director
- Supporting: Public Information Officer/Surry Power Station Representative
- Time Frame: Short Term
- Financing Options: Tribal Operating Budget
- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Individual Tribal citizen's health, Tribal lands/Tribal citizens living in the service area.

## STRUCTURAL PROJECTS

### Action #3

Conduct feasibility study of stormwater drainage solutions around the Tribal properties/assets.

During periods of heavy rain the roadway, in particular around the Tribal Center, floods and becomes impassable due to inadequate drainage capacity.

- Action Type: Planning, Pre-Disaster
- Priority Score: 14
- Lead: Emergency Operations Director
- Supporting: Charles City County
- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Protection of property, protection of life/infrastructure, Tribal citizen's safety
- Vulnerable Area: Tribal Center

### Action #4

Work with the County/FEMA to encourage the construction/use of safe rooms for Tribal citizens living in the service area.

Hurricanes and tornadoes are profiled as 'significant risks' to Tribal citizens living in the service area.

- Action Type: Planning, Pre-Disaster
- Priority Score: 10
- Lead: Emergency Operations Director
- Supporting: Charles City County
- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Significant
- Benefit: Protection of life, increased Tribal health/safety/welfare
- Vulnerable Area: Emergency Response

## PLANNING AND PREVENTION

### Action #5

#### Develop a Tribal Emergency Operations Plan

Several hazard-, function-, and Tribal department-specific annexes/SOPs should be developed and incorporated into the EOP.

- Action Type: Planning, Pre-Disaster
- Priority Score: 28
- Lead: Emergency Operations Director
- Supporting: Tribal Council
- Time Frame: Short Term
- Financing Options: N/A
- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Emergency Response

### Action #6

#### Develop a Tribal Continuity of Operations Plan

Several hazard-, function-, and Tribal department-specific annexes/SOPs should be developed and incorporated into the COOP.

- Action Type: Planning, Pre-Disaster
- Priority Score: 28
- Lead: Emergency Operations Director
- Supporting: Tribal Council
- Time Frame: Short Term
- Financing Options: N/A
- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Emergency Response

### Action #7

#### Work with County, State and Federal agencies to explore/acquire security measures and develop an education/outreach campaign for Tribal assets and Tribal citizens living in the service area on ways to mitigate cyber threats affecting personal, private, and Tribal security and other sensitive data/information.

- Action Type: Planning, Pre-Disaster
- Priority Score: 14
- Lead: Emergency Operations Director
- Supporting: Charles City County

- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Improved resiliency of data/infrastructure
- Vulnerable Area: Tribal assets

#### **Action #8**

Work with the Chickahominy Health District and Virginia Department of Health to identify safe standards for indoor air quality/particulate matter for Tribal citizens who rely on wood stoves for heat and experience mold growth inside their homes.

- Action Type: Planning, Pre-Disaster
- Priority Score: 9
- Lead: Tribal Health Services Department
- Supporting: Chickahominy Health District/Virginia Department of Health
- Time Frame: Short Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Protection of property, protection of health/safety/welfare
- Vulnerable Area: Individual Tribal citizen's health

#### **Action #9**

Develop Geographic Information Systems (GIS) capacity to manage Tribal assets and to better understand/track hazards and vulnerabilities.

Acquire operating systems/software to develop the Tribe's GIS capabilities.

- Action Type: Planning, Pre-Disaster
- Priority Score: 16
- Lead: Emergency Operations Director
- Supporting: Public information Officer
- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Significant
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Emergency Response

### **EMERGENCY SERVICES**

#### **Action #10**

Acquire generators for critical Tribal infrastructure facilities.

Acquire generators for the Roxbury Road Warehouse, future childcare and administration locations, in addition to mobile generators for the mobile kitchens,

showers, and restrooms recently acquired.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score: 15
- Lead: Emergency Operations Director
- Supporting: Tribal Council
- Time Frame: Medium Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Continuity of services
- Vulnerable Area: Tribal Critical Facilities

#### **Action #11**

*Strengthen emergency communications capability (internal and external linkages).*

Expand the capacity of both internal (within Tribal operations) and external (with the County) communications in the event of an emergency.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score: 10
- Lead: Emergency Operations Director
- Supporting: Tribal Council
- Time Frame: Medium Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Continuity of emergency services/operations
- Vulnerable Area: Tribal Communications

#### **Action #12**

*Develop a comprehensive job description, advertise for, and hire an Emergency Operations Director for the Tribe.*

The Emergency Management Director position for the Tribe is currently vacant. As the Tribe continues to develop and expand operations, the need for an Emergency Management Director becomes more critical.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score: 13
- Lead: Tribal Council
- Supporting: Charles City County
- Time Frame: Short term
- Financing Options: FEMA grants
- Cost Estimate: Significant
- Benefit: Continuity of emergency services/operations
- Vulnerable Area: Individual Tribal citizen's health, Tribal lands/Tribal citizens living in the service area.

### **Action #13**

Work with the County and State to better understand the various protocols/SOPs should there be a chemical/hazardous spill.

The Tribe's Roxbury Road site and other Tribal assets, as well as Tribal citizens living in the service area are subject to proximity to considerable truck traffic/transport, rail transport and barge/waterways transport that may include chemical/hazardous materials transport.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score: 20
- Lead: Emergency Operations Director
- Supporting: Charles City County
- Time Frame: Medium Term
- Financing Options: FEMA grants
- Cost Estimate: Tribal Personnel Time
- Benefit: Minimized risk of chemical/hazardous materials contamination, reduced clean-up costs, Tribal citizen's safety
- Vulnerable Area: Emergency Response

## **PROPERTY PROTECTION**

### **Action #14**

Work with County, State and Federal agencies and NFIP to develop and implement a public outreach program to educate Tribal citizens in A- and V-zones of the requirements to comply with floodplain standards, understand the benefits of flood insurance, and practical ways to protect their properties.

Several Tribal assets and Tribal citizens are located in the A and V special flood hazard areas and subject to periodic inundation.

- Action Type: Planning, Pre-Disaster
- Priority Score: 10
- Lead: Emergency Operations Director
- Supporting: Charles City County/NFIP
- Time Frame: Medium Term
- Financing Options: FEMA Flood Mitigation Assistance Program
- Cost Estimate: Tribal Personnel Time
- Benefit: Reduced damages/costs, protection of property/assets, improved resiliency
- Vulnerable Area: A-V Zone properties

## Section 5 Plan Implementation and Maintenance

### 5.1 Implementation, Evaluation, and Revision of Plan

#### Implementation

The THMC realized that assigning a time frame to each recommended mitigation action is important so that activities can be coordinated with other important Tribal functions, such as committee meetings and budget hearings. Assigned time frames also provide input to a project plan used for tracking the progress of all activities. Once the 2021 plan receives FEMA's 'Approved Pending Adoption', the mitigation strategy will be put into motion and the Tribal Council will adopt the Plan (within one year of FEMA's approval).

The plan will be monitored by the THMC, with the ultimate responsibility for plan maintenance falling to the Chickahominy Indian Tribe Chief. Annually, the THMC will:

- Determine if the impacts of hazards described in the plan continue to be accurate, current and relevant.
- Review the goals for relevance with current priorities; and,
- Identify progress made on the mitigation strategy, including a description of and successes and challenges.

The Tribe will comply with all applicable federal statutes and regulations in effect with respect to the periods for which it receives grant funding, including 2 CFR Parts 200 and 3002, and will amend its plan whenever necessary to reflect changes in Tribal or Federal laws and statutes.

#### Evaluation

The Chickahominy Indian Tribe Chief will bring the THMC together annually to review the status on the implementation of the mitigation actions. Within two months of this meeting, a status report will be given to the Tribal Council. Progress will be reviewed annually at advertised Tribal Council hearings. It is advantageous the annual review be conducted prior to the Tribe's annual budget process so any Tribally funded projects can be considered in the budget process.

The system used to monitor the progress of mitigation actions will include:

- The THMC will coordinate with their respective departments. When a department responsible for a mitigation action is not represented on the THMC, the THMC will select a member to work with that department.
- Each department responsible for an action will provide updates in a timely manner to the THMC and will provide documentation of progress for incorporation into the plan.



- Projects will be closed out according to the specific requirements of the funding source. If the source is Tribal funds or staff time, a closeout meeting will be held with the Chickahominy Indian Tribe Chief.

### Revision

As per 44 CFR S 201.6(d)(3), the plan will be reviewed and revised to reflect progress in local mitigation efforts and changes in priorities and resubmitted for approval within 5 years in order to continue to be eligible for mitigation project grant funding. In order to ensure that the plan remains current, the THMC will meet annually. The plan will also be evaluated and updated after a disaster, or as funding opportunities arise for the actions and projects identified in the plan. Any updates will be reviewed and submitted to FEMA upon local approval to ensure that the state hazard mitigation strategy remains current.

The Chickahominy Indian Tribe Multi-Hazard Mitigation Plan will be incorporated into the Tribe's Emergency Management Plan once developed for consistency.

## **5.2 Continued Tribal Involvement**

The Tribe will continue Tribal involvement in the plan maintenance process by:

- The approved/adopted plan will be posted on the Tribe's website.
- The annual meeting of the THMC to review the implementation of the plan will be posted/advertised at a Tribal general assembly meeting; and
- The THMC will include the Tribe in the preparation of the five-year update using the same Tribal participation process as in the development of this plan.

## ***References***

## **Federal/National Resources**

28 CFR, Section 0.85

*Emergency Preparedness and Response Guides*, United States Department of Labor,  
<https://www.osha.gov/SLTC/emergencypreparedness/guides/structural.html>

*Glossary: Civil Disturbance*, FEMA

*Digital Coast Sea Level Rise Viewer*, NOAA, <https://coast.noaa.gov/slr/#/layer/slr/0/-8578121.189770076/4488611.86498593/10/satellite/none/0.8/2050/interHigh/midAccretion>

*Tribal Mitigation Planning Handbook*, FEMA. May 2019

*Tribal Mitigation Plan Review Guide*, FEMA. December 5, 2018

NOAA National Centers for Environmental Information  
[www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)

*Wind Zones in the United States*.  
[www.nist.gov](http://www.nist.gov)

NOAA Safir Simpson Hurricane Wind Scale.  
<https://www.nhc.noaa.gov/aboutsshws.php>

*Operational Templates and Guidance for EMS Mass Incident Deployment*, FEMA. June 2012

*Terrorism 2002 – 2005*, Federal Bureau of Investigation. 2005

<https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties>

## **State Resources**

*Report on the Commonwealth Threat Hazard Identification and Risk Assessment*,  
Virginia Department of Emergency Management. October 31, 2014

*Commonwealth of Virginia Hazard Mitigation Plan*, Virginia Department of Emergency  
Management and Witt's O'Brien's. March 2018

NOAA Fujita Scale  
<https://www.spc.noaa.gov/efscale/>

U.S.G.S Modified Mercalli Intensity Scale  
<https://www.usgs.gov/natural-hazards/earthquake-hazards/education>

*U.S.G.S. Richter Magnitude Scale*  
<https://earthquake.usgs.gov/learn/glossary/?term=Richter%20scale>

*NOAA National Weather Service Heat Index*  
<https://www.weather.gov/phi/heatcond>

*Virginia Uniform Statewide Building Code: Virginia Construction Code, Virginia*  
Department of Housing and Community Development

*Wildfire Vulnerability, Virginia Department of Forestry*

### **Local/Regional Resources**

*Charles City County Comprehensive Land Use Plan. August 26, 2014*

*Charles City County Floodplain Ordinance. October 28, 2014*

*Charles City County Subdivision Ordinance. Amended through July 31, 2017*

*Charles City County Zoning Ordinance. Amendments through July 31, 2017*

*Emergency Operations Plan for Charles City County, Virginia. January 2015 Update*

*Charles City County Wetland Zoning Ordinance*

*Charles City County and EMS Study Report of Findings and Recommendations,*  
Virginia Fire Services Board. May 2016

*Charles City County Website:*  
Charles City Fire Department Webpage,  
<https://firecares.org/departments/77171/charles-city-volunteer-fire-department>

*Chickahominy Indian Tribe Website,*  
<https://www.chickahominytribe.org/>

*Colonial Pipeline System Map, <https://www.colpipe.com/about-us/ourcompany/system-map>*

*CSX System Line,*  
<https://www.csx.com/index.cfm/library/files/customers/maps/printable-system-map/>  
<http://nkccnews.com/local-news/2019/08/26/new-kent-public-schools-victim-cyber-security-attack/>

*Richmond-Crater Hazard Mitigation Plan 2017, Dewberry*

Surrey Power Station PAZ 10-Mile Radius Protected Action Zone, <https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/global/nuclear/surry-power-station/protective-action-zones-and-evacuation-assembly-centers.pdf?la=en&rev=8978af8f17ad4fa28ff5eadfb3d36d33&hash=635FD11FF638FA252EA2B161210EE8CE>

*Dam Classifications*, Virginia Department of Conservation and Recreation,  
<https://www.dcr.virginia.gov/dam-safety-and-floodplains/damclass>

<https://www.co.charles-city.va.us/235/About-the-County>

<https://coast.noaa.gov/slr/#/layer/slr/0/-8578121.189770076/4488611.86498593/10/satellite/none/0.8/2050/interHigh/midAccretion>

*Charles City County/New Kent County Assessor CAMA Data.*  
Accessed March 10, 2021

*Region 1 Richmond Voluntary Organizations Active in Disaster Webpage,*  
<https://vavoad.org/regional/region1/>

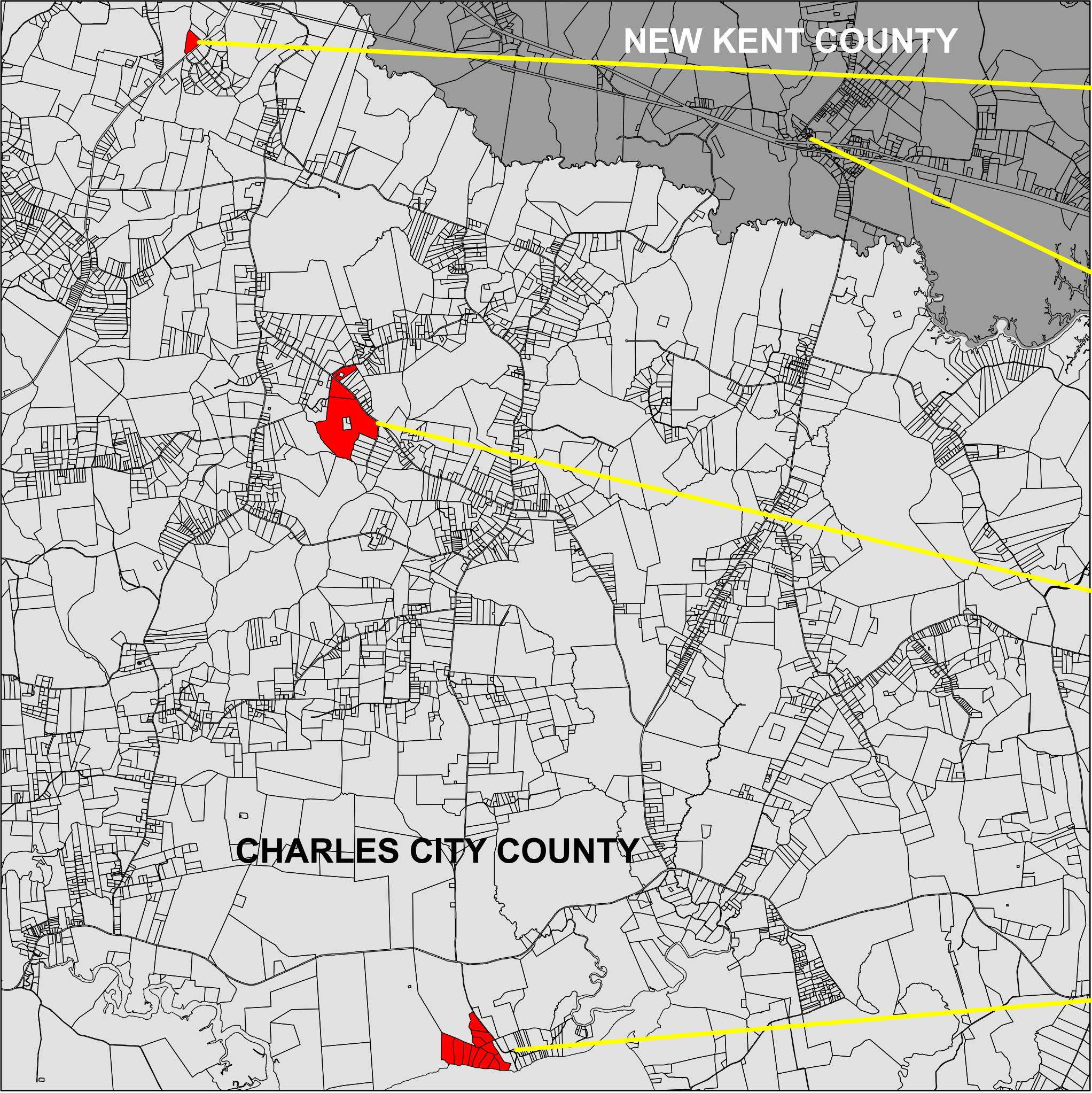
*Virginia Department of Health Webpage,*  
*Chickahominy Health District Webpage,*  
<https://www.vdh.virginia.gov/chickahominy/emergency-preparedness>

## **Appendix A – Maps**

***Locus (Tribal Assets)***

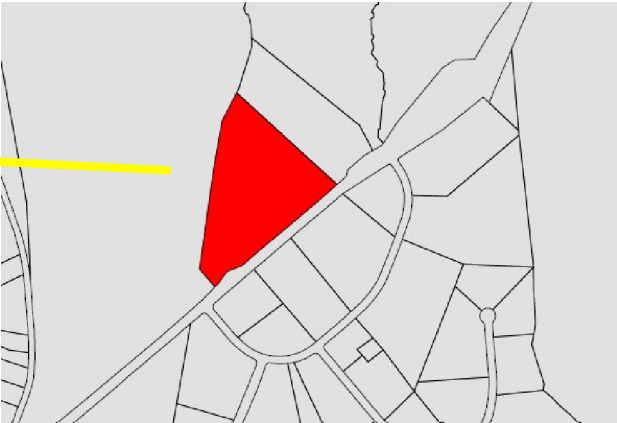
***Flood Hazard Areas (2-1)***



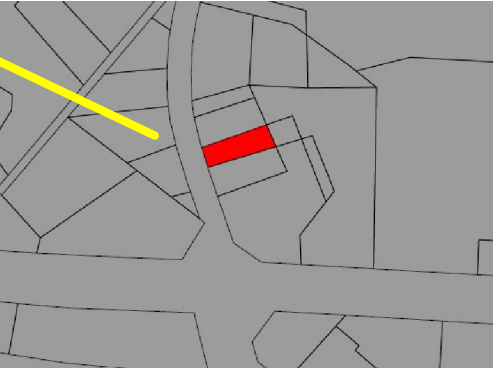


NEW KENT COUNTY

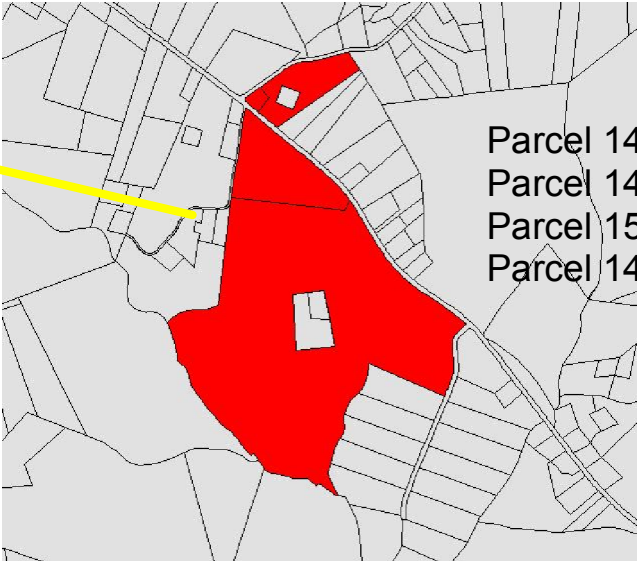
CHARLES CITY COUNTY



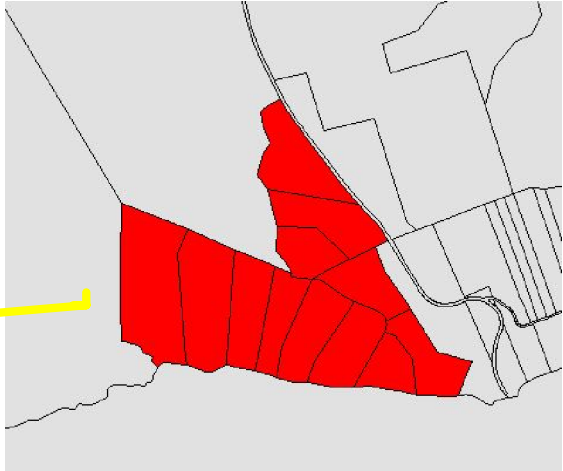
2401 Roxbury Road...  
Parcel 4-6-2



3521 North Courthouse Road  
Tax Map 41A1-2-12E



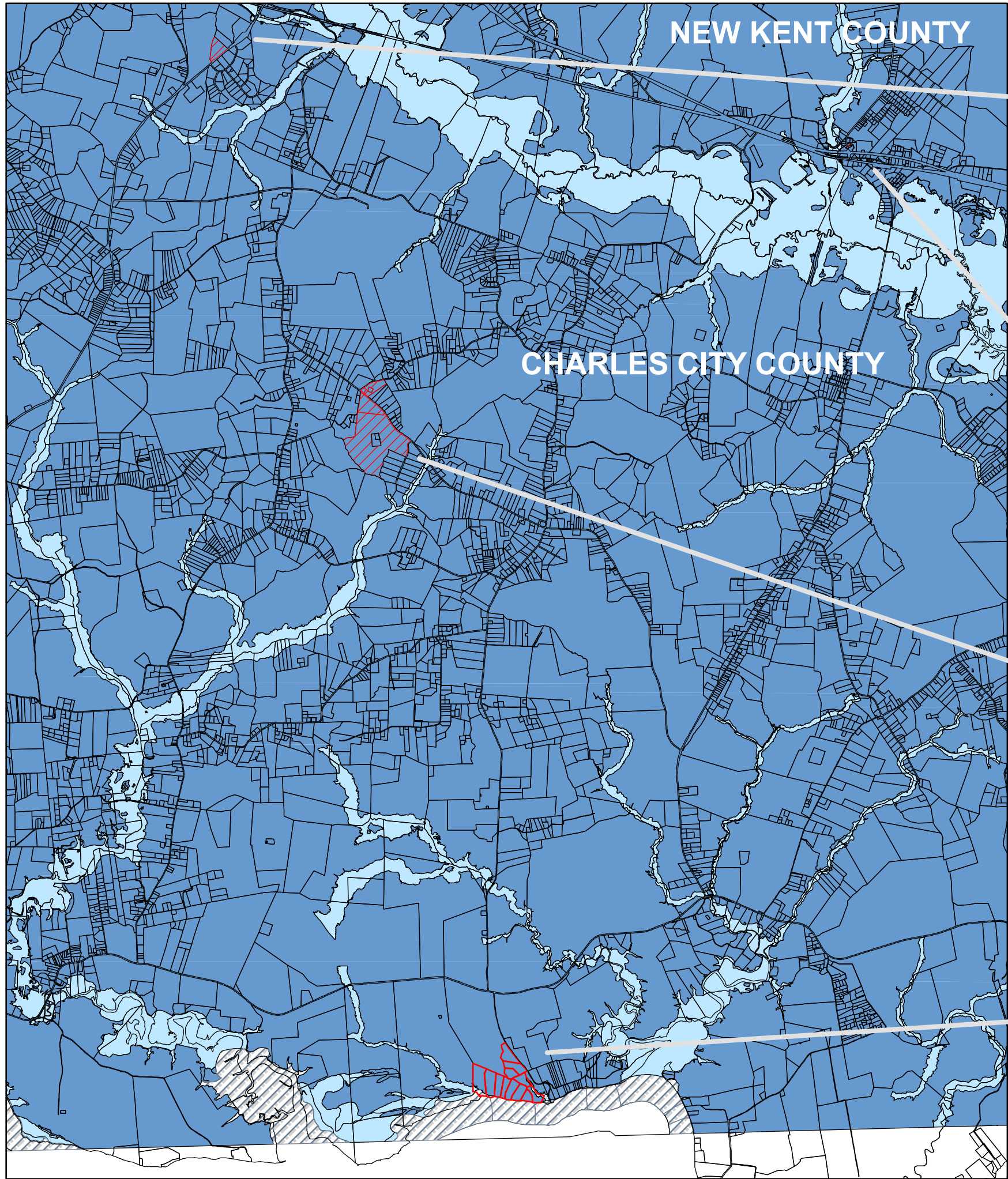
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Parcel 15-44...no address  
Parcel 14-78...no address



Parcels:

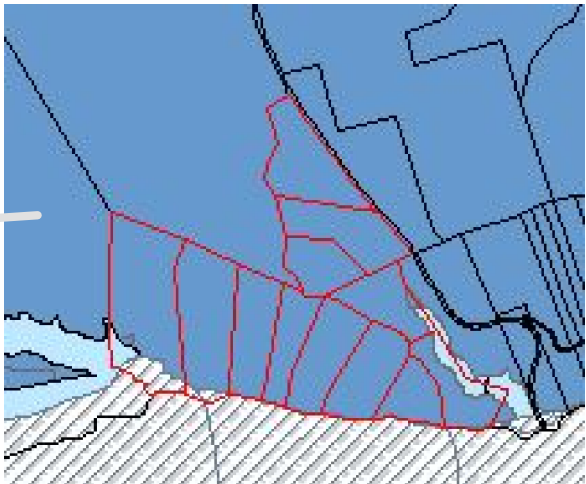
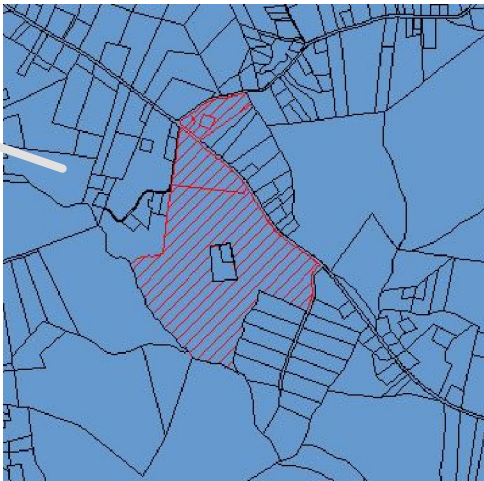
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- 52-3-A3
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- 52-3-B1
- 52-3-B2
- 52-3-B3
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- 52-3-C2
- 52-3-C3
- 52-3-C4



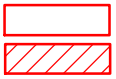


NEW KENT COUNTY

CHARLES CITY COUNTY



### Legend



Tribal Property

FEMA Flood Zones



100-Year Flood Zone



500-Year Flood Zone



Velocity Zone

## Map 2-1 Flood Hazard Areas Charles City County/ New Kent County, Virginia

March 10, 2021 CSP  
Source: FEMA (5/29/2020), Chickahominy Indian Tribe,  
Charles City County/New Kent County Assessor's  
Database (3/10/2021).

**Horsley Witten Group**  
*Sustainable Environmental Solutions*

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401-272-1717 • horsleywitten.com



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## **Appendix B – Public Information and Outreach**

### ***Project Webpage***

***Tribal Hazard Mitigation Committee Meeting #1: September 8, 2020***

***Tribal Hazard Mitigation Committee Meeting #2: November 5, 2020***

***Tribal Workshop #1: December 1, 2020***

***FEMA Region 3 Coordination Meeting: June 7, 2021***

***Tribal Hazard Mitigation Committee Meeting #3: July 1, 2021***

***Tribal Hazard Mitigation Committee Meeting #4: August 19, 2021***

***Tribal Workshop #2: \_\_\_\_\_***

***On-Line Survey***

***Project Webpage***



# Chickahominy Indian Tribe Multi-Hazard Mitigation Plan



FEMA defines hazard mitigation as:

*A series of actions and policies designed to reduce and/or eliminate the impacts of naturally occurring disasters on people and property.*

## About the Chickahominy Indian Tribe Multi-Hazard Mitigation Plan Project

The Chickahominy Indian Tribal Council has hired Nelson Andrews and the Horsley Witten Group, Inc. to assist with the development of the Chickahominy Indian Tribe Multi-Hazard Mitigation Plan.

Why is this important? Hazard mitigation planning enables Tribal governments to identify risks and vulnerabilities associated with natural, human-caused and technological disasters, and develop long-term strategies for protecting people and property from future hazard events. Further information is available on FEMA's Hazard Mitigation Planning page: <http://www.fema.gov/hazard-mitigation-planning>.

A hazard mitigation plan should be considered a living document that must grow and adapt, keeping pace with a community's growth and change. The Disaster Mitigation Act of 2000 (DMA) places high priority on the continuation of the planning process after the initial submittal, requiring communities to seek and receive re-approval from FEMA in order to remain eligible for financial assistance.

The approach for this plan development is premised on four primary methods, all geared towards meeting the requirements of the DMA 2000 Public Law 106-390, October 10, 2000:

- Planning Process—Outreach and Stakeholder Coordination
- Risk Assessment—Identifying Hazards and Estimating Losses
- Mitigation Strategy—Identifying Mitigation Actions and Implementation Strategies
- Plan Maintenance—Implementation, Evaluation and Revision/Update

## Contacts

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First Assistant Chief, Chickahominy Tribe  
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(804) 829-2027 Ext. 1002

Nelson Andrews Jr.  
Project Manager  
[nelsonandrewsjr@gmail.com](mailto:nelsonandrewsjr@gmail.com)  
(774) 521-4880

**Stay tuned for more information on how to get involved!**

***Tribal Hazard Mitigation Committee Meeting #1: September 8, 2020***

# **Chickahominy Indian Tribe**

## **Multi-Hazard Mitigation Plan/Emergency Operations Plan/ Continuity of Operations Plan**

### **Tribal Hazard Mitigation Committee Meeting #1/ EOP Kickoff/Capability Review Workshop**

Virtual Meeting  
September 8, 2020 1:00 PM – 3:00 PM

#### **Agenda**

##### **Multi-Hazard Mitigation Plan**


1. Introductions
2. Project Coordination
  - a. Tribal Hazard Mitigation Committee Confirmation
  - b. Plan Layout
  - c. Data Collection
  - d. Project Schedule
    - i. THMC Meetings
    - ii. Tribal Workshop
    - iii. Tribal Interviews
  - e. Tribal Outreach
    - i. Project Webpage
3. Questions

##### **Emergency Operations Plan**

**Chickahominy Indian Tribe**

- Multi-Hazard Mitigation Plan
- Emergency Operations Plan
- Continuity of Operations Plan


Meeting #1  
September 8, 2020



1

**Meeting Purpose**

- Introduce the Nelson Andrews Jr./HW Team
- Review the Project Timeline
- Discuss Information and Data Collection Needs
- Identify the next steps



2

**Nelson Andrews Jr./HW Team**



Nelson Andrews Jr., Project Manager   Carl Simons, HW   Craig Pereira, HW   Will Keefer, HW   Patty Linehan, HW

Horsley Witten Group  
Sustainable Environmental Solutions

3

**Chickahominy Indian Tribe  
MHMP/EOP/COOP Schedule**

Multi-Hazard Mitigation Plan	Key Outcomes	Emergency Operations Plan	Key Outcomes
Tribal Hazard Mitigation Committee Meeting #1 September 8, 2020	<ul style="list-style-type: none"> <li>• THMC Confirmation</li> <li>• Plan Layout</li> <li>• Data Collection</li> <li>• Tribal Outreach</li> </ul>	<b>Workshop #1 EOP Kickoff and Capability Review</b>	<ul style="list-style-type: none"> <li>• Introduce EOP Process</li> <li>• Establish Planning Team</li> <li>• Review organization/capabilities</li> <li>• Discuss plan structure</li> </ul>
Tribal Workshop #1 Week of November 2, 2020	<ul style="list-style-type: none"> <li>• Mitigation Process</li> <li>• Hazard Index</li> </ul>	<b>Workshop #2 Roles and Responsibilities</b>	<ul style="list-style-type: none"> <li>• Confirm plan structure and content</li> <li>• Verify capability assessment</li> <li>• Define roles</li> <li>• Identify key external partners</li> </ul>
Tribal Hazard Mitigation Committee Meeting #2 Week of December 13, 2020	<ul style="list-style-type: none"> <li>• Section 1 Introduction</li> <li>• Section 2 Risk Assessment</li> </ul>	<b>Workshop #3 COOP Workshop</b>	<ul style="list-style-type: none"> <li>• Review concept of operation</li> <li>• Discuss alignment/integration with Tribal/partner emergency management organizations</li> </ul>

4

**Chickahominy Indian Tribe  
MHMP/EOP/COOP Schedule**

Multi-Hazard Mitigation Plan	Key Outcomes	Emergency Operations Plan	Key Outcomes
Tribal Hazard Mitigation Committee Meeting #3 Week of March 22, 2021	<ul style="list-style-type: none"> <li>• Section 3 Capability Assessment</li> <li>• Section 4 Mitigation Strategy</li> </ul>	<b>Workshop #4 Draft EOP and COOP Review</b>	<ul style="list-style-type: none"> <li>• Review/comment of draft EOP and COOP</li> <li>• Identify key data gaps</li> <li>• Identify future actions for plan enhancement</li> </ul>
Tribal Hazard Mitigation Committee Meeting #4 Week of June 21, 2021	<ul style="list-style-type: none"> <li>• Review of Draft</li> </ul>		
Tribal Workshop #2 Week of July 19, 2021	<ul style="list-style-type: none"> <li>• Mitigation Action Strategy</li> </ul>		
Final Deliverable to FEMA By August 1, 2021			

5

**Multi-Hazard Mitigation Plan**

**Proposed Plan Layout**

- Section 1 Introduction
- Section 2 Risk Assessment
- Section 3 Capability Assessment
- Section 4 Mitigation Strategy
- Section 5 Plan Implementation/Maintenance

6



## Multi-Hazard Mitigation Plan

### Data Collection

- Tribal Data (history/assets/critical facilities)
- Virginia GIS Clearinghouse (parcels/administrative bounds/hydrography)
- Commonwealth of Virginia Hazard Mitigation Plan (March 2018)
- New Kent County, Virginia Website
- Tribal Interviews

7

## Multi-Hazard Mitigation Plan

### Tribal Outreach

- Project Webpage (hosted on Tribe's website)
- Tribal Announcement – Project Kickoff (email to Tribal Council and members)

8

## ERP Project Team



### Contractors:

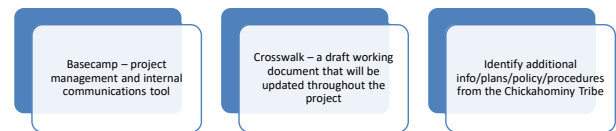
- Nelson Andrews
- Carl Simons
- Will Keefer
- Patti Linehan

### Tribal Members

- Stephen R. Adkins, Chief
- Wayne Adkins, First Assistant Chief
- Reggie Stewart, Second Assistant Chief
- Martha N. Adkins, Secretary
- Rhonda G. Canaday, Treasurer
- Adam Adkins, Council Member
- Cami Adkins, Council Member
- Heath Adkins, Council Member
- Troy Adkins, Council Member
- Joshua Stewart, Council Member
- Ross Stewart, Council Member
- Donovan L. Wynn, Council Member

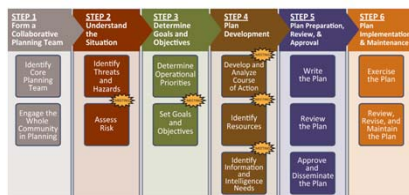
9

## Crosswalk/Gap Assessment



10

## Developing and Maintaining Emergency Operations Plans (CPG 101)



11

## Chickahominy Tribe Expectations

What would you like to see in the Emergency Operations Plan (EOP)?

What don't you want to see in the EOP?


What do you want to see in the Continuity of Operations Plan (COOP)?

Who do you consider your response partners (e.g., IHS, DHS/FEMA, VEMA, County EMA, Fire & Rescue, Sheriff, Health Department )?

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### Incident Specific Response Plans (ISRPs)

- Based on:
  - Crosswalk
  - Risk and Resilience Assessment
  - SCWD Areas of Concern



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### Emergency Management

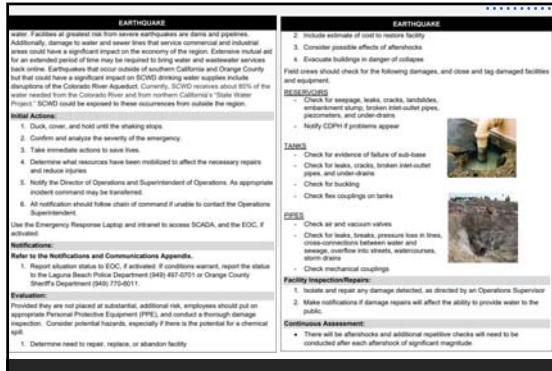
## Be New Kent READY!

**New Kent County is vulnerable to several hazards. The most common include:**

- Severe Summer Weather – summer thunderstorms, tornadoes, winds, and flooding
- Severe Winter Weather – severe cold, strong winds, heavy snow, and ice storms
- Tropical Storms – depressions (heavy rains), tropical storms (winds less than 74 mph), and hurricanes (winds greater than 74 mph). Most tropical systems form June 1 - November 30 but can form in any month of the year
- Nor'easters – large storms that form when warm air over the Atlantic clashes with arctic cold out of the north and west. Winds blow out of the north and east causing both wind damage and flooding. These storms typically occur between September through April
- Transportation accidents – although rare, the railroads, I-64 with heavy truck traffic, and the regional airport add transportation accidents to our vulnerabilities

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### Checklist Format




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### Incident Specific Response Plans (ISRPs)


ISRP	POC	EMAIL
Cyber Incident		
Malevolent Acts		
Winter Storm		
Severe Summer Weather		
Flood		

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### Open Discussion




Questions?



Is there a topic you thought you would hear about but did not?



Recommendations?



Follow-on comments – Please pass through Nelson

17

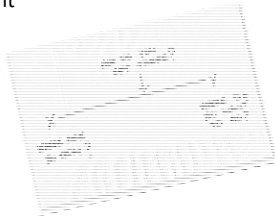
### Next Steps: Multi-Hazard Mitigation Plan

- Confirm Tribal Workshop date and logistics
- Review draft Tribal Survey

18

### Next Steps: EOP/COOP

- Confirm plan structure and content
- Verify capability assessment
- Collect plans/policies/procedures
- Define roles
- Confirm key external partners
- November 2, 2020



# Chickahominy Indian Tribe: Tribal Hazard Mitigation Plan

## Section 1: Introduction

### *Overview*

- Hazard mitigation planning in general

### *What Hazard Mitigation Can do for the Chickahominy Indian Tribe*

- Benefits of hazard mitigation planning

### *Chickahominy Indian Tribe Goals*

- Protect the tribal health, safety and welfare
- Reduce both tribal, public and private property damages caused by hazard impact
- Minimize social distress and economic losses/business disruption
- Provide an ongoing forum for the education and awareness of natural hazard mitigation issues, programs, policies, projects and resources

### *Planning Process*

- Overview of approach/process of the project
  - o Tribal Hazard Mitigation Committee Meetings
  - o Tribal Workshops
  - o Tribal Interviews
  - o Survey

### *Environmental Setting*

- Geographic location
- History
- Tribal Structure

### *History of Disaster Declarations*

- Federal Emergency and Major Disaster Declarations for the County

### *Recent Disaster Declarations*

- Recent (2010 – forward) Federal Emergency and Major Disaster Declarations for the County

## Section 2: Risk Assessment

### *Introduction*

- Which hazards merit special attention
- What actions might be taken to reduce the impact(s) of those hazards
- What resources are likely to be needed

### *Hazard Identification*

- Required to evaluate all hazards identified in the State Plan...anticipated list, however, still to be confirmed:

#### Natural Hazards:

- Flood-Related
  - Riverine/Flash Flooding
  - Heavy Rain/Inland and Urban Flooding
  - Dam Failure
  - Storm Surge/Sea Level Rise/Climate Change
- Winter-Related
  - Avalanche
  - Blizzards
  - Winter Weather
  - Winter Storms
  - Ice Storms
  - Extreme Cold/Wind Chill
  - Freezing Fog
  - Frost//Freeze
  - Sleet
- Wind-Related
  - Hurricanes
  - Tornadoes
  - Funnel Cloud
  - Waterspout
  - High Winds
  - Lightning/Thunderstorms
  - Tropical Depressions
  - Tropical Storms
  - Marine High Wind/Strong Wind/Thunderstorm Wind
- Geologic-Related
  - Earthquakes
  - Karst
  - Landslide
- Drought-Related
  - Drought
  - Extreme Heat
- Urban Fire/Wildfire-Related
- Invasive Species
- Communicable Disease
  - Epidemic
  - Pandemic
- Likely not to be addressed:
  - Volcanoes
  - Tsunamis

#### Human-Caused Hazards:

- Terrorism (intentional)
  - Biological
  - Chemical/Hazardous
  - Cyber
  - Explosive
  - Radiological/Nuclear
  - Civil Disobedience/Unrest
- Other (accidental)
  - Fire
  - Mass Casualty Incident
  - Dam Inundation
  - Special/VIP Events

#### Technological Hazards:

- Infrastructure/Utility Failure
  - Communications
  - Emergency Services
  - Energy
  - Information Technology
  - Transportation Systems
  - Water/Wastewater Systems

#### *Hazard Profiles*

- Review of NOAA's National Climatic Data Center (<http://www.ncdc.noaa.gov/>) 'Storm Events' database and develop tables based on hazard type, date, level/description and damages to develop a Hazard Index primarily for the Charles City County and/or Providence Forge where applicable.
  - Flood Related
  - Winter Related
  - Wind Related
  - Geologic Related
  - Drought Related
  - Urban Fire/Wildfire Related
- Evaluate the location/history/probability of future occurrence of hazards...process still to be confirmed.

#### Criteria for Frequency Categorization:

Very low frequency: events that occur less frequently than once in 1,000 years (less than 0.1% per year)

Low frequency: events that occur from once in 100 years to once in 1,000 years (0.1% to 1% per year)

Medium frequency: events that occur from once in 10 years to once in 100 years (1% to 10% per year)

High frequency: events that occur more frequently than once in 10 years (greater than 10% per year)

Criteria for Severity Categorization (based on past hazard events):

Minor: Limited and scattered property damage; no damage to public infrastructure; contained geographic area; essential services not interrupted; no injuries or fatalities

Serious: Scattered major property damage; some minor infrastructure damage; wider geographic area; essential services are briefly interrupted; some injuries/fatalities

Extensive: Consistent major property damage; major damage to public infrastructure; essential services are interrupted for several hours to several days; many injuries and fatalities

Catastrophic: Property and public infrastructure destroyed; essential services stopped; thousands of injuries and fatalities

- Mapping will also be developed
  - o Critical Facilities
  - o FEMA Flood Zones
  - o Events, etc.

*Vulnerability*

- Evaluates vulnerability of built environment, social and environment

Development Trends

- o Changes over time, future development plans (residential/commercial)

Economic Vulnerability

- o Does the Tribe participate in National Flood Insurance Program?
- o Impacts of FEMA flood zones (Economic by land use type, land/building values)

Social Vulnerability

- o Impacts to built/natural environment and that relationship to the social structure of the Tribe
- o Infrastructure/Emergency lifelines
- o Evacuation/Populations at risk

Environmental Vulnerability



#### *FEMA Disaster Grant Assistance*

- Has the Tribe received any financial assistance from VDEM/FEMA?

### **Section 3: Capability Assessment**

#### *Introduction*

- Documents local, state and federal department, agency and program capabilities in terms of pre and post-disaster activities

#### *Planning/Regulatory Capabilities*

- Planning documents
- Regulations/Bylaws
- Building Code

#### *Administrative Capabilities*

- Tribal Emergency Management Plan
  - o Emergency Operations Center/Shelter
- Municipal Website
- Coordination with Neighboring Communities
- Tribal Structure/Staff

#### *Financial Capabilities*

- Federal/State Grant Opportunities

#### *National Flood Insurance Program*

- NFIP/Compliance with NFIP

#### *Existing Protection Matrix*

- Summary of all above

### **Section 4: Mitigation Strategy**

#### *Introduction*

#### *Mitigation Activities*

- Requires an action for every vulnerability identified in the plan

#### *Mitigation Action Plan*

- Categories
  - o Public Education and Awareness
  - o Property Protection
  - o Natural Resource Protection
  - o Structural Projects
  - o Emergency Services
  - o Planning and Prevention

- Time Frame
  - Short Term = 0 to 6 Months
  - Medium Term = 6 to 18 Months
  - Long Term = 18 Months to 5 Years
- Cost Estimate
  - Staff Time – municipal personnel time
  - Minimal – less than \$5,000
  - Moderate – more than \$5,000, but less than \$25,000
  - Significant – over \$25,000
- Prioritization of Actions (abbreviated Benefit/Cost Analysis)
  - STAPLEE Criteria**
    - **Social:** Is the action compatible with present and future local community needs and values?
    - **Technical:** Is the action feasible with available local resources (or as supplement by outside resources as necessary)?
    - **Administrative:** Does the community have the administrative capacity to implement the action?
    - **Political:** Is there strong public support to implement and maintain the action?
    - **Legal:** Does the community have the legal authority to implement the action?
    - **Economic:** Is the action cost-effective?
    - **Environmental:** Does the action impact environmental resources, and is the impact positive, negative, or neutral?
- Action Description
  - Action Type
  - Priority Score
  - Lead
  - Supporting
  - Time Frame
  - Financing Options
  - Cost Estimate
  - Benefit
  - Vulnerable Area

## **Section 5: Plan Implementation/Maintenance**

### *Implementation/Evaluation/Revision*

- Implementation
  - Following Tribal adoption
- Evaluation
  - Annually

- Revision
  - Every 5 years/after a major event

*Continued Tribal Involvement*

- Posted on Tribe's website
- Annual meeting of Tribal Hazard Mitigation Committee



# Memorandum of Meeting

**To:** Chickahominy Indian Tribe: Tribal Hazard Mitigation Committee/Emergency Operations Plan Team

**From:** Craig Pereira

**Date:** September 8, 2020

**Re:** Chickahominy Indian Tribe Multi-Hazard Mitigation Plan, Emergency Operations Plan and Continuity of Operations Plan

---

**In attendance:**

Stephen Adkins – Chief

Wayne Adkins – Assistant Chief, Tribal Finance Officer

Reggie Stewart – Second Assistant Chief

Dana Adkins – Tribal Environmental Director

Lindsey Johnson – Deputy Tribal Administrator, Public Information Officer

Consultant Team

Nelson Andrews, Jr. – Project Manager

Carl Simons – Horsley Witten Group, Inc. (HW)

Craig Pereira, Senior Planner - HW

Will Keefer, Senior Planner – HW

A meeting was held today to kickoff the project. The following items were discussed:

1. Introductions
  - a. Wayne Adkins was identified as the primary point of contact for all three plans
2. Project Schedule
  - a. Craig Pereira reviewed the updated schedule for the Multi-Hazard Mitigation Plan (MHMP) development. Craig indicated that there is a two-month difference in what was included in the proposal due to getting a later than anticipated start, but that dates beyond January 1, 2021 remain the same. Meetings have been grouped together for all three plans when possible to maximize efficiencies.
  - b. Carl Simons reviewed the updated schedule for the Emergency Operations Plan (EOP) and Continuity of Operations Plan (COOP) development.
3. Proposed Plan Layout.
  - a. Craig Pereira reviewed a proposed layout for the MHMP, based on his coordination with FEMA on other HMP projects. The proposed layout is attached to these meeting minutes for review by the Chickahominy Indian Tribe and includes:
    - i. Section 1 Introduction
      1. MHMP overview
      2. Mission/Goals statement
      3. Planning process
      4. Tribal history (people, lands, facilities and infrastructure)

5. History of disaster declarations for the county
  - ii. Section 2 Risk Assessment
    1. Hazard identification and profiles
    2. Vulnerabilities
      - a. Economic
      - b. Social
      - c. Environmental
  - iii. Section 3 Capability Assessment
    1. Planning and Regulatory capabilities
    2. Administrative and Technical capabilities
    3. Financial capabilities
  - iv. Section 4 Mitigation Strategy
    1. Mitigation Action Plan (categories)
      - a. Education and Awareness
      - b. Property Protection
      - c. Natural Resource Protection
      - d. Structural Projects
      - e. Emergency Services
      - f. Planning and Prevention
    2. Prioritization of Actions
  - v. Section 5 Plan Implementation and Maintenance
    1. Implementation, Evaluation and Revision of Plan
4. Tribal Outreach
- a. Craig Pereira stated that he will develop a static PDF announcing the project for posting on the Tribe's website, preferably as a stand-alone page. This will serve as a repository for project documents and presentations to keep the Tribe updated throughout the evolution of the project.. Tribal members indicated the Tribe's website is currently undergoing an update, but that Heath (IT Department) could work with HW to get this up and running.
  - b. Lindsey Johnson stated the Tribe also has social media (Citizen Facebook Group) and a monthly newsletter that could include project information to push out to the Tribe, as needed.
  - c. Craig Pereira requested that Wayne Adkins distribute a project kickoff announcement to the Tribe, following the project webpage setup.
  - d. Craig Pereira will coordinate with Wayne Adkins on any health related/pandemic information needed.
5. Data Collection.
- a. Chief Adkins commented that the Tribe is actually located in Charles City County, Virginia, and not New Kent County (post office is located here). HW will wait for correspondence (map/lot) and conduct research through the Charles City County Assessor's office for specific details on Tribal assets
  - b. Craig Pereira stated HW will conduct a review of the Commonwealth of Virginia MHMP (March 2018) to understand the hazards to be researched and for consistency with the state plan.
  - c. Craig Pereira stated he has reviewed the GIS data available with the Virginia GIS Clearinghouse and has downloaded the following datasets:
    - i. Parcels
    - ii. Administrative Boundaries

- iii. Hydrography
  - d. Craig Pereira will review the Charles City County, Virginia website for any applicable data/information.
  - e. Craig Pereira indicated that Tribal interviews will be scheduled around the time of the first Tribal Workshop. The list of Tribal members to be interviewed should include all members serving on this committee, and possible a few Tribal members not serving in an administrative capacity (Tribal Elder).
6. Next Steps for MHMP:
- a. Within a month or so, coordinate on a date and time for the first Tribal Workshop
  - b. Craig Pereira to develop a draft Tribal Online Survey for review.

Chickahominy Indian Tribe

THMC Meeting #1

Join Zoom Meeting  
https://teams.microsoft.com/l/meetup-join/19%3ameeting\_MTQxNjgwMmQtZGY2Mi00OWI3LWJlNWItODZiYjQ2ZTU1NmVk%40thread.v2/0?context=%7b%22Tid%22%3a%224cc3a107-1bc7-4c39-9144-730bb5fc47ff%22%2c%22Oid%22%3a%226808da21-fd2d-4821-8307-09101faaa2b2%22%7d

September 8, 2020 1:00 PM - 3:00 PM

<u>Name</u>	<u>Email Address</u>
Stephen Adkins	
Wayne Adkins	
Reggie Stewart	
Dana Adkins	
Lindsey Johnson	
Nelson Andrews Jr.	
Carl Simons	
Craig Pereira	
Will Keefer	



***Tribal Hazard Mitigation Committee Meeting #2: November 5, 2020***

# **Chickahominy Tribe**

## **Multi-Hazard Mitigation Plan/Emergency Operations Plan/ Continuity of Operations Plan**

### **Tribal Hazard Mitigation Committee Meeting #2/ EOP Meeting/Capability Review Workshop #2**

Virtual Meeting  
November 5, 2020 2:00 PM – 4:00 PM

#### **Agenda**

##### **Multi-Hazard Mitigation Plan**

1. Meeting #1 Follow Up
  - a. Proposed Plan Layout
  - b. Project Webpage
  - c. Project Kickoff Announcement
  - d. Data Collection
    - i. Existing Plans, Studies, Reports
      1. Commonwealth of Virginia Hazard Mitigation Plan 2018
      2. Richmond-Crater Multi-Regional Hazard Mitigation Plan 2017
    - a. Outreach to County Administrator
      - i. Appendices (HIRA, Mitigation Actions, Localized Maps)
    3. Emergency Operations Plan for Charles City County, Virginia January 2015 Update
    - ii. Charles City County website
      1. Tribal properties
2. Hazards for Consideration
  - a. Natural
  - b. Human-Caused
  - c. Technological
  - d. Not Covered, included in State Plan
3. Risk Assessment Rubric and Methodology
4. Online Tribal Survey
5. Tribal Interviews
6. Questions


**Chickahominy Tribe**  
 - Multi-Hazard Mitigation Plan  
 - Emergency Operations Plan  
 - Continuity of Operations Plan

Meeting #2  
 November 5, 2020

1

**Meeting Purpose**

- Follow Up from Meeting No. 1
- Discuss Information and Data Collection Needs
- Identify the next steps



2

**Nelson Andrews Jr./HW Team**



Nelson Andrews Jr., Project Manager  
 Carl Simons, HW  
 Craig Pereira, HW  
 Will Keefer, HW  
 Sarah Bartlett, HW

Horsley Witten Group  
 Sustainable Environmental Solutions

3

**Multi-Hazard Mitigation Plan**

**Hazards for Consideration**

- Natural
- Human-Caused
- Technological
- Not covered, identified in State Plan



4

**Multi-Hazard Mitigation Plan**

**Hazards for Consideration: Natural**

- Flood Related
  - Riverine
  - Flash
  - Shoreline Erosion
- Wind Related
  - Hurricanes
  - Tornadoes
  - High Wind
  - Thunderstorms



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**Multi-Hazard Mitigation Plan**

**Hazards for Consideration: Natural**

- Winter Related
  - Winter Weather
- Wildfire/Drought Related
  - Drought
  - Extreme Heat
  - Wildfire



6




## Multi-Hazard Mitigation Plan

### Hazards for Consideration: Natural

- Geologic Related
  - Earthquake
  - Landslide
  - Karst/Sinkhole
- Mass Evacuation
- Communicable


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## Multi-Hazard Mitigation Plan

- Terrorism (Intentional)
  - Biological
  - Hazardous Materials Release
  - Cyber
  - WMD/Explosive
  - Radiological/Nuclear
  - Civil Disturbance
- Other (Accidental)
  - Fire
  - Mass Casualty
  - Rail Derailment
  - Airplane Accident
  - Dam Failure
  - Structure Collapse
  - Special/VIP Event

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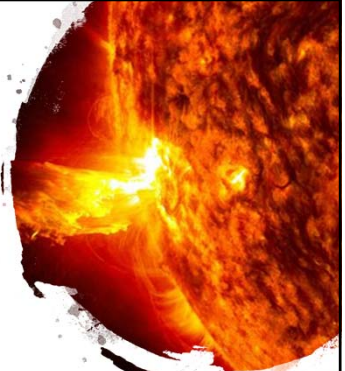


## Multi-Hazard Mitigation Plan

### Hazards for Consideration: Technological

- Infrastructure/Utility Failure
- Water Supply Shortage/Contamination

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## Multi-Hazard Mitigation Plan

### Hazards not for Consideration (but identified in State Plan)

- Storm Surge
- Sea Level Rise
- Urban Flooding
- Land Subsidence
- Solar Storm
- Extreme Cold

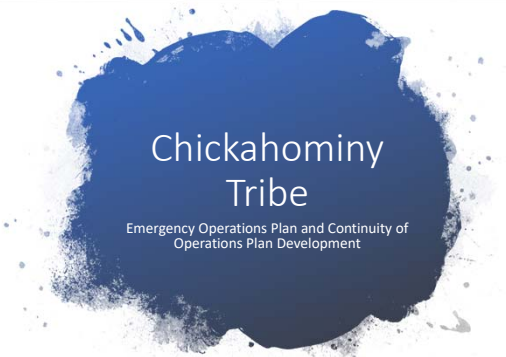
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## Multi-Hazard Mitigation Plan



- Risk Assessment Rubric and Methodology
- Online Tribal Survey
- Tribal Interviews
- Next Steps: Tribal Workshop (early December)

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## Chickahominy Tribe

Emergency Operations Plan and Continuity of Operations Plan Development

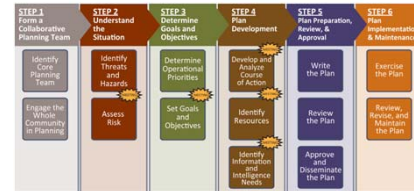
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## Agenda – EOP & COOP Development Workshop

- Review of the Planning Team
- Comprehensive Planning Guide (CPG 101) planning process Review
- Discuss Crosswalk and Gap Assessment
- Planning principles and pitfalls.
- Resources for planning.
- Emergency planning process overview.

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## Developing and Maintaining Emergency Operations Plans (CPG 101)



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## Collaborative Planning Team



### Tribal Members

- Stephen R. Adkins, Chief
- Wayne Adkins, First Assistant Chief
- Reggie Stewart, Second Assistant Chief
- Martha N. Adkins, Secretary
- Rhonda G. Canaday, Treasurer
- Adam Adkins, Council Member
- Cami Adkins, Council Member
- Heath Adkins, Council Member
- Troy Adkins, Council Member
- Joshua Stewart, Council Member
- Ross Stewart, Council Member
- Donovan L. Wynn, Council Member

### Other Agencies?

- Government
- Non-Government

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## Whole Community Preparedness

- Preparedness depends on efforts at all levels, including individuals and households, the private and nonprofit sectors, and all levels of government.
- The goal of tribal community-based preparedness is **resilience**—the ability to adapt to changing conditions and to withstand and rapidly recover from disruption due to emergencies.
- Resilience derives from our ability to make the tribal community disaster resistant and to prepare for managing emergencies that do occur.

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## Understand the Situation

### Crosswalk/Gap Assessment

Basecamp or Teams— project management and internal communications tool

Crosswalk – a draft working document that will be updated throughout the project

Identify additional info/plans/policy/procedures from the Chickahominy Tribe

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## Current Plans

Identify additional Chickahominy Tribe info/plans/policy/procedures



Activity Worksheet: Your Jurisdiction's Plans		
1. Obtain a copy of your emergency operations plan.		
<input type="checkbox"/> Plan obtained		
2. Find out what other plans your jurisdiction or organization has created and how to access them.		
Type of Plan	When was it created or last updated?	When can it be released? (RMS, or Point of Contact)
<input type="checkbox"/> Legislation		
<input type="checkbox"/> Rescinds		
<input type="checkbox"/> Executive Orders		
<input type="checkbox"/> Continuity of Operations		
<input type="checkbox"/> School Safety		
<input type="checkbox"/> College Information Provider		
<input type="checkbox"/> Disaster Management		
<input type="checkbox"/> Other? (List)		

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## Understand the Situation Multi-Hazard Mitigation Plan

### Hazards for Consideration

- Natural
- Human-Caused
- Technological
- Not covered, identified in State Plan

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## Planning and Risk Management

Planning helps manage risk by clarifying elements of the situation:

- **What and Why:** Plans communicate to personnel what should happen, why it is done, and what to expect from it.
- **Who:** Plans delineate roles and responsibilities. There should be no ambiguity regarding who is responsible for major tasks.
- **Where:** Plans make clear where to obtain resources and how those outside the jurisdiction can lend support.
- **How:** Plans clarify how functions and activities are to be coordinated and how they complement one another. This enables personnel to operate as a team and reduces duplication of effort.

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## Types of Plans



• Building and sustaining a safe and resilient tribal community requires planning in all mission areas, as well as continuity of operations (COOP) and other aspects of preparedness. The Tribe may eventually have a variety of plans in place to ensure that you remain fully prepared.

• Our focus is on developing—the emergency operations plan (EOP) and the COOP—that helps prepare the Tribe for carrying out the response mission

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An EOP, is a document that describes how people and property will be protected during an emergency.

- Details who is responsible for carrying out specific actions
- Sets forth lines of authority and organizational relationships and outlines how actions will be coordinated
- Identifies personnel, equipment, facilities, supplies, and other resources available within the jurisdiction or by agreement with other jurisdictions
- Reconciles requirements with other jurisdictions



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## Common Planning Pitfalls



Why do plans sometimes sit on a shelf gathering dust instead of serving their intended purpose?

- Excess length and detail
- Lack of inclusiveness
- Lack of a solid information base
- Untested assumptions
- Focus on activities, not results

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## Effective Planning

Applying the following principles to the planning process is key to developing effective plans for protecting lives, property, and the environment:

- Engage the whole community
- Involve senior officials /tribal elders
- Use a logical and analytical problem-solving process
- Consider all threats and hazards
- Focus on needed capabilities
- Ensure plans are flexible
- Establish measurable goals
- Identify tasks, resources, and accountability
- Anticipate the emergency environment
- Don't reinvent the wheel

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## Setting Goals and Objectives

### Draft Chickahominy Tribe Emergency Operations Plan (EOP) Goal:

A secure and resilient Nation with capabilities required across the tribal community to prevent, protect against, mitigate, respond to and recover from the threats and hazards that pose the greatest risk.

### OPERATIONAL PRIORITIES ARE USED TO ESTABLISH GOALS AND OBJECTIVES.

- Goals are broad, general statements that indicate the intended solution to identified problems. They help identify when major elements of the response are complete and when the operation is successful.
- Objectives are more specific and identifiable actions carried out during the operation. They lead to achieving the response goals.

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## Compiling Jurisdiction Information

Collect information about the tribal community that could affect emergency operations. This information is used to develop or update the jurisdiction profile. Examples of useful information include:

- Population demographics
- Geographic characteristics
- Property types and locations
- Infrastructure
- Resource base
- Current capability levels
- Impact of threats/hazards on jurisdiction capabilities

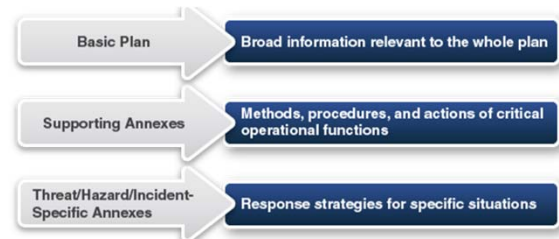
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After selecting the courses of action for an EOP, the planning team identifies resources needed to make the operation work. They match available resources to all identified requirements. Whenever possible, planners should match resources with other geographical/regional needs so that multiple demands for the same or similar resources can be identified and conflicts resolved.

This step provides planners an opportunity to identify resource shortfalls to pass to higher levels of government and to prepare pre-scripted resource requests, as appropriate. The EOP should account for unresolvable resource shortfalls so they are not just "assumed away."

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## Common EOP Sections



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## Characteristics of an Easy-to-Use Plan

- Simple, clear language.
- Important information summarized with visual aids.
- Minimal jargon and acronyms.
- Short sentences and active voice.
- Detail without speculation.
- Easy-to-use format (logical layout, table of contents, tabs, key bullet points, cross-referencing, etc.).

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### Training & Exercises

#### A preparedness action:

- National Incident Management System (NIMS) Training
- [ICS 100: Introduction to the Incident Command System](#)
- [ICS 200: ICS for Single Resources and Initial Action Incidents](#)
- [ICS 300: Intermediate ICS for Expanded Incidents](#)
- [ICS 400: Advanced ICS for Command and General Staff](#)
- [ICS 700: National Incident Management System \(NIMS\) Introduction](#)
- [IS-800: National Response Framework: An Introduction](#)

Exercises are a means of learning what works and what does not work as planned. They build on training by providing opportunities to practice and test:

- Policies and plans
- Procedures and the use of equipment
- Communication among organizations
- Coordination of decision making

30



## Training and Exercises

A preparedness action:

National Incident Management System (NIMS) Training

- [ICS-100: Introduction to the Incident Command System](#)
- [ICS-200: ICS for Single Resources and Initial Action Incidents](#)
- [ICS-300: Intermediate ICS for Expanding Incidents](#)
- [ICS-400: Advanced ICS for Command and General Staff](#)
- [IS-700: National Incident Management System, An Introduction](#)
- [IS-800: National Response Framework, An Introduction](#)

Exercises are a means of learning what works and what does not work as planned. They build on training by providing opportunities to practice and test:

- Policies and plans
- Procedures and the use of equipment
- Communication among organizations
- Coordination of decision making

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## Chickahominy Tribe Expectations

What would you like to see in the Emergency Operations Plan (EOP)?

What don't you want to see in the EOP?


What do you want to see in the Continuity of Operations Plan (COOP)?

Who do you consider your response partners (e.g., IHS, DHS/FEMA, VEMA, County EMA, Fire & Rescue, Sheriff, Health Department )?

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## Incident Specific Response Plans (ISRP)

- Based on:
  - Crosswalk
  - Risk and Resilience Assessment
  - SCWD Areas of Concern



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## Emergency Management

Be New Kent READY!

**New Kent County is vulnerable to several hazards. The most common include:**

- Severe Summer Weather – summer thunderstorms, tornadoes, winds, and flooding
- Severe Winter Weather – severe cold, strong winds, heavy snow, and ice storms
- Tropical Storms – depressions (heavy rains), tropical storms (winds less than 74 mph), and hurricanes (winds greater than 74 mph). Most tropical systems form June 1 - November 30 but can form in any month of the year
- Nor'easters – large storms that form when warm air over the Atlantic clashes with arctic cold out of the north and west. Winds blow out of the north and east causing both wind damage and flooding. These storms typically occur between September through April
- Transportation accidents – although rare, the railroads, I-64 with heavy truck traffic, and the regional airport add transportation accidents to our vulnerabilities

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## Checklist Format

### EARTHQUAKE

water. Facilities at greatest risk from severe earthquakes are dams and pipelines. Additionally, damage to water and sewer lines that service commercial and industrial areas could have a significant impact on the economy of the region. Extensive mud and soil for an extended period of time may be required to bring water and wastewater services back online. Earthquakes that occur outside of southern California and Orange County but that could have a significant impact on SCWD drinking water supplies include elevations of the Colorado River Aqueduct. Currently, SCWD receives about 85% of the water needed from the Colorado River and from northern California's "State Water Project." SCWD could be exposed to these occurrences from outside the region.

**Initial Actions:**

1. Duck, cover, and hold until the shaking stops.
2. Question and analyze the severity of the emergency.
3. Take immediate actions to save lives.
4. Determine what resources have been mobilized to affect the necessary repairs and reduce injuries.
5. Notify the Director of Operations and Superintendent of Operations. An appropriate incident command may be transferred.
6. All notification should follow chain of command if unable to contact the Operations Superintendent.

Use the Emergency Response Laptop and internet to access SCADA, and the EOC, if activated.

**Notifications:**

Refer to the Notifications and Communications Appendix.

1. Report situation status to EOC, if activated; if conditions warrant, report the status to the Laguna Beach Police Department (949) 467-0701 or Orange County Sheriff's Department (949) 775-6011.

**Evaluation:**

Provided they are not placed at substantial, additional risk, employees should put on appropriate Personal Protective Equipment (PPE) and conduct a thorough damage inspection. Consider potential hazards, especially if there is the potential for a chemical spill.

1. Determine need to repair, replace, or abandon facility.

### EARTHQUAKE

2. Include estimate of cost to restore facility.
3. Consider possible effects of aftershocks.
4. Evacuate buildings in danger of collapse.

Field crews should check for the following damages, and close and tag damaged facilities and equipment.

**HAZARDOUS:**

- Check for sewage, leaks, cracks, landslides, embankment sluff, broken rain-water pipes, gutters, and under-drains
- Notify CDPH if problems appear

**TANKS:**

- Check for evidence of failure of sub-base
- Check for leaks, cracks, broken inlet/outlet pipes, and under-drains
- Check for buckling
- Check flex couplings on tanks

**PIPES:**

- Check air and vacuum valves
- Check for leaks, tears, pressure loss in lines, cross-connections between water and sewage, overflow into streets, watercourses, storm drains

**Facility Inspection/Repairs:**

1. Isolate and repair any damage detected, as directed by an Operations Supervisor
2. Make notifications if damage repairs will affect the ability to provide water to the public.

**Continuous Assessment:**

- There will be aftershocks and additional repetitive checks will need to be conducted after each aftershock of significant magnitude.

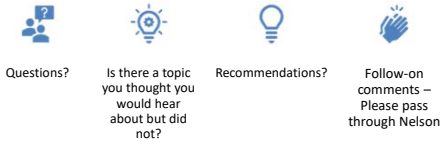
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## Incident Specific Response Plans (ISRP)

ISRP	POC	EMAIL
Cyber Incident		
Malevolent Acts		
Winter Storm		
Severe Summer Weather		
Flood		

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## Open Discussion



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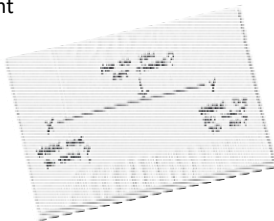
## Next Steps: Multi-Hazard Mitigation Plan

- Confirm Tribal Workshop date and logistics
- Review draft Tribal Survey

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## Next Steps: EOP/COOP

- Confirm plan structure and content
- Verify capability assessment
- Collect plans/policies/procedures
- Define roles
- Confirm key external partners
- November 2, 2020



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# Chickahominy Indian Tribe: Tribal Hazard Mitigation Plan

## Section 1: Introduction

### *Overview*

- Hazard mitigation planning in general

### *What Hazard Mitigation Can do for the Chickahominy Indian Tribe*

- Benefits of hazard mitigation planning

### *Chickahominy Indian Tribe Goals*

- Protect the tribal health, safety and welfare
- Reduce both tribal, public and private property damages caused by hazard impact
- Minimize social distress and economic losses/business disruption
- Provide an ongoing forum for the education and awareness of natural hazard mitigation issues, programs, policies, projects and resources

### *Planning Process*

- Overview of approach/process of the project
  - o Tribal Hazard Mitigation Committee Meetings
  - o Tribal Workshops
  - o Tribal Interviews
  - o Survey

### *Environmental Setting*

- Geographic location
- History
- Tribal Structure

### *History of Disaster Declarations*

- Federal Emergency and Major Disaster Declarations for the County

### *Recent Disaster Declarations*

- Recent (2010 – forward) Federal Emergency and Major Disaster Declarations for the County

## Section 2: Risk Assessment

### *Introduction*

- Which hazards merit special attention
- What actions might be taken to reduce the impact(s) of those hazards
- What resources are likely to be needed

### *Hazard Identification*

- Required to evaluate all hazards identified in the State Plan...anticipated list, however, still to be confirmed:

#### Natural Hazards:

- Flood-Related
  - Riverine/Flash Flooding
  - Heavy Rain/Inland and Urban Flooding
  - Dam Failure
  - Storm Surge/Sea Level Rise/Climate Change
- Winter-Related
  - Avalanche
  - Blizzards
  - Winter Weather
  - Winter Storms
  - Ice Storms
  - Extreme Cold/Wind Chill
  - Freezing Fog
  - Frost//Freeze
  - Sleet
- Wind-Related
  - Hurricanes
  - Tornadoes
  - Funnel Cloud
  - Waterspout
  - High Winds
  - Lightning/Thunderstorms
  - Tropical Depressions
  - Tropical Storms
  - Marine High Wind/Strong Wind/Thunderstorm Wind
- Geologic-Related
  - Earthquakes
  - Karst
  - Landslide
- Drought-Related
  - Drought
  - Extreme Heat
- Urban Fire/Wildfire-Related
- Invasive Species
- Communicable Disease
  - Epidemic
  - Pandemic
- Likely not to be addressed:
  - Volcanoes
  - Tsunamis

#### Human-Caused Hazards:

- Terrorism (intentional)
  - Biological
  - Chemical/Hazardous
  - Cyber
  - Explosive
  - Radiological/Nuclear
  - Civil Disobedience/Unrest
- Other (accidental)
  - Fire
  - Mass Casualty Incident
  - Dam Inundation
  - Special/VIP Events

#### Technological Hazards:

- Infrastructure/Utility Failure
  - Communications
  - Emergency Services
  - Energy
  - Information Technology
  - Transportation Systems
  - Water/Wastewater Systems

#### *Hazard Profiles*

- Review of NOAA's National Climatic Data Center (<http://www.ncdc.noaa.gov/>) 'Storm Events' database and develop tables based on hazard type, date, level/description and damages to develop a Hazard Index primarily for the Charles City County and/or Providence Forge where applicable.
  - Flood Related
  - Winter Related
  - Wind Related
  - Geologic Related
  - Drought Related
  - Urban Fire/Wildfire Related
- Evaluate the location/history/probability of future occurrence of hazards...process still to be confirmed.

#### Criteria for Frequency Categorization:

Very low frequency: events that occur less frequently than once in 1,000 years (less than 0.1% per year)

Low frequency: events that occur from once in 100 years to once in 1,000 years (0.1% to 1% per year)

Medium frequency: events that occur from once in 10 years to once in 100 years (1% to 10% per year)

High frequency: events that occur more frequently than once in 10 years (greater than 10% per year)

Criteria for Severity Categorization (based on past hazard events):

Minor: Limited and scattered property damage; no damage to public infrastructure; contained geographic area; essential services not interrupted; no injuries or fatalities

Serious: Scattered major property damage; some minor infrastructure damage; wider geographic area; essential services are briefly interrupted; some injuries/fatalities

Extensive: Consistent major property damage; major damage to public infrastructure; essential services are interrupted for several hours to several days; many injuries and fatalities

Catastrophic: Property and public infrastructure destroyed; essential services stopped; thousands of injuries and fatalities

- Mapping will also be developed
  - o Critical Facilities
  - o FEMA Flood Zones
  - o Events, etc.

*Vulnerability*

- Evaluates vulnerability of built environment, social and environment

Development Trends

- o Changes over time, future development plans (residential/commercial)

Economic Vulnerability

- o Does the Tribe participate in National Flood Insurance Program?
- o Impacts of FEMA flood zones (Economic by land use type, land/building values)

Social Vulnerability

- o Impacts to built/natural environment and that relationship to the social structure of the Tribe
- o Infrastructure/Emergency lifelines
- o Evacuation/Populations at risk

Environmental Vulnerability

#### *FEMA Disaster Grant Assistance*

- Has the Tribe received any financial assistance from VDEM/FEMA?

### **Section 3: Capability Assessment**

#### *Introduction*

- Documents local, state and federal department, agency and program capabilities in terms of pre and post-disaster activities

#### *Planning/Regulatory Capabilities*

- Planning documents
- Regulations/Bylaws
- Building Code

#### *Administrative Capabilities*

- Tribal Emergency Management Plan
  - o Emergency Operations Center/Shelter
- Municipal Website
- Coordination with Neighboring Communities
- Tribal Structure/Staff

#### *Financial Capabilities*

- Federal/State Grant Opportunities

#### *National Flood Insurance Program*

- NFIP/Compliance with NFIP

#### *Existing Protection Matrix*

- Summary of all above

### **Section 4: Mitigation Strategy**

#### *Introduction*

#### *Mitigation Activities*

- Requires an action for every vulnerability identified in the plan

#### *Mitigation Action Plan*

- Categories
  - o Public Education and Awareness
  - o Property Protection
  - o Natural Resource Protection
  - o Structural Projects
  - o Emergency Services
  - o Planning and Prevention



- Time Frame
  - Short Term = 0 to 6 Months
  - Medium Term = 6 to 18 Months
  - Long Term = 18 Months to 5 Years
- Cost Estimate
  - Staff Time – municipal personnel time
  - Minimal – less than \$5,000
  - Moderate – more than \$5,000, but less than \$25,000
  - Significant – over \$25,000
- Prioritization of Actions (abbreviated Benefit/Cost Analysis)
 

**STAPLEE Criteria**

  - **Social:** Is the action compatible with present and future local community needs and values?
  - **Technical:** Is the action feasible with available local resources (or as supplement by outside resources as necessary)?
  - **Administrative:** Does the community have the administrative capacity to implement the action?
  - **Political:** Is there strong public support to implement and maintain the action?
  - **Legal:** Does the community have the legal authority to implement the action?
  - **Economic:** Is the action cost-effective?
  - **Environmental:** Does the action impact environmental resources, and is the impact positive, negative, or neutral?
- Action Description
  - Action Type
  - Priority Score
  - Lead
  - Supporting
  - Time Frame
  - Financing Options
  - Cost Estimate
  - Benefit
  - Vulnerable Area

## **Section 5: Plan Implementation/Maintenance**

### *Implementation/Evaluation/Revision*

- Implementation
  - Following Tribal adoption
- Evaluation
  - Annually

- Revision
  - Every 5 years/after a major event

*Continued Tribal Involvement*

- Posted on Tribe's website
- Annual meeting of Tribal Hazard Mitigation Committee

The Chickahominy Indian Tribe is currently developing the first Tribal Multi-Hazard Mitigation Plan. This plan is important because it will help the Tribe plan and receive funding for projects that reduce the risk of injury or damage to property from future natural hazard events such as flooding and hurricanes. It will also address human-caused and technological hazards. We need your help as we gather information for the plan. The information you provide in this survey will help us coordinate activities and identify projects. The survey should take less than 10 minutes to complete and is anonymous. The Tribal Hazard Mitigation Committee thanks you for taking the time to participate in this information-gathering process.

**1. Which of the following hazard events have you or has anyone in your household and/or business experienced in the past 20 years within the Tribal service area or on Tribal properties? (Check all that apply)**

Flood-Related Hazards (Riverine/Flash Flooding, Shoreline Erosion)  
Winter-Related Hazards (Winter Weather)  
Wind-Related Hazards (Hurricanes, Tornadoes, High Winds, Lightning/Thunderstorms, Hail)  
Geologic-Related Hazards (Earthquakes, Landslides, Karst/Sinkholes)  
Wildfire/Drought-Related Hazards (Drought, Extreme Heat, Wildfire)  
Mass Evacuation  
Communicable Disease  
Intentional: Terrorism-Related Hazards (Biological, Hazardous Materials Release, Cyber, WMD/Explosive, Radiological/Nuclear, Civil Disturbance)  
Accidental: Fire, Mass Casualty, Rail Derailment, Airplane Accident, Dam Failure, Structure Collapse, Special/VIP Event)  
Infrastructure/Utility Failure

**2. In your opinion, how prepared is your household and/or business to deal with a natural, human-caused or technological hazard event?**

Not at all  
Somewhat  
Adequately  
Well  
Very Well  
Not Sure

**3. Which of the following have provided you with useful information to help you prepare for a hazard event? (Check all that apply)**

Attended meetings about disaster preparedness  
Community Emergency Response Training (CERT)  
Personal experience with one or more hazards/disasters/incidents  
Local news/social media  
Civic organizations

**4. How concerned are you about the following hazards on Tribal properties? (Check one response for each hazard)**

	Not Concerned	Concerned	Very Concerned
Flood-Related Hazards			
Winter-Related Hazards			
Wind-Related Hazards			
Geologic-Related Hazards			
Wildfire/Drought-Related Hazards			
Mass Evacuation			
Communicable Disease			
Intentional/Terrorism-Related Hazards			
Accidental-Related Hazards			

**5. Which of the following steps has your household and/or business taken to prepare for a hazard event? (Check all that apply)**

Made a fire escape plan  
Designated a meeting place  
Identified utility shut-offs  
Stored sand bags  
Prepared a disaster supply kit  
Installed smoke detectors on each level of the house  
Stored food/water/batteries  
Prepared a medical supply kit  
Purchased natural hazard insurance  
Purchased/Learned how to program a NOAA Weather Radio  
Reviewed community evacuation routes  
Identified community shelters

**6. In your opinion, which of the following methods do you think are most effective for providing hazard and disaster information? (Check all that apply)**

Radio ads  
Internet  
Social Media/Cell phone apps.  
Fire/Rescue Department  
Academic Institutions  
Public Library  
Telephone Book  
Informational Brochures  
Tribal Meetings/Workshops  
Auto-Dial Information (Code Ready or similar)

**7. Is your property located in or near a FEMA designated floodplain?**

Yes  
No  
Not Sure

**8. Do you have flood insurance?**

Yes  
No  
Not Sure

**9. Do you have any special access or functional needs within your household and/or business that would require early warning or specialized response during disasters?**

Yes  
No

**10. Are you interested in making your home, business or neighborhood more resistant to hazards?**

Yes  
No  
Not Sure

**11. Would you be willing to spend your own money on your current home and/or business to help**

**protect it from impacts of potential future natural, human-caused or technological disasters within the community?**  
**Examples could include: Elevating a flood-prone home; Elevating utilities in flood-prone basements; Strengthening your roof, siding, doors, or windows to withstand high winds; Removing trees/low branches; Installing Virus/Malware protection on home electronic/computer devices.**

Yes

No

Not Sure

**12. In your opinion, what types of projects do you believe local, county, state or federal government agencies could be doing to reduce the damage and disruption of natural, human-caused or technological disasters on your private properties and Tribal properties? (Select your top three choices)**

Retrofit/Strengthen essential public facilities such as police, fire/emergency, schools

Retrofit public infrastructure, such as elevating roadways and improving drainage systems

Work to improve utilities resiliency (electric, communications, water/wastewater facilities)

Install/improve protective structures (floodwalls)

Replace inadequate/vulnerable bridges

Strengthen codes/ordinances to require higher hazard risk management standards and/or provide greater control over development in high hazard areas

Buy out flood prone properties and maintain as open space

Inform property owners of ways they can reduce the damage caused by natural events

Provide better information about hazard risks and high hazard areas

Assist vulnerable property owners with securing funding to make their properties more resilient

**13. Additional comments?**

**Table 2.2 Natural Hazards Risk Assessment Rubric**

Event	Probability/ History	Vulnerability	Maximum Impact	Warning Time	Ranking Category
<b>Score</b>	0.5 = <i>Unlikely</i> 1 = <i>Somewhat Likely</i> 1.5 = <i>Likely</i> 3 = <i>Highly Likely</i>	1 = <i>Limited</i> 2 = <i>Moderate</i> 3 = <i>High</i>	0 = <i>No Data</i> 0.01 - 3 = <i>Percent of Total Damages</i>	1 = <i>Extended Notice</i> 2 = <i>Limited/Minimal Notice</i> 3 = <i>No Notice</i>	
<b>Wind-Related</b>					
Hurricane <sup>2</sup>	3	3	3	2	Significant
Tornado <sup>2</sup>	3	3	1.92	3	Significant
High Wind <sup>2</sup>	1.5	3	0.68	2	Limited
Thunderstorm <sup>2</sup>	3	3	1.34	2	Moderate
<b>Winter-Related</b>					
Winter Weather <sup>2</sup>	3	3	1.33	1	Moderate
<b>Flood-Related</b>					
Flash Flood <sup>3</sup>	N/A	N/A	N/A	N/A	Significant
Riverine Flood <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Flood <sup>2</sup>	3	2	1.94	2	Limited
Shoreline Erosion <sup>2</sup>	3	2	1.94	2	Limited
<b>Wildfire/Drought-Related Hazards</b>					
Drought <sup>2</sup>	3	1	2.23	1	Limited
Extreme Heat <sup>2</sup>	3	1	2.23	1	Limited
Wildfire <sup>2</sup>	0.5	1	0	3	Limited
<b>Geologic-Related</b>					
Earthquake <sup>2</sup>	0.5	1	0	3	Limited
Landslide <sup>2</sup>	0.5	1	0	3	Limited
Karst/Sinkhole <sup>2</sup>	0.5	1	0	3	Limited
<b>Mass Evacuation</b>					
Mass Evacuation <sup>2</sup>	0.5	1	0	1	Limited
<b>Communicable</b>					
Infectious Disease <sup>1</sup>	2	3	1	1	Medium/Low

1. Data obtained from Commonwealth of Virginia Hazard Mitigation Plan March 2018

2. Data Obtained from Richmond-Crater Hazard Mitigation Plan 2017

3. Data obtained from Emergency Operations Plan for Charles City County, Virginia January 2015 Update

**Table 2.3 Human-Caused Hazards Risk Assessment Rubric**

Event	Probability/ History	Vulnerability	Maximum Impact	Warning Time	Ranking Category
<b>Score</b>	0.5 = Unlikely 1 = Somewhat Likely 1.5 = Likely 3 = Highly Likely	1 = Limited 2 = Moderate 3 = High	0 = No Data 0.01 - 3 = Percent of Total Damages	1 = Extended Notice 2 = Limited/Minimal Notice 3 = No Notice	
<b>Terrorism (intentional)</b>					
Biological <sup>3</sup>	N/A	N/A	N/A	N/A	Limited
Hazardous Material Release <sup>3</sup>	N/A	N/A	N/A	N/A	Significant
Cyber					
WMD/Explosive <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Radiological/ Nuclear <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Civil Disturbance <sup>3</sup>	N/A	N/A	N/A	N/A	Limited
<b>Other (accidental)</b>					
Fire <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Mass Casualty Incident					
Railroad Derailment <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Airplane Accident <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate
Dam Failure <sup>3</sup>	N/A	N/A	N/A	N/A	Limited
Structure Collapse <sup>3</sup>	N/A	N/A	N/A	N/A	Limited
Special/VIP Events					

**Tabel 2.4 Technologic Hazards Risk Assessment Rubric**

Event	Probability/ History	Vulnerability	Maximum Impact	Warning Time	Ranking Category
<b>Score</b>	0.5 = Unlikely 1 = Somewhat Likely 1.5 = Likely 3 = Highly Likely	1 = Limited 2 = Moderate 3 = High	0 = No Data 0.01 - 3 = Percent of Total Damages	1 = Extended Notice 2 = Limited/Minimal Notice 3 = No Notice	
<b>Infrastructure/Utility Failure</b>					
Water Supply Shortage/ Contamination <sup>3</sup>	N/A	N/A	N/A	N/A	Moderate

1. Data obtained from Commonwealth of Virginia Hazard Mitigation Plan March 2018

2. Data Obtained from Richmond-Crater Hazard Mitigation Plan 2017

3. Data obtained from Emergency Operations Plan for Charles City County, Virginia January 2015 Update



## RISK ASSESSMENT RUBRIC CRITERIA/RANKING METHODOLOGY

### 1. Commonwealth of Virginia Hazard Mitigation Plan: March 2018

#### **Population Vulnerability/Density**

Calculated as the percent of the total population of Virginia present in each jurisdiction.

- 1:  $\leq 0.299\%$  of the total population of the state
- 2:  $\leq 0.230\% - 0.749\%$  of the total population of the state
- 3:  $\leq 0.75\% - 2.099\%$  of the total population of the state
- 4:  $\geq 2.100\%$  of the total population of the state

#### **Geographic Extent**

One, uniform ranking system could not be accomplished due to available data sources. So, each hazard has been assigned individual category break points based on available data, as a percentage of a jurisdiction impacted by the hazard.

*Flood: Percent of jurisdiction that falls within FEMA Special Flood Hazard Area.*

- 1:  $\leq 2.99\%$
- 2:  $3.00 - 4.99\%$
- 3:  $5.00 - 9.99\%$
- 4:  $\geq 10.00\%$

*High Wind: Average maximum wind speed throughout the entire jurisdiction.*

- 1:  $\leq 59.9$
- 2:  $60.0 - 73.9$
- 3:  $74.0 - 94.9$
- 4:  $\geq 95.0$

*Wildfire: Percent of jurisdiction that falls within a 'high' risk.*

- 1:  $\leq 9.9\%$
- 2:  $10.0\% - 19.9\%$
- 3:  $20.0\% - 49.9\%$
- 4:  $\geq 50\%$

*Karst: Percent of jurisdiction that falls within a 'high' risk.*

- 1:  $\leq 24.9\%$
- 2:  $25.0\% - 49.9\%$
- 3:  $50.0\% - 74.9\%$
- 4:  $\geq 75.0\%$

*Landslide: Percent of jurisdiction that falls within a 'high' risk.*

- 1:  $\leq 24.9\%$
- 2:  $25.0\% - 49.9\%$
- 3:  $50.0\% - 74.9\%$
- 4:  $\geq 75.0\%$

*Earthquake: Average 2500-year return period max percent of gravitational acceleration (PGA).*

- 1:  $\leq 0.069$
- 2:  $0.070 - 0.159$
- 3:  $0.160 - 0.299$
- 4:  $\geq 0.300$

*Winter Storm: Average annual number of days receiving at least 3 inches of snow, calculated as an area-weighted average for each jurisdiction.*

- 1:  $\leq 1.49$
- 2:  $1.50 - 1.99$

- 3: 2.00 – 2.99
- 4: >= 3.0

*Tornado: Annual tornado hazard frequency (times one million), calculated as an area-weighted average for each jurisdiction.*

- 1: <= 1.24
- 2: 1.25 – 9.99
- 3: 10.00 – 99.99
- 4: >= 100.00

### **Annualized Fatalities and Injuries**

Annualized over the period of record for each event category and scored using natural breaks.

- 1: <= 1.019 fatalities and/or injuries per year
- 2: 1.020 – 6.279 fatalities and/or injuries per year
- 3: 6.280 – 13.199 fatalities and/or injuries per year
- 4: >= 13.200 fatalities and/or injuries per year

### **Annualized Crop and Property Damage**

Annualized crop and property damage as the estimated damages that a hazard event will likely cause each year.

- |                                       |  |
|---------------------------------------|--|
| ○ 1: <= \$25,711 per year: Crop       | <= \$136,129/year: Property            |
| ○ 2: \$25,712 - \$100,270/year: Crop  | \$136,130 - \$432,555/year Property    |
| ○ 3: \$100,271 - \$291,384/year: Crop | \$432,556 - \$1,111,067/year: Property |
| ○ 4: >=\$291,385/year: Crop           | >= \$1,111,068/year: Property          |

### **Annualized Events**

Annualized as the number of times that a hazard event would likely happen in each year.

- 1: <= 0.09 events/year
- 2: 0.10 – 0.99 events/year
- 3: 1.00 – 4.99 events/year
- >= 5.00 events/year

Scores were added together for each hazard to estimate total jurisdictional risk. Population parameters were each given a weighting of 0.5 and geographic extent was given a weighting of 1.5 relative to the factors. Those jurisdictions with scores from 1.60 through 2.49 were considered medium-low risk, between 2.50 and 3.59 medium risk, between 3.60 and 3.99 were considered medium-high risk, and jurisdictional hazard scores greater than 4.00 were given a high rating.

## **2. Richmond Crater Hazard Mitigation Plan 2017**

### **Probability**

- 0.5: Unlikely: No documented NCDC occurrences with annual probability < 0.01
- 1: Somewhat Likely: Infrequent occurrence with at least one NCDC documented event and annual probability between 0.5 and 0.01
- 1.5: Likely: Frequent occurrence with at least some NCDC documented events and annual probability between 1 and 0.5
- 3: Highly Likely: Common events with annual probability > 1

### **Vulnerability**

- 1: Limited Rank: by 2017 HMTAC Preliminary Ranking
- 2: Moderate Rank: by 2017 HMTAC Preliminary Ranking
- 3: High Rank: by 2017 HMTAC Preliminary Ranking

**Maximum Impact (Annual Damages)**

- 0: No NCDC data found to evaluate. Does not mean there were no damages
- 0.01 – 3: Based on NCDC data, score award by percent of total annual damages done by event. Hazard receive their percent of points from 0.01 to 3 max.

**Warning Time**

- 1: Extended – three days or more
- 2: Limited – 2 days
- 2: Minimal – 1 day
- 3: No Notice - < 24 hours

After scores were assigned to each hazard, the scores were then summed together and divided by 4 (4 categories) to find the average score. Scores between 2.5 and 3.0 were given 'significant', 2.0 to 2.5 were assigned 'moderate', and everything else less than 2 were assigned 'limited'.

**3. Emergency Operations Plan for Charles City County, Virginia: January 2015 Update**

'The following hazard and vulnerability assessment were developed as part of the Richmond Regional and Crater PDC 2011 Multi-Regional Hazard Mitigation Plan.'



# Memorandum of Meeting

**To:** Chickahominy Tribe: Tribal Hazard Mitigation Committee/Emergency Operations Plan Team

**From:** Craig Pereira

**Date:** November 5, 2020

**Re:** Chickahominy Tribe Multi-Hazard Mitigation Plan, Emergency Operations Plan and Continuity of Operations Plan

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**In attendance:**

Stephen Adkins – Chief  
Wayne Adkins – Assistant Chief, Tribal Finance Officer  
Rufus Elliott – Housing Program Manager  
Dana Adkins – Tribal Environmental Director  
Lindsey Johnson – Deputy Tribal Administrator, Public Information Officer

Consultant Team

Nelson Andrews, Jr. – Project Manager  
Carl Simons – Horsley Witten Group, Inc. (HW)  
Craig Pereira, Senior Planner - HW

The following items were discussed: (Highlighted items indicate action for the Chickahominy Tribe)

1. Meeting #1 Follow Up:
  - a. Proposed Plan Layout
    - i. No comments received on this...Craig will proceed as proposed.
  - b. Project Webpage
    - i. Craig Pereira presented the static PDF for the project webpage. As previously discussed, Heath (IT Department) will add a project webpage to the Tribe's website for this project. The PDF should be posted there. This webpage will serve as a repository for all project documents for Tribal members and the general public to access. Adding this project webpage should be a priority, as it serves as the primary outreach element.
  - c. Tribal Newsletter
    - i. Lindsey Johnson stated the Tribal newsletter will be going out next Friday (11/13). This will include mention that this project has been kicked off, and direct Tribal members to the project webpage. Craig will develop a Tribal Workshop flyer and provide to Lindsey by COB Wednesday (11/11) for inclusion in the newsletter.
  - d. Project Kickoff Announcement

- i. Wayne Adkins will distribute a project kickoff announcement to the Tribe (Council members, Tribal departments, and Tribal members). Wayne will copy the project team on this email distribution.
2. Data Collection/Development.
  - a. Charles City County Assessor's Office
    - i. Craig obtained the four Tribal property records from the Charles City County Assessor's office for mapping purposes.
    - ii. Two additional properties (one recently purchased, and the second soon to be purchased) will be added (2401 Roxbury Road, Charles City County and 3521 North \_\_\_\_\_ Road, Providence Forge). These sites will serve as 'emergency response centers'. Craig will also obtain these property records.
  - b. Existing Plans, Studies and Reports
    - i. Craig obtained copies/reviewed the following:
      1. Commonwealth of Virginia MHMP (March 2018)...the Tribal HMP is required to be consistent with the state plan.
      2. Richmond-Crater Multi-Regional Hazard Mitigation Plan (2017)...the Tribal HMP is required to be consistent with the regional plan.
      3. Emergency Operations Plan for Charles City County, Virginia (January 2015 Update)...the Tribal HMP is required to be consistent with the regional plan.
      4. NOAA National Climatic Data Center – Storm Events Database
    - ii. Craig developed a list of those hazards (natural, human-caused and technological) that will be considered for the Tribal HMP.
  - c. Risk Assessment Rubric and Methodology
    - i. HW reviewed NOAA's Storm Events Database and developed a series of tables under each natural hazard category (Flood-related, Wind-related, etc.).
    - ii. The natural hazards for consideration were obtained from the Regional HMP.
    - iii. The human-caused and technological hazards for consideration were obtained from the Regional EOP.
    - iv. The communicable (infectious disease) hazard for consideration was obtained from the State HMP.
      1. The scoring criteria (where available) and overall ranking for each of the hazards for consideration were developed into three separate tables. There is also scoring criteria provided with the tables, as backup documentation.
      2. Committee members should review the rankings for each hazard in the three tables and adjust as necessary. If rankings are suggested for revision, backup documentation should be provided for inclusion in the plan as a justification why the ranking was changed.
      3. Once the three tables are confirmed, HW will advance the HMP and profile each of these hazards.
      4. Committee members should provide a list of annual events (annual Pow Wow, Carnival for Christ, etc.) for listing under the Special Events/VIP profile.
  - d. Online Tribal Survey

- i. Craig presented a draft of the online survey for Tribal members. This is another way to meet the outreach requirement of FEMA. **Committee members should review and adjust as necessary.** The link for this survey will be added to the project webpage and pushed out through social media (when ready). The Survey will be kicked off officially at the first Tribal workshop.
  - e. Tribal interviews
    - i. Craig will schedule the Tribal interviews around the same time as the Tribal Workshop. The list of Tribal members to be interviewed should include all members serving on this committee, and possibly a few Tribal members not serving in an administrative capacity (Tribal Elder).
  - f. Tribal coordination with County Officials/Offices
    - i. Craig requested a list of ongoing coordination efforts between the Tribe and County Officials and Departments as part of the Capability section of the Tribal HMP.
- 3. Tribal Workshop
  - a. The Tribal workshop date has been set for Wednesday, December 2, 2020 from 6:30 pm to 8:00 pm (to be held virtually). Craig will develop a flyer for distribution and posting on the project webpage.
- 4. EOP/COOP
  - a. Nelson Andrews provided:
    - i. Chickahominy Phased Approach to Returning to the Workplace Plan
    - ii. Chickahominy Tribal Center COVID-19 Screening Form
    - iii. Chickahominy Tribal Center Face Covering Information Sheet
    - iv. Draft FEMA-Tribe Agreement Between the Federal Emergency Management Agency and the Chickahominy Indian Tribe for Emergency Declaration
    - v. Draft Administrative Plan for Public Assistance - Chickahominy Indian Tribe
  - b. The Chickahominy Tribe will provide:**
    - i. The SBC Reentry Plan
    - ii. Response partner contacts: (see attached table)
    - iii. Assets/Resources (see attached table)
    - iv. Information on equipment purchased for the new Medical/COVID testing facility

Response Partner Contact Sheet (i.e., government & non-government agencies, vendors, service providers, etc.)

Agency	Point of Contact	Email	Phone
County Emergency Management Director			
Director of Fire and EMS	James Johnson	jvjohnson@co.charles-city.va.us	804-652-4510
Sheriff	Alan M. Jones, Sr.	AJones@ccsolaw.us	804-829-9265
County Administrator	Michelle Johnson	mjohnson@co.charles-city.va.us	804-652-4701
Social Services	Elizabeth Holt	e.holt@dss.virginia.gov	804-652-1708
Superintendent of Charles City Public Schools	Dr. Dalphine Joppy		804-652-4612
VDEM			
VDH			
Secretary of Public Health			

## Resource/Asset List

Asset Kind	Type	Identifier	Location	POC
e.g. 14 Passenger Bus	Ford F-550	Bus #1	Government Center	Wayne Adkins 123-456-7890



Chickahominy Indian Tribe

THMC Meeting #2

Join Zoom Meeting  
https://teams.microsoft.com/l/meetup-join/19%3ameeting\_NmU4NmVjNWYtYjg1ZC00NzBjLTlkYWYtYjY2OTZmMTZiMmJm%40thread.v2/0?context=%7b%22Tid%22%3a%224cc3a107-1bc7-4c39-9144-730bb5fc47ff%22%2c%22Oid%22%3a%226808da21-fd2d-4821-8307-09101faaa2b2%22%7d

November 5, 2020 2:00 PM - 4:00 PM

<u>Name</u>	<u>Email Address</u>
Stephen Adkins	
Wayne Adkins	
Rufus Elliott	
Dana Adkins	
Lindsey Johnson	
Nelson Andrews Jr.	
Carl Simons	
Craig Pereira	

***Tribal Workshop #1: December 1, 2020***

# Chickahominy Indian Tribe Multi-Hazard Mitigation Plan



## Virtual Tribal Workshop

Wednesday, December 2, 2020  
6:30 PM—8:00 PM

Join Zoom Meeting:

<https://us02web.zoom.us/j/87852500729?pwd=dGIPSERQZ05NNnREejNxZEFueVdHZz09>

Meeting ID: 878 5250 0729

Passcode: 539194

One tap mobile

+1 312 626 6799 US (Chicago)

+1 929 205 6099 US (New York)

Dial by your location

+1 312 626 6799 US (Chicago)

+1 929 205 6099 US (New York)

+1 301 715 8592 US (Washington D.C)

+1 346 248 7799 US (Houston)

+1 669 900 6833 US (San Jose)

+1 253 215 8782 US (Tacoma)

Find your local number: <https://us02web.zoom.us/u/kAjwNjNBw>

## About the Chickahominy Indian Tribe Multi-Hazard Mitigation Plan Project

The Chickahominy Indian Tribal Council has hired Nelson Andrews and the Horsley Witten Group, Inc. to assist with the development of the Chickahominy Indian Tribe Multi-Hazard Mitigation Plan.

Why is this important? Hazard mitigation planning enables Tribal governments to identify risks and vulnerabilities associated with natural, human-caused and technological disasters, and develop long-term strategies for protecting people and property from future hazard events. Further information is available on FEMA's Hazard Mitigation Planning page: <http://www.fema.gov/hazard-mitigation-planning>.

A hazard mitigation plan should be considered a living document that must grow and adapt, keeping pace with a community's growth and change. The Disaster Mitigation Act of 2000 (DMA) places high priority on the continuation of the planning process after the initial submittal, requiring communities to seek and receive re-approval from FEMA in order to remain eligible for financial assistance.

### Contacts

Wayne Adkins

First Assistant Chief, Chickahominy Tribe

[wayne.adkins@chickahominytribe.org](mailto:wayne.adkins@chickahominytribe.org)


(804) 829-2027 Ext. 1002

Nelson Andrews Jr.

Project Manager

[nelsonandrewsjr@gmail.com](mailto:nelsonandrewsjr@gmail.com)


(774) 521-4880



## Chickahominy Indian Tribe Multi-Hazard Mitigation Plan Tribal Workshop

Craig Pereira, CFM  
Senior Planner – Horsley Witten Group

December 2, 2020  
Virtual Workshop



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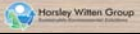
## Virtual Platform




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## Introductions

- Please Chat in:
  - Your Full Name
  - Your position in the Tribe (e.g., Tribal Member)
  - Any expectations you have for this workshop



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## Nelson Andrews Jr./HW Team



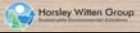
Nelson Andrews Jr., Project Manager    Carl Simons, HW    Craig Pereira, HW



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## Welcome...

# WELCOME!



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## Chickahominy Indian Tribe Tribal Hazard Mitigation Committee



- Stephen Adkins, Chief
- Wayne Adkins, First Assistant Chief
- Reggie Stewart, Second Assistant Chief
- Rufus Elliott, Housing Program Manager
- Dana Adkins, Tribal Environmental Director
- Lindsey Johnson, Deputy Tribal Administrator, Public Information Officer



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## Why Hazard Mitigation Planning

Disaster Mitigation Act of 2000, Interim Final Rule, 44 CFR Parts 201 and 206 states, "All communities must have an approved Multiple Hazards Mitigation Plan in order to qualify for future federal disaster mitigation grants".

Reduction or elimination of long-term risk to life, property, and the environment.

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## Mitigation Process

- **Assess Risks**
- Establish Goals
- Identify Projects/Actions
- Update/Maintain Plan

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## Assess Risks... Hazard Types

### **Natural Hazard:**

Any event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, and agricultural loss, damage to the environment, interruption of business, or other types of harm and/or loss.

### **Human-Caused Hazard:**

Any event or physical condition from intentional human actions that may cause loss of life or injury, property damage, social and economic disruption or environmental degradation.

### **Technological Hazard:**

Any event or physical condition originating from infrastructure failures that may cause loss of life or injury, property damage, social and economic disruption or environmental degradation.

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## Assess Risks... Natural Hazards

### **Wind-related hazards**

- Hurricane
- Tornado
- High Wind
- Thunderstorm

### **Winter-related hazards**

- Winter Weather

### **Flood-related hazards**

- Flash Flood
- Riverine Flood
- Inland Flooding
- Shoreline Erosion

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## Assess Risks... Natural Hazards

### **Wildfire/Drought-related hazards**

- Drought
- Extreme Heat
- Wildfire

### **Mass Evacuation-related hazards**

- Mass Evacuation

### **Geologic-related hazards**

- Earthquake
- Landslide
- Karst/Sinkhole

### **Communicable-related**

- Infectious Disease

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## Assess Risks... Human-Caused Hazards

### **Terrorism (Intentional)**

- Biological
- Hazardous Material Release
- Cyber
- WMD/Explosive
- Radiological/Nuclear
- Civil Disturbance

### **Other (Accidental)**

- Fire
- Mass Casualty Incident
- Dam Failure
- Structure Collapse
- Special/VIP Events

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## Assess Risks... Technological Hazards

### Infrastructure/Utility Failure

- Water Supply Shortage/Contamination

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## Assess Risks... Data Sources

### Commonwealth of Virginia Hazard Mitigation Plan, March 2018

- Natural hazards

### Richmond-Crater Hazard Mitigation Plan, 2017

- Natural hazards (majority)

### Emergency Operations Plan for Charles City County, Virginia, 2015

- Natural, Human-caused, and Technological hazards

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## Assess Risks... Natural Hazard Profiles

### Wind-related hazards

- Hurricane: Significant
- Tornado: Significant
- High Wind: Limited
- Thunderstorm: Moderate

### Winter-related hazards

- Winter Weather: Moderate

### Flood-related hazards

- Flash Flood: Significant
- Riverine Flood: Moderate
- Inland Flooding: Limited
- Shoreline Erosion: Limited

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## Assess Risks... Natural Hazard Profiles

### Wildfire/Drought-related hazards

- Drought: Limited
- Extreme Heat: Limited
- Wildfire: Limited

### Mass Evacuation-related hazards

- Mass Evacuation: Limited

### Geologic-related hazards

- Earthquake: Limited
- Landslide: Limited
- Karst/Sinkhole: Limited

### Communicable-related

- Infectious Disease: Medium/Low

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## Assess Risks... Human-Caused Hazard Profiles

### Terrorism (Intentional)

- Biological: Limited
- Hazardous Material Release: Significant
- Cyber: Limited
- WMD/Explosive: Moderate
- Radiological/Nuclear: Moderate
- Civil Disturbance: Limited

### Other (Accidental)

- Fire: Moderate
- Mass Casualty Incident: Moderate
- Dam Failure: Limited
- Structure Collapse: Limited
- Special/VIP Events: Limited

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## Assess Risks... Technological Hazard Profiles

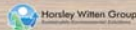
### Infrastructure/Utility Failure

- Water Supply Shortage/Contamination: Moderate

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## Assess Risks... Assets

- **Economic Assets**
  - Businesses/employers
  - Tourist destinations
- **Social Assets**
  - Vulnerable populations
  - Cultural locations

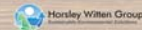


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## Assess Risks... Assets

- **Natural Resources**
  - Lifeline and utility systems
  - Wetlands
  - Conservation and recreation lands
- **Essential Buildings and Critical Facilities**
  - Tribal Government buildings
  - Hazardous facilities
  - Roadways
  - GIS Mapping

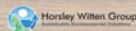


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## Mitigation Process

- Assess Risks
- **Establish Goals**
- Identify Projects/Actions
- Update/Maintain Plan

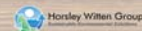


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## Establish Goals... Mitigation Goals

- Protect the Tribal health, safety and welfare.
- Reduce Tribal property damages caused by hazard impact.
- Minimize social distress and economic losses/business disruption.
- Provide an ongoing forum for the education and awareness of natural, human-caused, and technological hazard mitigation issues, programs, policies, projects and resources.

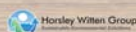


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## Mitigation Process

- Assess Risks
- Establish Goals
- **Identify Projects/Actions**
- Update/Maintain Plan

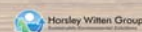


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## Establish Goals... Mitigation Measures

- Planning and Prevention
- Property Protection
- Natural Resource Protection
- Structural Projects
- Emergency Services, and
- Public Education and Awareness



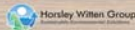
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## Identify Projects/Actions... Identification of Mitigation Actions

Mitigation actions to be developed based on review of the Tribe's identified risks and vulnerabilities to natural, human-caused, and technological hazards.

Each action incorporates a brief description of the intended action, who the responsible parties are, a proposed time frame for completion and potential funding sources.

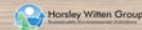


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## Identify Projects/Actions... Prioritization of Actions...STAPLEE Method

- **Social**...is the action socially acceptable?
- **Technical**...is the action technically feasible and provide appropriate level of protection?
- **Administrative**...does the Tribe have the capability to complete the action?
- **Political**...will the Tribe support or oppose the project?
- **Legal**...does the Tribe have the legal authority to complete the action?
- **Economic**...is the action cost-effective?
- **Environmental**...will the action affect the natural environment?

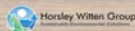


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## Identify Projects/Actions... Implementation

- Tribe's Capability
- Plan Adoption/Incorporation into Existing/Future Plans

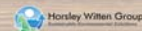


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## Mitigation Process

- Assess Risks
- Establish Goals
- Identify Projects/Actions
- **Update/Maintain Plan**



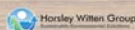
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## Project Schedule

Draft available for comment – **July 2021**

Draft to FEMA – **August 2021**



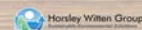
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## Online Survey

Community Online Survey available at:

<https://www.surveymonkey.com/r/ChickahominyIndianTribe>



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Contact Us...



**Questions and/or comments about the  
Chickahominy Indian Tribe  
Multi-Hazard Tribal Mitigation Plan,  
please contact:**

Wayne Adkins – First Assistant Chief, Chickahominy Tribe <a href="mailto:wayne.adkins@chickahominytribe.org">wayne.adkins@chickahominytribe.org</a> Phone: (804) 829-2027	Nelson Andrews Jr. - Project Manager <a href="mailto:nelsonandrewsjr@gmail.com">nelsonandrewsjr@gmail.com</a> Phone: (774) 521-4880
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**Thank You!**



Horsley Witten Group  
Environmental • Engineering • Construction

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Chickahominy Indian Tribe  
Multi-Hazard Mitigation Plan  
Tribal Workshop #1  
December 2, 2020  
Join Zoom Meeting:

<https://us02web.zoom.us/j/87852500729?pwd=dGlPSERQZ05NNnREejNxZEFueVdHZz09>

Meeting ID: 878 5250 0729  
Passcode: 539194

One tap mobile  
+13126266799,,87852500729#,,,,,0#,,539194# US (Chicago)  
+19292056099,,87852500729#,,,,,0#,,539194# US (New York)

Dial by your location  
+1 312 626 6799 US (Chicago) +1 929 205 6099 US (New York) +1 301 715 8592 US (Washington D.C.)  
+1 346 248 7799 US (Houston) +1 669 900 6833 US (San Jose) +1 253 215 8782 US (Tacoma)  
Find your local number: <https://us02web.zoom.us/j/87852500729?pwd=dGlPSERQZ05NNnREejNxZEFueVdHZz09>

Workshop Attendees:

First Name	Last Name	Position
Martha	Adkins	Title VI Director, Enrollment Officer
Susann	Brown	Tribal Childcare and Development Program Director
Wayne	Adkins	1 <sup>st</sup> Assistant Chief
Heath	Adkins	Tribal Council Member
Lindsay	Johnson	Deputy Tribal Administrator
Carmen Lenora	Adkins	Project Director ANA SEDS
Dana	Adkins	Tribal Environmental Director
Rufus	Elliot	Housing Director
Adam	Adkins	Tribal Citizen
Stephen	Adkins	Chief
Eunice	Adkins	Tribal Citizen
Loyita (Brenda)	Adkins	Assistant Project Director ANA SEDS Grant
Reggie	Stewart	2 <sup>nd</sup> Assistant Chief
Cami	Adkins	Tribal Council Member
Somer	Zitta	Tribal Citizen
Mayflower	Edwards	Tribal Citizen
Nelson	Andrews	Project Manager
Craig	Pereira	Horsley Witten Group, Inc.
Carl	Simons	Horsley Witten Group, Inc.

***FEMA Region 3 Coordination Meeting: June 7, 2021***



# Memorandum of Meeting

**To:** Nelson Andrews, Carl Simons, Nicole Spink-Colburn

**From:** Craig Pereira

**Date:** June 7, 2021

**Re:** FEMA Region 3 Coordination Call: Chickahominy Tribe Multi-Hazard Mitigation Plan Development and Submission Requirements

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**In attendance:**

FEMA Region 3

David Thomason - Senior Program Specialist/Tribal Liaison External Affairs

Mari Radford – Community Planning Lead, Mitigation Division

Jim Cedeno – Grant Management Specialist

Dustin Brosius – Assistant Branch Manager

Maggie Dunn – Outreach Coordinator

Catharine Fan – Disaster Operations Team Leader

Consultant Team

Craig Pereira, Senior Planner - HW

Craig Pereira requested a coordination call with FEMA Region 3 representatives to discuss the development and submission of the Chickahominy Tribe Multi-Hazard Mitigation Plan.

1. Craig reviewed his approach to develop the draft plan, including:
  - a. Resources:
    - i. Virginia State Plan (2018)
    - ii. Virginia THIRA (2014)
    - iii. Charles City County EOP (2015)
  - b. FEMA Mapping Coordination
    - i. Coordination with Legrande Brancheau and Robert Pierson who confirmed the 5/29/20 draft FEMA Flood Maps should be used.
  - c. Coordination with Richmond Regional Planning Commission
    - i. Coordination with Sarah Stewart who is currently updating the Richmond-Crater Regional Plan (2017)...the regional plan update schedule is further out than HW's.
  - d. Plan Development
    - i. Since there are Tribal assets located throughout Charles City and New Kent Counties, and not a central 'reservation' where Tribal members live, Craig is using the term 'Tribal lands and Tribal members living in the service area' when describing vulnerabilities.
    - ii. Profiling all hazards identified in the state plan, unless otherwise noted due to limited frequency/impact.

- iii. Climate change is being included in each hazard profiled by ‘Climate change impacts on’ since climate change impacts hazards differently.
- iv. NOAA’s National Center for Environmental Information, Severe Storm Events Database used to understand historic occurrences of events, in addition to state plan, regional plan and County EOP to develop hazard index.
- v. Each hazard profile includes a description, mapping, properties impacted and probability of future occurrence.
- vi. Mapping: Craig utilized excerpts from the Richmond-Crater Regional HMP to illustrate historic/previous occurrences of hazard events (in proximity to Charles City and New Kent Counties), including for:
  - 1. Hurricane Tracks
  - 2. Tornado Touchdowns
  - 3. Earthquake Activity
  - 4. Landslide Susceptibility
- vii. Mapping: Craig utilized FEMA Flood Zone mapping as directed by FEMA representatives.
- viii. Mapping: Craig utilized the Wildfire Vulnerability mapping from the Virginia Department of Forestry.
- ix. Mapping: Craig created google maps with the proximity of Charles City and New Kent Counties for the following:
  - 1. Chemical/Hazardous Materials Release: Colonial Pipeline System map.
  - 2. Radiological/Nuclear: Surry Power Station 10- mile radius Protective Action Zone.
  - 3. Rail Derailment: CSX System Line.
  - 4. Airplane Crash: Richmond International and Newport News/Williamsburg Airports.
  - 5. Dam Failure: Proximity of Woodhaven and Diascund Dams.

FEMA representatives stated that this approach seems aligned with FEMA requirements.

- 2. Craig asked what the procedure and timeline is for submission of the draft for FEMA review and approval. Is the 2017 Tribal Mitigation Review Tool still effective? Is there a FEMA Portal to submit the plan to?
  - a. Mari Radford stated FEMA has 45 days for the initial review, then comments go back to the jurisdiction/Tribe, then a revised plan gets sent back to FEMA for review and approval and FEMA has another 45 days for review/approval.
    - i. First submission needs to be hard copy and electronic.
    - ii. Mari will send instructions to access the EFTP site.
    - iii. All other submissions are electronic.
    - iv. Mari also stated she would gladly review the draft plan prior to FEMA submission.
      - 1. Craig suggested perhaps at the start of the public comment period(anticipated early fall), which would provide time to incorporate revisions prior to completing the plan review tool and submission to FEMA.

3. Mari asked if the two dams mentioned by Craig are high or significant hazard dams. If so, there is a High Hazard Private Dam Owner Grant Program that could be of interest. Mari stated she would forward the updated Tribal Plan Review Tool – All Dam Risks 2021 as a resource.
  - a. Craig responded he was not sure and would have to go back and review.
4. Jim Ceden asked if the Tribal properties are designated under the Bureau of Indian Affairs.
  - a. Craig responded that to his knowledge, they are solely under the Chickahominy Indian Tribe.
5. Mari commented that she would provide several resources for use, including:
  - a. Addressing Future Conditions
  - b. Community Capability Assessment
  - c. Connecting Mitigation and Agriculture Booklet
  - d. Mitigation Action Implementation Worksheet
  - e. Mitigation Action and Prioritization
    - i. This document seems to be similar to the abbreviated BCA done in other regions...Craig will follow up with Mari.
  - f. Silver Jackets: Flood modeling...Mari to provide.
6. Jim asked if the Tribe is familiar with the Indian Environmental General Assistance Program which provides General Assistance Program (GAP) grants to federally recognized tribes and tribal consortia for planning, developing and establishing environmental protection programs in Indian country, and for developing and implementing solid and hazardous waste programs on tribal lands...if not, Craig should consider especially for the development of the EOP and COOP.
7. Dustin Brosius asked if the Tribe is at the point of scoping any projects yet for inclusion in the mitigation strategy.
  - a. Craig responded no, not at this point.
  - b. David Thomason stated that the Tribe would have to go through the County to seek funding for mitigation actions.
8. Maggie Dunn asked if the Tribe is familiar with implementation of the NFIP.
  - a. Craig responded that there are no flood policies on any existing Tribal assets currently, however, Tribal members living in the service area may have flood insurance policies on their property. Craig should state in the plan that insured structures must comply with County regulations.
9. David stated that Craig's colleagues working on the EOP and COOP should coordinate a call with FEMA representatives (Response Division). David will forward contact names and information (Patty Gardner).

***Tribal Hazard Mitigation Committee Meeting #3: July 1, 2021***

# **Chickahominy Indian Tribe**

## **Multi-Hazard Mitigation Plan/Emergency Operations Plan/ Continuity of Operations Plan**

### **Tribal Hazard Mitigation Committee Meeting #3**

Virtual Meeting

July 1, 2021 9:00 AM – 10:00 AM

#### **Agenda**

1. FEMA Region 3 Coordination Debrief
2. Mission Statement

*The purpose of the Chickahominy Indian Tribe Multi-Hazard Mitigation Plan is to preserve and enhance the quality of life, property values, and historic/cultural/natural resources and traditions by identifying all potential natural, human-caused and technological hazards impacting the Tribe and mitigating their effects to reduce the loss of life, as well as, losses of economic, natural, historical, and cultural resources.*

3. Goals
  - Protect the health, safety and welfare of Tribal members living in the service area.
  - Minimize/Reduce property damages to Tribal assets and Tribal members' personal property caused by hazard impacts.
  - Minimize social distress of Tribal members and reduce economic losses/disruptions.
  - Provide an ongoing forum for the education and awareness of natural, human-caused and technological hazard mitigation issues, programs, policies, projects and resources.
4. Survey
5. County Shelter/Mass Care Facility information
6. Mitigation Actions for Consideration
7. Q/A



## TRIBAL EDUCATION AND AWARENESS

### Action #.....

#### Distribute Informational Natural Hazards Pamphlet

Develop a pamphlet to be distributed to all Tribal citizens that describes the natural hazards that threaten Tribal lands and Tribal citizens living in the service area, as well as steps they can take for each hazard to mitigate damages to their property. Include evacuation routes and shelter locations along with items that can and cannot be taken to the shelters.

- Action Type: Planning, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Public Information Officer
- Time Frame: Short Term
- Financing Options: Tribal Operating Budget
- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Individual Tribal citizen's health, Tribal lands/Tribal citizens living in the service area.

### Action #.....

#### Expand the capacity of the Tribal website to promote hazard mitigation/disaster awareness/preparedness for Tribal citizens.

Utilize the Tribal website as a means to convey important hazard mitigation awareness and preparedness information regarding Tribal citizens vulnerabilities to natural, human-caused, and technological hazards. This should include evacuation routes, shelter/mass care facility locations, and procedures in the event of a radiological/nuclear incident at the Surry Power Station (Tribal citizens are within the 50-mile Ingestion Exposure Pathway).

- Action Type: Planning, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Public Information Officer/Surry Power Station Representative
- Time Frame: Short Term
- Financing Options: Tribal Operating Budget
- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Individual Tribal citizen's health, Tribal lands/Tribal citizens living in the service area.

## STRUCTURAL PROJECTS

**Action #.....****Conduct feasibility study of stormwater drainage solutions around the Tribal Center**

During periods of heavy rain, the roadway in and around the Tribal Center floods and becomes impassable due to inadequate drainage capacity.

- Action Type: Planning, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Charles City County
- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Protection of property, protection of life/infrastructure, Tribal citizen's safety
- Vulnerable Area: Tribal Center

**Action #.....****Work with the County/FEMA to encourage the construction/use of safe rooms for Tribal citizens living in the service area.**

Hurricanes and tornadoes are profiled as 'significant risks' to Tribal citizens living in the service area.

- Action Type: Planning, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Charles City County
- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Significant
- Benefit: Protection of life, increased Tribal health/safety/welfare
- Vulnerable Area: Emergency Response

**PLANNING AND PREVENTION****Action #.....****Develop a Tribal Emergency Operations Plan**

Several hazard-, function-, and Tribal department-specific annexes/SOPs should be developed and incorporated into the EOP.

- Action Type: Planning, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Tribal Council
- Time Frame: Short Term
- Financing Options: N/A

- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Emergency Response

**Action #.....**

*Develop a Tribal Continuity of Operations Plan*

Several hazard-, function-, and Tribal department-specific annexes/SOPs should be developed and incorporated into the COOP.

- Action Type: Planning, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Tribal Council
- Time Frame: Short Term
- Financing Options: N/A
- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Emergency Response

**Action #.....**

*Work with the County to explore/acquire security measures and develop an education/outreach campaign for Tribal assets and Tribal citizens living in the service area on ways to mitigate cyber threats affecting personal, private, and Tribal security and other sensitive data/information.*

- Action Type: Planning, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Charles City County
- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Improved resiliency of data/infrastructure
- Vulnerable Area: Tribal assets

**Action #.....**

*Work with the Chickahominy Health District and Virginia Department of Health to identify safe standards for indoor air quality/particulate matter for Tribal citizens who rely on wood stoves for heat and experience mold growth inside their homes.*

- Action Type: Planning, Pre-Disaster
- Priority Score:
- Lead: Tribal Health Services Department

- Supporting: Chickahominy Health District/Virginia Department of Health
- Time Frame: Short Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Protection of property, protection of health/safety/welfare
- Vulnerable Area: Individual Tribal citizen's health

**Action #.....**

*Develop Geographic Information Systems (GIS) capacity to manage Tribal assets and to better understand/track hazards and vulnerabilities.*

Acquire operating systems/software to develop the Tribe's GIS capabilities.

- Action Type: Planning, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Public information Officer
- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Significant
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Emergency Response

## **EMERGENCY SERVICES**

**Action #.....**

*Acquire generators for critical Tribal infrastructure facilities.*

Acquire generators for the Roxbury Road Warehouse, future childcare and administration locations, in addition to mobile generators for the mobile kitchens, showers, and restrooms recently acquired.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Tribal Council
- Time Frame: Medium Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Continuity of services
- Vulnerable Area: Tribal Critical Facilities

**Action #.....**

*Strengthen emergency communications capability (internal and external linkages).*

Expand the capacity of both internal (within Tribal operations) and external (with the County) communications in the event of an emergency.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Tribal Council
- Time Frame: Medium Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Continuity of emergency services/operations
- Vulnerable Area: Tribal Communications

**Action #.....**

*Work with the County to develop a comprehensive job description, advertise for, and hire an Emergency Management Director for the Tribe.*

The Emergency Management Director position for the Tribe is currently vacant. As the Tribe continues to develop and expand operations, the need for an Emergency Management Director becomes more critical.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score:
- Lead: Tribal Council
- Supporting: Charles City County
- Time Frame: Short term
- Financing Options: FEMA grants
- Cost Estimate: Significant
- Benefit: Continuity of emergency services/operations
- Vulnerable Area: Individual Tribal citizen's health, Tribal lands/Tribal citizens living in the service area.

**Action #.....**

*Work with the County to better understand the various protocols/SOPs should there be a chemical/hazardous spill.*

The Tribe's Roxbury Road site and Tribal citizens living in the service area are subject to proximity to considerable truck traffic/transport and rail that may include chemical/hazardous materials transport.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Charles City County
- Time Frame: Medium Term
- Financing Options: FEMA grants
- Cost Estimate: Tribal Personnel Time
- Benefit: Minimized risk of chemical/hazardous materials contamination, reduced clean-up costs, Tribal citizen's safety

- Vulnerable Area: Emergency Response

## PROPERTY PROTECTION

### Action #....

Work with the County and NFIP to develop and implement a public outreach program to educate Tribal citizens in A- and V-zones of the requirements to comply with floodplain standards, understand the benefits of flood insurance, and practical ways to protect their properties.

Several Tribal assets and Tribal citizens are located in the A and V special flood hazard areas and subject to periodic inundation.

- Action Type: Planning, Pre-Disaster
- Priority Score:
- Lead: Emergency Management Director
- Supporting: Charles City County/NFIP
- Time Frame: Medium Term
- Financing Options: FEMA Flood Mitigation Assistance Program
- Cost Estimate: Tribal Personnel Time
- Benefit: Reduced damages/costs, protection of property/assets, improved resiliency
- Vulnerable Area: A-V Zone properties



# Memorandum of Meeting

**To:** Chickahominy Tribe: Tribal Hazard Mitigation Committee/Emergency Operations Plan Team

**From:** Craig Pereira

**Date:** July 1, 2021

**Re:** Chickahominy Tribe Multi-Hazard Mitigation Plan, Emergency Operations Plan and Continuity of Operations Plan Meeting #3

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**In attendance:**

Stephen Adkins – Chief  
Wayne Adkins – Assistant Chief, Tribal Finance Officer  
Rufus Elliott – Housing Program Manager  
Dana Adkins – Tribal Environmental Director  
Lindsey Johnson – Deputy Tribal Administrator, Public Information Officer  
Reggie Stewart – Second Assistant Chief

Consultant Team

Nelson Andrews, Jr. – Project Manager  
Carl Simons – Horsley Witten Group, Inc. (HW)  
Nicole Spink-Colborn - HW  
Craig Pereira, Senior Planner - HW

The following items were discussed: (Highlighted items indicate follow up action for the Chickahominy Tribe)

1. FEMA Region 3 Coordination Debrief
  - a. Craig Pereira provided a brief summary of his coordination call with FEMA Region 3 officials.
    - i. FEMA Region 3 representatives:
      1. David Thomason – Tribal Liaison, External Affairs
      2. Mari Radford – Planning Lead, Mitigation Division
      3. Jim Cedenó – Grant Management Specialist
      4. Dustin Brosious – Assistant Branch Manager
      5. Maggie Dunn – Outreach Coordinator
      6. Catherine Fann – Disaster Operations Team Leader
    - ii. Craig reviewed the project approach to date, resources utilized, FEMA mapping coordination, and coordination with the Richmond Regional Planning Commission.
      1. Overall positive feedback received from FEMA...approach aligns with requirements.
      2. Mari Radford offered to review the draft plan prior to official submission to FEMA.

3. David Thomason recommended EOP/COOP coordination with FEMA's Response Division.
2. Mission Statement
  - a. Craig provided a draft mission statement for review/feedback.

*The purpose of the Chickahominy Indian Tribe Multi-Hazard Mitigation Plan is to preserve and enhance the quality of life, property values, and historic/cultural/natural resources and traditions by identifying all potential natural, human-caused and technological hazards impacting the Tribe and mitigating their effects to reduce the loss of life, as well as losses of economic, natural, historical, and cultural resources.*

- i. No comments or revisions requested.

**1. THMC members should review and provide feedback/suggested edits.**

3. Goals
  - a. Craig provided draft mitigation goals for review and feedback. The goals are intended to be over-arching and broad in nature.
    - Protect the health, safety and welfare of Tribal members living in the service area.
    - Minimize/Reduce property damages to Tribal assets and Tribal members' personal property caused by hazard impacts.
    - Minimize social distress of Tribal members and reduce economic losses/disruptions.
    - Provide an ongoing forum for the education and awareness of natural, human-caused and technological hazard mitigation issues, programs, policies, projects and resources.
  - i. Several THMC members commented they would like to see the inclusion of the community at-large, as well as Tribal 'citizens'...revised accordingly below.
    - Protect the health, safety and welfare of Tribal citizens living in the service area.
    - Minimize/Reduce property damages to Tribal assets and Tribal citizens' personal property caused by hazard impacts.
    - Minimize social distress of Tribal citizens and reduce economic losses/disruptions.
    - Provide an ongoing forum for the education and awareness of natural, human-caused and technological hazard mitigation issues, programs, policies, projects and resources.

**1. THMC members should review and provide feedback/suggested edits.**



4. Online Survey
  - a. Craig reported that the survey is now closed, with 60 responses collected. Craig provided a brief overview of findings and commented that the survey questions and raw data will be included as an appendix in the final plan.
5. County Shelter/Mass Care Facility information
  - a. Craig continues to reach out to County representatives to obtain shelter/mass care facility information.
6. Mitigation Actions for Consideration
  - a. Craig presented a number of mitigation actions for consideration based on the completed hazard profiles, review of County resources, and Tribal interviews. Craig also presented a number of additional mitigation actions based on the same and requested confirmation from the THMC that draft actions should also be developed for these.
    - i. Several members requested the action related to generators include recently acquired mobile kitchens/restrooms/bathrooms as well as future childcare and administrative facilities.
    - ii. Several members requested an action related to data/cyber security be added for consideration.
    - iii. Several members requested assistance with securing an Emergency Management Director be added for consideration.
  - b. A full updated list of mitigation actions is attached here.
    1. THMC members should review and provide feedback/suggested edits.
7. General Comments
  - a. Lindsey Johnson requested that when referring to the Tribal Community Center, it should be noted as 'Tribal Center' and when referring to Tribal members, they should be noted as 'Tribal citizens'.
  - b. Susann Brown, Director of Childcare/Development and Mia Eubank, Tribal Health Services Liaison have been added to the THMC.

Chickahominy Indian Tribe

THMC Meeting #3

Join Zoom Meeting  
https://teams.microsoft.com/l/meetup-join/19%3ameeting\_MWFiNGFjNGYtNjIwYy00ODQxLWE4MDMtYmFIMWNlY2FlZTIy%40thread.v2/0?context=%7b%22Tid%22%3a%224cc3a107-1bc7-4c39-9144-730bb5fc47ff%22%2c%22Oid%22%3a%22bd1c8fb1-a754-44fc-bea4-90bb864138f5%22%7d

July 1, 2020 9:00 AM - 10:00 AM

<u>Name</u>	<u>Email Address</u>
Stephen Adkins	
Wayne Adkins	
Rufus Elliott	
Dana Adkins	
Lindsey Johnson	
Nelson Andrews Jr.	
Carl Simons	
Craig Pereira	
Reggie Stewart	
Nicole Spink-Colborn	

***Tribal Hazard Mitigation Committee Meeting #4: August 19, 2021***

# **Chickahominy Indian Tribe**

## **Multi-Hazard Mitigation Plan**

### **Tribal Hazard Mitigation Committee Meeting #4**

Virtual Meeting  
August 19, 2021      1:00 PM – 3:00 PM

#### **Agenda**

1. STAPLEE Prioritization
2. Next Steps
3. Q/A

## TRIBAL EDUCATION AND AWARENESS

### Action #1

#### Distribute Informational Natural Hazards Pamphlet

Develop a pamphlet to be distributed to all Tribal citizens that describes the natural hazards that threaten Tribal lands and Tribal citizens living in the service area, as well as steps they can take for each hazard to mitigate damages to their property. Include evacuation routes and shelter locations along with items that can and cannot be taken to the shelters.

- Action Type: Planning, Pre-Disaster
- Priority Score: 16
- Lead: Emergency Operations Director
- Supporting: Public Information Officer
- Time Frame: Short Term
- Financing Options: Tribal Operating Budget
- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Individual Tribal citizen's health, Tribal lands/Tribal citizens living in the service area.

### Action #2

#### Expand the capacity of the Tribal website to promote hazard mitigation/disaster awareness/preparedness for Tribal citizens.

Utilize the Tribal website as a means to convey important hazard mitigation awareness and preparedness information regarding Tribal citizens vulnerabilities to natural, human-caused, and technological hazards. This should include evacuation routes, shelter/mass care facility locations, and procedures in the event of a radiological/nuclear incident at the Surry Power Station (Tribal citizens are within the 50-mile Ingestion Exposure Pathway).

- Action Type: Planning, Pre-Disaster
- Priority Score: 12
- Lead: Emergency Operations Director
- Supporting: Public Information Officer/Surry Power Station Representative
- Time Frame: Short Term
- Financing Options: Tribal Operating Budget
- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Individual Tribal citizen's health, Tribal lands/Tribal citizens living in the service area.

## STRUCTURAL PROJECTS

### **Action #3**

Conduct feasibility study of stormwater drainage solutions around the Tribal properties/assets.

During periods of heavy rain the roadway, in particular around the Tribal Center, floods and becomes impassable due to inadequate drainage capacity.

- Action Type: Planning, Pre-Disaster
- Priority Score: 14
- Lead: Emergency Operations Director
- Supporting: Charles City County
- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Protection of property, protection of life/infrastructure, Tribal citizen's safety
- Vulnerable Area: Tribal Center

### **Action #4**

Work with the County/FEMA to encourage the construction/use of safe rooms for Tribal citizens living in the service area.

Hurricanes and tornadoes are profiled as 'significant risks' to Tribal citizens living in the service area.

- Action Type: Planning, Pre-Disaster
- Priority Score: 10
- Lead: Emergency Operations Director
- Supporting: Charles City County
- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Significant
- Benefit: Protection of life, increased Tribal health/safety/welfare
- Vulnerable Area: Emergency Response

## **PLANNING AND PREVENTION**

### **Action #5**

Develop a Tribal Emergency Operations Plan

Several hazard-, function-, and Tribal department-specific annexes/SOPs should be developed and incorporated into the EOP.

- Action Type: Planning, Pre-Disaster
- Priority Score: 28
- Lead: Emergency Operations Director
- Supporting: Tribal Council
- Time Frame: Short Term

- Financing Options: N/A
- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Emergency Response

#### **Action #6**

##### *Develop a Tribal Continuity of Operations Plan*

Several hazard-, function-, and Tribal department-specific annexes/SOPs should be developed and incorporated into the COOP.

- Action Type: Planning, Pre-Disaster
- Priority Score: 28
- Lead: Emergency Operations Director
- Supporting: Tribal Council
- Time Frame: Short Term
- Financing Options: N/A
- Cost Estimate: Tribal Personnel Time
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Emergency Response

#### **Action #7**

##### *Work with County, State and Federal agencies to explore/acquire security measures and develop an education/outreach campaign for Tribal assets and Tribal citizens living in the service area on ways to mitigate cyber threats affecting personal, private, and Tribal security and other sensitive data/information.*

- Action Type: Planning, Pre-Disaster
- Priority Score: 14
- Lead: Emergency Operations Director
- Supporting: Charles City County
- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Improved resiliency of data/infrastructure
- Vulnerable Area: Tribal assets

#### **Action #8**

##### *Work with the Chickahominy Health District and Virginia Department of Health to identify safe standards for indoor air quality/particulate matter for Tribal citizens who rely on wood stoves for heat and experience mold growth inside their homes.*

- Action Type: Planning, Pre-Disaster
- Priority Score: 9

- Lead: Tribal Health Services Department
- Supporting: Chickahominy Health District/Virginia Department of Health
- Time Frame: Short Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Protection of property, protection of health/safety/welfare
- Vulnerable Area: Individual Tribal citizen's health

#### **Action #9**

*Develop Geographic Information Systems (GIS) capacity to manage Tribal assets and to better understand/track hazards and vulnerabilities.*

Acquire operating systems/software to develop the Tribe's GIS capabilities.

- Action Type: Planning, Pre-Disaster
- Priority Score: 16
- Lead: Emergency Operations Director
- Supporting: Public information Officer
- Time Frame: Long Term
- Financing Options: FEMA grants
- Cost Estimate: Significant
- Benefit: Protection of property, protection of life/infrastructure, increased awareness of vulnerabilities
- Vulnerable Area: Emergency Response

### **EMERGENCY SERVICES**

#### **Action #10**

*Acquire generators for critical Tribal infrastructure facilities.*

Acquire generators for the Roxbury Road Warehouse, future childcare and administration locations, in addition to mobile generators for the mobile kitchens, showers, and restrooms recently acquired.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score: 15
- Lead: Emergency Operations Director
- Supporting: Tribal Council
- Time Frame: Medium Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Continuity of services
- Vulnerable Area: Tribal Critical Facilities

#### **Action #11**

*Strengthen emergency communications capability (internal and external linkages).*

Expand the capacity of both internal (within Tribal operations) and external (with the



County) communications in the event of an emergency.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score: 10
- Lead: Emergency Operations Director
- Supporting: Tribal Council
- Time Frame: Medium Term
- Financing Options: FEMA grants
- Cost Estimate: Moderate
- Benefit: Continuity of emergency services/operations
- Vulnerable Area: Tribal Communications

#### **Action #12**

*Develop a comprehensive job description, advertise for, and hire an Emergency Operations Director for the Tribe.*

The Emergency Management Director position for the Tribe is currently vacant. As the Tribe continues to develop and expand operations, the need for an Emergency Management Director becomes more critical.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score: 13
- Lead: Tribal Council
- Supporting: Charles City County
- Time Frame: Short term
- Financing Options: FEMA grants
- Cost Estimate: Significant
- Benefit: Continuity of emergency services/operations
- Vulnerable Area: Individual Tribal citizen's health, Tribal lands/Tribal citizens living in the service area.

#### **Action #13**

*Work with the County and State to better understand the various protocols/SOPs should there be a chemical/hazardous spill.*

The Tribe's Roxbury Road site and other Tribal assets, as well as Tribal citizens living in the service area are subject to proximity to considerable truck traffic/transport, rail transport and barge/waterways transport that may include chemical/hazardous materials transport.

- Action Type: Emergency Services, Pre-Disaster
- Priority Score: 20
- Lead: Emergency Operations Director
- Supporting: Charles City County
- Time Frame: Medium Term
- Financing Options: FEMA grants
- Cost Estimate: Tribal Personnel Time

- Benefit: Minimized risk of chemical/hazardous materials contamination, reduced clean-up costs, Tribal citizen's safety
- Vulnerable Area: Emergency Response

## PROPERTY PROTECTION

### Action #14

Work with County, State and Federal agencies and NFIP to develop and implement a public outreach program to educate Tribal citizens in A- and V-zones of the requirements to comply with floodplain standards, understand the benefits of flood insurance, and practical ways to protect their properties.

Several Tribal assets and Tribal citizens are located in the A and V special flood hazard areas and subject to periodic inundation.

- Action Type: Planning, Pre-Disaster
- Priority Score: 10
- Lead: Emergency Operations Director
- Supporting: Charles City County/NFIP
- Time Frame: Medium Term
- Financing Options: FEMA Flood Mitigation Assistance Program
- Cost Estimate: Tribal Personnel Time
- Benefit: Reduced damages/costs, protection of property/assets, improved resiliency
- Vulnerable Area: A-V Zone properties



# Memorandum of Meeting

**To:** Chickahominy Tribe: Tribal Hazard Mitigation Committee/Emergency Operations Plan Team

**From:** Craig Pereira

**Date:** August 19, 2021

**Re:** Chickahominy Tribe Multi-Hazard Mitigation Plan Meeting #4

---

**In attendance:**

Stephen Adkins – Chief  
Wayne Adkins – Assistant Chief, Tribal Finance Officer  
Rufus Elliott – Housing Program Manager  
Dana Adkins – Tribal Environmental Director  
Lindsey Johnson – Deputy Tribal Administrator, Public Information Officer  
Reggie Stewart – Second Assistant Chief  
Susann Brown – Child Care and Development Director  
C. Lenora Adkins – CARES Manager, Project Director

Consultant Team

Nelson Andrews, Jr. – Project Manager  
Carl Simons – Horsley Witten Group, Inc. (HW)  
Nicole Spink-Colborn - HW  
Craig Pereira, Senior Planner - HW

The following items were discussed: (Highlighted items indicate follow up action for the Chickahominy Tribe)

1. STAPLEE Prioritization

- a. Craig Pereira provided a brief summary of the Mitigation Actions for Consideration, the representative timelines and cost estimates, in addition to an overview of the STAPLEE Scoring criteria for the THMC.
  - i. The THMC completed the STAPLEE analysis for all mitigation actions.

2. Next Steps

- a. Craig stated that he will tally the scores from this process, update requested language revisions for the mitigation actions, and develop a table to show where actions scored/ranked.
  - i. All THMC should review the revisions to language and the scoring summary for all actions...and provide feedback to Craig by September 2, 2021.
- b. Craig will wrap up the Mitigation Strategy portion of the draft THMP, incorporate the appendices, and complete the draft THMP.
  - i. Craig to work with the THMC to identify the public comment period (typically 1 month).

1. The draft plan should be posted on the Tribe's website, a hard copy available at the Tribal Center (pending COVID protocols), and an email sent to all Tribal departments on the availability of the draft plan (with email copies to Craig).
2. Mari Radford (FEMA Region 3) offered to conduct a cursory review of the draft plan prior to submission to FEMA Region 3, and during the public comment period. THMC members are in agreement to have Mari's review/feedback. Craig will coordinate this and request protocol/information for officially submitting the plan to FEMA Region 3.
3. Craig also identified the following County officials who will receive notification of the availability of the draft plan:
  - a. Charles City County
    - i. Byron Adkins, Sr. – Board of Supervisors, District 3
    - ii. Gilbert Smith – Board of Supervisors, District 1 Chairman
    - iii. William Coad – Board of Supervisors, District 1 Vice Chairman
    - iv. Jimmy Johnson – Director Fire/EMS, Fire Marshall, Emergency Management Coordinator
  - b. New Kent County
    - i. Ron Steirs – Board of Supervisors, District 4
    - ii. Richard Opeit – Emergency Management Director
  - c. Richmond Regional Planning Commission. As discussed previously with the THMC, Craig has coordinated with Sarah Stewart, Planning Manager Richmond Regional Planning Commission who is currently working on an update to the Richmond-Crater Multi-Regional HMP 2017 (of which THMC members have representation on). Sarah indicated that the Tribe's timeline is more accelerated than that of the Regional Plan. The THMC would like Sarah to be included in the draft review. Craig will coordinate notice of availability on the draft THMP to Sarah Stewart.
- ii. Craig to work with the THMC to identify the 2<sup>nd</sup> Tribal Workshop date where the emphasis will be on a summary of the evolution of the project and the mitigation actions included in the draft plan. Once the date and time has been determined, Craig will develop a flyer and provide to Lindsey for posting/distribution.

Chickahominy Indian Tribe

THMC Meeting #4

Join Zoom Meeting  
https://teams.microsoft.com/l/meetup-join/19%3ameeting\_Y2Y3OTRmNTktMTUyYy00ZTFkLTg3YWYtODA4OGJkYWE1NTJk%40thread.v2/0?context=%7b%22Tid%22%3a%224cc3a107-1bc7-4c39-9144-730bb5fc47ff%22%2c%22Oid%22%3a%22bd1c8fb1-a754-44fc-bea4-90bb864138f5%22%7d

August 19, 2020 1:00 PM - 3:00 PM

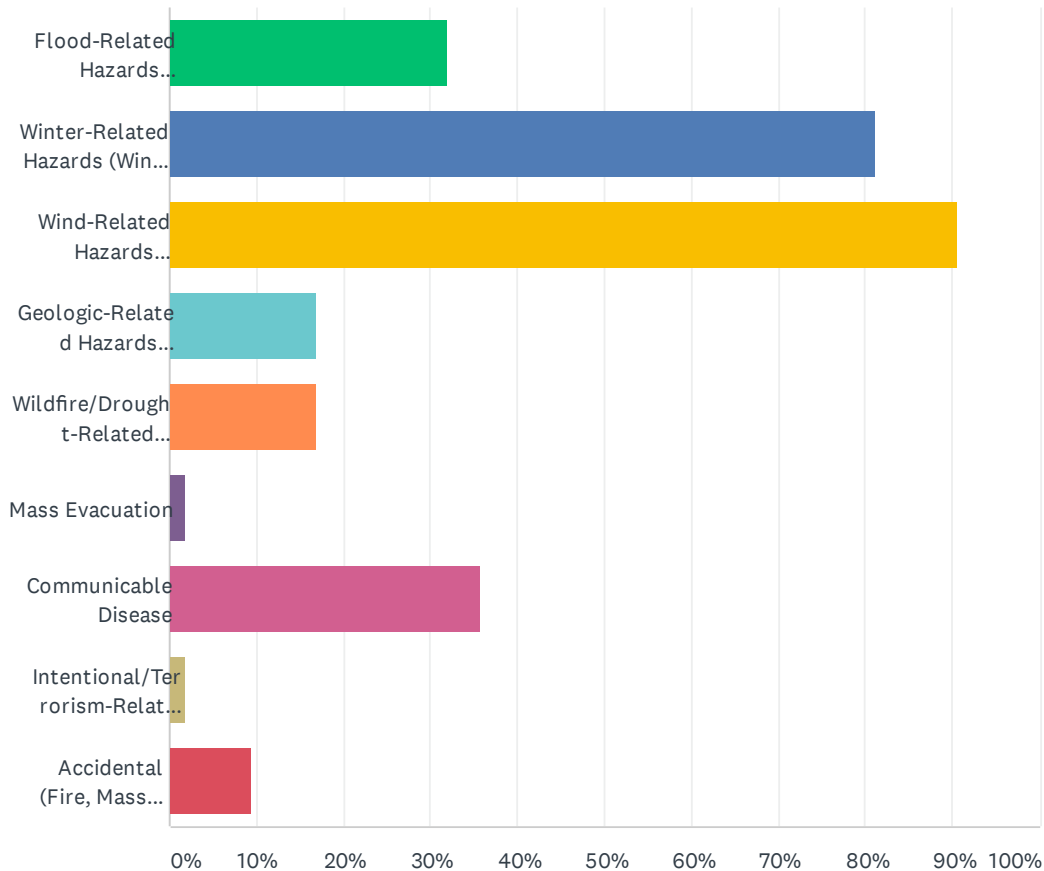
<u>Name</u>	<u>Email Address</u>
Stephen Adkins	
Wayne Adkins	
Rufus Elliott	
Dana Adkins	
Lindsey Johnson	
Nelson Andrews Jr.	
Carl Simons	
Craig Pereira	
Reggie Stewart	
Nicole Spink-Colborn	
Susann Brown	
C. Lenora Adkins	

***Tribal Workshop #2:*** \_\_\_\_\_

***On-Line Survey***

## Q1 Which of the following hazard events have you or has anyone in your household and/or business experienced in the past 20 years within the Tribal service area or on Tribal properties? (Check all that apply)

Answered: 53   Skipped: 7

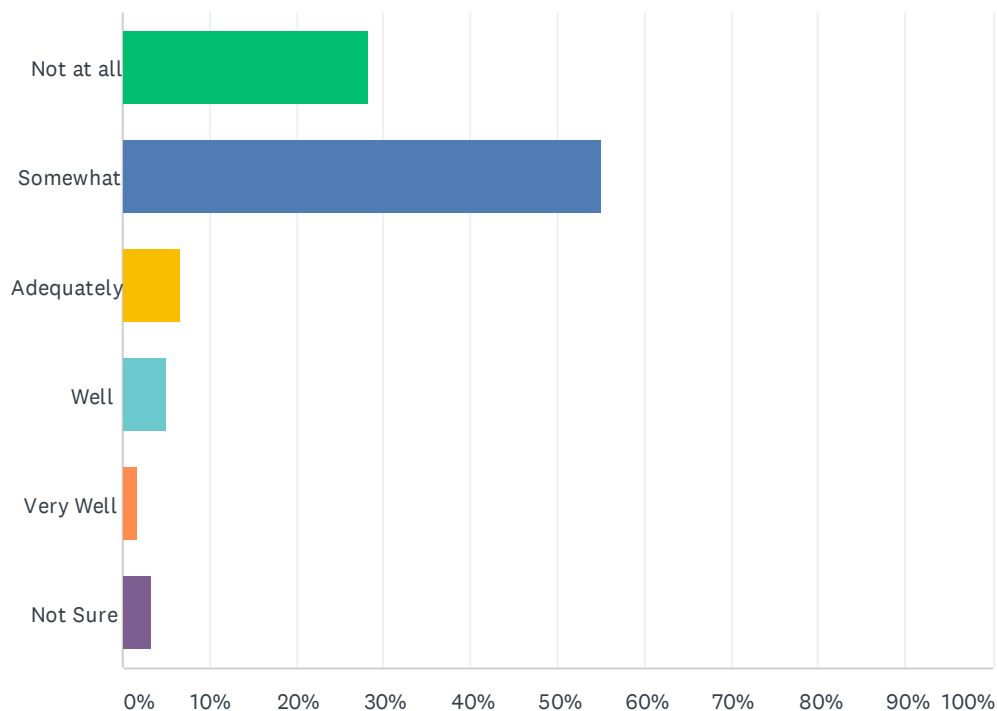


ANSWER CHOICES	RESPONSES	
Flood-Related Hazards (Riverine/Flash Flooding, Shoreline Erosion)	32.08%	17
Winter-Related Hazards (Winter Weather)	81.13%	43
Wind-Related Hazards (Hurricanes, Tornadoes, High Winds, Lightning/Thunderstorms, Hail)	90.57%	48
Geologic-Related Hazards (Earthquakes, Landslides, Karst/Sinkholes)	16.98%	9
Wildfire/Drought-Related Hazards (Drought, Extreme Heat, Wildfire)	16.98%	9
Mass Evacuation	1.89%	1
Communicable Disease	35.85%	19
Intentional/Terrorism-Related Hazards (Biological, Hazardous Materials Release, Cyber, WMD/Explosives, Radiological/Nuclear, Civil Disturbance)	1.89%	1
Accidental (Fire, Mass Casualty, Rail Derailment, Airplane Accident, Dam Failure, Structure Collapse, Special/VIP Event)	9.43%	5
Total Respondents: 53		



## Q2 In your opinion, how prepared is your household and/or business to deal with a natural, human-caused or technological hazard event?

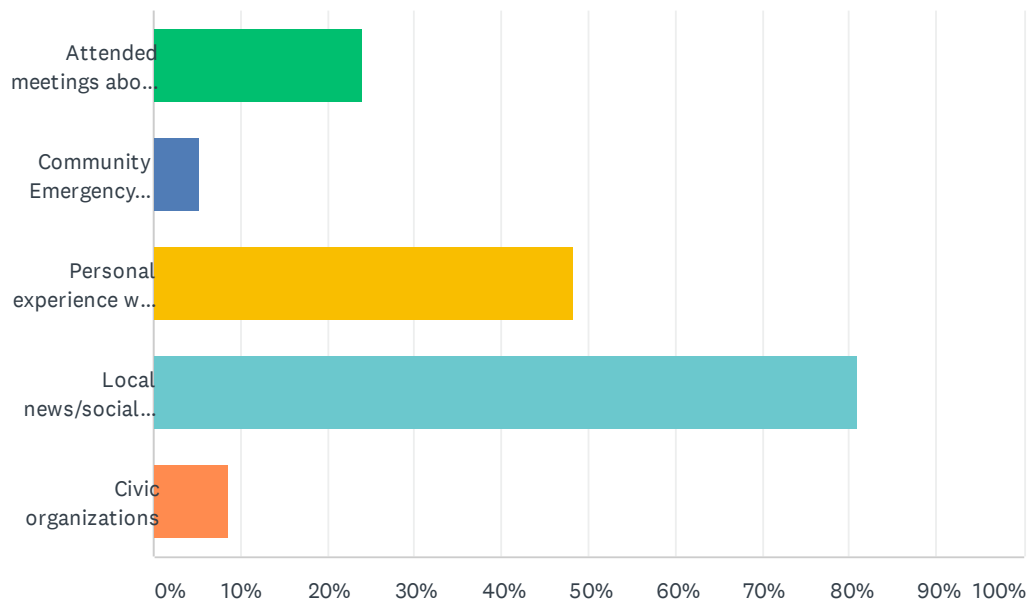
Answered: 60 Skipped: 0



ANSWER CHOICES	RESPONSES	
Not at all	28.33%	17
Somewhat	55.00%	33
Adequately	6.67%	4
Well	5.00%	3
Very Well	1.67%	1
Not Sure	3.33%	2
TOTAL		60

### Q3 Which of the following have provided you with useful information to help you prepare for a hazard event? (Check all that apply)

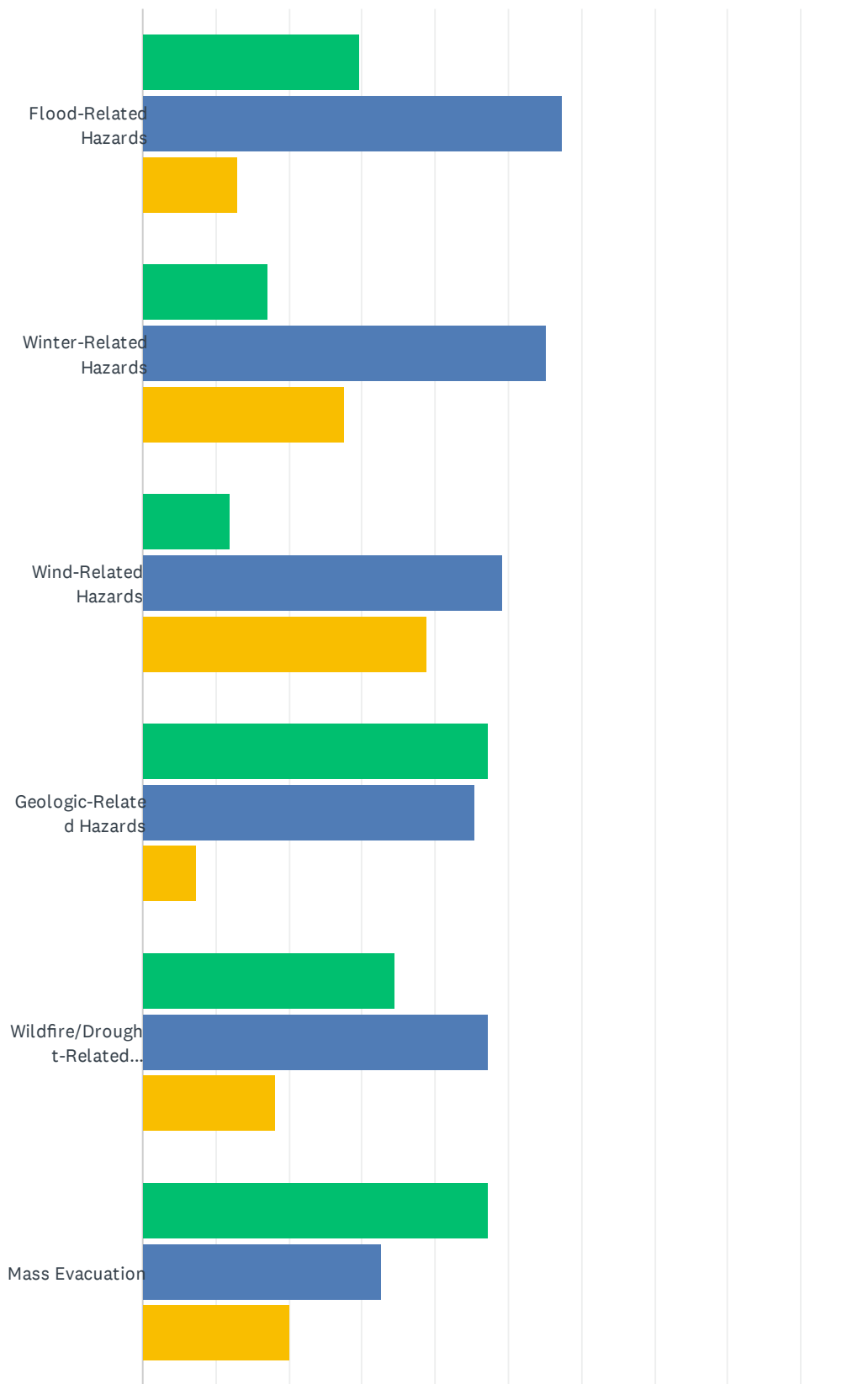
Answered: 58 Skipped: 2



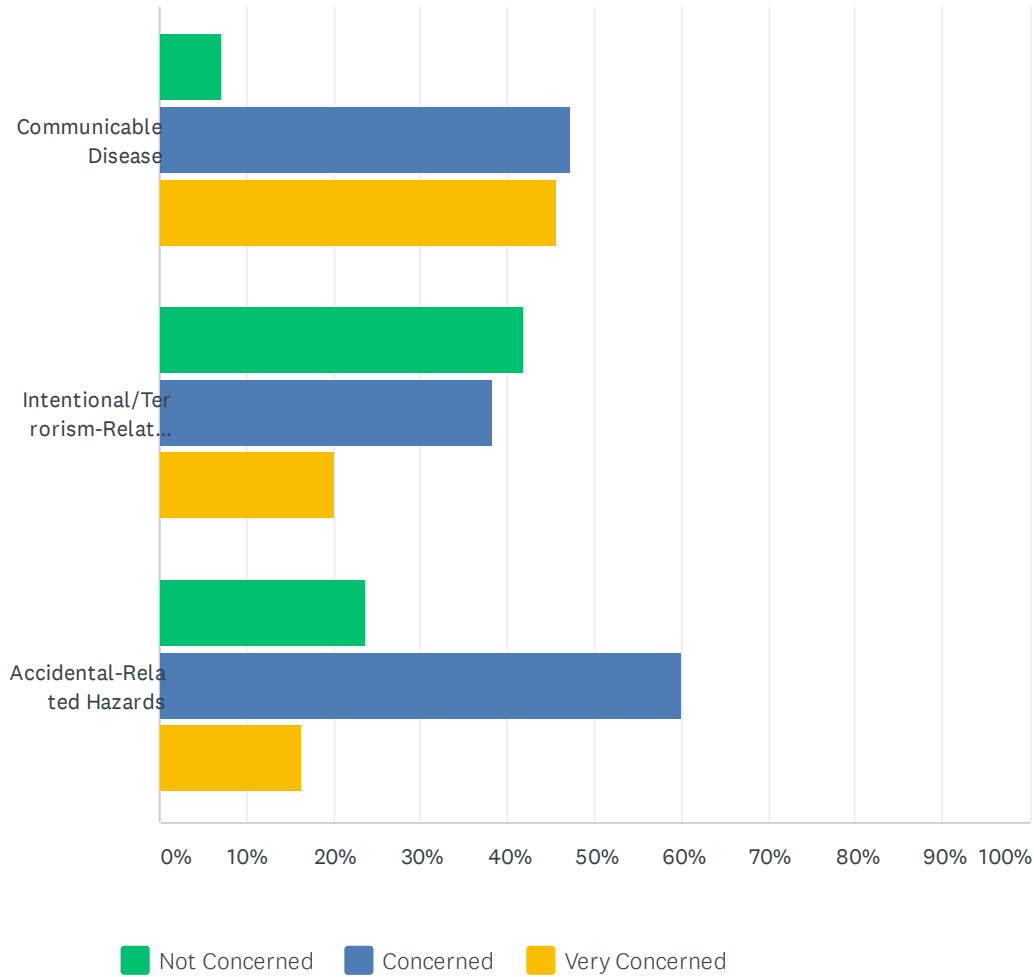
ANSWER CHOICES	RESPONSES	
Attended meetings about disaster preparedness	24.14%	14
Community Emergency Response Training (CERT)	5.17%	3
Personal experience with one or more natural hazards/disasters	48.28%	28
Local news/social media	81.03%	47
Civic organizations	8.62%	5
Total Respondents: 58		

# Q4 How concerned are you about the following hazards within the Tribal service area or on Tribal properties? (Check one response for each hazard)

Answered: 59 Skipped: 1



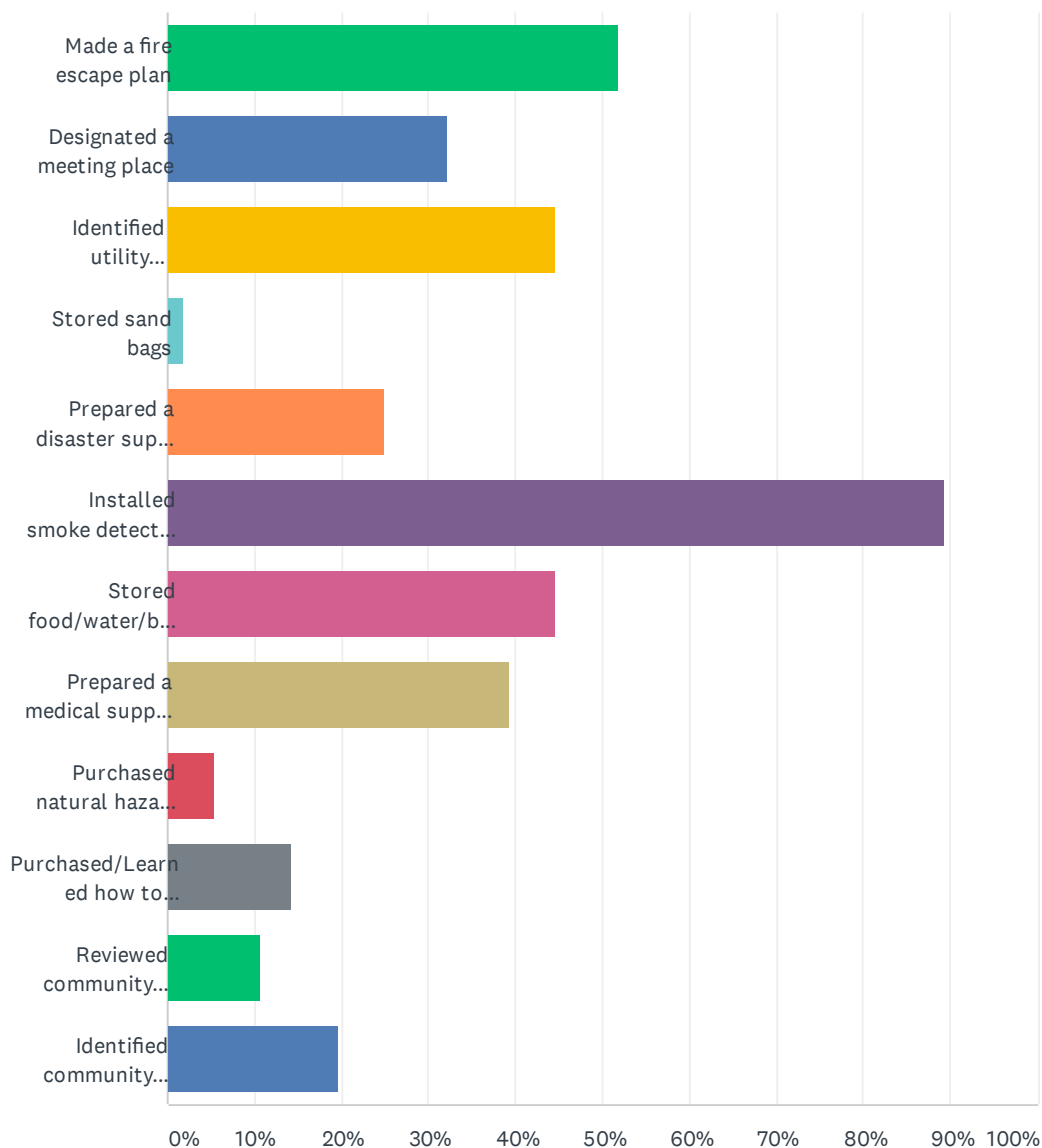
## Chickahominy Indian Tribe Multi-Hazard Mitigation Plan



	NOT CONCERNED	CONCERNED	VERY CONCERNED	TOTAL
Flood-Related Hazards	29.63% 16	57.41% 31	12.96% 7	54
Winter-Related Hazards	17.24% 10	55.17% 32	27.59% 16	58
Wind-Related Hazards	11.86% 7	49.15% 29	38.98% 23	59
Geologic-Related Hazards	47.27% 26	45.45% 25	7.27% 4	55
Wildfire/Drought-Related Hazard	34.55% 19	47.27% 26	18.18% 10	55
Mass Evacuation	47.27% 26	32.73% 18	20.00% 11	55
Communicable Disease	7.02% 4	47.37% 27	45.61% 26	57
Intentional/Terrorism-Related Hazards	41.82% 23	38.18% 21	20.00% 11	55
Accidental-Related Hazards	23.64% 13	60.00% 33	16.36% 9	55

## Q5 Which of the following steps has your household and/or business taken to prepare for a hazard event? (Check all that apply)

Answered: 56 Skipped: 4

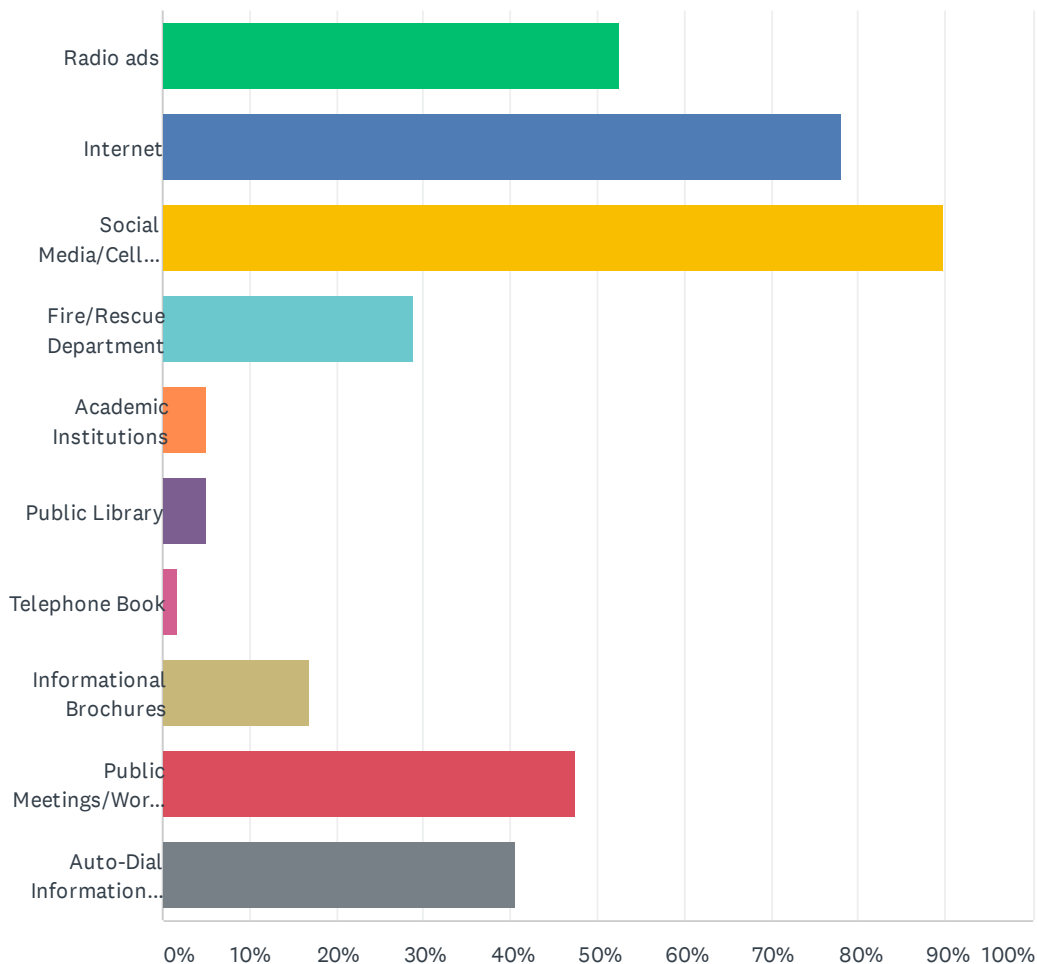


# Chickahominy Indian Tribe Multi-Hazard Mitigation Plan

ANSWER CHOICES	RESPONSES	
Made a fire escape plan	51.79%	29
Designated a meeting place	32.14%	18
Identified utility shut-offs	44.64%	25
Stored sand bags	1.79%	1
Prepared a disaster supply kit	25.00%	14
Installed smoke detectors on each level of the house	89.29%	50
Stored food/water/batteries	44.64%	25
Prepared a medical supply kit	39.29%	22
Purchased natural hazard insurance	5.36%	3
Purchased/Learned how to program a NOAA Weather Radio	14.29%	8
Reviewed community evacuation routes	10.71%	6
Identified community shelters	19.64%	11
Total Respondents: 56		

# Q6 In your opinion, which of the following methods do you think are most effective for providing hazard and disaster information? (Check all that apply)

Answered: 59 Skipped: 1



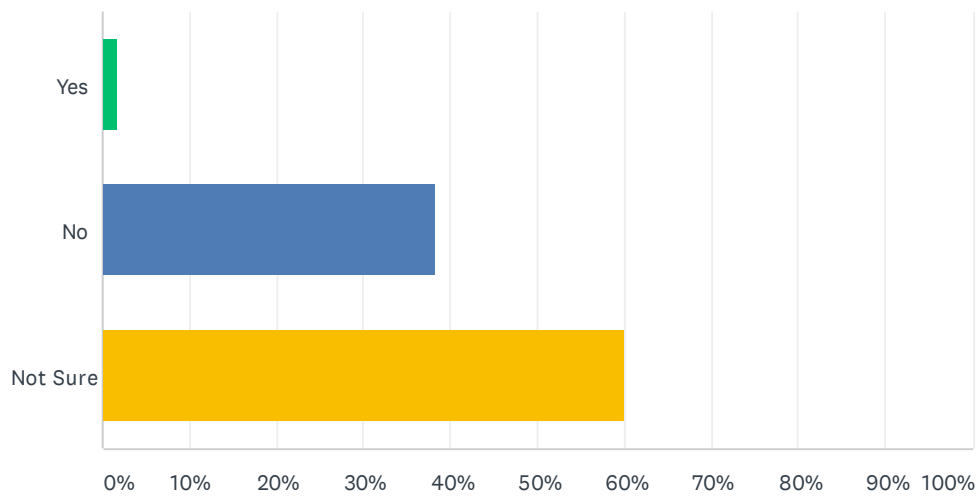
# Chickahominy Indian Tribe Multi-Hazard Mitigation Plan

ANSWER CHOICES	RESPONSES	
Radio ads	52.54%	31
Internet	77.97%	46
Social Media/Cell phone apps.	89.83%	53
Fire/Rescue Department	28.81%	17
Academic Institutions	5.08%	3
Public Library	5.08%	3
Telephone Book	1.69%	1
Informational Brochures	16.95%	10
Public Meetings/Workshops	47.46%	28
Auto-Dial Information (Code Ready or similar)	40.68%	24
Total Respondents: 59		



## Q7 Is your property located in or near a FEMA designated floodplain?

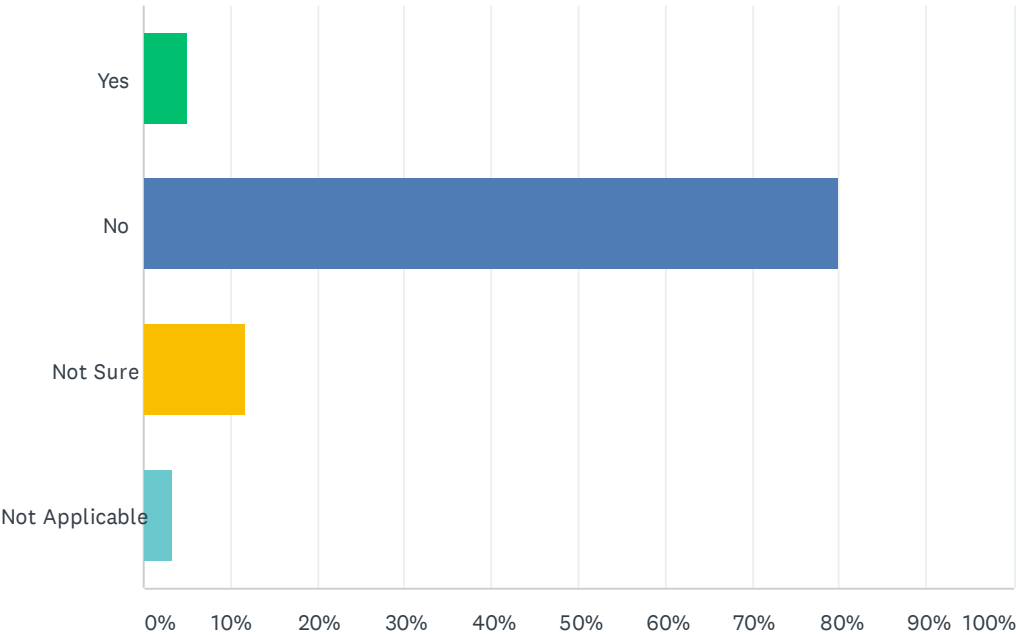
Answered: 60 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	1.67%	1
No	38.33%	23
Not Sure	60.00%	36
TOTAL		60

Q8 Do you have flood insurance?

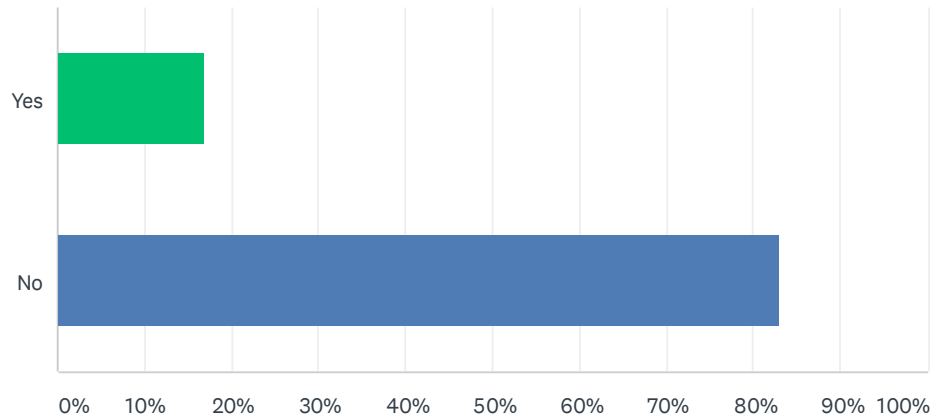
Answered: 60    Skipped: 0



ANSWER CHOICES		RESPONSES	
Yes		5.00%	3
No		80.00%	48
Not Sure		11.67%	7
Not Applicable		3.33%	2
TOTAL			60

## Q9 Do you have any special access or functional needs within your household and/or business that would require early warning or specialized response during disasters?

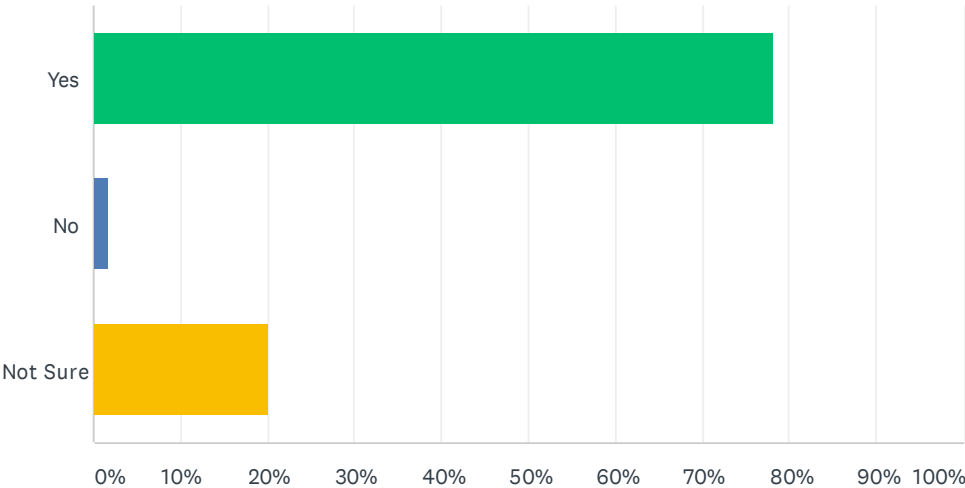
Answered: 59 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	16.95%	10
No	83.05%	49
TOTAL		59

Q10 Are you interested in making your home, business or neighborhood more resistant to hazards?

Answered: 60 Skipped: 0

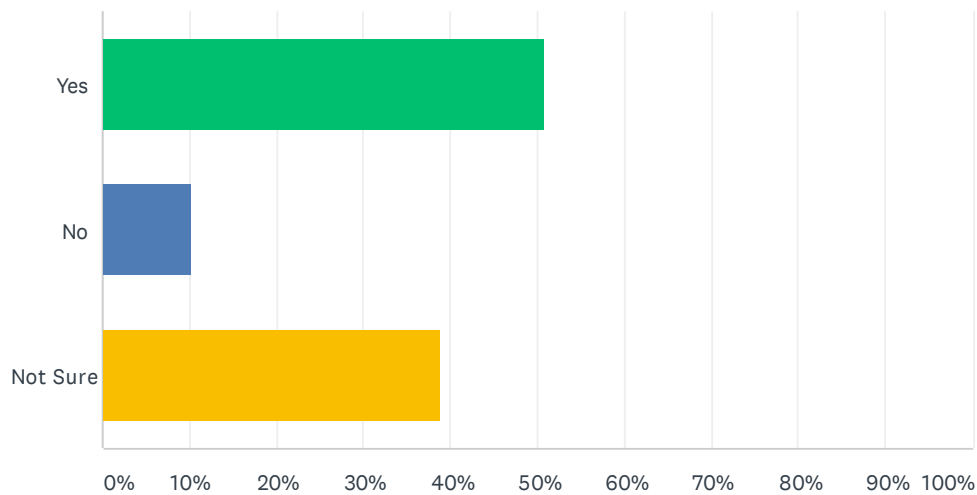


ANSWER CHOICES	RESPONSES	
Yes	78.33%	47
No	1.67%	1
Not Sure	20.00%	12
TOTAL		60

**Q11 Would you be willing to spend your own money on your current home and/or business to help protect it from impacts of potential future natural, human-caused, or technological disasters within the community?**

Examples could include: Elevating a flood-prone home; Elevating utilities in flood-prone basements; Strengthening your roof, siding, doors, or windows to withstand high winds; Removing trees/low branches; Installing Virus/Malware protection on home electronic/computer devices.

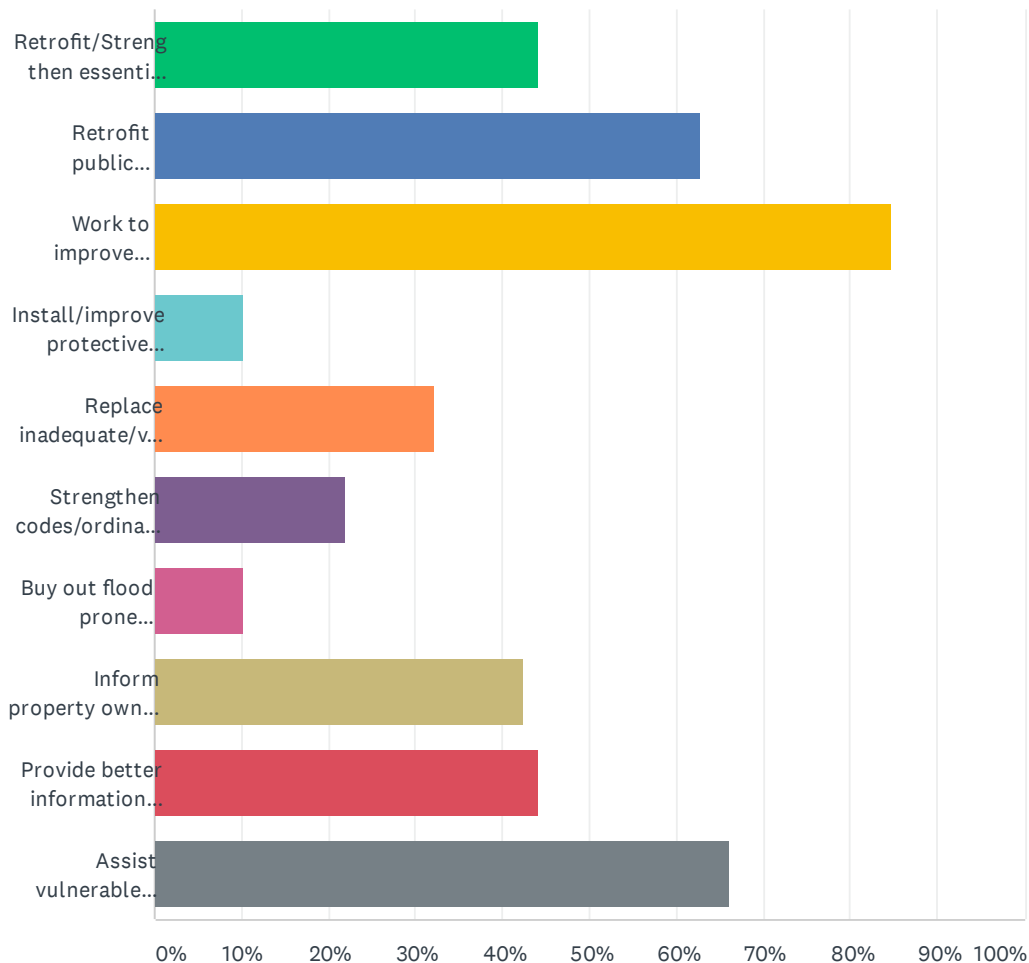
Answered: 59 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	50.85%	30
No	10.17%	6
Not Sure	38.98%	23
TOTAL		59

Q12 In your opinion, what types of projects do you believe local, county, state or federal government agencies could be doing to reduce the damage and disruption of natural, human-caused, or technological disasters on your private property and Tribal properties? (Select your top three choices)

Answered: 59 Skipped: 1



# Chickahominy Indian Tribe Multi-Hazard Mitigation Plan

ANSWER CHOICES	RESPONSES	
Retrofit/Strengthen essential public facilities such as police, fire/emergency, schools	44.07%	26
Retrofit public infrastructure, such as elevating roadways and improving drainage systems	62.71%	37
Work to improve utilities resiliency (electric, communications, water/wastewater facilities)	84.75%	50
Install/improve protective structures (floodwalls)	10.17%	6
Replace inadequate/vulnerable bridges	32.20%	19
Strengthen codes/ordinances to require higher hazard risk management standards and/or provide greater control over development in high hazard areas	22.03%	13
Buy out flood prone properties and maintain as open space	10.17%	6
Inform property owners of ways they can reduce the damage caused by natural events	42.37%	25
Provide better information about hazard risks and high hazard areas	44.07%	26
Assist vulnerable property owners with securing funding to make their properties more resilient	66.10%	39
Total Respondents: 59		

## Q13 Additional comments?

Answered: 5   Skipped: 55

#	RESPONSES	DATE
1	Prior to pandemic I had enough stress surrounding my personal self care and now I'm more stressed about potential disasters surrounding the Corona Pandemic.	2/6/2021 12:04 PM
2	road hazards, very dangerous no ditches to hold rain over flow, landfill poisoning properties access to water/wells. cancer cases in the indian community increasing,	1/31/2021 10:37 AM
3	With the pandemic going on there is little to no money incase of emergency situations.	1/27/2021 11:01 PM
4	I am a recent transplant to the area and do not have any specific knowledge of previous disasters.	12/7/2020 2:25 PM
5	Personally, I have several large trees around my house that I am concerned about. I feel they need to be removed, I have quoted removal, but I do not have the money at this time to do it.	12/7/2020 2:13 PM



## **Appendix C – Correspondences**

***Availability of Draft Plan – Tribal Posting***

***Availability of Draft Plan – Charles City County***

***Availability of Draft Plan – New Kent County***

***Availability of Draft Plan – Richmond Regional Planning Commission***

***Public Comments***