Rappahannock-Rapidan Regional Hazard Mitigation Plan (2025 Update) and Resilience Plan

Rappahannock-Rapidan REGIONAL COMMISSION

BERKLEY GROUP

Table of Contents

Acknowledgements i
Common Abbreviations ii
Adopted Plans and Amendments iii
Executive Summary iv

Chapter 1 - Introduction 1-1
1.1 Background 1-1
1.2 Purpose 1-2
1.3 Participating Communities 1-2
1.4 Plan Organization 1-3
1.5 Resilience Plan Organization 1-4

Chapter 2 – Regional Profile 2-1
2.1 Rappahannock-Rapidan Regional Commission Profile 2-1
2.2 Vulnerable Populations 2-15
2.3 Locality and Community Profiles 2-21

Chapter 3 – The Planning Process 3-1
3.1 Plan Update Timeline 3-1
3.2 Project Management Team 3-1
3.3 Summary of the Planning Process 3-3
3.4 Public Involvement 3-5
3.5 Plan Adoption 3-8

Chapter 4 – Hazard Identification and Analysis 4-1
4.1 Hazards 4-1
4.1.1 Drought 4-2
4.1.2 Dam Failures 4-8
4.1.3 Extreme Heat 4-11
4.1.4 Wildfire 4-15
4.1.5 Earthquakes 4-18
4.1.6 Karst and Sinkholes 4-23
4.1.7 Landslides and Erosion 4-25
4.1.8 Flood 4-30
4.1.9 Hurricanes and Tropical Storms 4-39
4.1.10 Tornadoes 4-44
4.1.11 Thunderstorms (Strong Wind, Lightning, & Hail) 4-48
4.1.12 Winter Storms and Freezes 4-54
4.1.13 Pandemic/ Infectious Agent 4-56
4.1.14 Cybersecurity Risk 4-58
4.1.15 Hazardous Materials 4-60

4.2 Future Conditions 4-62
4.2.1 Climate Change 4-62
4.2.1.1 Average Temperature Increase 4-63
4.1.1.2 Heavy Precipitation 4-64
4.1.1.3 Drought 4-65
4.1.1.4 Extreme Winds 4-65
4.1.1.5 Winter Weather 4-66
4.2.2 Population Projections 4-66
4.2.3 Development Trends 4-68

Chapter 5 – Vulnerability Assessment 5-1
5.1 Regional and Community Vulnerability 5-3
5.1.1 Drought Vulnerability Assessment 5-4
5.1.2 Dam/Levee Vulnerability Assessment 5-17
5.1.3 Heat Wave Vulnerability Assessment 5-20
5.1.4 Wildfire Vulnerability Assessment 5-22
5.1.5 Sinkhole, Landslide and Earthquakes Vulnerability Assessment 5-25
5.1.6 Riverine Flood Vulnerability Assessment 5-58
5.1.7 Hurricane Vulnerability Assessment 5-77
5.1.8 Tornado Vulnerability Assessment 5-92
5.1.9 Thunderstorms (Strong Winds, Lightning) Vulnerability Assessment 5-109
5.1.10 Winter Weather Vulnerability Assessment 5-127
5.1.11 Pandemic Vulnerability Assessment 5-144
5.2 Community Specific Flood Vulnerability 5-145
5.2.1 Culpeper County and the Town of Culpeper 5-147
5.2.2 Fauquier County and the Town of The Plains, Remington, and Warrenton 5-156
5.2.3 Madison County and the Town of Madison 5-168
5.2.4 Orange County and the Towns of Orange and Gordonsville 5-178
5.2.5 Rappahannock County and the Town of Washington 5-187

Chapter 6 – Capability Assessment 6-1
6.1 Federal, State and Regional Capability Assessment 6-2
6.1.1 Federal Capabilities 6-2
6.1.2 State Capabilities 6-4
6.1.3 Regional Capabilities 6-10
6.2 Community Specific Capability Assessment 6-10
6.2.1 Culpeper County Capability Assessment 6-14
6.2.2 Fauquier County Capability Assessment 6-18
6.2.3 Madison County Capability Assessment 6-24
6.2.4 Orange County Capability Assessment 6-28
6.2.5 Rappahannock County Capability Assessment 6-34
6.2.6 Rappahannock-Rapidan Regional Commission Capability Assessment 6-39
6.3 Capability Needs/Challenges - Summary 6-39

Chapter 7 – Mitigation Strategy 7-1
7.1 Introduction 7-1
7.2 Planning Process 7-2
7.3 Mitigation Goals 7-3

7.4 Mitigation Actions 7-3
7.5 Analysis of Current Mitigation Strategies 7-6
7.6 Identification of New Mitigation Strategies 7-6
7.7 Mitigation Action Tables 7-11

Chapter 8 – Plan Implementation and Maintenance 8-1
8.1 Adoption 8-1
8.2 Integration and Implementation 8-1
8.3 Monitoring and Maintenance 8-4
8.4 Public Involvement 8-6

Appendices
Public Education and Outreach Plan A-2
Public Survey Summary Report A-18
Project Management Team and Stakeholder Meeting Minutes A-35
Hazard Incident Tables A-77
Local Capability Assessment Worksheets A-175
Adoption Resolutions A-284
Critical Facilities and SFHA Maps A-285
Hazus Flood Analysis A-321
Local Floodplain Ordinances A-407
Critical Facility Hazard Analysis A-411

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County Governments of
Culpeper
Fauquier
Madison
Orange
Rappahannock

Town Governments of
Culpeper
Gordonsville
Madison
Orange
Remington
The Plains
Warrenton
Washington

Rapidan-Rappahannock Regional Commission

Please see **Section 3.2 – Project Management Team** for individual names.

Representatives from Stakeholder Groups:
Fauquier Climate Change Group
Minority and Veteran Farmer of the Piedmont
Rapp Home

Technical Team
Berkely Group, LLC

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Common Abbreviations

RRRC	Rapidan Rappahannock Regional Commission
HMP	Hazard Mitigation Plan
DMA	Disaster Mitigation Act
PDM	Pre-Disaster Mitigation Program
HMGP	Hazard Mitigation Grant Program
FMA	Flood Mitigation Assistance
BRIC	Building Resilient Infrastructure and Communities
VDEM	Virginia Department of Emergency Management
FEMA	Federal Emergency Management Agency
DCR	Virginia Department of Conservation and Recreation
CFPF	Community Flood Preparedness Fund
NRI	National Risk Index provided by FEMA
NCDC	National Climate Data Center
DSFPM	Division of Dam Safety and Floodplain Management -DCR

Adopted Plans & Amendments

The following is a summary of the historical regional hazard mitigation plans adopted for the Rapidan-Rappahannock Region:

Rappahannock-Rapidan Multi-Jurisdictional Hazard Mitigation Plan
Date of Publication: 2005

2012 RRRC Regional Hazard Mitigation Plan
Date of Adoption is July 3, 2012

2018 Rappahannock-Rapidan Regional Hazard Mitigation
Date of Adoption is December 13, 2018

Current Plans:

Rappahannock-Rapidan Regional Hazard Mitigation Plan
(2025 Update) and Resilience Plan
Date of Publication: TBD
Plan Effective Date: TBD
Expiration Date: TBD

Record of Amendments to the Current Plan:
No amendments.

Regional Hazard Mitigation Plan (2025 Update) and Resilience Plan

Chapter 1 Introduction

Rappahannock-Rapidan REGIONAL COMMISSION

CHAPTER 1 - INTRODUCTION

1.1 - BACKGROUND

Hazard mitigation, or 'mitigation,' is one of the five mission areas of the U.S. Department of Homeland Security's National Preparedness Goal, along with prevention, protection, response, and recovery. As outlined in the National Preparedness Goal, "mitigation includes those capabilities necessary to reduce loss of life and property by lessening the impact of disasters."[1]

The Disaster Mitigation Act (DMA) was passed by the U.S. Congress in 2000 as an amendment to the Stafford Act of 1988. This Plan was prepared in accordance with the requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementation regulations set forth by the Interim Final Rule published in the Federal Register on February 26, 2002 (44 CFR §201.6) and finalized on October 31, 2007, referred to collectively hereafter as the Disaster Mitigation Act (DMA).

The DMA created a basis and responsibility for hazard mitigation planning by state and local governments through the establishment of the Pre-Disaster Mitigation Program (PDM), and new requirements for the post-disaster Hazard Mitigation Grant Program (HMGP). To qualify for both pre-disaster PDM grants and post-disaster HMGP grants, as well as recently established Building Resilient Infrastructure and Communities (BRIC) and Flood Mitigation Assistance (FMA) programs, local governments are required to develop hazard mitigation plans. Specifically, the DMA requires that hazard mitigation plans demonstrate "a jurisdiction's commitment to reduce risk from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards." The final plan must be adopted by the individual localities and reviewed and approved by the Virginia Department of Emergency Management (VDEM) and FEMA in order for communities to remain eligible for HMGP, PDM, BRIC, and FMA funding.

The first *Rappahannock-Rapidan Regional Hazard Mitigation Plan* was approved by FEMA in 2005 and subsequently adopted by the member counties and towns. The current FEMA regulations require communities to review and update existing plans, as necessary, every five years to retain compliance and eligibility for funding programs. The Plan was updated in 2012 and 2018, and the Rappahannock-Rapidan Regional Commission (RRRC) together with the identified local governments have developed this 2025 update to the 2018 Plan pursuant to the requirements of the DMA.

In accordance with the DMA, this Plan was updated and prepared in coordination with FEMA Region III and the Virginia Department of Emergency Management. A Local Mitigation Plan Crosswalk, found in Appendix B, provides a summary of federal and state minimum standards and notes where each requirement is met within the Plan.

[1] U.S. Department of Homeland Security, *National Preparedness Goal*, Second Edition, September 2015 https://www.fema.gov/sites/default/files/2020-06/national_preparedness_goal_2nd_edition.pdf

1.2 - PURPOSE

The region's hazard mitigation planning efforts have:

- Identified hazards that threaten member jurisdictions;
- Determined the likely impacts of those hazards;
- Assessed the vulnerability of communities and their assets to the studied hazards, and the region's current capabilities to address those hazards;
- Set mitigation goals; and,
- Determined and prioritized appropriate strategies that can reduce the potential impacts of hazard events.

As required by FEMA regulation, the RRRC and its member localities have updated the *Rappahannock-Rapidan Regional Hazard Mitigation Plan* to reflect:

- Changes in development;
- Progress in local mitigation efforts; and,
- Changes in priorities:
    - The Plan has been updated to identify specific hazard events that have occurred in the region and localities since 2018;
    - What changes in development have occurred that may increase or decrease vulnerability;
    - How the Plan was previously incorporated into other local planning mechanisms; and
    - The status of previously identified hazard mitigation actions and whether any priorities have changed since the last plan adoption.

The update of the Plan was supported and informed by public and stakeholder engagement efforts seeking comments on the existing 2018 Plan, the solicitation of public opinions on hazard exposure and preparedness through an online and paper survey, and the opportunity for public review and comment on the final draft Plan prior to approval.

The Project Management Team (PMT) reviewed and revised the plan's mission statement and goals to better reflect current priorities and evolving hazard considerations. The original mission focused on reducing the physical and economic impacts of natural hazards and was updated to incorporate the concept of "resiliency," recognizing the dual purpose of the integrated flood resilience plan. The existing goals from the 2018 plan were generally reaffirmed, but adjustments were proposed to ensure consistency with the latest FEMA guidance. Notably, Goal #7, which previously emphasized large-scale evacuation from Washington, D.C., was revised to focus more broadly on regional evacuation coordination. The PMT also suggested that all goals emphasize resilience alongside hazard mitigation. Furthermore, mitigation strategies were reorganized into four overarching categories: Local and Regional Planning Efforts and Regulations, Education and Awareness Programs, Natural System Processes, and Structural and Infrastructure Projects. These align more clearly with FEMA's recognized types of mitigation techniques. These updates enhance the plan's strategic direction and support eligibility for future federal and state funding opportunities.

Finally, the following additional non-natural hazards were incorporated into the Plan to ensure that the region and communities are proactively addressing all anticipated potential hazards:

- Pandemic/Infectious Agent;
- Cybersecurity Risk;
- Hazardous Materials

1.3 - PARTICIPATING COMMUNITIES

The *Rappahannock-Rapidan Regional Hazard Mitigation Plan* serves the localities in the RRRC's region, satisfying local obligation for hazard mitigation plan adoption pursuant to the Stafford Act and DMA. This 2025 update of the Regional Hazard Mitigation Plan applies to the following communities, all of whom have participated in the update of the Plan with representatives on the Plan's Project Management Team:

Table 1.1 Participating Members

JURISDICTION	2004 PARTICIPATION	2011 PARTICIPATION	2018 PARTICIPATION	2025 PARTICIPATION
Culpeper County	Yes	Yes	Yes	Yes
Fauquier County	Yes	Yes	Yes	Yes
Madison County	Yes	Yes	Yes	Yes
Orange County	Yes	Yes	Yes	Yes
Rappahannock County	Yes	Yes	Yes	Yes
Town of Culpeper	Yes	Yes	Yes	Yes
Town of Gordonsville	No	No	Yes	Yes
Town of Madison	Yes	Yes	Yes	S*
Town of Orange	Yes	Yes	Yes	Yes
Town of Remington	Yes	Yes	Yes	Yes
Town of The Plains	No	No	No	S*
Town of Warrenton	Yes	Yes	Yes	Yes
Town of Washington	No	No	No	S*
RRRC	Yes	Yes	Yes	Yes

**Stakeholder only; The Town of The Plains, The Town of Madison, and the Town of Washington did not actively participate in the process however will defer to their participating counties Hazard Mitigation Plan Sections.*

1.4 - PLAN ORGANIZATION

The Plan chapters are as follows:

- *Executive Summary*
- *Chapter 1, Introduction*
- *Chapter 2, Regional & Community Profiles:* Overview of the Rappahannock-Rapidan region, including demographics, land use, transportation, housing, employment, and declared disasters.
- *Chapter 3, The Planning Process:* Plan requirements, description of the planning process, plan update, participants, and stakeholders.
- *Chapter 4, Hazard Identification & Risk Assessment:* Identification of the hazards that the region faces, background and descriptive history of the hazards across the RRRC region, and jurisdiction-specific profiles of the hazards that are considered most critical.
- *Chapter 5, Vulnerability Assessment:* Assessment of the potential impacts of the hazards identified in the previous section based on historical occurrences and other evidence of risk, as well as an assessment of specific hazards and vulnerabilities for individual jurisdictions within the region.
- *Chapter 6, Capability Assessment:* Assessment of jurisdiction-specific capability assessments, designed to demonstrate the mitigation tools and capabilities that each jurisdiction may employ.
- *Chapter 7, Mitigation Strategies:* Outlines mitigation goals, objectives, and strategies, both those which are broad and region-wide, along with jurisdiction-specific activities.
- *Chapter 8, Planning Implementation & Maintenance:* inventories Plan adoption, implementation, and integration information, as well as objectives and plans for ongoing monitoring and maintenance of the Plan.

In addition to the chapters noted above, the Plan contains several appendices with pertinent information and materials referenced throughout the Plan.

1.5 – RESILIENCE PLAN ORGANIZATION

Complementary to the Hazard Mitigation Plan, this effort will serve as the regional and locality-specific resilience plan under the Virginia Department of Conservation and Recreation (DCR) Community Flood Preparedness Fund (CFPF) program, which is a state-managed program established to help communities across Virginia prepare for and mitigate the impacts of flooding, particularly in the face of increasing threats from climate change. Funded by an apportionment in the state biannual budget, the CFPF supports a wide range of projects, from flood prevention infrastructure and floodplain management to natural floodplain

enhancements and property buyouts in high-risk areas. The creation and approval of a flood resilience plan enables local governments and eligible entities to apply for funding, with projects selected based on their alignment with the fund's goals of environmental sustainability, economic efficiency, and social equity.

The flood resilience portion of the Hazard Mitigation Plan is interwoven throughout and is denoted by this graphic at the bottom of each page.

The following five(5) major criteria are included in the plan and are considered requirements of the CFPF grant program manual:

1. *It is project-based with projects focused on flood control and resilience.*

   The mitigation strategies describe specific flood mitigation projects related to issues developed through conversations with locality staff, and mitigation strategies from the RRRC Hazard Mitigation Plan.

2. *It incorporates nature-based infrastructure to the maximum extent possible.*

   The solutions and planning principles outlined in this Resilience Plan incorporate nature-based strategies as much as possible. Additionally, each locality contains a section in the plan highlighting existing protected areas and ecological cores, overlaid on floodplains and intermittent streams. This information can be used to prioritize land acquisition for flood mitigation.

3. *It includes considerations of all parts of a locality regardless of socioeconomics or race and addresses flood resilience needs of underserved populations within the community.*

   This Plan understands that flooding anywhere in the RRRC region affects everyone. It considers solutions that involve every member of the community at every step of the process and seeks to identify and target the County's most vulnerable communities. See the community profile section for more information.

4. It includes coordination with other local and inter-jurisdictional projects, plans, and activities and has a clearly articulated timeline or phasing for implementation.

5. Is based on the best available science, and incorporates climate change, sea level rise, storm surge (where appropriate), and current flood maps

For purposes of this plan: The term "equity" means the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+)

persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality.[2]

[2] Executive Order 13985

Regional Hazard Mitigation Plan (2025 Update) and Resilience Plan

Chapter 2 Regional & Community Profiles

Rappahannock-Rapidan REGIONAL COMMISSION

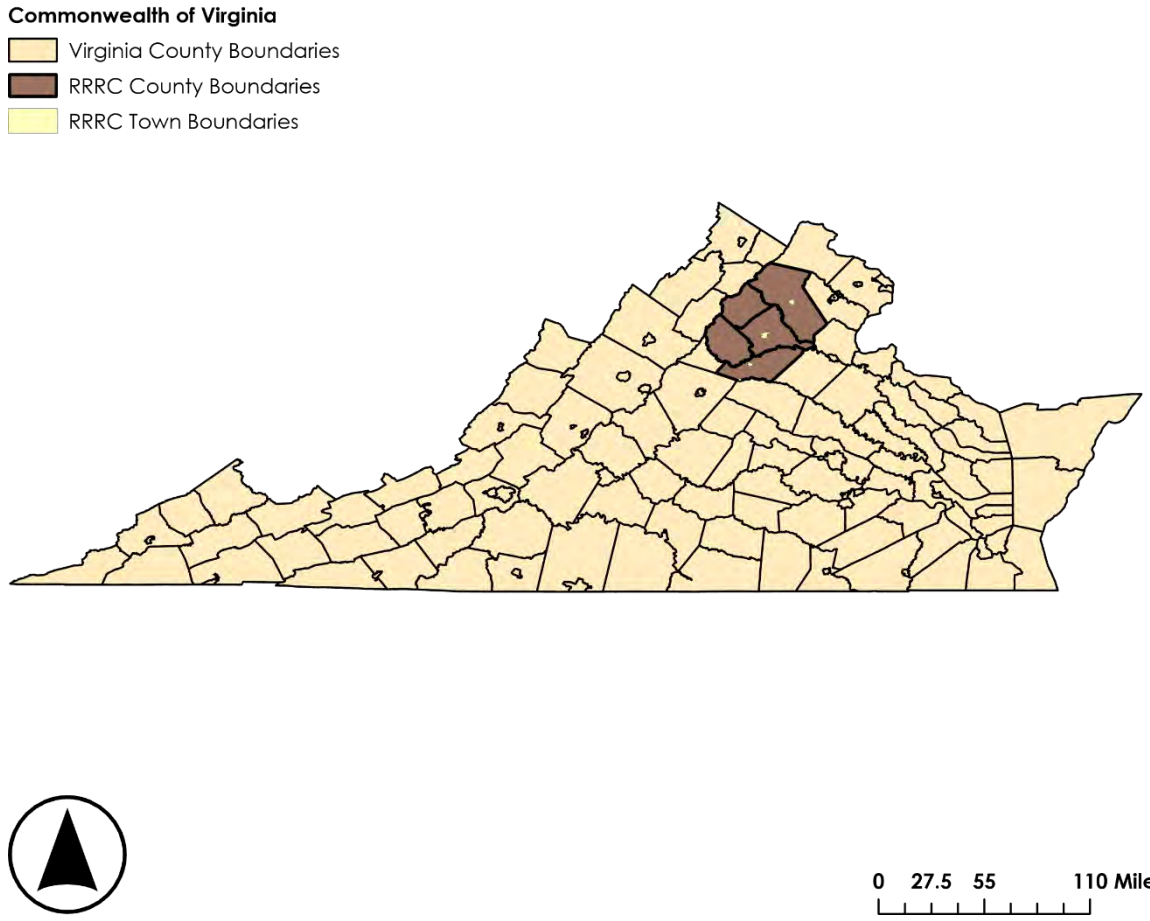
CHAPTER 2 - REGIONAL AND COMMUNITY PROFILES

2.1 - RAPPAHANNOCK RAPIDAN REGIONAL PROFILE

The Rappahannock-Rapidan Regional Commission (RRRC) serves the counties of Culpeper, Fauquier, Madison, Orange and Rappahannock, and the towns of Culpeper, Gordonsville, Madison, Orange, Remington, The Plains, Warrenton, and Washington. The RRRC area region covers 1,965 square miles (1,257,600 acres) and is home to nearly 183,000 people. Named after two regionally significant rivers, the area is in north-central Virginia in the foothills of the Blue Ridge Mountains.

With the Town of Culpeper as its approximate geographic center, the region is about seventy (70) miles southwest of Washington D.C., eighty-five (85) miles northwest of Richmond, Virginia, and forty-five (45) miles north-east of Charlottesville, Virginia. As part of the Virginia Piedmont, the area is predominantly rural. It is characterized by thickly forested hillsides, gently rolling farmlands and small towns and villages. Residents enjoy a lifestyle focused on small communities, abundant natural resources, and ready access to outdoor recreation. World class museums, outstanding cultural opportunities, and all levels of spectator and participant sporting events are available nearby.

Figure 2.1 Vicinity Map of the Rappahannock-Rapidan Region



The RRRC regional population has increased 26% since 2000. For the most part, people moving into the region came from Northern Virginia, Washington D.C, Fredericksburg, and Charlottesville. Newcomers' needs for housing and associated development and services have increased demands on the region's resources. Residential communities have sprung up along primary commuter corridors, straining the area's transportation network. Although the regional economy is rooted in agriculture, an increasing number of residents travel daily to jobs in the surrounding region, including Northern Virginia, Washington, D.C., and Charlottesville.

Natural Environment

The counties of the Rappahannock-Rapidan region cover approximately 1,965 square miles. Fauquier County, at 648 square miles, is the largest and almost twice the size of the next largest county, Culpeper, at 379 square miles[1]. With steep, heavily forested slopes, and peaks in excess of 3,000 feet, the Blue Ridge Mountains mark the western edge of the region. Many of the larger federal and state-owned properties in the region are located here, including Shenandoah National Park, a section of the Appalachian Trail, Sky Meadow State Park, and the Rapidan and Thompson Wildlife Management Areas. The Thompson, Weston, and Chester Phelps Wildlife Management Areas, and the Whitney State Forest, are in the eastern part of the region where the landscape reflects the character of the Virginia Piedmont rolling farm fields and forests punctuated by small towns.

The Rappahannock River traverses the region from northwest to southeast. Over 184 miles in length from its headwaters in Shenandoah National Park to its mouth at the Chesapeake Bay, the Rappahannock River, along with its tributaries, the Hazel, Hughes, Rush, Thornton, Robinson, and Rapidan rivers, drains the greater part of the region. Approximately 60% of its watershed is forested, with another 17% devoted to agricultural uses. Lesser portions of the region drain south to the York River and north to the Potomac River.

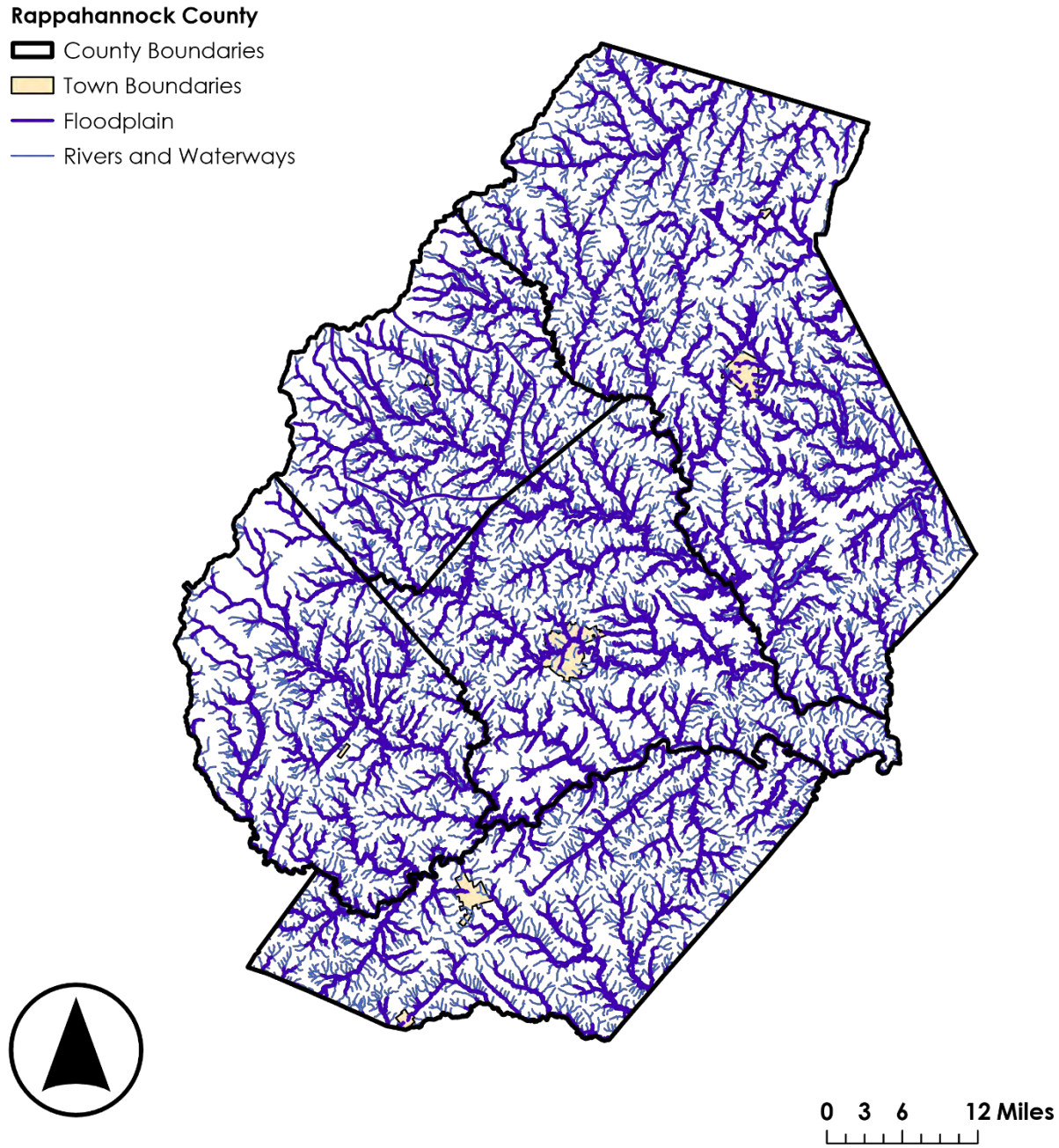
Many of the region's natural hazards reflect its topography and hydrology; the region has a varied geology and unique physiographic character. Because of high elevations and steep slopes, Madison and Rappahannock Counties are prone to flash floods, sometimes accompanied by landslides. Dense forests in these areas add to the possibility of forest fires. Overall, flooding is the most common natural hazard that impacts the region. Rainstorms of historic significance occasionally have produced severe localized flooding. The entire region routinely experiences ice storms, significant snowfall, high winds, forest fires, and the effects of tropical storms and hurricanes.

Global weather patterns modified by the region's diverse landscape result in variable climate and weather events throughout the five-county area. Storms and systems moving from west to east interact with more tropical coastal air masses, producing a

[1] United States Census Bureau, Annual Geographic Information Tables, 2023

variety of conditions. The Blue Ridge Mountains direct, block, and modify the impacts of storms and systems while the relative proximity of the Atlantic Ocean influences temperature and humidity. Overall, the climate is moderate with an average annual temperature of about 56 degrees. Summer temperatures tend to be in the 70s, while winter temperatures are typically in the 30s. The average annual rainfall is about 42," with snowfall throughout the region averaging about 20" per year.

Figure 2.2 Major River Basins



Demographics

From 2010 to 2020, the population of the region grew by 10%, with most newcomers coming from Washington D.C. and the Northern Virginia metropolitan area. With the exception of The Plains, all of the localities in the RRRC region have experienced population increases since 2000 (Table 2.1). From 2000 to 2020, the population of the region increased by 26% to 182,933 people. Culpeper and Fauquier Counties experienced population increases of 18,260 and 17,833, respectively from 2000 to 2020, while Orange County grew by over 10,000 persons. Fauquier County overwhelmingly remains the most populous county in the region (Table 2.1). Culpeper and Orange counties' growth rates of 35% and 29% respectively, are significantly higher than the average growth rate for the Commonwealth.

Figure 2.3 County Population Densities

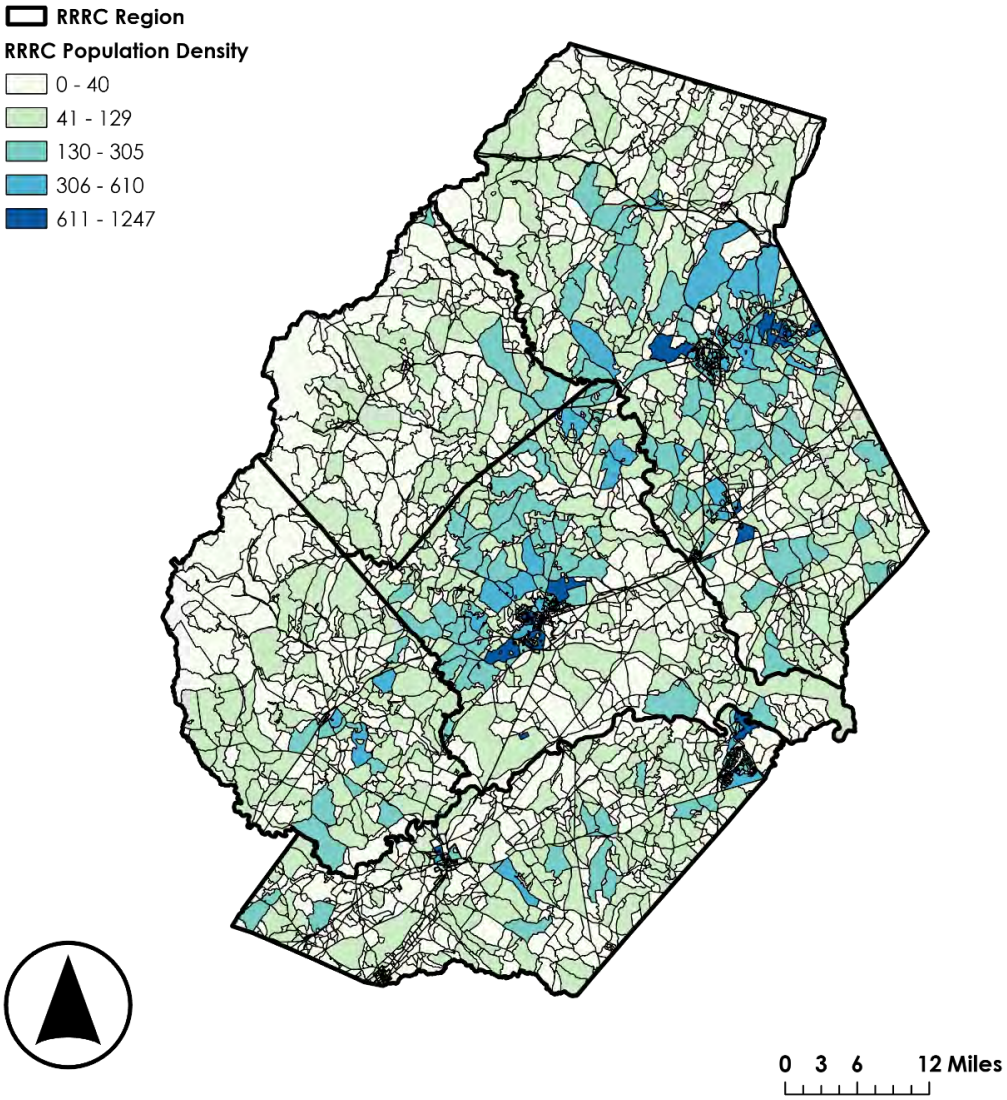


Table 2.1 Rappahannock-Rapidan Region Population: 2000-2020

Towns	2000	2010	2020	% Change 2010-2020	% Change 2000-2020
Culpeper	9,664	16,379	18,633	14%	48%
Gordonsville	1,498	1,496	1,988	33%	25%
Madison	210	229	329	44%	36%
Orange	4,123	4,721	5,024	6%	18%
Remington	624	598	642	7%	3%
The Plains	266	217	168	-23%	-58%
Warrenton	6,670	9,611	9,928	3%	33%
Counties	2000	2010	2020	% Change 2010-2020	% Change 2000-2020
Culpeper	34,262	46,689	52,522	12%	35%
Fauquier	55,139	65,203	72,972	12%	24%
Madison	12,520	13,308	13,837	4%	10%
Orange	25,881	33,481	36,254	8%	29%
Rappahannock	6,983	7,373	7,348	0%	5%
RRRC Region	134,785	166,054	182,933	10%	26%
Virginia	7,079,048	8,001,024	8,631,393	8%	18%
USA	281,424,602	308,745,538	331,449,281	7%	15%

*Source: U.S. Census Bureau Decennial & ACS 2020 *County populations include incorporated town populations.*

Despite increases in overall population, the region's population density remains rather low at 90 individuals per square mile. This is considerably less than that of Virginia at 213 persons per square mile, although only slightly less than the national average of 91 persons per square mile (Table 2.1). Due to its size and proximity to the highly urbanized Northern Virginia area and Washington D.C., approximately 40% of the region's residents live in Fauquier County. On the opposite end of the spectrum, Rappahannock County contains 4% of the region's population.

According to population projections released in June 2022 by the Weldon Cooper Center for Public Service, the region's population is projected to increase by 22.8% between 2030 and 2050 (Table 2.2). Much of the projected growth is contained within Culpeper, Fauquier, and Orange counties, with growth in Madison and Rappahannock Counties almost flat (Table 2. 2). This pattern continues historical patterns of growth in the region.

Table 2.2 RRRC County Population Projections

RRRC Locality	2030 Projection	2040 Projection	2050 Projection
Fauquier County	79,584	87,195	96,112
Culpeper County	57,578	65,739	74,884
Orange County	38,468	43,010	48,197
Madison County	14,160	14,600	15,259
Rappahannock County	7,218	7,291	7,474
Total	197,008	217,835	241,926

Source: University of Virginia Weldon Cooper Center for Public Service. (2022). Virginia Population Projections.

Increases in population generally result in more potential impacts from natural hazards. However, improved construction standards, new building practices, and enhanced response programs can help mitigate disasters. Rapid growth in some of the region's counties may also increase the number of vulnerable residents, including the elderly, those with special needs, individuals living on low or fixed incomes, and individuals with no, or limited, access to transportation.

Land Use/Land Cover

Approximately 61% of land in the region is covered by forest and trees, while 29% is covered by pasture and cropland. The region is predominantly forested and agricultural, containing large tracts of forest highlighted by the Shenandoah National Park within the western portion of Rappahannock and Madison Counties.

Forest is the dominant land cover for each of the five counties, which raises concern for wildfires. The second largest land cover type is unanimously pastoral land. Fauquier and Culpeper counties contain most of the cropland found within the region. Barren land, described as areas with little or no vegetation characterized by bedrock, desert pavement, and other sand/rock/clay accumulations make up the smallest proportion of land cover within the region.

Despite an increase in residential development, the amount of impervious surface in the region remains rather low. However, as increases in impervious surface area continue and compound, they can be associated with increased traffic, air, and water pollution. Increases in impervious surface area are also associated with increases in flood severity and frequency due to higher volumes of surface runoff. Virginia Geographic Information Network's (VGIN) land cover data was developed to support implementation of the Virginia Stormwater Management Act and Chesapeake Bay Watershed Agreement (Table 2.4). Impervious surface should be managed within a storm- water management model to protect water quality and mitigate flooding hazards.

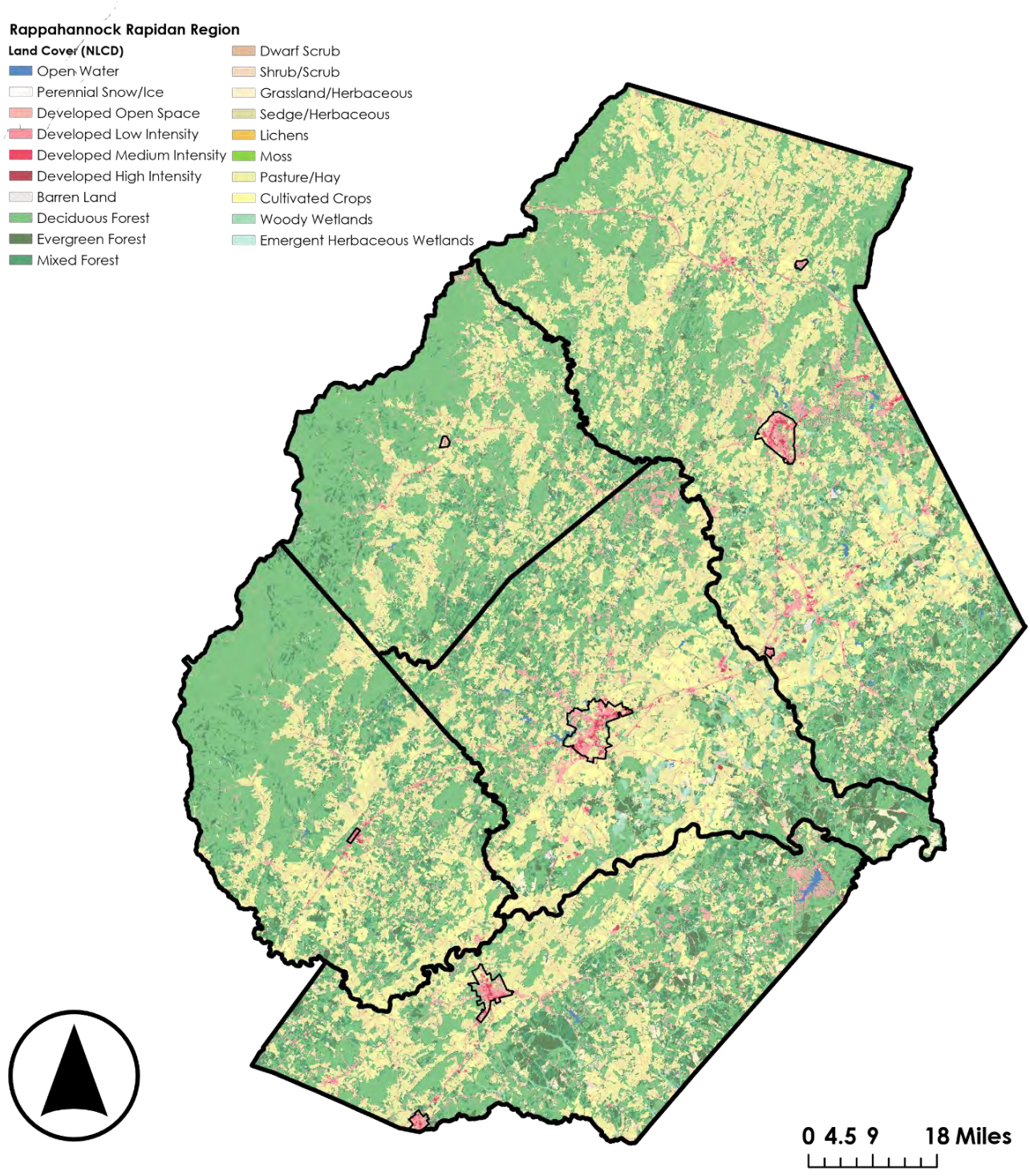


Figure 2.4, Rappahannock-Rapidan Region Land Cover

Table 2.3 Land Cover by County (Acres)

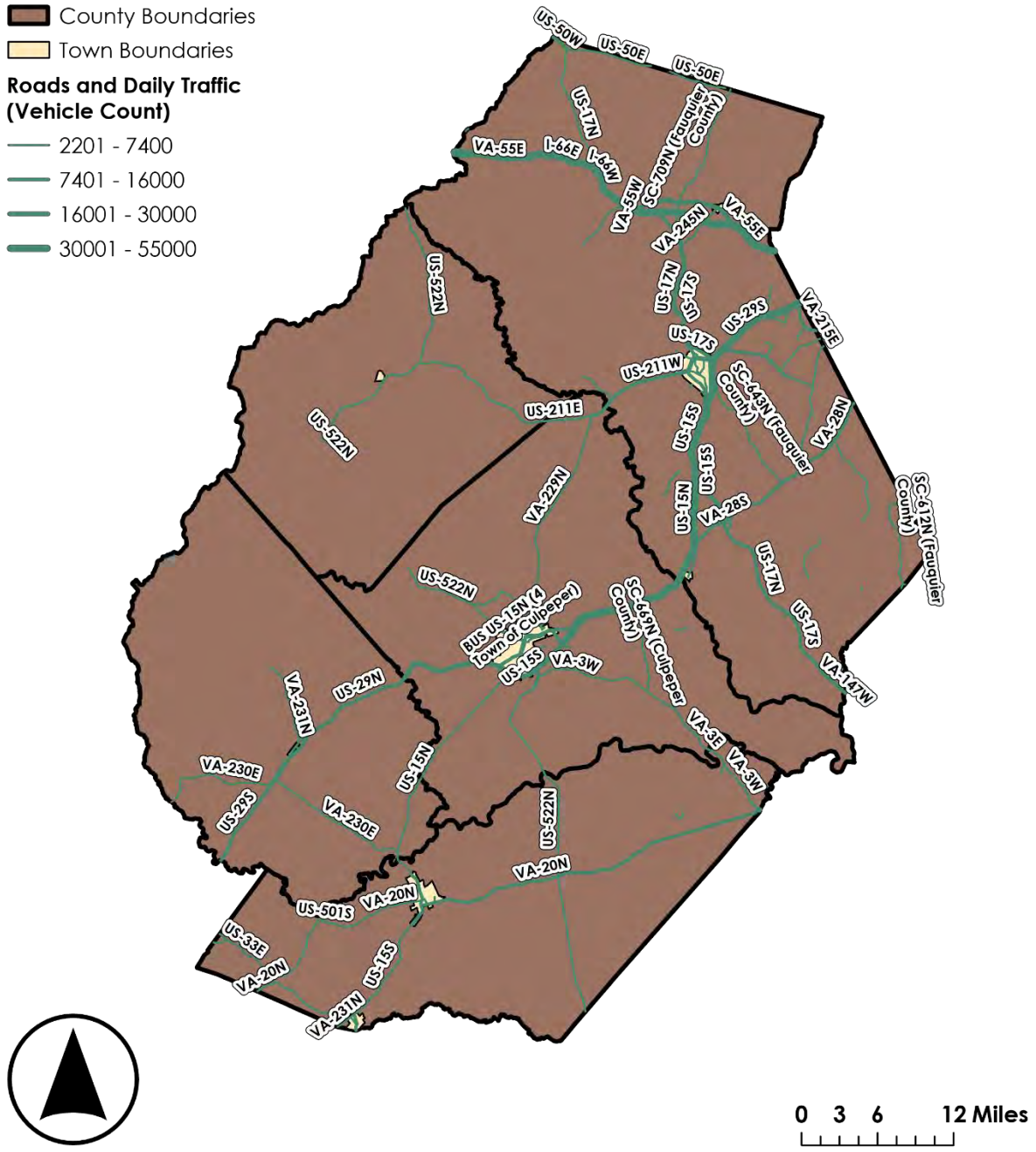
Land Cover Type	Culpeper	Fauquier	Madison	Orange	Rappahannock	RRRC Region
Open Water	2,169	2,696	674	1,728	745	8,012
Impervious	3,578	5,930	1,812	2,818	1,433	15,571
Barren	558	475	1	183	4	1,221
Forest	105,276	179,991	125,229	112,358	113,139	635,993
Trees	24,606	46,205	17,040	21,955	12,792	122,598
Scrub/Shrub	2,037	2,980	528	728	595	6,868
Harvested/Disturbed	4,036	1,528	473	3,258	311	9,606
Turf Grass	14,221	27,455	5,242	11,278	4,856	63,052
Pasture	51,863	101,277	41,927	44,454	34,294	273,815
Cropland	25,830	29,822	11,095	15,001	1,552	83,300
Wetlands	7,150	13,318	546	3,186	261	24,461
Totals	241,324	411,677	204,567	216,947	169,982	1,244,497

Source: Virginia Geographic Information Network (VGIN) Land Cover Report February 2024

Transportation

The Rappahannock-Rapidan region is connected by a strong multi-modal transportation network. U.S. Routes 29 and 15 run north - south through the region, providing a connection with the Northeast Corridor cities of Washington, D.C., Philadelphia, New York, and Boston. Interstate 66 and U.S. Routes 17 and 522 connect the region east-west. The major eastern U.S. Interstates, I-81 and I-95 are each about 30 miles from the heart of the Rappahannock-Rapidan region. I-81, to the west of the region, runs north-south through the Shenandoah Valley. Thirty miles to the east, I-95, the most heavily travelled interstate in the nation, runs north – south connecting all major eastern cities. Both I-66 and I-95 are used heavily by through-travelers, transport companies, and those commuting daily to employment in Northern Virginia and the Washington, D.C. metropolitan area.

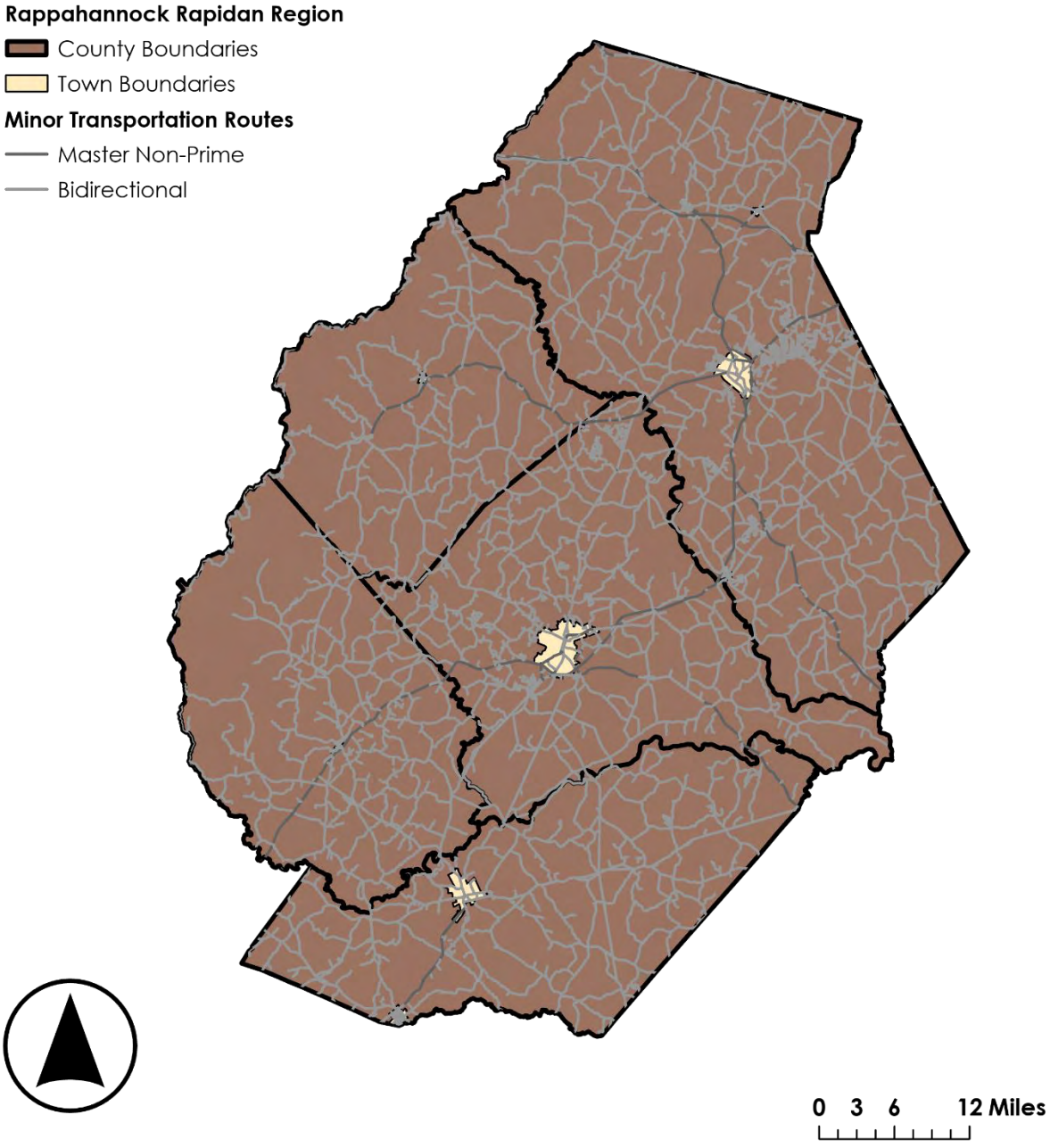
Figure 2.5 Major Transportation Routes and Traffic Counts



Over 2500 of primary and secondary roads in the region are maintained by the Virginia Department of Transportation (VDOT) Because of its size, population, and proximity to the developing Northern Virginia area, Fauquier County has the most miles of primary and secondary roads. Many rural areas are served by private roads maintained by homeowners' associations or individuals. Construction standards and maintenance practices on private roads are not required to meet VDOT standards. Over the last two

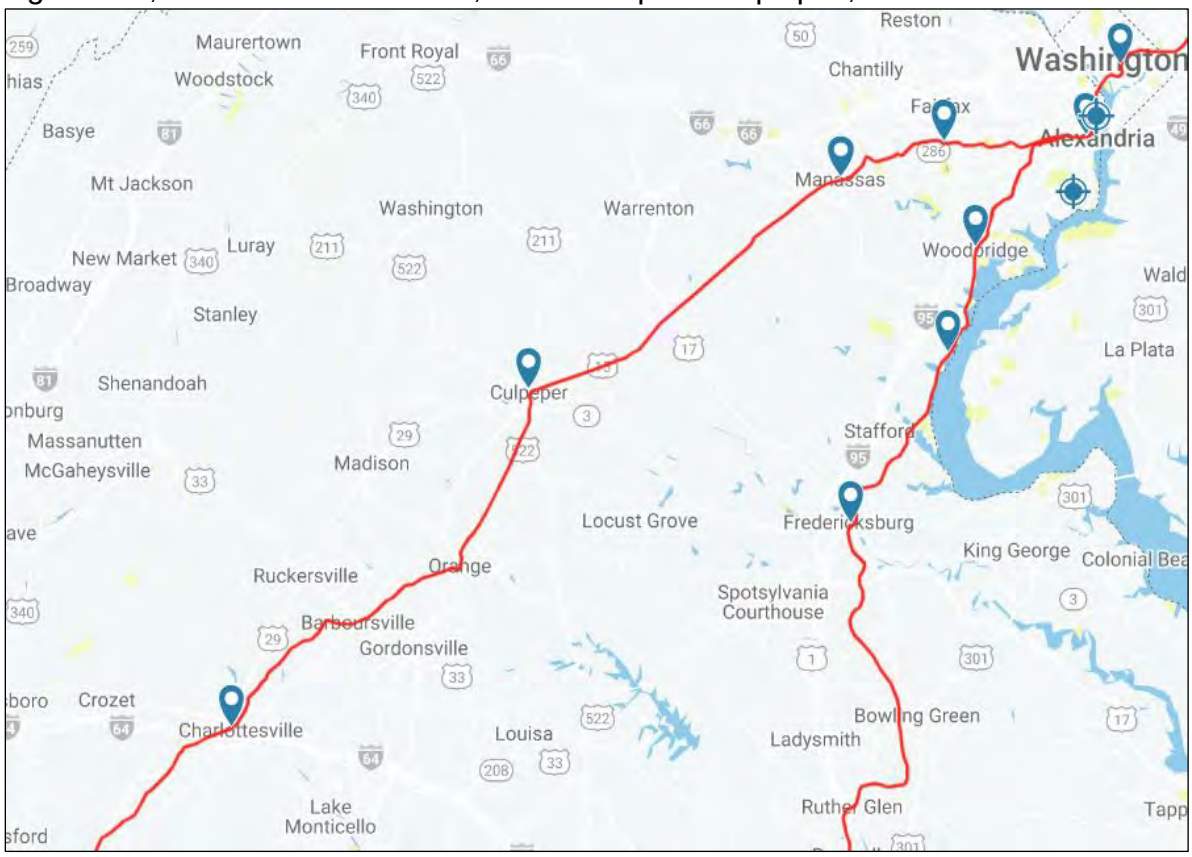
decades, the RRRC region has experienced significant growth, most of which has occurred along the region's principal travel corridors. These highways, commonly used for commuting and through traffic, have been identified as primary evacuation routes in the event of a natural or other disaster. Current levels of rush hour congestion suggest extreme gridlock under evacuation circumstances.

Figure 2.6 Minor Transportation Routes



In addition to road networks, Norfolk Southern and CSX Railroad own and operate freight service rail lines that connect the Southeastern U.S. and central Virginia with Washington, D.C. and the Northeast Corridor. With two daily trains from Roanoke, Virginia to Washington, D.C., Amtrak runs the Cardinal and Crescent routes through the region, with a stop in Culpeper (see map reference).

Figure 2.7, Amtrak Service Line, with a stop in Culpeper, VA



The Virginia Railway Express (VRE) System Plan 2050 Service Vision Update[2] identifies a potential service expansion on the Broad Run line which would connect the Town of Culpeper to Washington DC area via commuter train. Other potential scenarios include bus connection in lieu of commuter train from the Manassas station. While the exact timeframe and plans are not yet clear, there will likely be an expansion in commuter service expansion and connection to the Washington DC metro area in the future.

Four (4) public use, general aviation airports provide services to the region: Culpeper Regional Airport, Warrenton-Fauquier Airport, Orange County Airport, and Gordonsville Municipal. The closest international airports to RRRC are Reagan International Airport in Washington D.C., Dulles International Airport, and Richmond

[2] VRE, System Plant 2050 Service Vision, Scenario A2, Broad Run - Culpeper

International Airport.

Housing

As mentioned previously, populations of most localities in the region have been rising steadily during the past decade. To support this trend, housing units have increased steadily since 2000 throughout the RRRC region (Table 2.4). While Fauquier County has the highest number of units, and increased by 22% between 2000 and 2020, Culpeper and Orange Counties grew faster in number of units at 32% and 26%, respectively.

Table 2.4 Number of Housing Units

County	2000 (U.S. Census)	2010 (U.S. Census)	2020 ACS (5 YR Estimates)	% Change 2010-2020	% Change 2000-2020	Housing Unit Density (per acre)
Culpeper	12,871	17,657	18,959	7%	32%	0.08
Fauquier	21,046	25,600	27,084	5%	22%	0.07
Madison	5,239	5,932	6,112	3%	14%	0.03
Orange	11,354	14,616	15,254	4%	26%	0.07
Rappahannock	3,303	3,839	3,994	4%	17%	0.02
RRRC Region	53,813	67,644	71,403	5%	25%	0.06

Residential building permits have fluctuated with economic conditions since 2000 (see Table 2.5 and Figure 2.8). The effect of the worldwide recession on housing starts is evident between 2000 and 2010. Permits climbed in 2020, dropped drastically during the COVID-19 pandemic, then climbed again in 2022.

Figure 2.8 Residential Building Permits

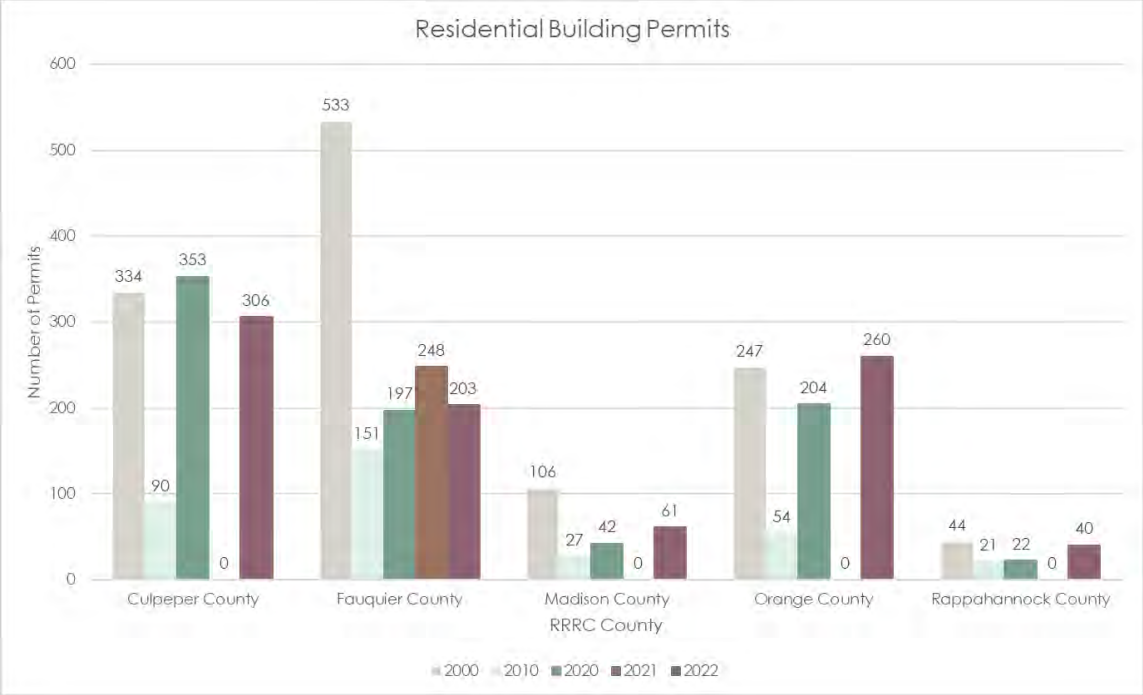


Table 2.5 Residential Building Permits Annually

County	2000	2010	2020	2021	2022
Culpeper County	334	90	353	0	306
Fauquier County	533	151	197	248	203
Madison County	106	27	42	0	61
Orange County	247	54	204	0	260
Rappahannock County	44	21	22	0	40

Source: U.S. Census Bureau

Rises in suburban development patterns can lead to significant increases in exposure to natural hazards. As suburban areas expand, they often encroach on previously undeveloped lands that are more susceptible to natural disasters such as wildfires, floods, and landslides. This expansion frequently occurs in areas with higher environmental risks, like floodplains or wildfire-prone forests, driven by the demand for more housing and the appeal of proximity to nature. As a result, the growing population in these areas faces greater vulnerability to natural hazards, amplifying the potential for property damage, economic loss, and threats to human safety. Additionally, the spread of infrastructure, such as roads and utilities, into these risky zones can exacerbate the impact of natural events, as the landscape is altered in ways that may increase the severity of disasters.

Employment & Income

According to the Virginia Employment Commission unemployment rates have dropped noticeably in the RRRC member localities, the Commonwealth of Virginia, and the United States from 2013 to 2023 (see figure 2.9). U.S. Census data shows all counties in the region at over 60% labor force participation rates in 2020 (see Table 2.6).

Figure 2.9 Unemployment Rates by County (2013-2023), Virginia Employment Commission Community Profiles

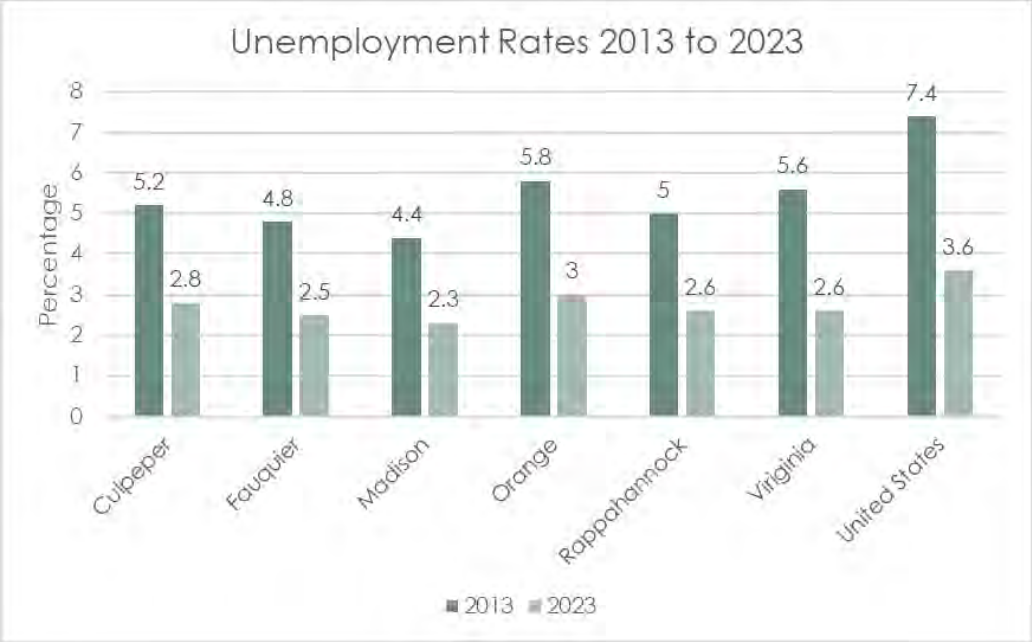


Table 2.6 Labor Force Participation 2020

County	Population 16 years and over	Population 16 years and over in labor force	Population 16 years and over not in labor force	Percent of population 16 years and over in labor force
Culpeper County, Virginia	40,802	26,116	14,686	64%
Fauquier County, Virginia	55,829	37,299	18,530	67%
Madison County, Virginia	10,889	6,561	4,328	60%
Orange County, Virginia	29,668	18,215	11,453	61%
Rappahannock County, Virginia	6,113	3,748	2,365	61%

Source: U.S. Census Bureau ACS 2020 5 Year Estimates

Virginia's statewide median household income increased by 20% from $61,406 in 2010 to $76,398 in 2020. Counties in the RRRC experienced similar, or higher increases with the exception of Madison County, which increased by 11% (see Table 2.7). Orange County increased the most (26%) while Fauquier County's income has consistently been the highest in the region.

Table 2.7 Median Household Income (2010-2020)

County	2010	2020	Percent Change
Culpeper	$65,132	$80,663	19%
Fauquier	$83,877	$105,665	21%
Madison	$56,608	$63,482	11%
Orange	$54,916	$74,446	26%
Rappahannock	$62,117	$82,077	24%

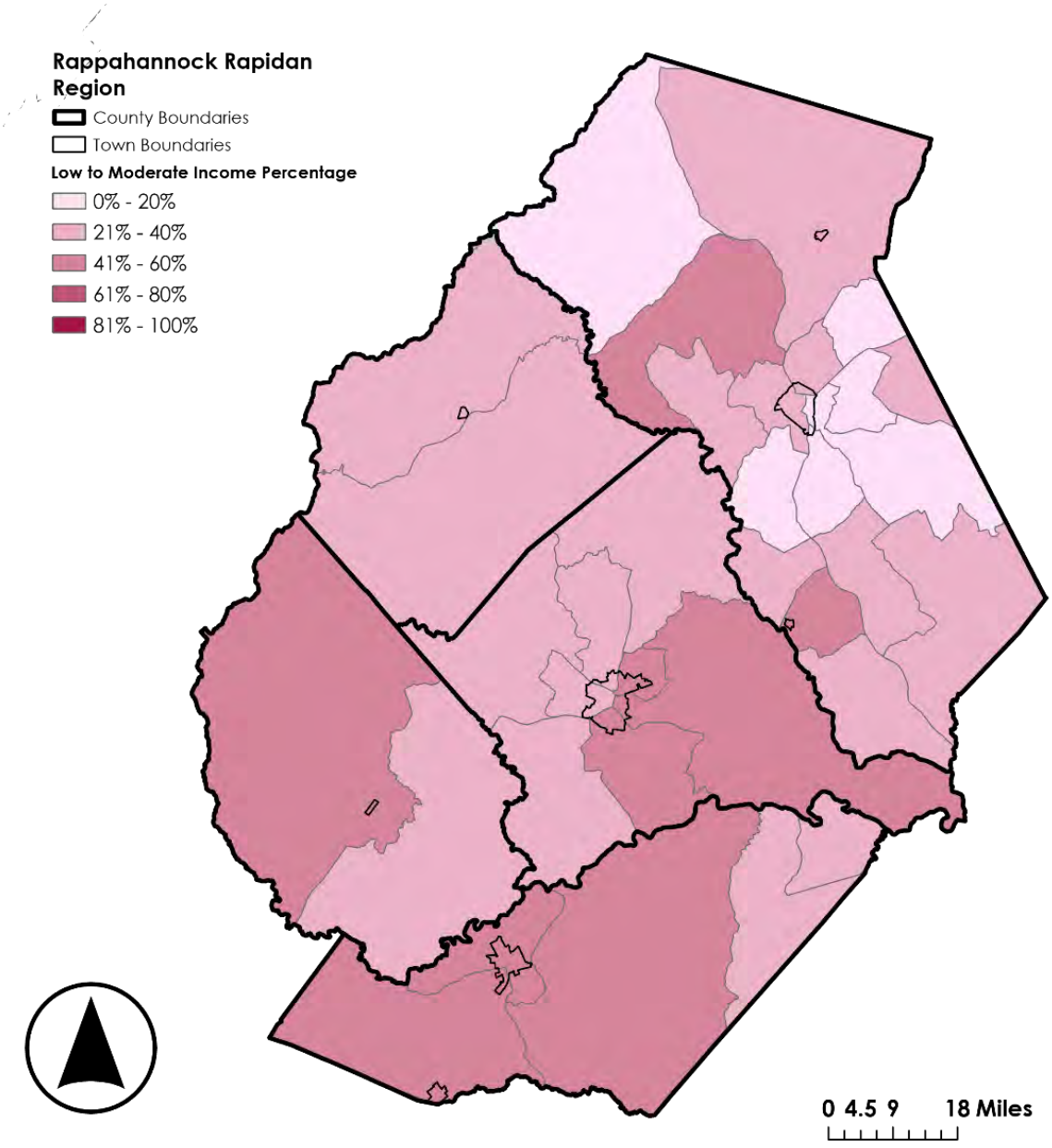
Source: U.S. Census Bureau ACS 5 Year 2020

2.2 - VULNERABLE POPULATIONS

Low Income Communities

According to the Virginia Community Flood Preparedness Fund's definition, a low-income geographic area is any locality, or community within a locality, with a median household income that is less than or equal to 80% of Virginia's median household income; or any area designated as a Qualified Opportunity Zone by the U.S. Department of Treasury (See Figure 2.10). While important as a metric for social equity on its own, the low income geographic community criteria make an area eligible for a reduced (10%) match for CFPF grants.

Figure 2.10 Low Income Geographic Areas; Note that no areas currently meet the CFPF 80% of low to moderate income (darker 81% to 100%), however it is relevant to understand the discrepancies in income detailed below.



Virginia's median household income is $85,873 as of 2022.[3] According to analysis of 5-year estimates from the American Community Survey, as identified in Figure 2.10, the entirety of the Rappahannock-Rapidan Region does not meet the 80% low to moderate income Income designation, however, there are other factors to consider that contribute to a population being considered vulnerable.

Table 2.8 Income by County

US Census Statistic	Rappahannock County, Virginia	Orange County, Virginia	Madison County, Virginia	Fauquier County, Virginia	Culpeper County, Virginia
Median household income (in 2022 dollars), 2018-2022	$98,663	$87,309	$74,586	$122,785	$92,359
Per capita income in past 12 months (in 2022 dollars), 2018-2022	$54,654	$41,650	$35,772	$54,878	$39,062
Persons in poverty, percent	9.80%	10.10%	10.70%	6.40%	8.30%

Socially Vulnerable Communities

According to the World Health Organization[4], some population groups are more vulnerable to disasters – and community vulnerability and resilience may also shift - due to characteristics such as:

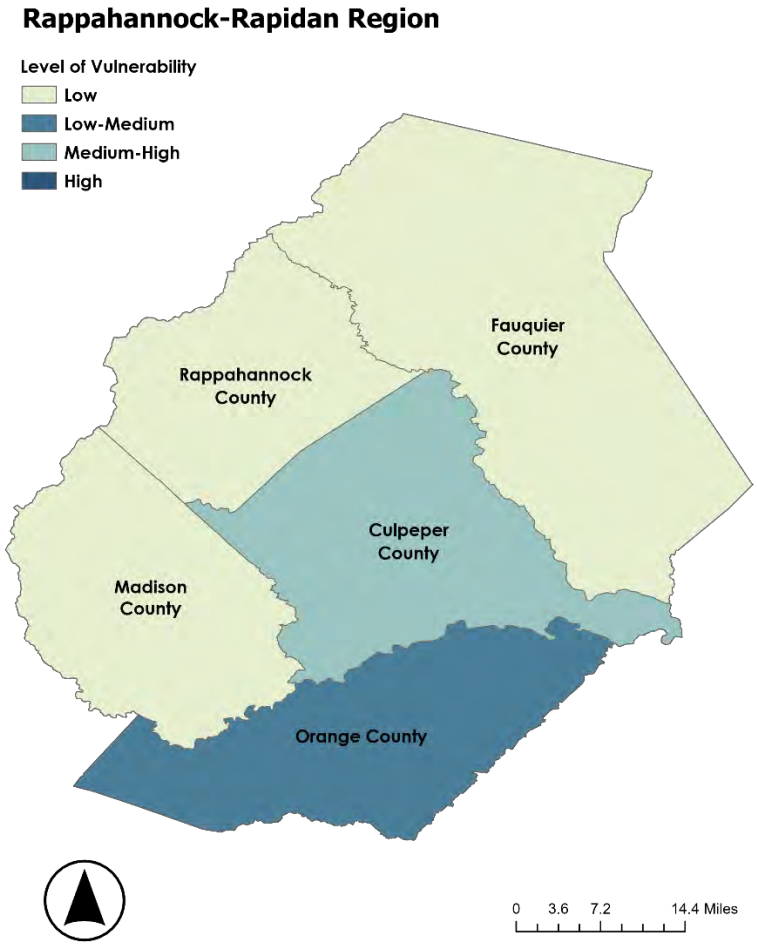
1. Age and developmental stage;
2. Gender and sexual identities;
3. Pre-existing chronic conditions;
4. Persons with disabilities; and
5. Marginalized groups in the community

It is important to ensure that marginalized and vulnerable populations are included and represented in disaster mitigation planning. To reduce disaster risk for vulnerable groups, it is important to identify these populations and risk management capacity in a community, and to develop and implement appropriate vulnerability reduction strategies. For planning purposes, publicly available data sets such as social vulnerability can be used to identify some populations that may be considered vulnerable. FEMA defines social vulnerability as the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood.[5]

[3] 2022 American Community Survey 1 Year Estimates
[4] World Health Organization, Centre for Health Development, 2024
[5] FEMA National Risk Index

A metric to measure social vulnerability is the Social Vulnerability Index (SVI), which ranks each US Census tract on 16 social factors, including unemployment, minority status, and disability, and further groups them into four related themes. Thus, each tract receives a ranking for each Census variable and for each of the four themes, as well as an overall ranking (0.0-1.0). Projects and studies in areas with a higher SVI will receive prioritized rankings for CFPF funding. Specifically, the area must have at least a "Medium-High" (0.5 to 0.75) Social Vulnerability Ranking to receive points considered in the grant application ranking. The SVI map for the region can be found in Figure 2.11 below. Please see Appendix B-2 for detailed Social Vulnerability Index rankings by census block.[6]

Figure 2.11 Social Vulnerability Index rankings by County



[6] CDC/ATSDR Social Vulnerability Index 2022

Homeless Population

Homeless populations experience specific vulnerabilities during disasters, such as lack of shelter, access to emergency services, and increased health risks are where they may be disproportionately affected by hazards. The region's emergency responders should be trained to understand the unique challenges faced by homeless individuals and incorporate these factors into drills and exercises. Local officials plan for long-term recovery efforts, and specifically need to ensure they are addressing the needs of the homeless population, including housing assistance and mental health services.

Race and Ethnicity

Localities within the eastern and southern half of the RRRC region are more ethnically diverse than those to the west, with the two largest minority populations being Black/African American and Hispanic/Latino. The largest Hispanic or Latino populations are in Culpeper and Fauquier, while the largest Black or African American populations are in Culpeper and Orange counties. Overall, Culpeper is the most diverse county in the Service Area, while Rappahannock County is the least.

Table 2.11 Region Race Distribution by County. US Census 2020

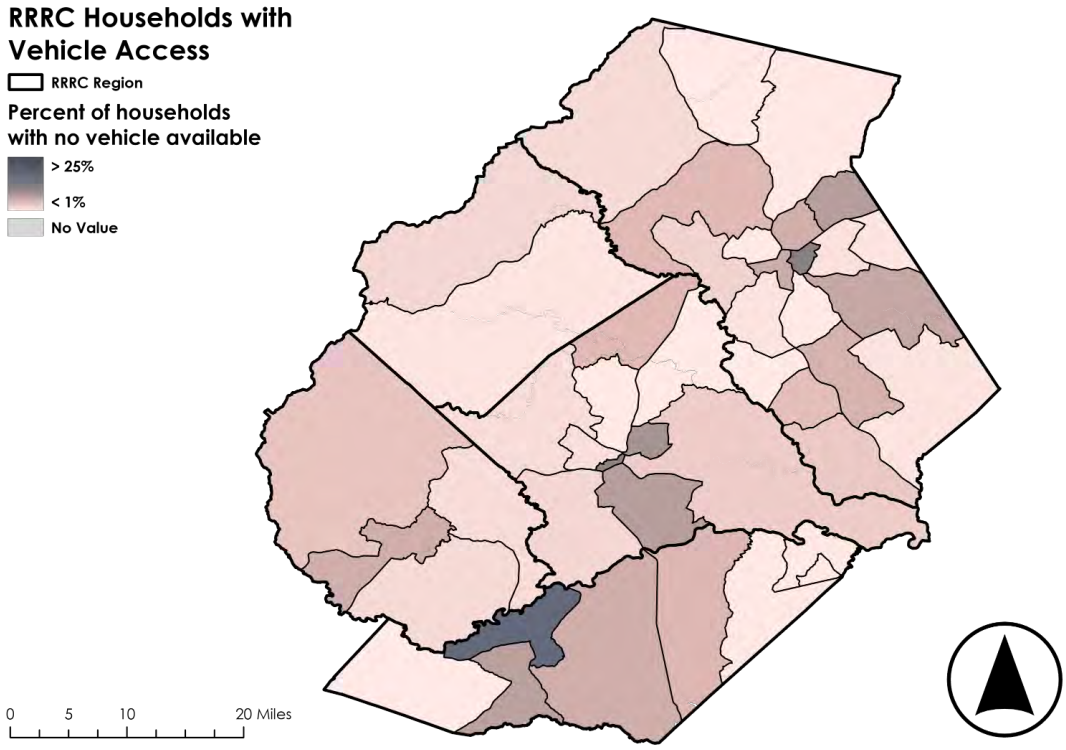
US Census Statistic	Rappahannock County, Virginia	Orange County, Virginia	Madison County, Virginia	Fauquier County, Virginia	Culpeper County, Virginia
White alone	92.00%	81.60%	87.00%	86.50%	79.70%
Black or African American	4.00%	13.00%	8.60%	7.80%	13.90%
American Indian and Alaska Native	0.50%	0.60%	0.30%	0.60%	0.90%
Asian alone	1.20%	1.30%	0.90%	1.90%	1.90%
Native Hawaiian and Other Pacific Islander	0.10%	0.10%	0%	0.10%	0.10%
Two or More Races	2.20%	3.30%	3.20%	3.10%	3.50%
Hispanic or Latino,	5.00%	6.80%	3.80%	11.40%	13.60%
White alone, not Hispanic	87.40%	76.00%	84.00%	76.50%	68.20%

Transportation Limited Residents

Access to vehicles and transportation plays a significant role in contributing to social and economic disparities. Reliable transportation is essential for accessing employment, education, healthcare, groceries, and other critical services. Individuals without access to a personal vehicle or adequate public transportation often face significant challenges in reaching job opportunities, particularly in suburban or rural areas where public transit options are limited or nonexistent. This can lead to higher unemployment rates and lower incomes for those without reliable transportation.

These communities can particularly benefit from the RRRC's Commuter Assistance Program[7] due to potentially limited car ownership among residents, fostering greater reliance on ridesharing options for intraregional travel and facilitating the formation of vanpools for commuting to local employers.

Figure 2.11 Percentage of Households with No Vehicle Access



Additionally, the USDA's Food Access Research Atlas identifies the following four census tracts within the region as food deserts based on income, vehicle access and distance to a supermarket:

- Tract 51047930202 in Culpeper County 103 of 2127 total households (4.9%) without vehicles that are more than one-half mile from a supermarket.
- Tract 51047930300 in Culpeper County has 162 of 2290 total households (7.1%) without vehicles that are more than one-half mile from a supermarket.
- Tract 51137110200 in Orange County 323 of 2031 total households (15.9%) without vehicles that are more than one-half mile from a supermarket.
- Tract 51113930200 in Madison County has 126 of 2369 total households (5.3%) without vehicles that are more than one-half mile from a supermarket.[8]

[7] RRRC Commuter Services CAP Strategic Plan, 2024

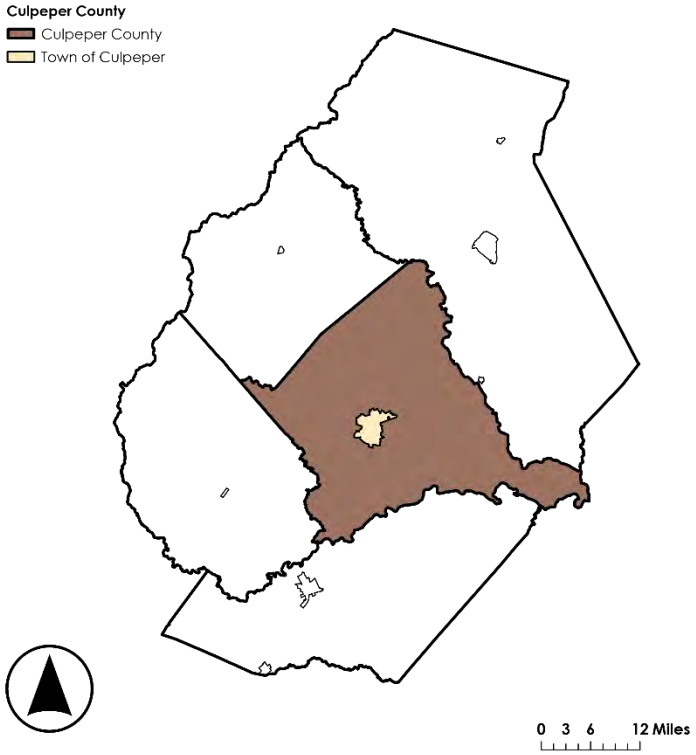
2.3 - LOCALITY & COMMUNITY PROFILES

Culpeper County and The Town of Culpeper

Established in 1749, Culpeper County supports a thriving community of 52,522 people. 18,633 of these residents live in the incorporated Town of Culpeper. The County is a rural community that lies in the foothills of Virginia's Blue Ridge Mountains and within the Piedmont Plateau. From open fields to forested hills, Culpeper County has numerous rivers and streams which flow to the Rappahannock River, and ultimately to Chesapeake Bay. The County's 379 square miles are bounded by rivers – the Rappahannock to the northeast, the Rapidan to the southeast, and the Hughes, Crooked Run, and Robinson to the west. The County's economy is based on agriculture, with a diversity of service and production industries.

The Town of Culpeper is the County seat; located in the geographic center of the County the Town serves as the County's business, service, and cultural center. Located centrally between Washington, D.C., Richmond, Charlottesville, and Fredericksburg, these cities are linked to Culpeper by primary roads including Routes 29, 15, 3, 522, and 211. Additionally, Interstates 66, 64, 81, and 95 are all within a 40-mile radius of the County.

Figure 2.12 Map of Culpeper County



The County's population and development are growing largely due to its proximity to Washington D.C. and Northern Virginia, only 75 miles away. Culpeper County has led the RRRC region in housing units, residential building permits, and residential density since 2000. Simultaneously, the increase in median home sales price and the 2024 average median home sales price in the County were lower than Fauquier and Rappahannock Counties showing that housing is more affordable here than it is in those two Counties, but higher than Madison and Orange.

Culpeper County is governed by an elected seven-member Board of Supervisors. One member represents each magisterial district, and each serves a four-year term of office. An appointed County Administrator oversees the daily operation of the County government. The Town of Culpeper is governed by a nine-member elected

council composed of a mayor and eight council members elected for four-year terms.

Figure 2.13 Culpeper County Population by Age, Sex and Race, Census Reporter

Source: U.S. Census Bureau (2022). American Community Survey 5-year estimates. Retrieved from Census Reporter Profile page for Culpeper County, VA

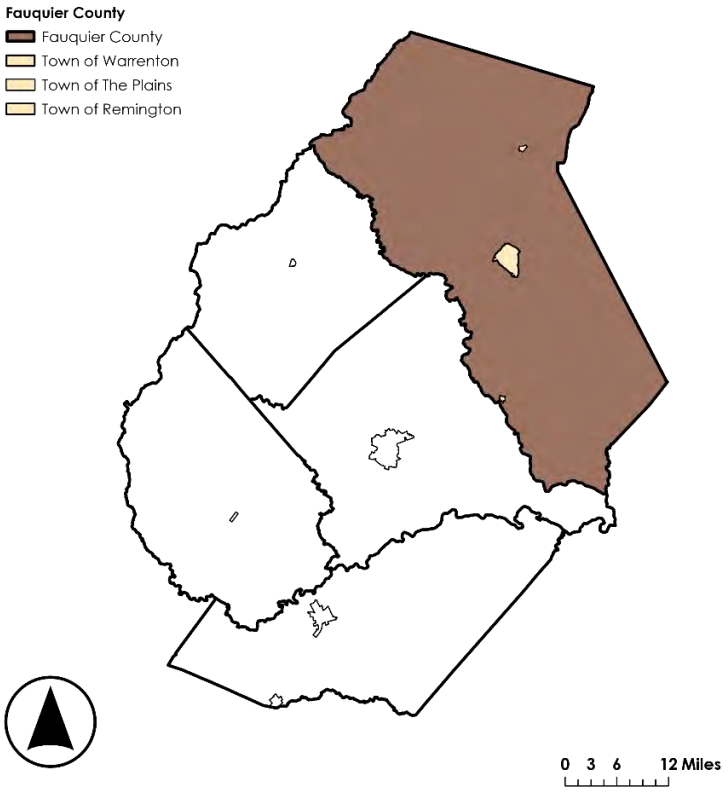
Fauquier County and the Towns of Remington, The Plains, and Warrenton

Fauquier County is home to 72,972 people and has three incorporated towns within its borders. The Town of Remington's population is 642, 168 people live in the Town of The Plains, and 9,928 live in the Town of Warrenton. The County is a rural community, although it is located in the Virginia Piedmont along the western edge of the Washington D.C. metro area only 40 miles from the nation's capital.

Fauquier County's 648 square miles range in elevation from a low of 160 feet above sea level in the rolling hills of the southern County to 2,388 feet above sea level in the northern County that includes portions of the Blue Ridge Mountains. Famous for its horse farms and beautiful rolling land at the foothills of the Blue Ridge Mountains, the County offers contrast as both a natural haven and gateway to bustling Northern Virginia and the D.C. Metropolitan Area. With deep equestrian traditions, wineries, and vineyards Fauquier County is known for being at the heart of hunting and wine country. Civil war history tours and museums also add to the County's tourism economy.

Interstate 66 and Routes 15/29, 17, and 211 provide the principal road access to the County. Freight rail service is provided by Norfolk Southern and aviation services by Warrenton Fauquier Airport. Safe access for bicyclists and pedestrians is provided by a growing network of trails.

Figure 2.14 Map of Fauquier County



The County overall has seen an increase in housing units from 2000 to 2020 at 22%. In 2024 the average median home sales price in the County was $581,200 making the County's housing second most expensive in the RRRC region.

Fauquier County is governed by an elected five-member Board of Supervisors; one member represents each magisterial district. An appointed County Administrator oversees the daily operation of the County government. Fauquier County has a long-standing planning goal of channeling development into its nine service districts spread throughout the County. These areas are the primary growth areas for future commercial, industrial, and residential development. The County

encourages farming in its rural areas, which make up over 90% of the County.

The Town of Remington is governed by a town council that consists of six elected members, including the mayor. Council members serve staggered four-year terms. The Town of Warrenton is governed by a mayor and a six-member town council, also with four- year staggered terms.

Figure 2.15 Fauquier County Population by Age, Sex and Race, Census Reporter

Source: U.S. Census Bureau (2022). American Community Survey 5-year estimates. Retrieved from Census Reporter Profile page for Fauquier County, VA

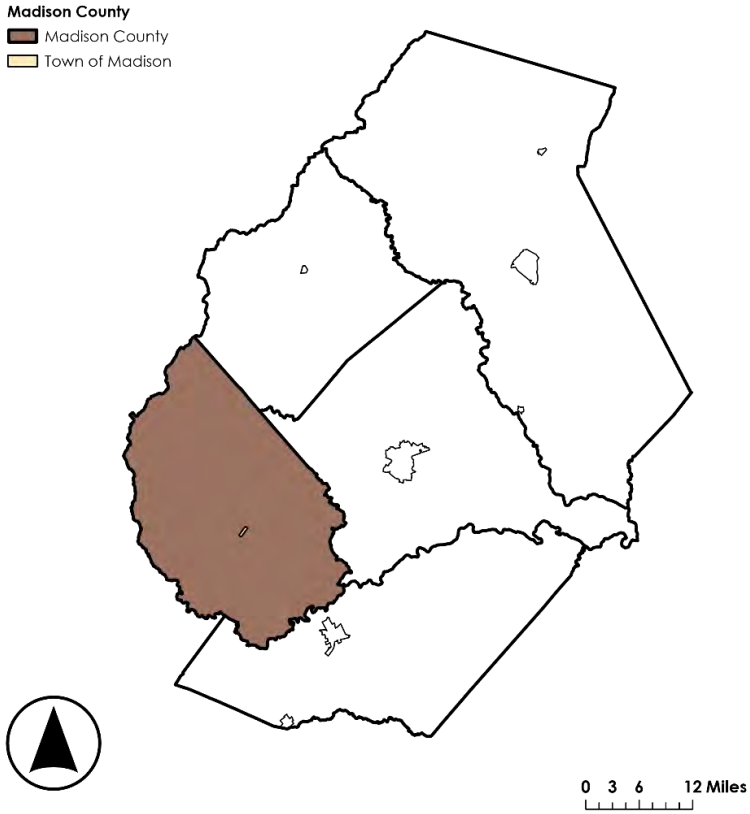
Madison County and The Town of Madison

Madison County was formed in 1792; with a current population of 13,837 people, 329 of these residents live in the incorporated Town of Madison. Very close to Virginia's geographic center, the County displays the best of the Piedmont's character along with the backdrop of the Blue Ridge Mountains. Madison County lies approximately 30 miles north of Charlottesville, 80 miles northwest of Richmond, 90 miles southwest of Washington, D.C., and 28 miles east of Harrisonburg.

The County's 327 square miles range in elevation from 298 feet in the east to over 4,000 feet in the mountains at the western border.
The County's economy is currently devoted to agriculture, forestry, and related industries, with a growing recreation and tourism industry. These economic activities provide a strong incentive to preserve and protect the County's environment and natural beauty and its rural way of life.

The Town of Madison is the County seat and the only incorporated town in Madison County. Located between Charlottesville and the Town of Culpeper, the County's main west to east highway is Route 29, with Route 231 traversing the County north to south. The County's population has grown steadily with a 10% change from 2000 to 2020. The County has the second smallest population and housing density in the RRRC region. Housing units have increased by 14% since 2000 and residential building permits have been consistently well below 100, annually. In 2024, average median home sales price in the County was lower than the RRRC regional average suggesting that housing is more affordable here than most of the RRRC region.

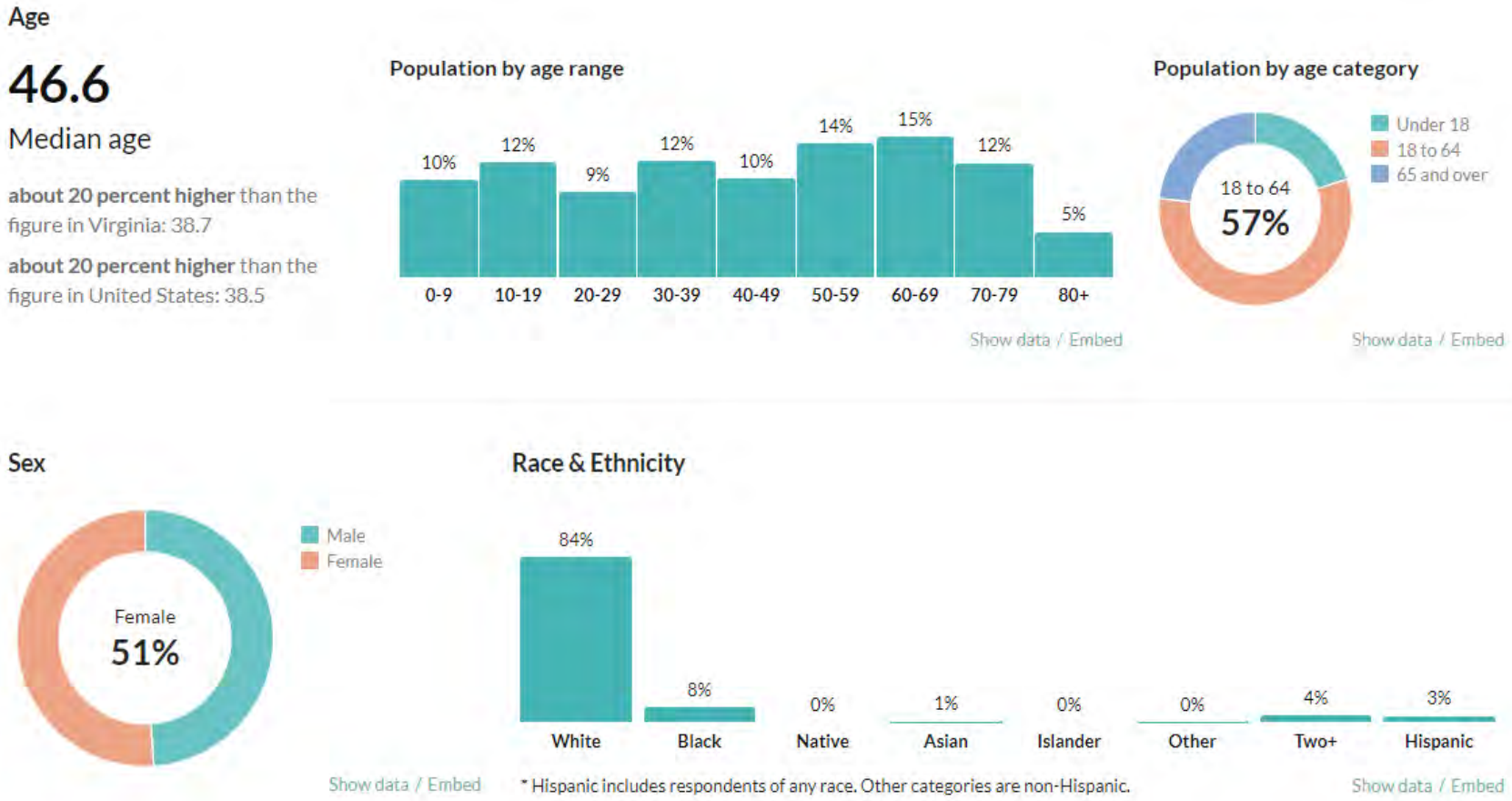
Figure 2.16 Map of Madison County



An elected seven-member Board of Supervisors govern Madison County. One member represents each magisterial district, and each serves a four-year term of office. An appointed County Administrator oversees the daily operation of the County government.

The Town of Madison is governed by a five-member town council, including an elected mayor. The council and mayor also serve staggered four-year terms.

Figure 2.17 Madison County Population by Age, Sex and Race, Census Reporter



Source: U.S. Census Bureau (2022). American Community Survey 5-year estimates. Retrieved from Census Reporter Profile page for Madison County, VA

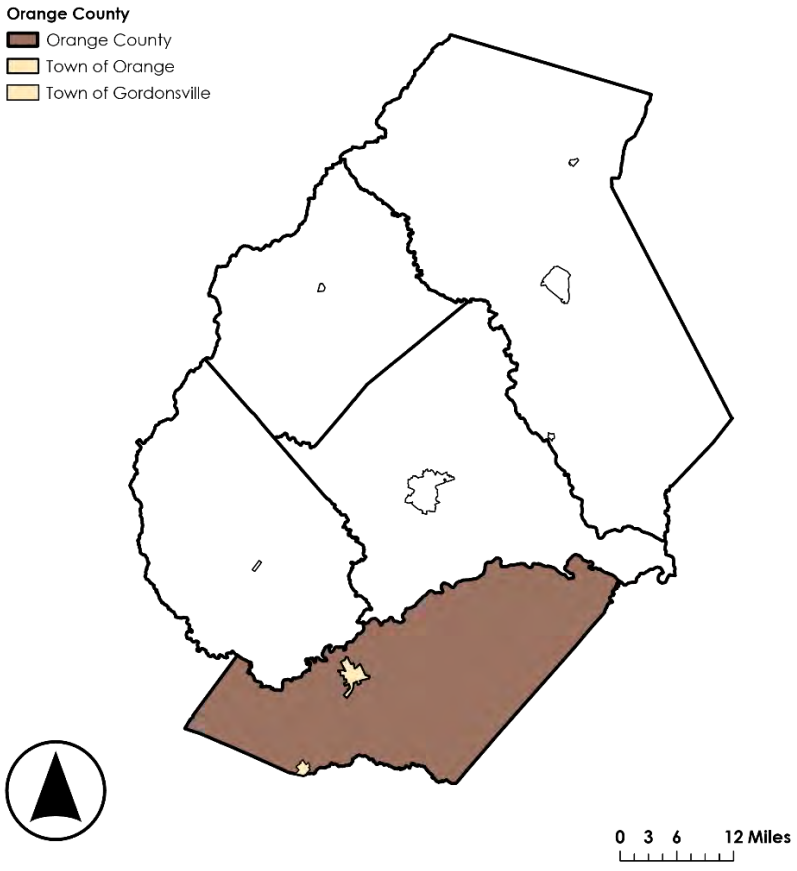
Orange County, The Town of Orange, and Town of Gordonsville

Orange County has a population of 36,254 people, 1,988 of these residents live in the incorporated Town of Gordonsville, and 5,024 in the Town of Orange – the County seat. Located in Central Virginia, Orange County is near the foothills of the Blue Ridge Mountains. It lies within the watersheds of the York and Rappahannock Rivers, which flow to Chesapeake Bay. The Rapidan River and North Anna River border the County on the south.

The County's 343 square miles are a mix of rural and developed areas. The Towns of Orange and Gordonsville are the main centers of economic activity and are home to a growing health services industry and several nationally recognized manufacturers. Orange County has a deep presidential and civil war history, in addition to horse races, festivals, wineries, breweries, and scenic byways that create the County's tourism industry. Both James Madison and Zachary Taylor were born in Orange County and their homes of Montpelier and Montebello are on the County's list of Nationally registered historic places. Additionally, St. Thomas Episcopal Church, built in 1833-34 in the Town of Orange, is the sole remaining example of Thomas Jefferson's ecclesiastical work.

Orange County lies northeast of Charlottesville, and west of Fredericksburg. Routes 15 and 522 run south to north, and Route 20 traverses the County west to east. The County's population grew 29% from 2000 to 2020. The County's population and housing density are the median for the RRRC region. Housing units have increased by 26% since 2000 and residential building permits were second highest for the RRRC region in 2022 (see Tables 2.6 and 2.7). Although the median home sales price increased 42% from 2016 to 2024, the median price of a home was lowest for the RRRC at $378,458 (see Table 2.9).

Figure 2.18 Map of Orange County



Orange County is governed by an elected five-person Board

of Supervisors, each elected from their respective district serving four-year staggered terms. An appointed County Administrator oversees daily operations of the County. The Town of Gordonsville is governed by an elected five-person town council and elected mayor. The Council members are elected to four-year staggered terms. The County Seat, the Town of Orange, is also governed by a five-person town council, including an elected mayor.

Figure 2.19 Orange County Population by Age, Sex and Race, Census Reporter

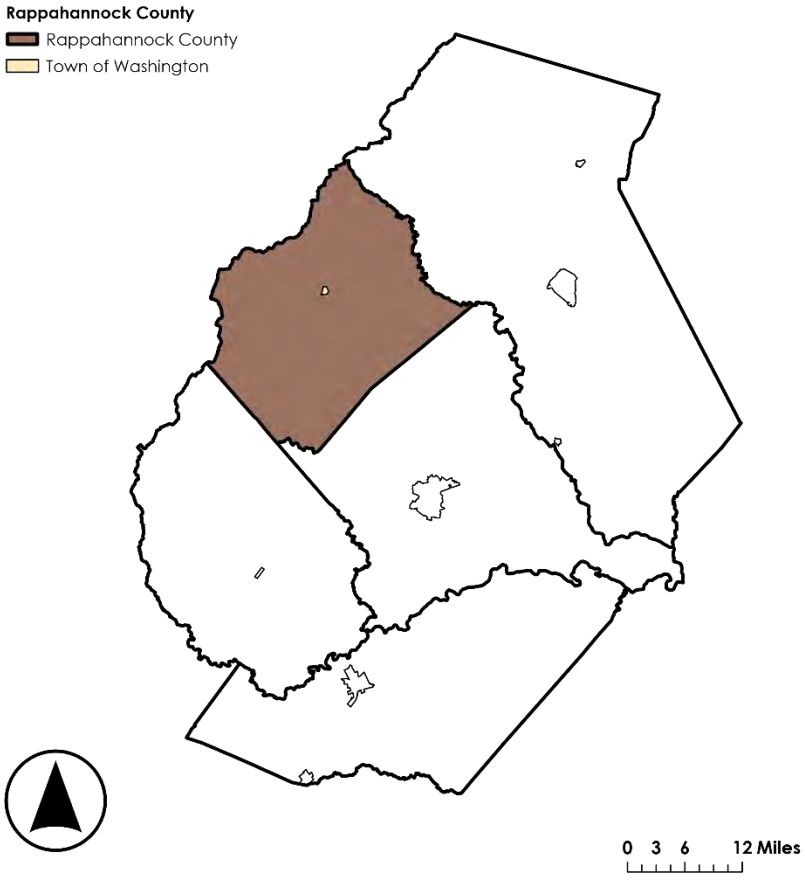
Source: U.S. Census Bureau (2022). American Community Survey 5-year estimates. Retrieved from Census Reporter Profile page for Orange County, VA

Rappahannock County and The Town of Washington

Rappahannock County was established in 1833 and has a population of 7,348 people, with 77 of those residents living in the Town of Washington – the County seat. Located in the Piedmont Region, Rappahannock County is rich in natural beauty, American history, farmlands, quaint villages, and inns, wineries, and fine dining. It is uniquely situated between the Blue Ridge Mountains and Washington D.C.

The County's 267 square miles are agriculturally based with five surrounding villages providing basic services for farms. The County's northwestern boundary is in the mountains, the Rappahannock River forms the northeastern boundary, and the County is bounded on the southeast by Culpeper County and on the southwest by Madison County. The Town of Washington was surveyed and plotted by George Washington in 1749 and was established as a town in 1796. The villages of Rappahannock were originally frontier posts or crossroads; today they are residential clusters that provide retail services, meeting places, post offices, and church activities.

Figure 2.20 Map of Rappahannock County



Rappahannock County lies west of Washington D.C, and northeast of Harrisonburg. Route 522 runs south to north, and Route 211 traverses the County west to east. The County's population grew 5% from 2000 to 2020, by far the lowest overall population and growth rate for the RRRC region. The County's housing density is also the lowest for the RRRC region. Housing units have increased by 17% since 2000 and residential building permits were the lowest for the RRRC region in 2022. The median home sales price increased 58% from 2016 to 2024, with the median price of a home at $875,050 well over the RRRC average price of $540,966 - making the County the most expensive place to find housing in the region.

Rappahannock County is governed by an elected five-person Board of Supervisors, each elected from their respective district serving four-year terms. The Board of Supervisors is responsible for the legislative, administrative, and financial aspects of the County government. The Town of Washington is included and represented by Rappahannock County.

Figure 2.21 Rappahannock County Population by Age, Sex and Race, Census Reporter

Source: U.S. Census Bureau (2022). American Community Survey 5-year estimates. Retrieved from Census Reporter Profile page for Rappahannock County, VA

Regional Hazard Mitigation Plan (2025 Update) and Resilience Plan

Chapter 3 The Planning Process

Rappahannock-Rapidan REGIONAL COMMISSION

CHAPTER 3 – THE PLANNING PROCESS

This Chapter describes the planning process undertaken by the Rappahannock-Rapidan Regional Commission and participating jurisdictions in the 2025 update of the *Rappahannock-Rapidan Regional Hazard Mitigation Plan and Resilience Plan*. Local participation in the Project Management Team, public engagement, and the steps and milestones completed will be discussed.

Consistent with CFPF program requirements for resilience plans, the planning process employed in the development of this Plan considered all parts of localities regardless of socioeconomics or race, with specific focus on underserved populations within communities. An effort was made to coordinate with other local and inter-jurisdictional projects, plans, and activities, and the Plan was developed based upon the best available science, incorporating climate change and current flood maps.

3.1 – PLAN UPDATE TIMELINE

To support development of this Plan update, the RRRC sought funds from VDEM and FEMA, as well as DCR's CFPF program, with funding awarded in 2023. Development of the Plan update appreciably began in September 2023 with initial coordination between RRRC staff and the consultant selected to develop the Plan update, and then the first meeting of the Project Management Team in October 2023. The update process concluded with the adoption of the Plan by COUNTY/TOWN on MONTH ##, 2024, establishing the Plan's effective date, and on MONTH ##, 2024 with adoption by the final participating jurisdiction. See Appendix X for motions of approval by each participating jurisdiction.

3.2 – PROJECT MANAGEMENT TEAM

The process to update the *Rappahannock-Rapidan Regional Hazard Mitigation Plan* and Resilience Plan included participation by representatives of participating jurisdictions – principally emergency management and planning staff, as well as chief administrative officials – RRRC staff, and representatives of the Virginia Department of Health and the Virginia Department of Emergency Management. These individuals were organized as part of the Project Management Team (PMT), which met throughout the course of the Plan update process, described further below under Section 3.3. The PMT was comprised of participants identified in the table on the following pages:

Table 3.1, Project Management Team (PMT) Members

Representative Name	Title	Jurisdiction/Organization P/S
Patrick Mauney	Executive Director	RRRC - P
Michelle Edwards	Director of Regional Planning	
John Otto	GIS Planner I	
Bill Ooten	Director of Emergency Services	Culpeper County - P
Captain George Keefer	Operations Captain/Deputy EM Coordinator	
Paul Howard	Director of Environmental Services	
John Cooley	Director of Community Development	
Amy Rogers	Chief of Zoning and Development Services	Fauquier County- P The Plains - S
Holly Meade	Director of Community Development	
Michael Guditus	Emergency Services Manager	
Brian Gordon	Director of Emergency Communications/Deputy Emergency Management Coordinator	Madison County - P
Gavin Helme	Emergency Management Coordinator/Assistant Chief of Administration, EMS	
Jamie Wilks	Building Official	
Tracey Clatterbuck	Zoning Administrator	
April Clark	Emergency Management Planner	Orange County - P
Josh Frederick	Planning & Zoning Services Manager	
Nathan Mort	Chief of Fire and EMS	
Roger Wilson	Assistant Chief of Operations	
Darren Stevens	Emergency Services/Management Coordinator	Rappahannock County - P
Garrey W. Curry, Jr.	County Administrator	
Joe Whited	Mayor	Town of Washington - S
Steve Gyurisin	Zoning Administrator	
Andrew Hopewell	Director of Planning and Community Development	Town of Culpeper- P
Jim Hoy	Director of Public Services	
Shelly Plaster	Assistant Public Works Director	
Debbie Kendall	Town Manager	Town of Gordonsville- P
Robert Coiner	Mayor	
Nancy Knighting	Vice-Mayor	Town of Madison - S
William Lamar	Mayor	

Gregory Woods	Town Manager	Town of Orange- P
Deborah C. Sturm	Director of Planning	
J. Harrison Cluff	Mayor	
David Burrelli	Town Administrator	Town of Remington-P
James Steward	Town Superintendent	
William E. Polk, Jr	Mayor	
Christopher Melmer	Emergency Services/Risk Manager	Town of Warrenton-P
Frank Cassidy	Interim Town Manager	
Steven Friend	Assistant Director Public Utilities	
Johnny Switzer	Emergency Management Coordinator	
Kathy Hatter	Local Health Emergency Coordinator	VDH
Alexa Boggs	Disaster Response and Recovery Officer	VDEM
Jacob Hughes	All Hazards Planner, Region 2	
Sean Peavey	All Hazards Planner, Region 2	
Michael Zehner	Director of Community Development & Planning	Berkley Group
Kate Jones	Deputy Director of Community Development	
Luke Peters	Planner II	
Linds Edwards	Planner II	
Anna Cherry	Planner II	

Participant Locality– Full Involvement in the Hazard Mitigation Plan Update Process
Stakeholder Locality – Represented by their respective County

3.3 – SUMMARY OF THE PLANNING PROCESS

This 2025 Update of the *Rappahannock-Rapidan Regional Hazard Mitigation Plan* was coordinated by RRRC, along with the assistance of a contracted consultant, Berkley Group. Jurisdictions covered by the Plan include the five (5) counties and eight (8) incorporated towns in the RRRC region, with the towns of The Plains and Washington represented by their respective counties (Fauquier County and Rappahannock County, respectively). As noted, while development of the Plan update began in September 2023 with the initial coordination meeting between RRRC staff and the consultant, work on the Plan update began prior to this with RRRC evaluation of the 2018 Plan and funding applications to VDEM/FEMA and DCR; awarded June 19, 2023 by VDEM under the Hazard Mitigation Grant Program (Disaster 4512, Virginia COVID-19 Pandemic) and February 1, 2023 by DCR under the CFPF Program.

As discussed, local participation in the Plan update process was coordinated through the establishment of a Project Management Team. To satisfy multi-jurisdictional participation requirements pursuant to FEMA regulations, PMT members were required to perform the following principal tasks as part of the Plan update:

- Participation in the Plan update process and attend PMT meetings;

- Completion of the Local Capability Assessment Survey;
- Identification of any unique local hazards apart from the identified regional hazards;
- Identification of completed mitigation projects, if applicable;
- Update and develop additional mitigation actions and strategies;
- Public outreach regarding the Plan update process; and
- Support local adoption of the Plan.

The Town of The Plains, the Town of Washington, and the Town of Madison participated in the planning process through representation by their Participating County. RRRC staff and County staff collaborated to incorporate information relevant to these towns. While Town representatives served as important stakeholders in the process, their direct contributions to this plan update were limited due to staffing constraints.

Six (6) meetings of the PMT were held as part of the process to update the plan. While the first meeting was held in person, all subsequent meetings allowed for remote/virtual participation. All meetings were publicly advertised and open to the public. PMT meetings were held as follows, with focused topics as noted (meeting notes for all Project Management Team meetings are included as Appendix A.4):

- October 27, 2023 - First PMT Meeting: Kick-Off; Discuss Project Scope and Timeline; Review, Evaluation, Assessment of Current Plan; Hazard Identification and Risk Assessment;
- January 10, 2024 - Second PMT Meeting: Project Status; Public Engagement and Survey; Evaluate/Update Mitigation Strategy;
- April 11, 2024 - Third PMT Meeting: Review and Discuss Hazard Risk and Vulnerability;
- June 6, 2024 - Fourth PMT Meeting: Review and Discuss Mitigation Strategies;
- September 4, 2024 - Fifth PMT Meeting: Review Draft Plan Update;
- November 14, 2024 – Sixth PMT Meeting: PMT Final Approval of Draft Plan.

Figure 3.1 Project Planning Timeline

In addition to these meetings, throughout the Plan update process, locality PMT representatives, RRRC staff, and the consultant communicated individually and collectively regarding aspects of the Plan update and process. These communications and meetings involved discussions on locality-specific unique hazards, mitigation strategies, and capability assessment information.

As referenced above, while representatives of the towns of The Plains and Washington did not directly participate in the Plan update process, RRRC staff coordinated with officials of each town, and the towns were officially represented in the process and on the PMT by Fauquier County and Rappahannock County officials.

3.4 – PUBLIC INVOLVEMENT

Not only is public involvement a required component of the planning process, but public engagement and public education are critical components of the Plan update. Public feedback informs the quality of the Plan and contributes to the success of hazard mitigation efforts. Done well, engaging the public in the Plan update both increases citizen awareness about potential natural hazards present in the region, and kick off the education and outreach programs that are proposed in the mitigation strategies contained within the Plan. Public engagement included the following methods (full results of public feedback are included in Appendix A.2):

Public Engagement and Education Plan

An initial step to support public involvement in the Plan update was the development of a *Public Engagement and Education Plan*. This document established the expected objectives, strategies, activities, and timeline concerning public engagement throughout the Plan update process. The document was reviewed by the PMT at the first meeting and approved with final edits (including in Appendix A.1).

Messaging

Consistent messaging was used throughout the planning process; press releases, emails, website updates, and social media posts were developed for use by the RRRC and localities. Additionally, the RRRC maintained a dedicated webpage for the Plan update project (https://www.rrregion.org/hmp).

Public Survey

A public regionwide survey was conducted, beginning February 23, 2024, and closing May 31, 2024, receiving a total of 212 responses. English and Spanish language versions of the survey were available, both online and in hardcopy forms. The table below identifies the respective localities of survey respondents:

Table 3.2, Survey Response Count and Percentages by County

	Counts	Percentages
Culpeper County	26	12%
Fauquier County	96	45%
Madison County	10	5%
Orange County	31	15%
Rappahannock County	18	8%
Town of Culpeper	10	5%
Town of Orange	2	1%
Town of Remington	11	5%
Town of Warrenton	8	4%
Total	212	100%

Survey results were shared with members of the PMT in a Public Survey Response Report (Appendix A.2) and discussed at the Project Management Team meeting held on June 6, 2024. In conjunction with comments provided through stakeholder interviews, PMT members were encouraged to consider the relevance of survey responses as they finalized their mitigation action updates and revisions, and to provide any other contacts to stakeholder groups that could provide additional perspectives that were not as strongly voiced in the interviews and survey responses.

Stakeholder Group Interviews

Three stakeholder group interviews were conducted for perspectives of the region (Appendix A.5), including representatives of underserved and socioeconomic diverse populations:

- Rapp at Home: A not-for-profit organization that provides services that help seniors to stay socially connected and to live with confidence in their homes. The services and activities range from opportunities for staying involved with friends and neighbors, to receiving help with transportation, to assisting with tasks around the house or yard, to picking up groceries and prescriptions.

- Fauquier Climate Change Group: A community group that reaches out to the local community on the issue of climate change, with a focus on education and government action.

- Minority and Veteran Farmers of the Piedmont: A 501(c)(3) non-profit organization that is located in the rolling foothills of the Piedmont Region of Virginia. MVFP is a grassroots organization that was established in July of 2019 to develop educational and experiential learning opportunities through hands-on instruction. The organization promotes training, coaching, and mentorships for minorities, veterans, farmers, and youth, both urban and rural.

Collaboration with Other Entities, Agencies, and Plans
A variety of local, regional, state, and federal agencies were consulted and/or engaged in the process of developing the update to the Plan. Outside agencies contributed to data needs, received updates on Plan development, and/or performed important guidance, analysis, and review functions during the Plan's development.

The following agencies and entities were involved, or were contacted, during the Plan update process. Identified staff of federal and state agencies were either actively engaged in the Plan update or were consulted with respect to the Plan update process or specific Plan content; it is especially important to note the value of the involvement and guidance by FEMA and VDEM in the planning process. With regard to the identified abutting planning district commissions and localities, these entities were provided with regular updates via social media posts and email updates, and a direct email was sent to the respective executive directors or chief administrative officers on December 14, 2023, making them aware of the draft of the Plan and asking for any comment or questions that they may have. Finally, general information contacts of the following identified regional higher education institutions and hospitals also received email updates sent by RRRC throughout the course of the process to update the Plan.

- Federal Emergency Management Agency - Mari Radford, Hazard Mitigation Planning Section Supervisor, Region 3; Shannon Burke, Community Planner, Region 3; William Melville, III, Mitigation Data Section Supervisor, Region 3
- Virginia Department of Emergency Management - Alexa Boggs, Disaster Response and Recovery Officer, Region 2; Jacob Hughes, All Hazards Planner, Region 2; Sean Peavey, All Hazards Planner, Region 2
- Virginia Department of Forestry - John Miller, Director of Fire and Emergency Response
- Virginia Department of Conservation and Recreation - Angela Davis, NFIP State Coordinator, Division of Dam Safety & Floodplain Management; Mark Killgore, Lead Dam Safety Engineer, Division of Dam Safety & Floodplain Management

- Germanna Community College
- Laurel Ridge Community College
- Orange County Free Clinic
- UVA Health – Culpeper
- Fauquier Health
- Fauquier Free Clinic
- Free Clinic of Culpeper
- Madison Free Clinic

In addition to the agencies listed above, the creation of this Plan involved data and other planning resources provided by the following agencies:

- National Climatic Data Center (NCDC)
- Virginia Department of Emergency Management (VDEM)
- Virginia Department of Conservation and Recreation (DCR)
- Centers for Disease Control and Prevention (CDC)
- Virginia Department of Health (VDH)
- National Oceanic and Atmospheric Association (NOAA)
- Federal Emergency Management Agency (FEMA)
- National Weather Service (NWS)
- U.S. Geological Survey (USGS)
- U.S. Census Bureau
- U.S. Department of Agriculture (USDA)

Coordination with other community planning efforts is paramount to the success of a hazard mitigation plan. This Plan incorporates elements of local long-range and regulatory planning documents, including comprehensive plans, zoning ordinances, subdivision ordinances, and emergency operations plans. These local regulatory documents should in turn reference or incorporate elements of the *RRRC Regional Hazard Mitigation Plan*, creating a fully integrated effort to reduce hazard impacts and maintain resiliency as a core local and regional planning element. The development of this Plan used information included in the following community plans, studies, reports, and initiatives:

- Municipal Comprehensive Plans from RRRC region localities
- Codified Ordinances (Zoning and Subdivision) from RRRC region localities
- Virginia Uniform Statewide Building Code
- Commonwealth of Virginia Hazard Mitigation Plan
- Emergency Operations Plans from RRRC region localities
- Flood Insurance Studies and Flood Insurance Rate Maps
- RRRC region Tax Assessor and Land Use data

Draft Plan Review

Once the draft of the updated Plan was produced, the Plan was made available on September 23, 2024, for public review online and in various locations throughout the region in hardcopy form. Additionally, the public was invited to participate in a public

meeting, conducted as a forum with a presentation of the Plan update, held on October 7, 2024, at the Culpeper County Fieldhouse. Once the Plan was approved in draft form by the PMT, the Plan was submitted to VDEM for initial review. Once VDEM comments were satisfied, the Plan was then officially transmitted to FEMA for review under the "Approvable Pending Adoption" (APA) process, which anticipates subsequent local adoption. Once FEMA comments were satisfied, FEMA issued its APA determination on MONTH DATE, 2025.

With respect to the Plan serving as a regional and locality resilience plan, in conjunction with VDEM review, the draft Plan was additionally submitted to DCR for preliminary review.

3.5 – PLAN ADOPTION

Following FEMA's APA determination, each participating jurisdiction's chief elected board adopted resolutions officially adopting the Plan. Copies of executed resolutions are provided in Attachment #. These meetings are noticed publicly consistent with state and local laws and provide residents of respective localities an additional and final opportunity to make comments on the Plan prior to local action to adopt the Plan. Adoption of the Plan by COUNTY/TOWN on MONTH ##, 2025 established the official effective date for the Plan and essentially completed the process, with the adoption by all participating localities within 12 months of this date.

For the resilience plan, adoption by either RRRC or localities is required prior to submittal to DCR for certification. Following adoption, RRRC received DCR certification on Month ##, 2025.

Regional Hazard Mitigation Plan (2025 Update) and Resilience Plan

Chapter 4 Hazard Identification & Analysis

Rappahannock-Rapidan REGIONAL COMMISSION

CHAPTER 4 – HAZARD IDENTIFICATION & ANALYSIS

4.1 – HAZARDS

A hazard is any source of potential harm or danger that can cause injury, illness, damage, or loss. Some hazards are interrelated while others are made up of elements that are considered separately. For example, flooding and tornadoes are often associated with hurricanes, and severe thunderstorms can include damaging lightning. In addition, accidents involving chemical, radiological, or biological agents can coincide with natural hazard events such as flooding resulting from the destruction of a dam, or an accidental chemical release caused by a tornado. Understanding these interrelationships is crucial for comprehensive risk assessment and effective disaster preparedness. This plan identifies two categories of disasters: Natural and Human-caused.

Natural hazards identified in this plan:

- Drought
- Dam/Levee Failure
- Extreme Heat
- Wildfire
- Earthquake
- Sinkhole
- Landslide
- Flood
- Hurricanes & Tropical Storms
- Tornados
- Thunderstorms
- Winter Weather

Human-caused hazards identified in this plan:

- Pandemic/Infectious Agent
- Cybersecurity Risk
- Hazardous Materials

The following hazard identification and analysis sections aim to comprehensively identify and evaluate potential threats and how best to manage risks within the region.

4.1.1 DROUGHT

Description
Drought is a natural climatic condition characterized by an extended period of below-average precipitation over a broad geographic area. It results from complex interactions between natural climate variability, local geography, and human activities. Drought conditions can be exacerbated by high temperatures, high winds, and low humidity, which increase evaporation rates and soil moisture loss. These factors can also heighten wildfire risk in drought-affected areas.

Droughts are typically classified into four main categories:

1. Meteorological Drought: Defined by the degree of dryness compared to average or normal precipitation amounts over a given time period. This is often the first indicator of developing drought conditions.
2. Agricultural Drought: Focuses on the impacts to agriculture, considering factors such as soil water deficits, crop water needs at various growth stages, and water reservoir levels. This type of drought can develop more rapidly than other forms.
3. Hydrological Drought: Relates to the effects of precipitation shortfalls on surface and groundwater supplies, including streamflow, reservoir and lake levels, and groundwater table depths. This type of drought often lags behind meteorological and agricultural drought indicators.
4. Socioeconomic Drought: Occurs when water shortages begin to affect people and businesses, limiting the supply of economic goods and services that depend on water, such as hydroelectric power, agricultural products, and recreational activities.

The impacts of drought can be wide-ranging and severe. Economic impacts include crop losses, increased irrigation costs, and reduced income for agricultural businesses. Environmental impacts may involve loss or degradation of wildlife habitat, increased soil erosion, and reduced water quality. Social impacts can include water use restrictions, health issues related to poor water quality or dust and reduced recreational opportunities.

Drought conditions in Virginia are monitored by the Virginia Drought Monitoring Task Force (DMTF), an interagency group comprising state and federal agency representatives.[1] The DMTF provides regular status reports that integrate information from various sources to present a comprehensive picture of current and near-term drought conditions in the Commonwealth.

At the national level, drought conditions are tracked by the U.S. Drought Monitor, a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln and federal and state agencies.[2] The U.S. Drought Monitor produces

[1] https://www.deq.virginia.gov/our-programs/water/water-quantity/drought

[2] https://droughtmonitor.unl.edu/CurrentMap.aspx

weekly drought condition status maps for the entire nation, synthesizing multiple drought indicators into a single, easy-to-interpret format.

Location, Extent, and Magnitude

Drought can affect large areas and is not confined to specific geographic boundaries. However, certain regions are more susceptible to drought conditions than others due to variations in climate patterns, topography, and human water demand. The RRRC Region, like much of Virginia, is susceptible to periodic drought conditions, though generally less severe than many western states.

In the RRRC Region, all areas are potentially susceptible to drought, but impacts can vary based on local factors such as soil types, water source reliance, and land use patterns. Agricultural areas, particularly those reliant on rainwater for irrigation, are often the first to experience drought impacts. As drought conditions intensify or persist, impacts can extend to urban and suburban areas, potentially affecting water supplies, increasing wildfire risk, and necessitating water use restrictions.

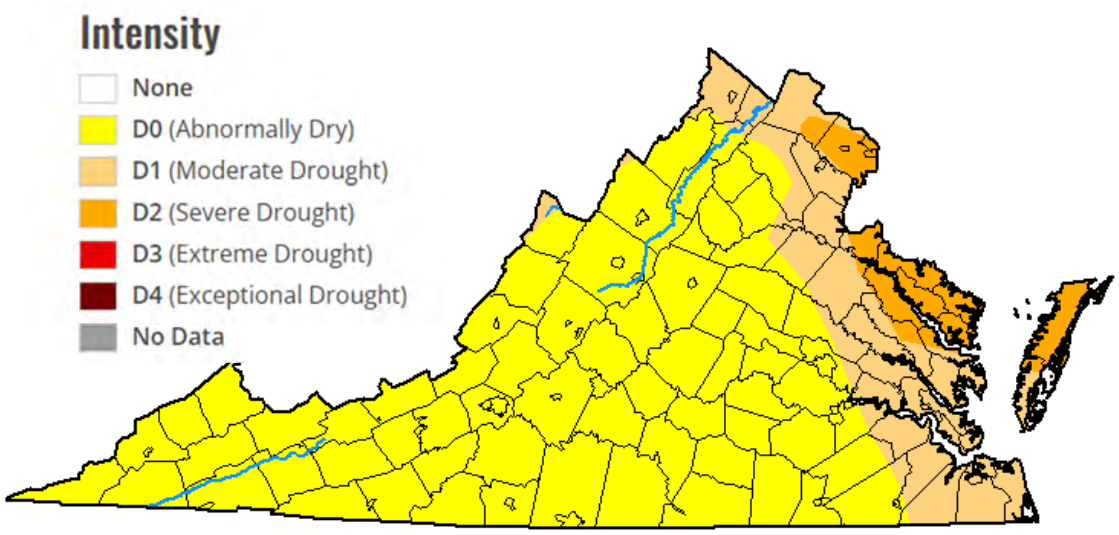
According to the Palmer Drought Severity Index (PDSI) historical analysis, Virginia falls within a zone that experiences severe drought conditions (PDSI ≤ -3) approximately 5% to 10% of the time. This indicates that while drought is a recurring issue in the region, it is not as frequent or severe as in some other parts of the country. The descriptions of drought according to the Palmer Index and an example of the US Drought Monitor using current drought conditions follow.

Table 4.1 Drought Severity Classification

Cat.	Desc.	PSDI Range	Possible Impacts
D0	Abnormally Dry	-1.0 to -1.9	Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.
D1	Moderate Drought	-2.0 to -2.9	Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing, or imminent, voluntary water use restrictions requested.
D2	Severe Drought	-3.0 to -3.9	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.
D3	Extreme Drought	-4.0 to -4.9	Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions.
D4	Exceptional Drought	-5.0 and below	Exceptional and widespread crop/pasture losses. Shortages of water in reservoirs, streams, and wells creating water emergencies.

Source: US Drought Monitor

Figure 4.1 US Drought Monitor Virginia November 7, 2024



While severe droughts are relatively rare in the RRRC Region, even moderate drought conditions can have significant impacts, particularly on agriculture, forestry, and water-dependent industries. The region's diverse landscape, including both rural and more developed areas, means that drought impacts can vary widely across relatively short distances, necessitating localized monitoring and response strategies.

Past Occurrences

There are several sources of record for historic drought events, one of the most authoritative among them being the US Drought Monitor. Figures 4.2.1 through 4.2.5 below show the time series drought monitoring for each RRRC Region locality since the year 2000.[3]

[3] https://droughtmonitor.unl.edu/DmData/TimeSeries.aspx

Figure 4.2.1 Culpeper County, Percent Area in U.S. Drought Monitor Categories

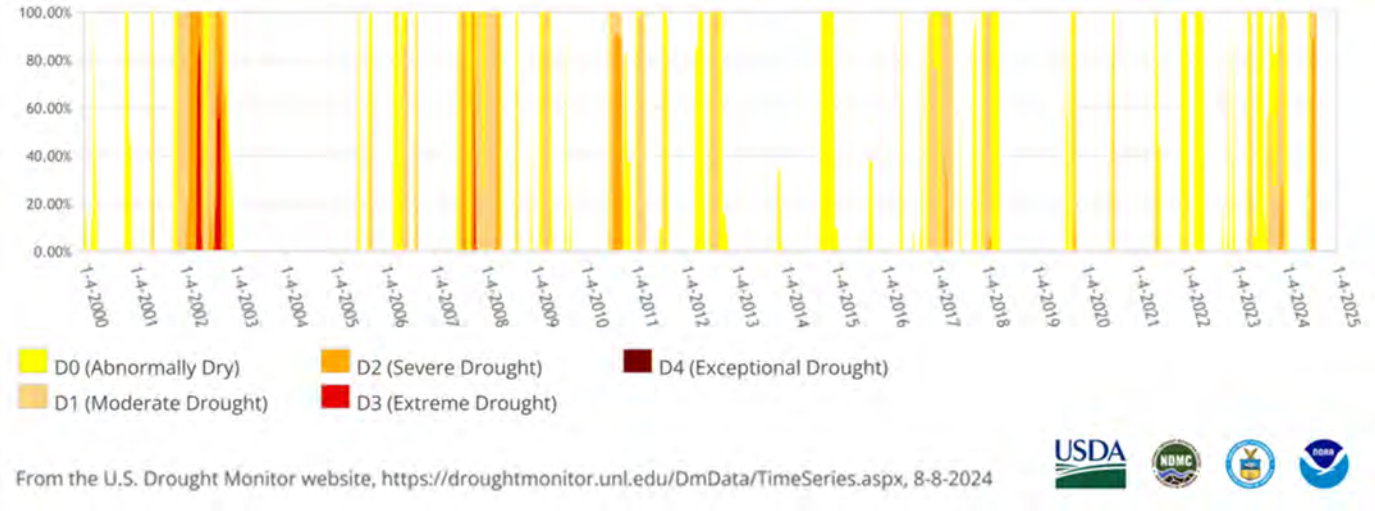


Figure 4.2.2 Fauquier County, Percent Area in U.S. Drought Monitor Categories

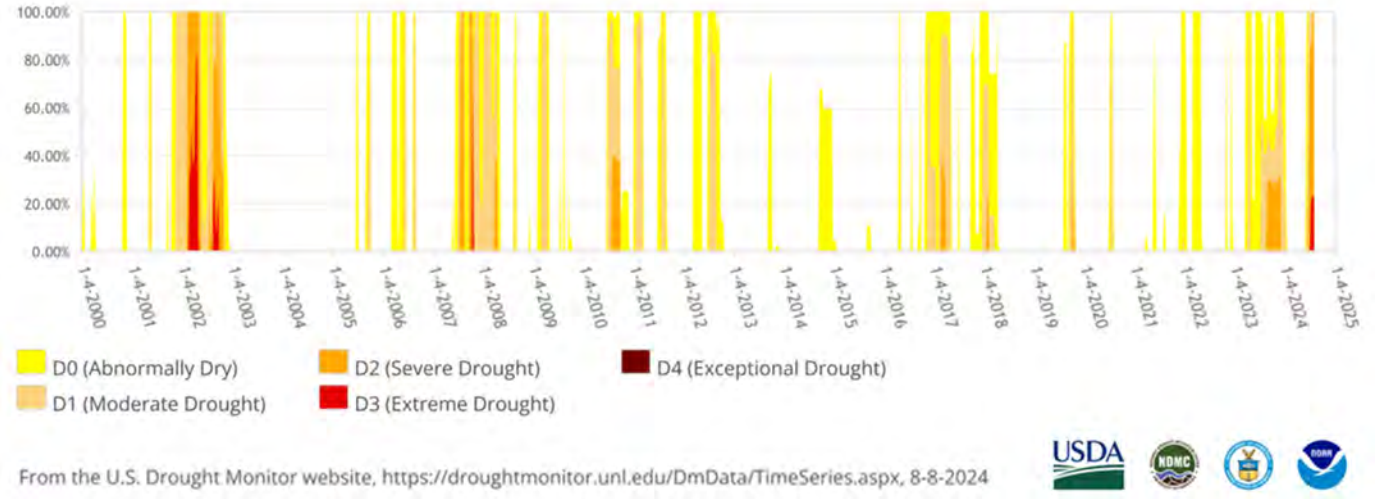


Figure 4.2.3 Madison County, Percent Area in U.S. Drought Monitor Categories

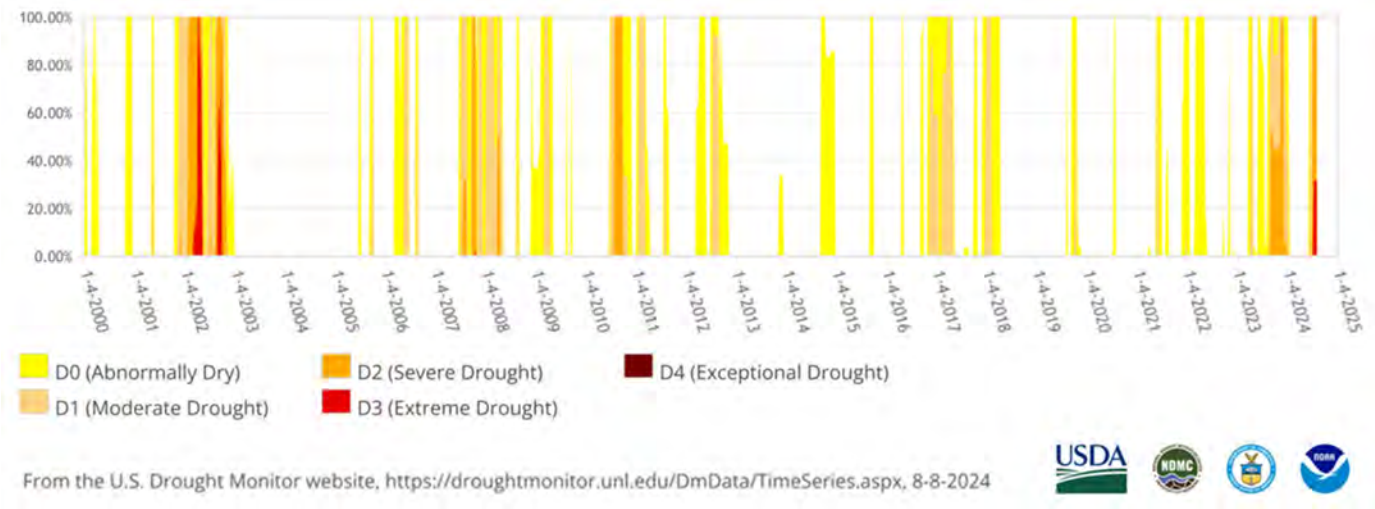


Figure 4.2.4 Orange County, Percent Area in U.S. Drought Monitor Categories

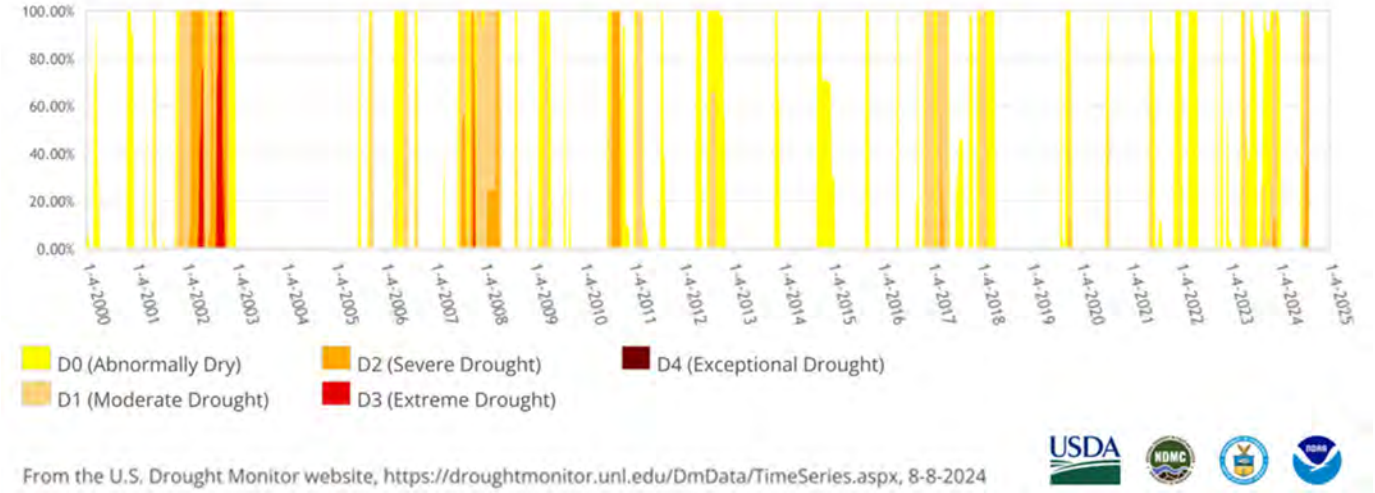
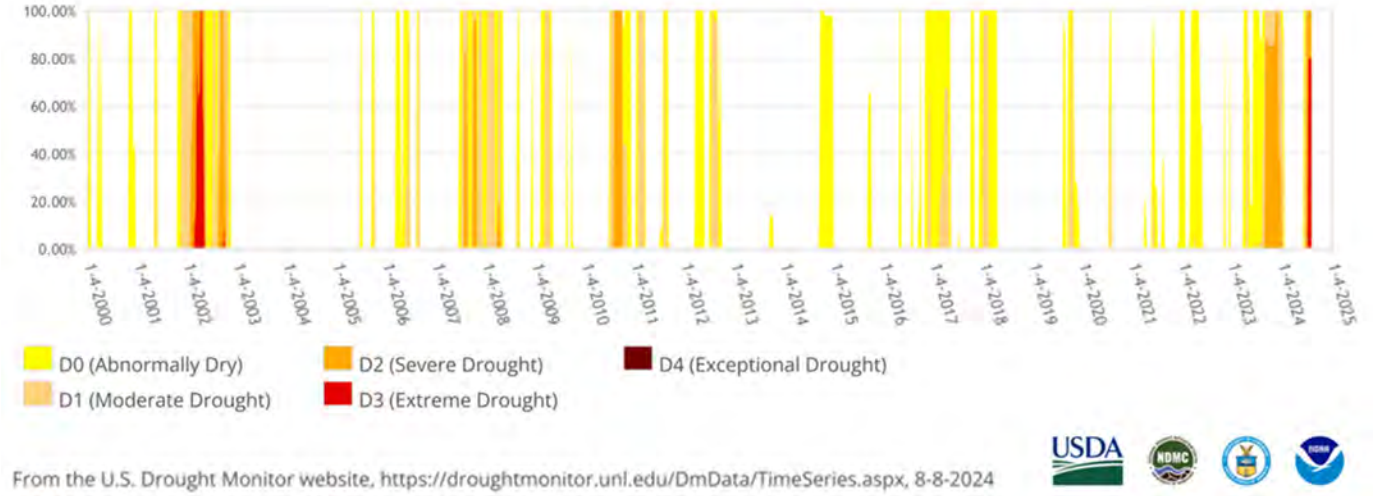


Figure 4.2.5 Rappahannock County, Percent Area in U.S. Drought Monitor Categories



The FEMA National Climatic Data Center Storm Events Database collates recordings of drought events, with several events since 1997 where at least one RRRC locality experienced drought conditions. Those events and the combined agricultural damages are given in Table B.1 NCDC Drought Events found in Appendix B.

Likelihood of Future Occurrence

Drought is a recurring natural hazard that impacts the RRRC Region with varying frequency, duration, and intensity. While the exact probability of future drought occurrences is challenging to quantify due to the complex interplay of meteorological, hydrological, and climatological factors, historical trends and current climate projections provide insights into the likelihood of future drought events.

The Virginia Department of Emergency Management (VDEM) rates Virginia's overall drought risk as "Significant," noting that Virginia communities experienced approximately 20 years of severe drought in the last century. This historical pattern suggests that severe drought conditions can be expected to occur in the state, on average, once every five years. However, it's important to note that drought frequency and intensity can vary considerably across different regions of the state.

For the RRRC Region specifically, the probability of future drought occurrences remains high, although the exact timing, location, and severity of these events are difficult to predict with precision. The region experiences some level of drought conditions almost annually, ranging from abnormally dry periods to more severe, prolonged droughts. FEMA's National Risk Index provides predicted annual frequencies of drought events (in number of events per year) for each locality in the RRRC region based off of historical trends.

Table 4.2 – NRI Predicted Drought Events per Year/Annual Frequency

County	Annual Events
Culpeper	3.11
Fauquier	2.76
Madison	3.65
Orange	4.02
Rappahannock	3.38
RRRC Region	

It is worth noting that while no severe droughts (D3-D4 on the U.S. Drought Monitor scale) have occurred in the Orange and Culpeper counties since the early 2000s, this does not necessarily indicate a decreasing trend in drought probability. Fauquier, Madison, and Rappahannock Counties experienced more severe droughts for the region in 2024. Drought conditions can develop rapidly, and past patterns may not always be indicative of future occurrences.

4.1.2 DAM FAILURES

Dam failure includes the collapse, overtopping, breaching or other events that result in the uncontrolled release of water or sludge from an impoundment, with subsequent downstream flooding. Dam failure can result from natural events, human-induced events, or a combination of the two. Failures due to natural events such as hurricanes, earthquakes or landslides are significant because there is generally little or no advance warning.

Despite their many benefits, if not designed, constructed, and maintained properly, dams may pose a significant risk to downstream communities. Dam or levee failures may occur with little warning. They may result from the effects of intense storms, debris jams or sudden snowmelt. Failure of even small structures can result in loss of life and significant property damage.

Potential causes of dam failure include:

- Prolonged periods of rainfall and flooding;
- Inadequate spillway capacity;
- Internal erosion or piping within the dam or foundation;
- Improper design, construction materials or methods;
- Improper maintenance or operation;
- High winds creating erosion from wave action;
- Earthquakes;
- Landslides;
- Failure of upstream dams; and
- Intentional sabotage or terrorism

The Virginia Soil and Water Conservation Board (VSWCB) administers the Virginia Dam Safety Program through the Department of Conservation and Recreation's Division of Dam Safety and Floodplain Management. This program aims to ensure the proper and safe design, construction, operation, and maintenance of dams in the Commonwealth. Dams meeting specific size criteria are regulated under this program. DCR's hazard potential classifications descend in order from high to low, high having the greatest potential for adverse downstream impacts in event of failure. This classification is unrelated to the physical condition of the dam or the probability of its failure.

Table 4.3 Dam Classification

Hazard Potential	Failure Effects	Inspection
High	Probable loss of human life, serious economic impact (buildings, facilities, major roads, etc.)	Annual, with inspection by professional engineer every 2 years.
Significant	May cause loss of human life or appreciable economic impact (buildings, secondary roads, etc.)	Annual, with inspection by professional engineer every 3 years.

Low	No expected loss of human life, no more than minimal economic impact.	Annual, with inspection by professional engineer every 6 years.

Source: DCR Dam Classification (https://www.dcr.virginia.gov/dam-safety-and-floodplains/damclass)

Location, Extent, and Magnitude

As of 2022, DCR reports the following hazard classifications for regulated dams in Virginia:

- 354 High Hazard (including 4 Special High Hazard)
- 165 Significant Hazard
- 263 Low Hazard
- Over 1,800 Unknown Hazard (requiring further study)

Within the RRRC Region, there are 54 state-regulated dams with known hazard classifications; fifteen (15) High Hazard, sixteen (16) Significant Hazard, and twenty-three (23) Low Hazard.

Table 4.4 below provides a summary of regulated dams by hazard classification for each county in the region.

Table 4.4: National Inventory of Dams in RRRC Region

Community	Downstream Hazard Potential			
	High	Significant	Low	Undetermined
Culpeper County	4	3	3	21
Fauquier County	10	9	4	8
Madison County	1	2	11	6
Orange County	2	2	5	8
Rappahannock County	2	0	0	22
RRRC Total	19	16	23	65

Source: National Inventory of Dams (https://nid.sec.usace.army.mil/#/)

Risks from high hazard dam failures can include:

- Loss of life and serious economic impacts to downstream areas
- Damage to buildings, roads, bridges, and other infrastructure
- Disruption of utilities and critical facilities
- Environmental damage
- Loss of reservoir services like flood control, water supply, recreation

Emergency Action Plans for high hazard dams contain detailed information on potentially impacted downstream areas, including population at risk, critical facilities, evacuation routes, and inundation mapping. This information allows for proper emergency planning and response.

While dam failures are rare, the potential impacts can be catastrophic, especially for high hazard dams. Continual assessment, maintenance, and emergency planning are critical to mitigate risks from the state's aging dam infrastructure.

Past Occurrences

There is no official compendium of past dam break events in Virginia, with the most significant recorded by reporting being outside the RRRC Region. However, the Virginia State Hazard Mitigation Plan has compiled a list of events from the DCR Dam Safety and Floodplain Management department. The only event listed in the region is the November 12, 2020, partial failure of the low-hazard Spotswood Drive Dam in Orange County.

Likelihood of Future Occurrence

The likelihood of future dam failures in the RRRC Region is difficult to predict precisely but is generally considered to be low due to regulatory oversight and ongoing maintenance efforts. However, dam failure is a low-probability high-risk event, and the potential for significant consequences from a high hazard dam failure means the risk should not be discounted. Climate change and downstream development may also increase future risks, requiring ongoing evaluation of hazard classifications and spillway capacities.

The Virginia Department of Conservation and Recreation (DCR) Division of Dam Safety and Floodplain Management (DSFPM) estimates the following annual risks of failure based on dam hazard classification:

- Low Hazard Dams: 1% annual chance of failure
- Significant Hazard Dams: 0.0001% annual chance of failure
- High Hazard Dams: 0.000001% annual chance of failure

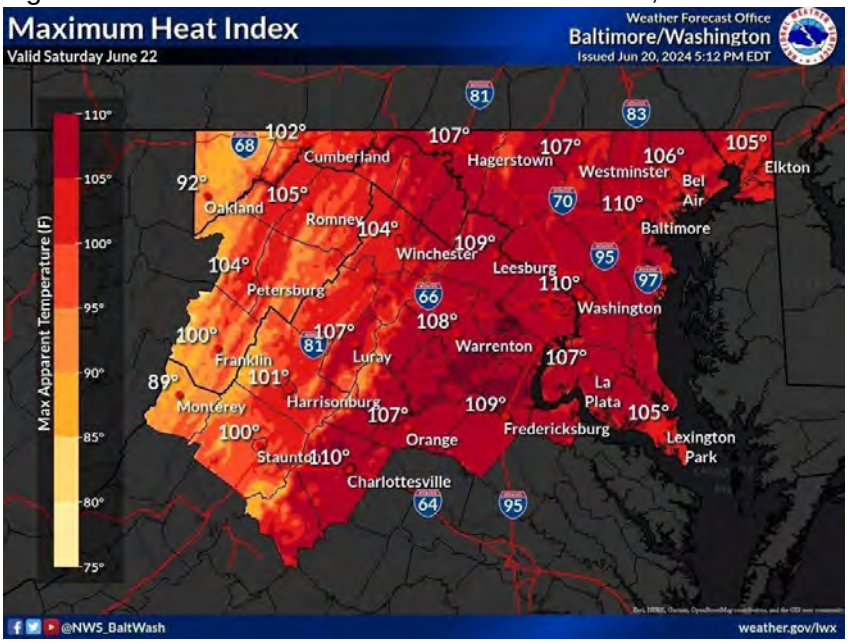
These estimated failure rates are based on the expected rainfall events that would cause a hydrologic failure for dams designed to each hazard category's standards. However, it's important to note that dam failures can occur due to various factors beyond extreme rainfall, including structural deficiencies, inadequate maintenance, or intentional acts.

Virginia DSFPM uses predictive modeling related to dam failure risk under specified conditions to produce dam break inundation zone maps. These analyses provide information related to site-specific potential failure modes and offers predictions of the downstream consequences if the dam were to fail during a storm event or on a “sunny day.” These inundation maps should be used for long-term planning of dam break situations.

4.1.3 EXTREME HEAT

An extreme heat event, also known as a heat wave, is characterized by prolonged periods of excessively hot temperatures, often combined with high humidity. The National Weather Service defines extreme heat as temperatures that hover 10°F or more above the average high temperature for a region and last for several weeks.

Figure 4.3 – Extreme Heat Forecast for June 22, 2024



Source: National Weather Service

Under normal conditions, the human body cools itself through perspiration, as sweat evaporates from the skin. However, when relative humidity is high, the evaporation rate of sweat decreases. Relative humidity is defined as the amount of atmospheric moisture present relative to the amount that would be present if the air were to be saturated according to the NWS.[4] This interaction between heat and humidity is expressed as the heat index, or the "feels like" temperature experienced by the human body. Extreme heat conditions of high temperatures and high humidity can severely limit the body's ability to cool itself, potentially leading to heat-related illnesses such as heat exhaustion and heat stroke. Night air temperatures do not cool as much when humidity is higher, often making the impacts worse.

Certain populations are particularly vulnerable to extreme heat events. These include:

- Elderly individuals;
- Young children;
- Persons with pre-existing medical conditions like heart disease or diabetes;
- Individuals with respiratory difficulties;
- People who are overweight or obese;
- Low-income households that may lack air conditioning;
- Outdoor workers exposed to hot conditions; and

[4] NOAA National Weather Service – Glossary; https://forecast.weather.gov/glossary.php?word=humidity

- Athletes and others engaging in strenuous outdoor activities.

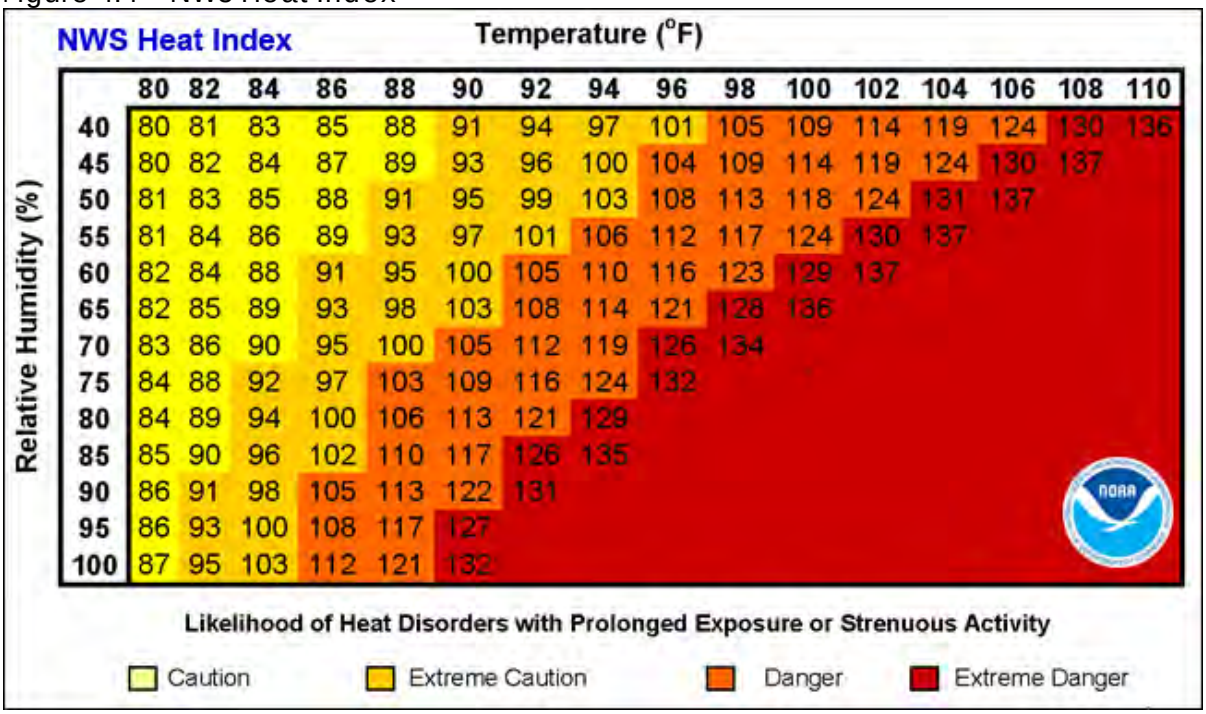
The impacts of extreme heat are often exacerbated in urban areas due to the urban heat island effect. This phenomenon occurs when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat. This effect can cause urban areas to be significantly warmer than surrounding rural areas, particularly at night. The urban heat island effect can increase energy costs for cooling, elevate emissions of air pollutants and greenhouse gases, impair water quality, and compromise human health and comfort.

Location, Extent, and Magnitude

The entire RRRC Region is susceptible to extreme heat events, which typically impact large geographic areas not confined to specific boundaries. However, urban and developed areas within the region may experience more intense effects due to the urban heat island phenomenon.

The extent and magnitude of extreme heat events are typically measured and expressed using the heat index. The heat index, also known as the "apparent temperature," is a measure of how hot it feels when relative humidity is combined with the actual air temperature. The figure below shows the National Weather Service's Heat Index Chart, which demonstrates how the heat index is calculated based on air temperature and relative humidity.

Figure 4.4 – NWS Heat Index



The National Weather Service uses heat index thresholds as criteria for issuing heat advisories and excessive heat warnings:

- Heat Advisory: Issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Advisory is when the maximum heat index temperature is expected to be 100°F or higher for at least 2 days, and nighttime air temperatures will not drop below 75°F.
- Excessive Heat Watch: Issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. A Watch is used when the risk of a heat wave has increased but its occurrence and timing is still uncertain.
- Excessive Heat Warning: Issued within 12 hours of the onset of extremely dangerous heat conditions. The general rule of thumb for this Warning is when the maximum heat index temperature is expected to be 105°F or higher for at least 2 days and nighttime air temperatures will not drop below 75°F.

While extreme temperatures in the RRRC Region may not reach the levels seen in more southerly parts of the nation, summer days can occasionally reach over 100°F, often accompanied by high humidity. These conditions, even if not meeting official extreme heat criteria, can still pose significant health risks, particularly to vulnerable populations.

Past Occurrences

A more recent analysis conducted for the 2023 Virginia State Hazard Mitigation Plan examined maximum monthly average high temperatures between January 1895 and April 2022. This analysis revealed that over the past 20 years, high temperatures were mainly concentrated in the southwest portion of the state. However, within the last 15 and 3 years, high temperatures were more frequently recorded in the eastern portions of the state, including areas within and near the RRRC Region.

The NOAA National Climatic Data Center Storm Events Database notes that there were 14 days between 2018 and May 2024 where sustained temperatures in the region were higher than 105 degrees.

Figure 4.5 - Viriginia Heat Related Illness Visits per County, 2024[5]

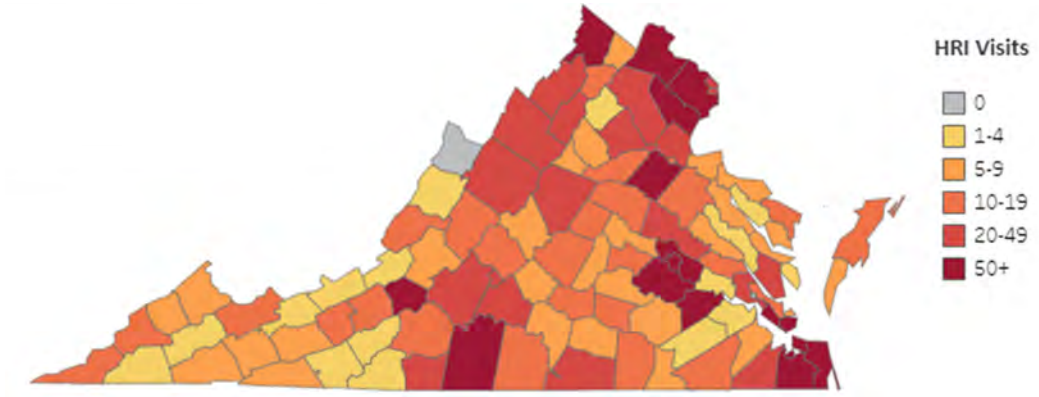
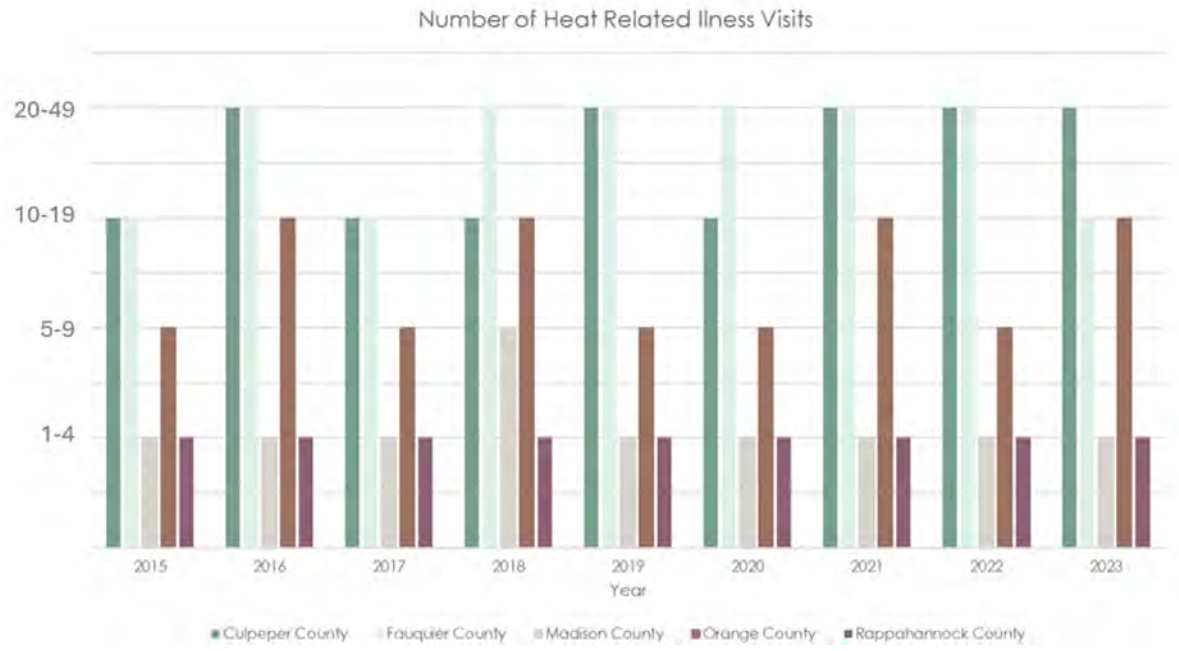


Figure 4.6 – Number of Heat Related Illness Visits per County

[5] Virginia Department of Health, https://www.vdh.virginia.gov/surveillance-and-investigation/syndromic-surveillance/hri-surveillance/



Likelihood of Future Occurrence

The magnitude of extreme heat events in the region may increase in the coming decades due to climate change. Climate projections indicate a trend towards more frequent, more intense, and longer-lasting heat waves in Virginia. Increased development and urbanization will also contribute to more local heat events.

The FEMA National Risk Index estimates the annual chance of each locality in the RRRC region based off historical events.

Table 4.5 – NRI Annual Chance of Extreme Heat

County	Annual Chance
Culpeper	0.74
Fauquier	0.71
Madison	0.42
Orange	0.74
Rappahannock	0.42

4.1.4 WILDFIRE

Description

Wildfire is any unwanted or unplanned uncontrolled fire burning in forests or wildland areas that threatens to destroy life, property, or natural resources. Wildfires can occur at any time of year but are most common in Virginia during the spring (March-April) and fall (October-November) when relative humidity tends to be lower, winds higher, and vegetation more readily combustible. In hardwood forests, leaf litter on the forest floor is exposed to drying sunlight and wind when trees are bare.

Figure 4.7 – Wildfire in Market Gap

Source: Rapp News

While wildfires are part of natural ecosystem processes, the vast majority in Virginia (approximately 96%) are caused by human activities, most commonly from debris burning. Only about 3% result from lightning strikes. As development expands into previously undeveloped areas, creating more wildland-urban interface zones, the risk of destructive wildfires increases. Effective management of this increasingly fragile zone is essential to the conservation of forest resources and the preservation of the built environment.

The potential for wildfires exists throughout the RRRC Region, though areas of greatest risk include heavily forested lands and zones where development interfaces with wildlands. Prolonged periods of warm, dry, windy weather increase fire danger, while adequate precipitation reduces it. Drought conditions exacerbate wildfire risk and may hamper suppression efforts if water supplies are inadequate.

Location, Extent, and Magnitude

The extent and magnitude of wildfires can range from small, quickly contained burns of less than an acre to massive conflagrations consuming thousands of acres over days or weeks. Key factors influencing wildfire behavior and severity include:

- Topography: Steeper slopes facilitate faster fire spread through convective preheating of upslope fuels. South-facing slopes receive more direct sunlight, leading to drier fuels.
- Vegetation/Fuel: The type, density, and moisture content of vegetation affects ease of ignition, fire intensity, and rate of spread. Dense, dry fuels with high resin content (like pine forests) burn more readily and intensely. In hardwood stands, trees are bare, allowing sunlight to dry and warm the leaves on the forest floor.
- Weather: Low humidity, high temperatures, and strong winds create ideal conditions for intense, fast-moving wildfires. Drought conditions contribute to fire probability and may limit efforts to suppress wildfires in instances where decreased water supplies are inadequate to quickly contain the fire.
- Human activity: Population density and proximity to roads increase ignition probability, as most wildfires are human caused.

According to Virginia Department of Forestry data, an average of about 700 wildfires occur annually in Virginia, burning approximately 9,500 acres each year. While the largest and most destructive wildfires typically occur in the mountainous western regions of Virginia, all parts of the state, including the RRRC Region, have experienced wildfires.

The impacts of wildfires can be severe and long-lasting. In addition to the immediate threat to life and property, wildfires can destabilize soils, leading to increased erosion and flood risk, particularly in areas with steep topography. The effects on soil stability and hydrology can persist for years. Dense smoke from wildfires can create health hazards and reduce visibility over large areas. Land management measures including the development of fire roads, storage of water for emergency use, safety buffers, firebreaks, and fuel management can be developed as part of an overall fire defense system to aid in fire control. Education of those who use forested areas for recreation or build in wild land areas is of primary importance in reducing wildfires.

Past Occurrences

Since 2013, 4,864 acres have burned in wildfires in the RRRC region, 91% of which were forested.[6] The Virginia state Hazard Mitigation Plan provides a list of significant historic wildfire events throughout Virginia. This information can be found in Table A.2 Wildfire Events in Appendix – Hazard Incident Tables.

Likelihood of Future Occurrence

The FEMA National Risk Index provides annual frequencies of wildfires based off past events. The annual chance for each RRRC locality is noted in Table 4.6 below.

[6] Source: VDOF

Table 4.6 – NRI Annual Chance of Wildfire

Locality	Annual Chance
Culpeper	0.07%
Fauquier	0.06%
Madison	0.09%
Orange	0.06%
Rappahannock	0.10%

These numbers represent the chance of large, uncontrolled wildfires, whereas VDOF data provides a better look at the chance of smaller wildfires throughout the region.

The probability of future wildfire occurrences in the RRRC Region is influenced by a complex interplay of factors including weather conditions, human activities, and landscape characteristics. While precise quantitative predictions are challenging, increased human activity and urban/wildland boundaries, changing weather and climate (especially in the Spring and Fall), could all contribute to increased wildfires in the future. Sound forest land management including reducing fuel loads through vegetation and debris management are critical for reducing wildfires in the future.

The Virginia Department of Forestry (VDOF) Wildfire Risk Assessment provides insight into the relative propensity for wildfires across the state, including the RRRC Region.[7] However, this assessment does not assign specific probabilities of occurrence to particular areas. Wildfire risk should instead be understood as a continuum influenced by ongoing changes in climate, land use, and human activity patterns. Changes in climate during seasons when wildfires are common could extend the window for wildfire conditions as relative humidity, precipitation, and air temperatures all play a critical role in igniting and expanding wildfires. Expansions of developed areas bring human activity closer to areas prone to wildfires, creating an urban/wildland boundary that puts more property and people at risk.

[7] Not publicly available

4.1.5 EARTHQUAKES

Description

An earthquake is the motion or trembling of the ground produced by sudden displacement of rock in the Earth's crust. Earthquakes result from crustal strain, volcanism, landslides, or the collapse of caverns, and can also be triggered by human activities such as mine blasts or nuclear testing. The sudden release of accumulated energy causes the rupture of rocks along fault planes in the Earth's lithosphere, producing seismic waves that generate ground shaking.

Earthquakes can affect hundreds of thousands of square miles, causing damage to property measured in the tens of billions of dollars, loss of life and injury to hundreds of thousands of persons, and disruption of social and economic functioning across vast areas. Most property damage and earthquake-related deaths are caused by the failure and collapse of structures due to ground shaking. The level of damage depends upon the amplitude and duration of the shaking, which are related to the earthquake size, distance from the fault, and site and regional geology and soil conditions.

Ground shaking from earthquakes can lead to the collapse of buildings and bridges and disrupt utilities. Some secondary hazards caused by earthquakes may include fire, hazardous material release, landslides, flash flooding, avalanches, tsunamis, and dam failure. Smaller earthquakes occur much more frequently than larger earthquakes and generally cause little to no damage. However, large earthquakes can cause tremendous damage and may be followed by a series of aftershocks occurring in the region for weeks after the main event. These aftershocks generally have a smaller magnitude than the main shock but may still be powerful enough to cause additional damage.

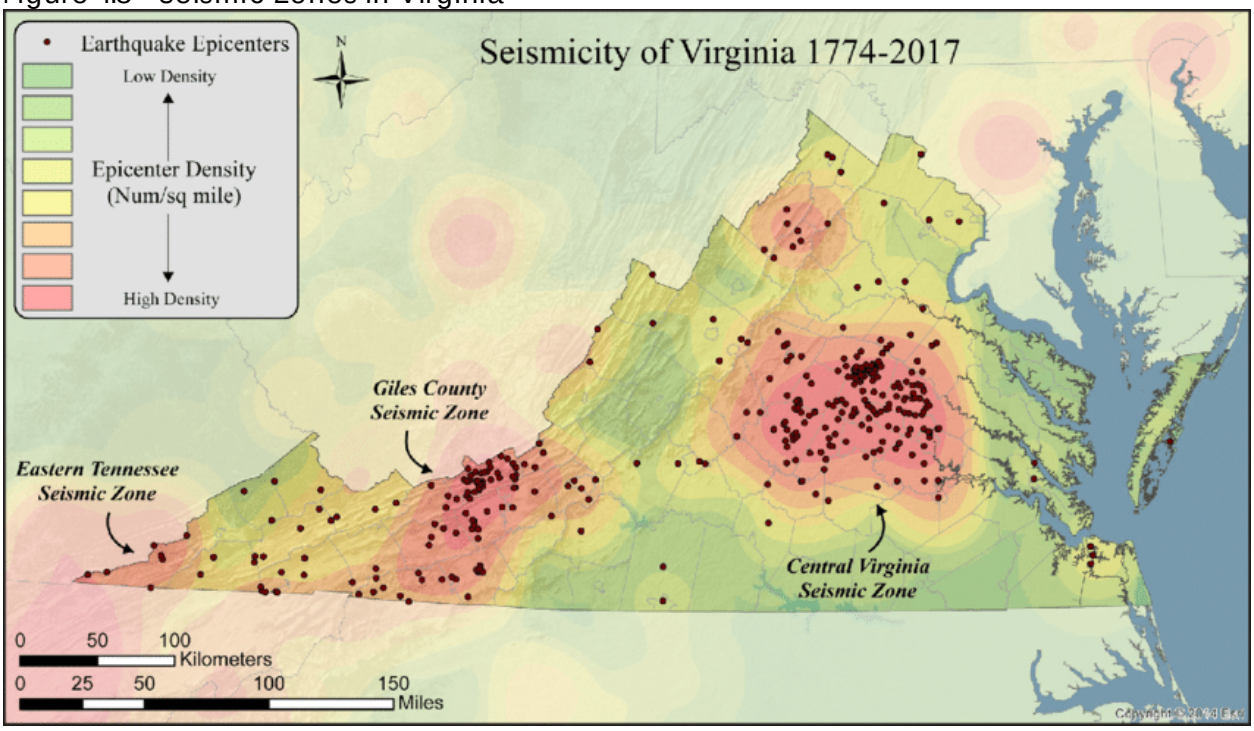
Location, Extent, and Magnitude

Virginia's past seismic activity has been concentrated in two main areas: the Central Virginia Seismic Zone along the James River in the central Piedmont, and the Giles County Seismic Zone in the New River Valley. However, all parts of the Commonwealth have experienced some seismic activity historically, so the entire state, including the RRRC Region, should be considered potentially susceptible to earthquakes.

Additionally, although the Pacific coastal area of the United States is far more likely to experience earthquakes than the eastern coastal region, earthquakes in the Central and Eastern U.S. are typically felt over a much broader region. East of the Rockies, an earthquake can be felt over an area as much as ten times larger than a similar magnitude earthquake on the west coast.

The RRRC Region lies in an area of moderate seismic risk compared to the rest of Virginia. According to the U.S. Geological Survey's seismic hazard maps, the region has a 2% probability in 50 years of experiencing peak ground accelerations of 2% of gravity (0.02g). This puts the region at lower risk than the most seismically active parts of the state, but still at moderate hazard probability overall.

Figure 4.8– Seismic Zones in Virginia



Source: Anne Witt.[8]

Earthquakes are measured in terms of their magnitude and intensity. Magnitude is the amount of energy released by an earthquake and is typically measured using the moment magnitude scale (MMS), which has largely replaced the more familiar Richter Scale. The Richter Scale is mostly effective for regional earthquakes as the moment magnitude is more effective for large earthquakes.[9]The magnitude is determined from the logarithm of the amplitude of seismic waves recorded by seismographs, with adjustments for variation in the distance between the various seismographs and the epicenter of the earthquakes.

Table 4.7– Richter Scale Descriptions

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally, not felt but recorded.
3.5-5.4	Often felt but rarely causes damage.
Under 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas up to about 100 kilometers across where people live.
7.0-7.9	Major earthquake. Can cause serious damage over larger areas.

[8] https://www.researchgate.net/figure/Virginias-seismic-zones-defined-by-areas-of-increased-earthquake-density_fig4_330811527

[9] https://www.usgs.gov/faqs/moment-magnitude-richter-scale-what-are-different-magnitude-scales-and-why-are-there-so-many

8 or greater	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

Intensity describes the earthquake's local effects and perceived strength, typically measured with the Modified Mercalli Intensity (MMI) Scale. This 12-level scale ranges from imperceptible shaking (I) to total destruction (XII) based on observed impacts. The lower numbers of the intensity scale indicate the way people perceive the earthquake, while the higher numbers are based on observed structural damage.

Table 4.8 – Modified Mercalli Intensity Scale for Earthquakes

Scale	Intensity	Description of Effects	Corresponding Richter Scale Magnitude
I	Instrumental	Detected only on seismographs	
II	Feeble	Some people feel it	<4.2
III	Slight	Felt by people resting; like a truck rumbling by	
IV	Moderate	Felt by people walking	
V	Slightly Strong	Sleepers awake; church bells ring	<4.8
VI	Strong	Trees sway; suspended objects swing, objects fall off shelves	<5.4
VII	Very Strong	Mild Alarm; walls crack; plaster falls	<6.1
VIII	Destructive	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged	
IX	Ruinous	Some houses collapse; ground cracks; pipes break open	<6.9
X	Disastrous	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread	<7.3
XI	Very Disastrous	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards	<8.1
XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves	>8.1

Source: North Carolina Division of Emergency Management

Past Occurrences

The August 23, 2011, earthquake centered near Mineral, Virginia (about 15 miles south of the region) demonstrated the Rappahannock-Rapidan area's vulnerability to seismic events. This earthquake reached a magnitude of 5.8 MMS and maximum intensity of VII-VIII MMI in the epicentral area. In the RRRC Region, intensities generally ranged from V-VII, enough to wake sleepers, ring church bells, sway trees, and crack walls in some areas. The earthquake caused significant damage in parts of Culpeper County, where one building was destroyed and several were condemned. No critical infrastructure was rendered unusable, but the event highlighted the potential for earthquake impacts in the region.

The Virginia State Hazard Mitigation Plan provides a list of the most significant earthquakes in the state since 1774, many of which would be felt in the RRRC region.

This information can be found in Table B.3 – Significant Earthquakes in Virginia located in Appendix B.

Likelihood of Future Occurrence

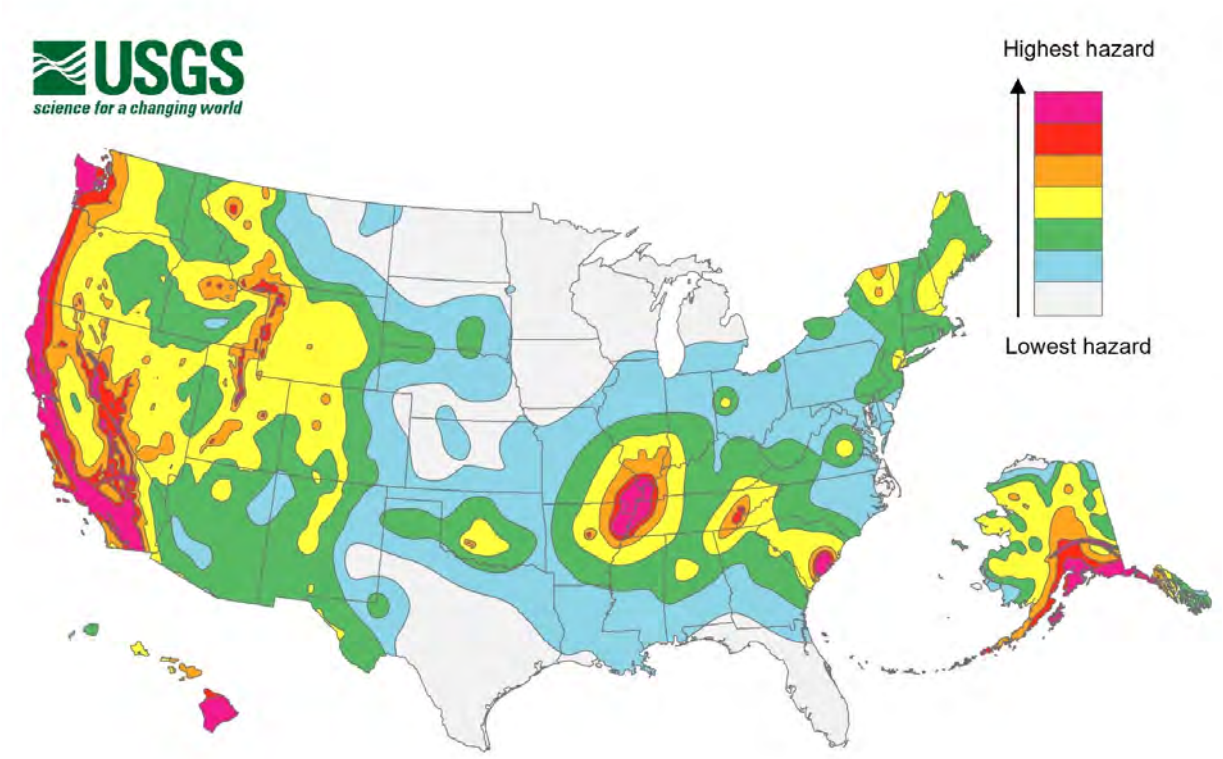
Earthquakes are low probability, high-consequence events in the RRRC Region. While they may occur only once in the lifetime of an asset, their potential impacts can be devastating. The region's moderate seismic risk means that even a moderate earthquake could cause serious damage to unreinforced buildings, building contents, and non-structural systems, as well as significant disruption to operations.

Predicting earthquakes with certainty remains beyond current scientific capabilities, despite extensive research and sophisticated equipment. However, experts can estimate the likelihood of an earthquake occurring in a particular region based on several factors:

1. Ground motion;
2. Proximity to active faults;
3. Soil conditions and bearing capacity;
4. Potential for earthquake-induced landslides; and
5. Presence of bodies of water near buildings (due to potential earthquake-induced waves).

The U.S. Geological Survey (USGS) produces probabilistic ground motion maps to assess the magnitude and frequency of seismic events. These maps measure the probability of exceeding a certain ground motion, expressed as percent peak ground acceleration (%PGA), over a specified period of years.

Figure 4.9 - USGS Probability of Ground Motion Hazard Map



While large magnitude earthquakes are relatively rare in Virginia, the RRRC Region should be prepared for the possibility of both smaller, more frequent events and the remote chance of a larger, more damaging earthquake in the future. The region's moderate seismic risk, combined with its proximity to known seismic zones, necessitates ongoing preparedness and mitigation efforts to reduce potential impacts from future earthquake events.

4.1.6 KARST & SINKHOLES

Description

Sinkholes are common in areas characterized by soluble bedrock including limestone or other carbonates, salt beds, or any rock that can be dissolved naturally by circulating ground water. These evaporite rocks underlie about 35-40% of the United States, though in many areas they are buried at great depths. As the rock dissolves, spaces and caverns develop underground. When the weight of the overlying land mass exceeds subsurface support, a sudden collapse may occur. The degree of susceptibility varies with the extent and character of the soluble rock, its location with regard to the water table and local climate conditions.

Sinkholes vary in size. Under natural conditions, sinkholes form slowly and expand gradually. However, human activities such as dredging, construction of impoundments, diversion of surface water, and groundwater removal can accelerate the rate of sinkhole development, resulting in an abrupt collapse.

Although a sinkhole can form without warning, specific signs can signal potential development:

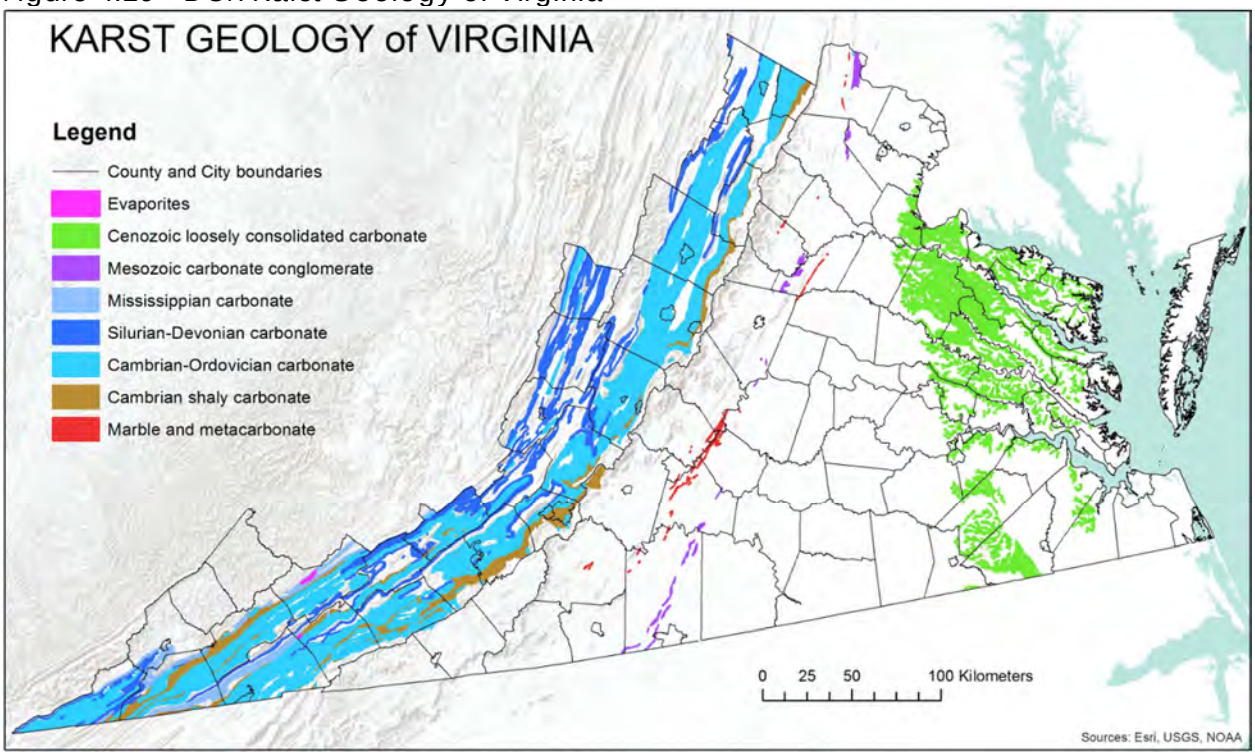
- Slumping or falling fence posts, trees, or foundations;
- Sudden formation of small ponds;
- Wilting vegetation;
- Discoloration of well water; and/or
- Structural cracks in walls or floors.

Sinkhole formation is aggravated and accelerated by urbanization. Development increases water usage alters natural drainage, overloads surface weight, and redistributes surface materials. Although the RRRC Region is not located in Virginia's primary karst areas west of the Blue Ridge, localized areas of carbonate rock may exist. More commonly in this region, sinkholes may form due to the failure of underground infrastructure, particularly aging stormwater systems. Breaks in underground pipes can cause subsurface erosion that may create cavities large enough to cause surface collapses.

Location, Extent, and Magnitude

Sinkholes vary widely in size and rate of formation. They can range from small depressions a few feet in diameter to large collapses over 100 feet wide and deep. Sinkholes may form gradually over years or open suddenly without warning.

Figure 4.10 - DCR Karst Geology of Virginia



While comprehensive data on sinkhole occurrences in the RRRC Region is limited, the risk is generally considered low compared to karst-prone areas of western Virginia. However, localized sinkhole formation remains possible, particularly in areas with aging underground infrastructure.

The impacts of sinkholes depend on their size, location, and rate of formation. Sinkholes can damage buildings, roads, and utility infrastructure. Sudden collapses pose safety risks to people and vehicles. Even small sinkholes can cause significant localized damage.

Past Occurrences
Due to the rarity of true sinkhole development in the region, no data on their occurrence has been compiled.

Likelihood of Future Occurrence
No information regarding the probability of sinkhole development could be found for the region.

4.1.7 LANDSLIDES AND EROSION

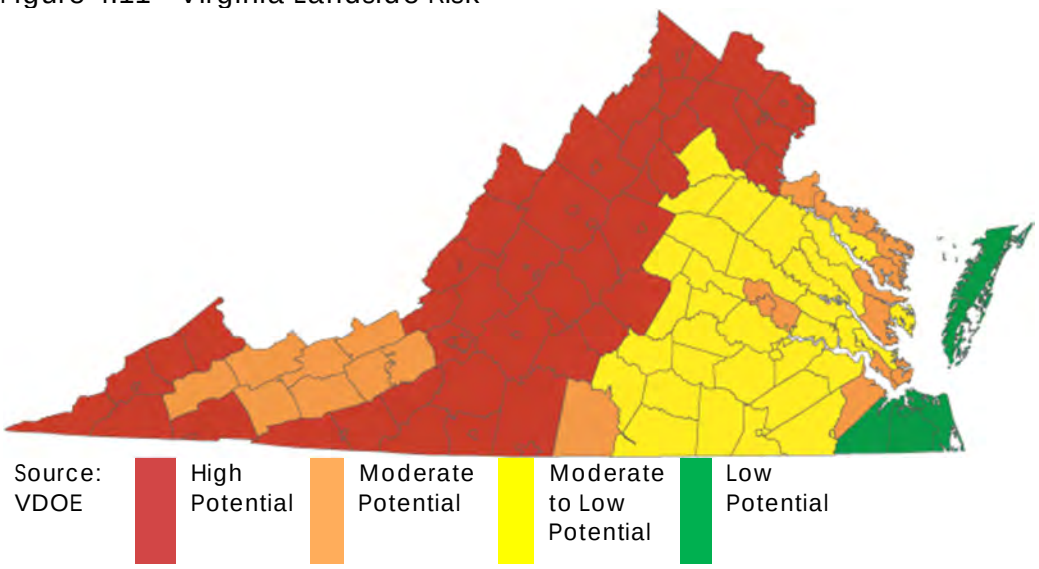
A landslide is the mass movement of earth material down a slope. The process is driven by gravity and may occur instantaneously with a sudden rush of rock and debris or imperceptibly as slow movement over time. Landslides may be triggered by natural events such as heavy rainfall, rapid snow melting, stream incision, earthquakes, and volcanic eruptions. Certain human-caused changes to the land, such as slope modification or drainage alteration, can greatly increase the likelihood of landslides. Landslides are a major geologic hazard. They are widespread, occurring in all 50 states and U.S. territories.

Expansion of urban and recreational development into hillside areas results in increased threat of landslides each year. Landslides may wreck buildings, rupture gas, water, and sewer mains, disrupt power and communication lines, and block transportation routes. Soil creep, slope slump, rockslides and debris flows cause property damage, injuries, and death. In the United States, landslides cause up to $2 billion in damages annually and result in twenty-five to fifty fatalities. Areas prone to landslide hazards include those with historic susceptibility, bases of steep slopes, bases of drainage channels and developed hillsides where gravity flow septic systems are installed.

While gravity is the primary driving force, landslides are usually triggered by other factors that increase stress or reduce the strength of slope materials. Common triggers include:

- Heavy rainfall or rapid snowmelt
- Earthquakes
- Volcanic eruptions
- Changes in groundwater conditions
- Stream and wave erosion at the base of slopes
- Human modification of slopes through construction, deforestation, or changes in drainage patterns

Figure 4.11 - Virginia Landside Risk



Location, Extent, and Magnitude

Landslides vary greatly in their extent, speed, and impacts. They may range from small movements of loose debris on a hillside to massive failures involving millions of cubic yards of material. Extremely rapid, catastrophic failures like debris flows can reach speeds up to 100 mph, while imperceptibly slow movements may only travel a few inches per year.

The impacts of landslides depend on their size, speed, and the vulnerability of downslope areas. Fast-moving landslides like debris flows pose the greatest risk to life safety. Large, slow-moving landslides can cause gradual but extensive damage to property and infrastructure over time.

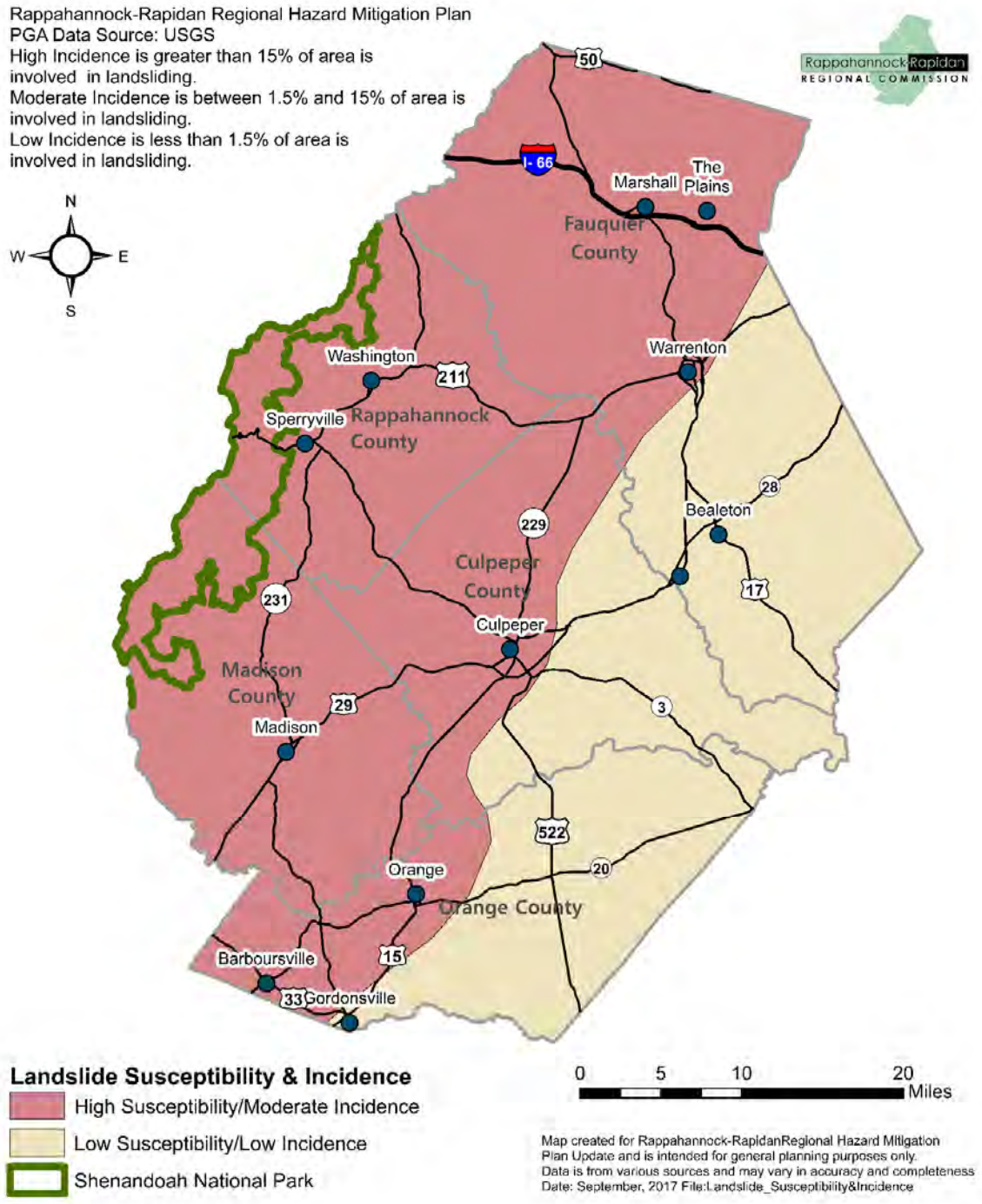
In the United States, landslides cause up to $2 billion in damages annually and result in 25-50 fatalities on average. While catastrophic landslides are rare in the RRRC Region, the area does have some landslide risk, particularly in areas with steeper slopes.
The western portions of Fauquier, Rappahannock, and Madison counties, which include areas of the Blue Ridge Mountains, have higher landslide potential due to steeper terrain, numerous streams, and thinner soils. The eastern parts of the region have lower overall risk but may still experience localized slope failures, often related to human alterations of the landscape.

Areas most prone to landslides include:

- Existing old landslides;
- Base of steep slopes;
- Base of drainage channels;
- Developed hillsides, especially with septic systems;
- Areas where prior landslides have occurred; and
- Steep slopes altered by construction.

While massive landslides are unlikely in most of the region, even small slope failures can block roads, damage buildings, and disrupt utilities. As development expands into more marginal terrain, exposure to landslide risks may increase without proper planning and engineering. The regions susceptibility to landslides is shown in Figure 4.12.

Figure 4.12 - Landslide Susceptibility



Past Occurrences

The most significant landslide event in the region occurred in Madison County. The United States Geological Survey publication, *Debris-Flow Hazards in the Blue Ridge of Virginia*, describes it: "In the summer of 1995, a major landslide event occurred in Madison County, Virginia. During an intense storm on June 27th, 30 inches of rain fell in 16 hours. In the mountainous areas of the county, rain saturated landslides known as debris flows were triggered by the hundreds. The Rapidan, Robinson, and Conway Rivers flooded the lowlands, wreaking widespread destruction. Because of the severity of the storm's effects, rural communities such as Graves Mill were isolated when bridges, roads, and power and telephone lines failed. The full extent of the damage was not recognized until aerial surveys were conducted several days later. The county was then declared a Federal Disaster Area by the President."[10]

Likelihood of Future Occurrence

The below chart from FEMA's National Risk Index provides a comparative analysis of landslide risk across five Virginia counties, Fauquier, Orange, Madison, Culpeper, and Rappahannock, based on a Risk Index Score, Risk Index Rating, and National Percentile. The Risk Index Score (ranging from 0 to 100) reflects a composite measure that considers the expected annual losses from landslides (based on hazard frequency and severity), social vulnerability (susceptibility of the population to harm), and community resilience (ability to respond and recover). For example, Fauquier County has a "Relatively Moderate" risk with a score of 78.86, indicating a higher relative exposure and vulnerability to landslide impacts compared to its peers, which all fall into the "Relatively Low" category with much lower scores. These scores are standardized and then ranked nationally, with the National Percentile showing where a county falls in relation to all other U.S. counties. In this chart, all listed counties fall below the 50th percentile nationally, with Fauquier scoring highest among them. The data integrates FEMA hazard modeling, U.S. Census data, and infrastructure/exposure datasets to quantify localized risk.

Landslide

Rank	Community	State	Risk Index Rating	Risk Index Score	National Percentile
1	Fauquier County	VA	Relatively Moderate	78.86	0 100
2	Orange County	VA	Relatively Low	40.93	0 100
3	Madison County	VA	Relatively Low	33.12	0 100
4	Culpeper County	VA	Relatively Low	30.39	0 100
5	Rappahannock County	VA	Relatively Low	26.69	0 100

Figure 4.13, Landslide Risk, National Risk Index, FEMA

[10] https://pubs.usgs.gov/fs/1996/0159/report.pdf

Erosion

In the Rappahannock-Rapidan region, erosion hazards are primarily associated with streambank erosion, hillslope instability, and soil loss driven by intense precipitation events, land disturbance, and natural topography. While the region does not experience coastal erosion, fluvial erosion along rivers and creeks is a concern, particularly during high-intensity rainfall that increases runoff and stream velocity. According to the USDA NRCS Soil Survey data, several areas in the region contain Highly Erodible Lands (HEL) and steep slopes exceeding 15%, which are more susceptible to erosion. Additionally, localities have experienced road washouts, culvert undermining, and slope failures, suggesting a recurring pattern of erosion during major storms.

Location, Extent, and Magnitude

There is no particular location or magnitude rating for erosion in the RRRC Region; rather, it is an ongoing natural process that must be accounted for. Erosion potential is generally determined by a number of factors including surface composition, vegetative cover, topography, weather, and climate.

Loose, unconsolidated materials on steep slopes with no vegetative cover are far more likely to erode than compacted particles on vegetated plains. Vegetation plays a key role in controlling erosion. It intercepts the force of falling rain, absorbs runoff, slows the velocity of sheet flow and wind, and holds soil particles in place. As might be expected, the topography of an area also influences its susceptibility to erosion. The greater the gradient and slope length, the more areas are prone to erosion. Frequency, intensity, and duration of rainfall also influence erosion potential. The largest hazard risk consequence of ongoing erosion is the potential for landslides, where erosion contributes to conditions on landslide-prone slopes.

Past Occurrences

Beyond landslides that may have occurred due to contributions from erosion, there is no compendium of past or current erosion events.

Likelihood of Future Occurrence

The probability of future erosion events is expected to increase as extreme rainfall events become more frequent due to changing climate conditions. The table below provides a qualitative assessment of erosion risk by jurisdiction, based on slope, soil type, land use, and observed erosion impacts.

Specifically, the probability was determined using a qualitative assessment framework incorporating: (1) physical susceptibility based on NRCS soil classification and terrain slope analysis; (2) observed impacts from local maintenance records and stakeholder reports; and (3) precipitation trend projections from NOAA and regional climate assessments. Where two or more of these indicators converged—such as in parts of Culpeper and Madison Counties, the probability of future erosion was classified as *“likely,”* meaning an annual or near-annual chance of occurrence. This methodology aligns with FEMA guidance and enables locally relevant risk characterization despite the absence of a centralized erosion incident database.

Table 4.9: Probability of Future Erosion Events by Jurisdiction

Locality	Primary Erosion Concern	Risk Factors	Probability Rating
Culpeper County	Streambank erosion along Rapidan River and tributaries	Development pressure, steep slopes, erodible soils, flash flooding	Likely
Fauquier County	Streambank erosion, roadside embankment failures	Rural roads, development pressure, moderate slopes, stormwater runoff	Possible
Madison County	Hillslope erosion on agricultural and forested land	Slopes >15%, land disturbance, erodible soils	Likely
Orange County	Roadside slope erosion, localized gullying	Development pressure, inadequate drainage controls	Possible
Rappahannock County	Minor stream bank erosion in rural areas	Forested areas with low density, steep slopes, limited data	Unlikely to Possible

Probability ratings are based on FEMA's qualitative scale: "Unlikely" (≤1% annual chance), "Possible" (1–10% annual chance), "Likely" (10–100% annual chance), and "Highly Likely" (nearly 100% annual chance).

Sound land management practices in construction and agriculture minimize the impacts of erosion including soil loss, stream degradation, landscape alteration, and landslides. As the importance of effective erosion control has gained increased attention, so has recognition of the need for regulatory programs and the development of erosion control products, practices, and site development methodologies. Preservation and/or restoration of natural vegetation, other forms of stream bank stabilization, and the implementation of erosion and sediment control regulations are recognized as fundamental to managing erosion.

4.1.8 FLOOD

Description
Flooding occurs when an area that is normally dry becomes inundated with water. Flooding is the most frequent and costly natural hazard in the United States. Nearly ninety percent of presidential disaster declarations result from natural events in which flooding is a major component. Historically, Virginia's most significant floods have been associated with hurricanes and tropical storms.

While floods are typically long-term events that may last for several days, this is not always the case. For the most part, the severity of a flooding event is determined by a combination of overall weather patterns, topography, the type and duration of the precipitation event, existing soil moisture, and the extent and type of vegetative cover. Human activities, particularly urbanization and the associated increase in impervious surfaces, can significantly exacerbate flooding by increasing runoff and altering natural drainage patterns.

Types of floods include riverine, flash floods, coastal, and urban, with the first two being Virginia's most significant and most likely to occur within the RRRC Region. Riverine flooding results from excessive precipitation and high runoff volumes over a large area. In Virginia, riverine flooding often begins with widespread flash flooding of small streams. This may result from a series of small storms or the impact of larger systems including tropical storms, hurricanes, and northeasters. Snowmelt may also contribute to excessive runoff.

Flash floods, as the name suggests, strike quickly. Resulting from intense rainfall rates that quickly exceed surface absorption capacity, flash floods are often associated with slow-moving thunderstorms, hurricanes, and tropical storms. Streams, creeks, and drainage-ways quickly become raging torrents. More frequently occurring along mountain streams, flash floods also affect highly urbanized areas where impervious surfaces offer no opportunity for infiltration. Rapidly moving walls of water and associated debris can uproot trees, roll boulders, destroy buildings, and obliterate bridges and roads. Flash floods also may result from the sudden release of water blocked by a shifting ice jam or the spontaneous failure of a dam or levee. The region's topography, with its mix of steep mountain slopes and broad river valleys, makes it particularly susceptible to these types of flooding events.

Location, Extent, and Magnitude
Flooding can potentially occur anywhere in the RRRC Region, but it is most common and severe along major rivers and their tributaries. The region is drained by three major rivers - York, the Rappahannock, and the Potomac - all of which flow to the Chesapeake Bay. Each of these rivers have numerous tributaries that are prone to flooding during heavy rainfall events or rapid snowmelt.

The extent and magnitude of flooding in the region can vary widely depending on the specific event and local conditions. Flash floods can occur with little warning, particularly in the more mountainous western portions of the region where steep slopes can rapidly channel water into narrow valleys. These events can produce rapidly rising water levels and high velocity flows capable of moving large amounts of debris.

Riverine flooding typically develops more slowly but can last for several days or even weeks. The extent of riverine flooding is generally well-defined by FEMA's Flood Insurance Rate Maps (FIRMs), which delineate Special Flood Hazard Areas (SFHAs) - areas with a 1% annual chance of flooding (also known as the 100-year floodplain). However, it's important to note that significant flooding can and does occur outside of these mapped areas.

Figures 4.13.1 through 4.13-5 illustrate the flood hazard areas within each county and town, as well as conserved lands to depict lands conserved with the floodplain. It should be noted that the towns of Madison and Orange do not have any floodplains within their corporate boundaries.

Figure 4.13.2 – Culpeper County 100-year Floodplain and Conserved Land

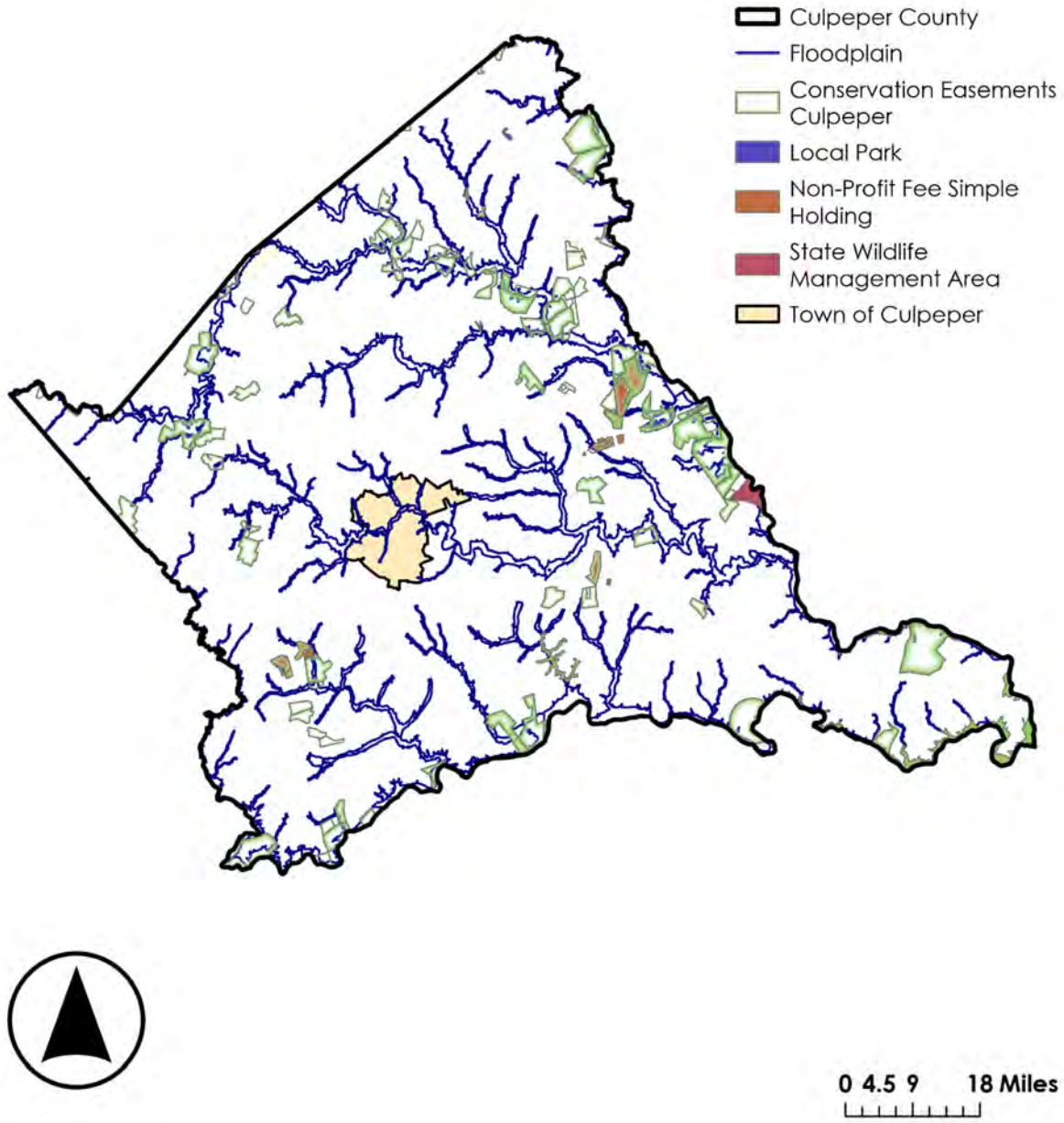


Figure 4.13.2 – Fauquier County 100-year Floodplain and Conserved Land

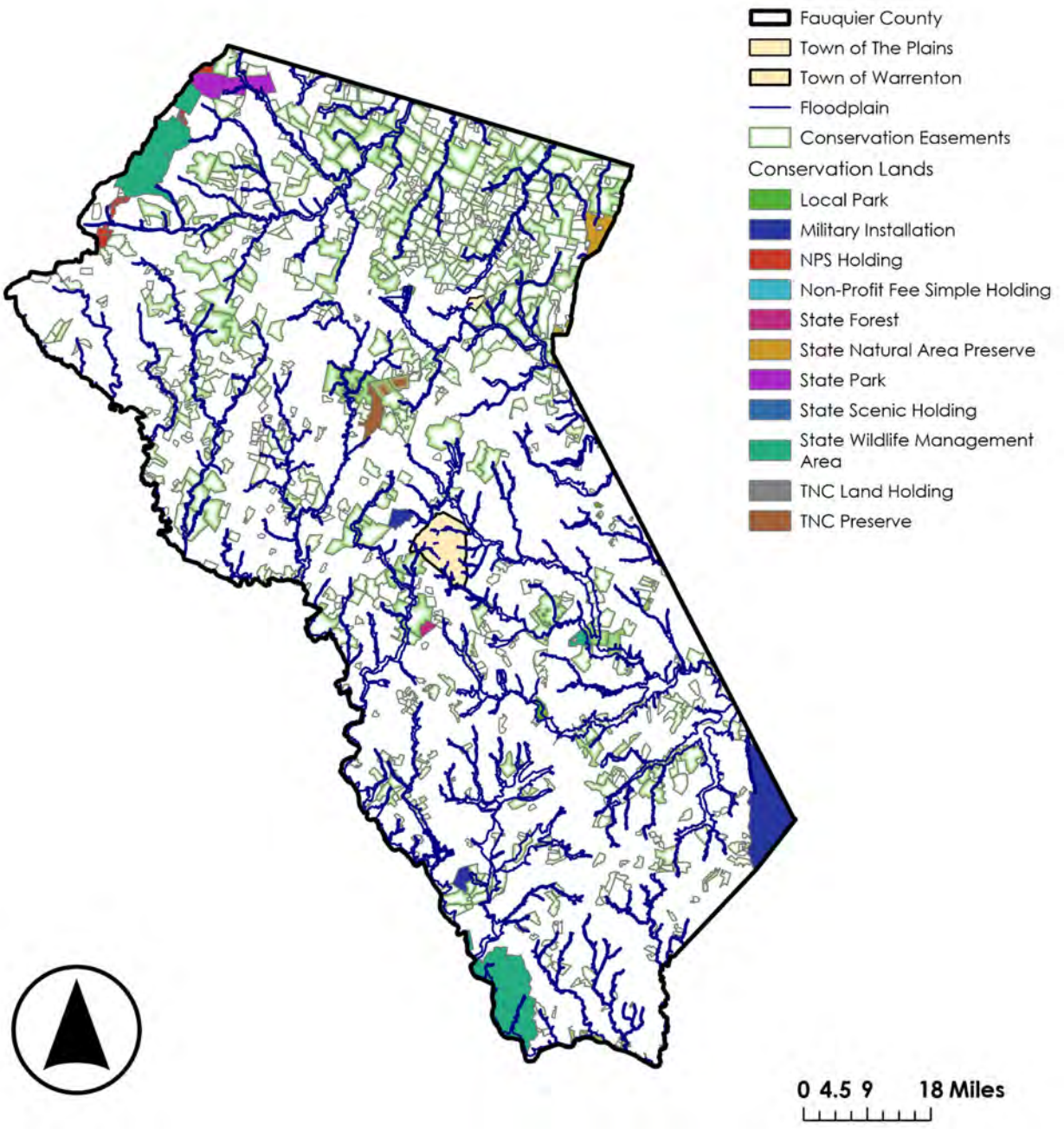


Figure 4.13.3 - Madison County 100-year Floodplain and Conserved Land

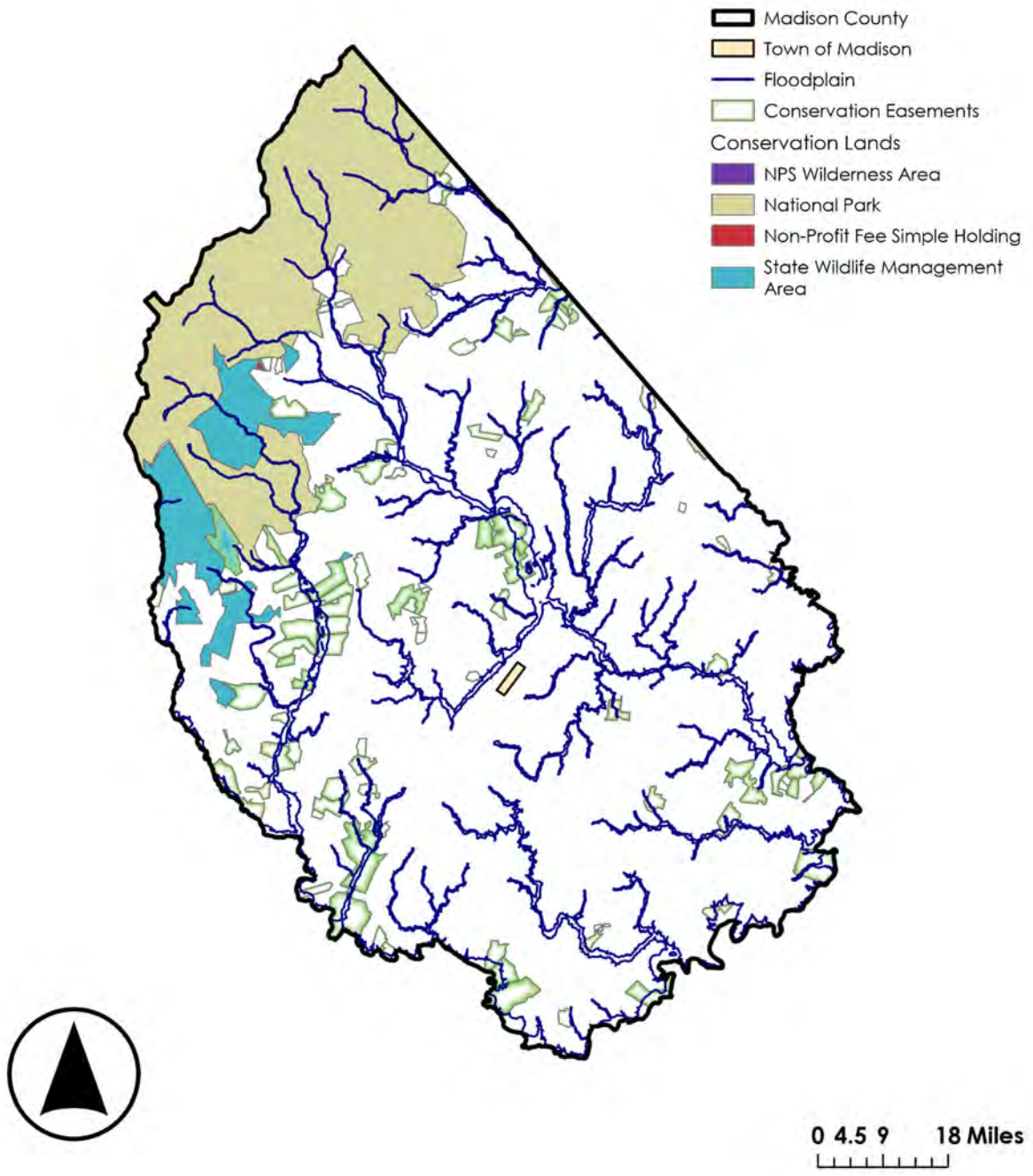


Figure 4.13.4 – Orange County 100-year Floodplain and Conserved Land

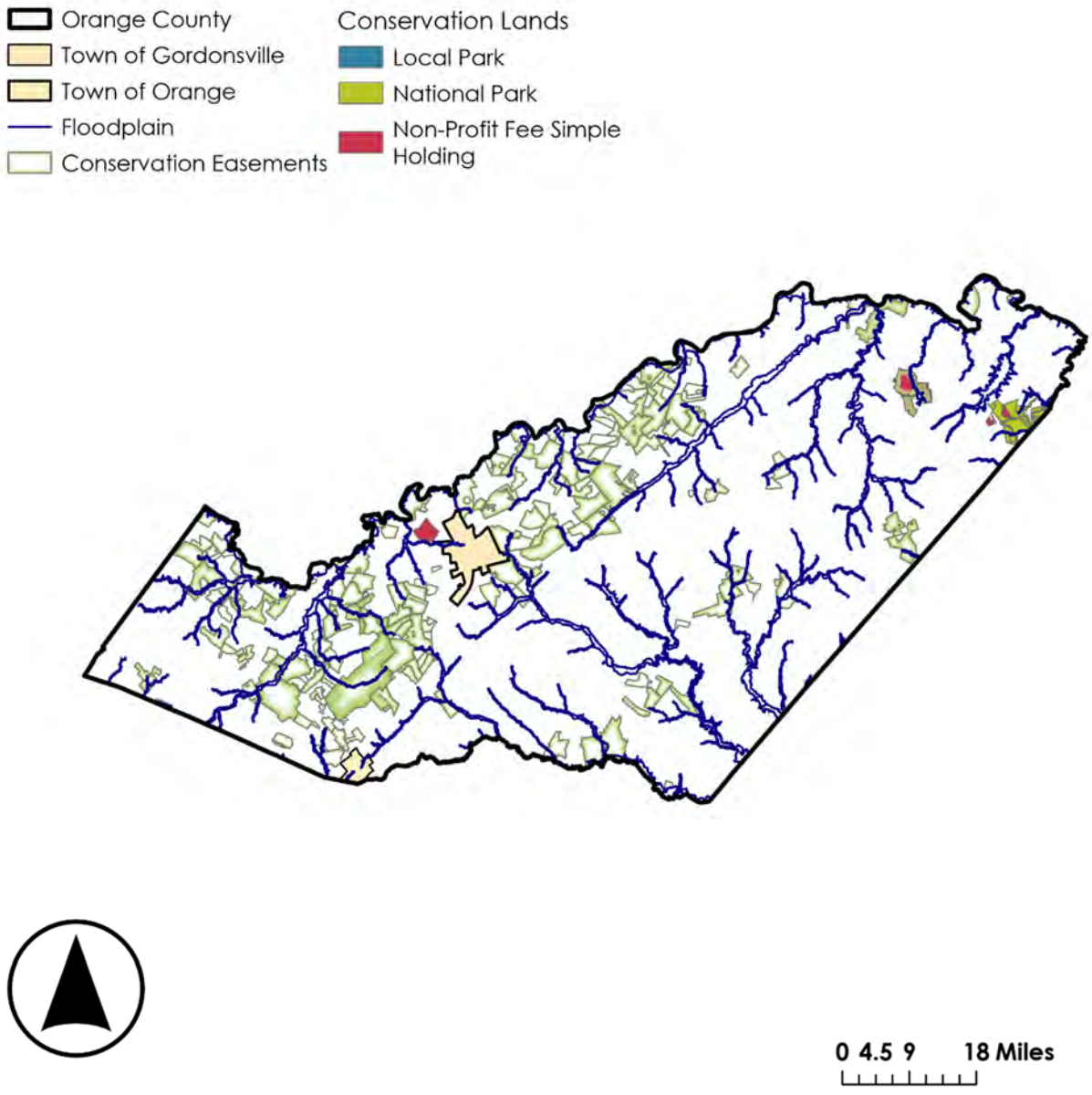
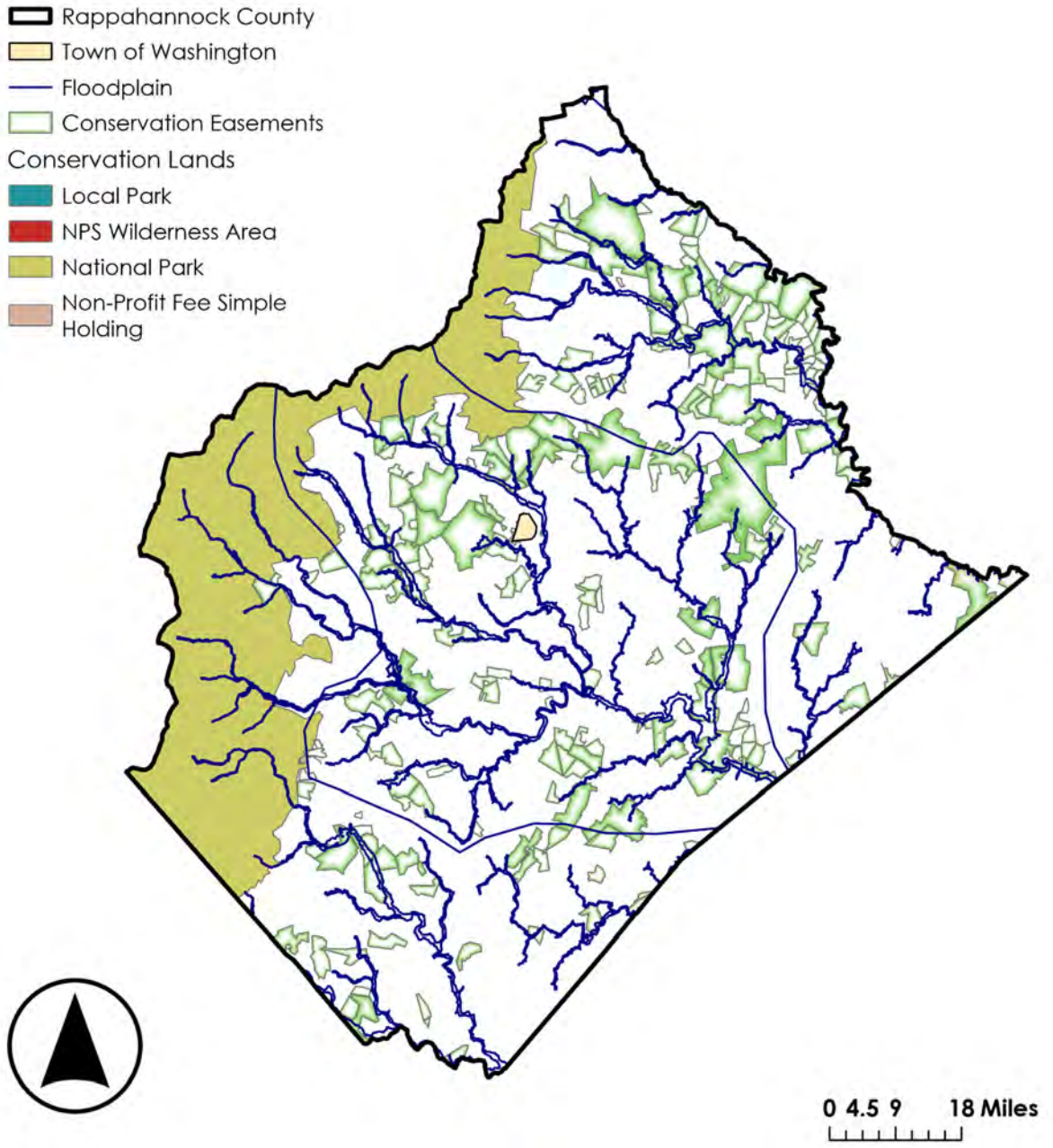


Figure 4.13.5 – Rappahannock County 100-year Floodplain and Conserved Land



Urban flooding can occur throughout the developed areas of the RRRC region, particularly in locations with inadequate stormwater infrastructure or where development has significantly altered natural drainage patterns. The extent and magnitude of urban flooding can be highly localized and may not correspond to mapped flood zones.

The magnitude of flooding is often measured in terms of depth and velocity of floodwaters, as well as the extent of the flooded area. In the RRRC Region, flood depths can range from a few inches in areas of minor ponding to several feet in major river floodplains during extreme events. Flood velocities can vary from near stagnant in flat areas to several feet per second in steep, confined channels during flash flood events.

The National Weather Service uses the following general guidelines to categorize flood severity:

- Minor Flooding: Minimal or no property damage, but possibly some public threat.
- Moderate Flooding: Some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevations.
- Major Flooding: Extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.

Within the RRRC Region, all three levels of flooding have occurred historically and can be expected to occur in the future. The specific locations at highest risk include:

1. Low-lying areas adjacent to the Rappahannock, Rapidan, and other major rivers and their tributaries.
2. Areas with high concentrations of impervious surfaces and inadequate stormwater infrastructure.
3. Locations downstream of dams, which could be affected by dam failure or emergency releases.
4. Areas at the base of steep slopes, particularly in the western parts of the region, are susceptible to flash flooding and debris flows.
5. Locations where roads cross streams or rivers, especially those with undersized or aging culverts or bridges.

In terms of economic impact, flooding has historically been the costliest natural hazard in the RRRC Region. Damages can include direct physical damage to structures and infrastructure, economic losses due to business interruption, crop damages in agricultural areas, and the costs associated with emergency response and long-term recovery efforts.

Past Occurrences

Historical flood events provide insight into the potential magnitude of flooding in the region. Listed in Table B.4 Significant Flooding Events found in Appendix B are some of the most serious and noteworthy flood events in recent memory (since 1995). Other historical occurrences of flooding and ongoing flood concerns in each RRRC Region are covered in Section 5.2 of this Plan.

Likelihood of Future Occurrence

The periodic inundation of floodplains is natural, inevitable, and anticipated. Floodplains are designated by the frequency of the event that covers them. This is generally expressed as the statistical probability of flooding in a given year. For example, in any year, the 100-year flood has a 1 percent chance of occurrence. As already shown on the maps of each locality's Special Flood Hazard Area, these areas

are defined by FEMA to correspond to the annual chance of future flooding. However, it should be noted that flooding can occur outside of Special Flood Hazard Areas, the predictions for which are more difficult to analyze, and which depend on other severe weather events.

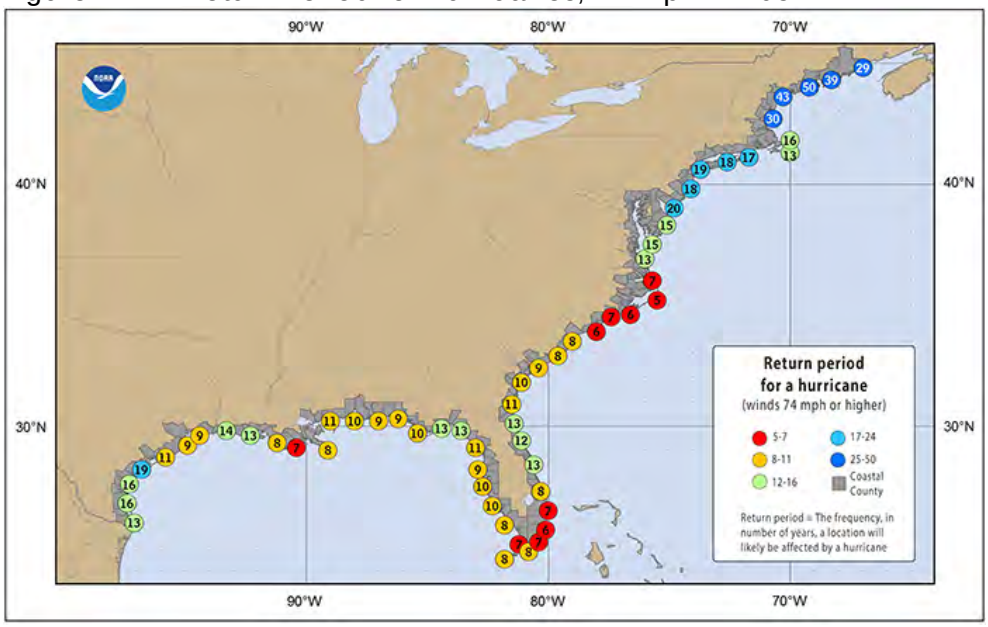
Climate change may increase the frequency and intensity of heavy rainfall events, potentially leading to more frequent and severe flooding in the future. Additionally, development and other land use changes can alter flood risks over time, potentially creating new flood-prone areas or exacerbating flooding in already vulnerable locations.

4.1.9 HURRICANES & TROPICAL STORMS

Description
Hurricanes, tropical storms, and typhoons are all cyclonic storms. In the northern hemisphere, these are characterized by counterclockwise rotational air movement around and into a low-pressure center. Tropical cyclones, as the name suggests, form over tropical waters and carry with them the heat and moisture typical of those regions. Damaging forces associated with these storms are high-level sustained winds, heavy precipitation, and sometimes tornadoes.

In addition, flooding frequently results from the heavy rainfall that typically accompanies these storms. The key energy source for a tropical storm is the release of latent heat from the condensation of moisture-laden air.

Figure 4.14 – Return Period for Hurricanes, 74 mph Winds



Source: NOAA[11]

As a hurricane develops the barometric pressure at its center falls and winds increase. If the atmospheric and oceanic conditions are favorable, the storm can intensify into a tropical depression.

When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and monitored closely by the National Hurricane Center in Miami, Florida. Once sustained winds reach or exceed 74 miles per hour, the storm is designated a hurricane.

[11] https://www.noaa.gov/stories/what-are-chances-hurricane-will-hit-my-home

The Saffir-Simpson Scale categorizes hurricane intensity based on maximum sustained winds, barometric pressure, and storm surge potential, which are combined to estimate potential damage. Categories 3, 4, and 5 are "major" hurricanes. While hurricanes within this range represent only 20 percent of the storms that make landfall, they account for over 70 percent of the damage. Damage typically associated with each hurricane category is summarized below.

Table 4.9 – Saffir-Simpson Hurricane Wind Scale

Scale Number Category	Central Pressure (mb, inches)	Wind Speeds (mi/hr, knots)	Observed Damage
1	>=980 >=28.94	74-95 64-82	Dangerous winds: Damage to unanchored mobile homes, building roof tops, commercial signage, trees, shrubs, power lines. (Gaston – 2004- Atlantic Coast)
2	965-979 28.50-28.91	96-110 83-95	Extremely dangerous winds: Extensive damage to mobile homes, major roof and siding damage to all structures, trees uprooted, power lines downed, collapse of unreinforced masonry walls. (Isabel – 2003 – Atlantic Coast; Dolly - 2008 - Gulf Coast)
3	945-964 27.91-28.47	111-130 96-113	Devastating damage: Total destruction of all pre-1994 mobile homes, extensive damage to all structures, unreinforced masonry buildings may collapse, high-rise windows blown out, electricity and water service unavailable for several days. (Fran – 1996- Atlantic Coast)
4	920-944 27.17-27.88	131-155 114-135	Catastrophic damage: Extensive damage as noted above, extensive windborne debris damage, high percentage of structural damage to multi- level apartment buildings, power, and water outages for months, area uninhabitable. (Charley – 2004 – Florida West Coast)
5	<"920" <"27.17"	>"155" >"135"	Catastrophic damage: area uninhabitable for months, collapse of multi- story and industrial buildings. (Camille – 1969 – Atlantic Coast; Andrew- 1992 – Florida; Katrina – 2005 – Gulf Coast)

Source: National Hurricane Center, 2010

The formation and intensification of tropical cyclones relies on several key factors:

1. Warm ocean waters (at least 80°F) to a depth of about 150 feet;
2. An atmosphere that cools fast enough with height to support the formation of thunderstorms;
3. Relatively moist air near the mid-level of the troposphere;
4. Generally low wind shear (change in wind speed or direction with height);
5. Sufficient distance from the equator to provide rotational force from the Coriolis effect; and
6. A pre-existing near-surface disturbance.

As a hurricane develops, the barometric pressure at its center falls and winds increases. The eye of the hurricane is usually 20-30 miles wide, and the eyewall contains the most intense winds. The storm may extend outward 100-300 miles from its center.

Location, Extent, and Magnitude

While the RRRC Region is not located directly on the coast, it is still vulnerable to the impacts of hurricanes and tropical storms. The entire region can be affected by these systems, although the intensity typically diminishes as storms move inland. The eastern portions of the region, being closer to the coast, generally experience stronger effects than the western areas. As recorded to NOAA, about 69 tropical storms have tracked directly across Virginia. Virginia averages about one storm per year. While some years are storm-free, others may witness multiple storms just days or weeks apart.

The extent and magnitude of hurricane and tropical storm impacts in the region can vary widely depending on the storm's characteristics, path, and speed of movement. Key factors include:

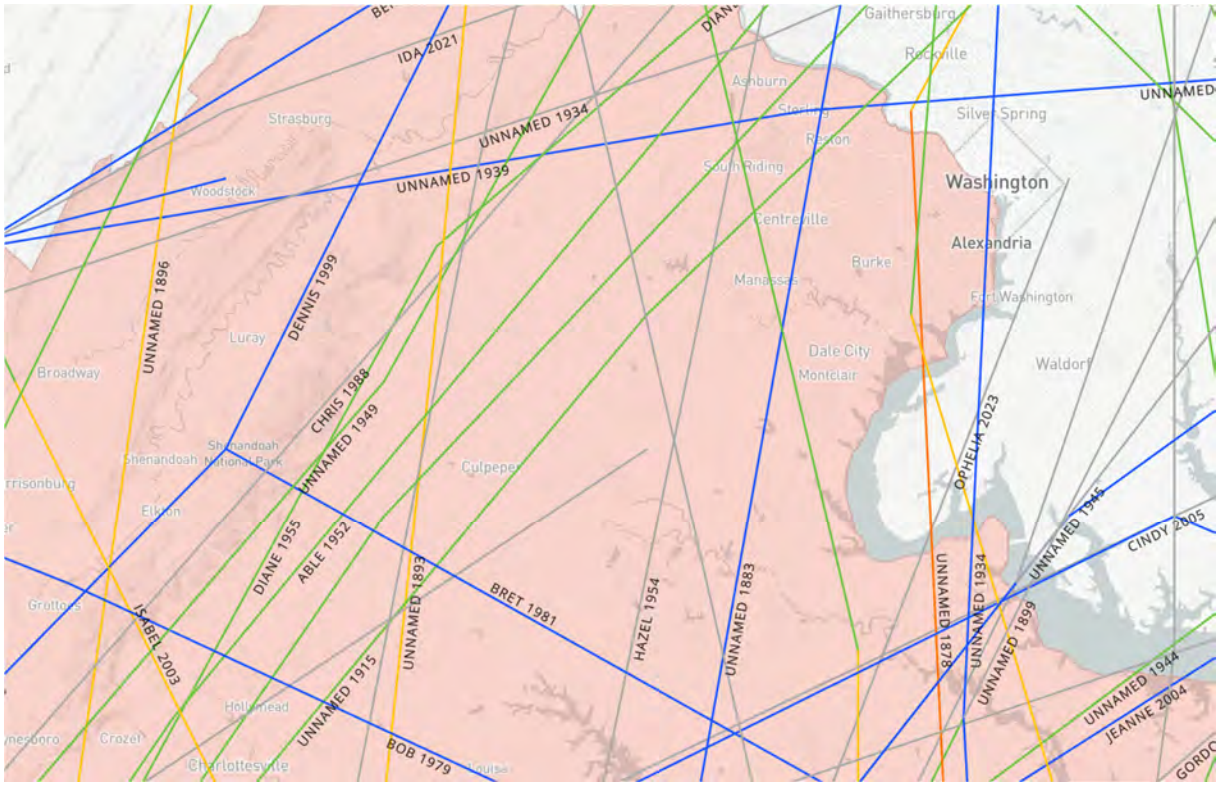
1. Wind: High winds can cause widespread damage to structures, down trees, and power lines, and create dangerous debris. While the region typically experiences reduced wind speeds compared to coastal areas, tropical storm-force winds (39-73 mph) and occasionally hurricane-force winds (74+ mph) can still occur.
2. Rainfall: Tropical systems can produce extreme rainfall, leading to flash flooding and river flooding. The region's varied topography, including the eastern slopes of the Blue Ridge Mountains, can enhance rainfall in some areas.
3. Tornadoes: Hurricanes and tropical storms can spawn tornadoes, which may affect the region even when the storm center is hundreds of miles away.

Past Occurrences

Historical data provides insight into the region's hurricane risk. According to NOAA's Historical Hurricane Tracks tool, between 1851 and 2022, the following number of tropical systems have passed within 50 nautical miles of the region's center (approximate coordinates 38.5°N, 78.0°W):

- 3 hurricanes (all Category 1)
- 15 tropical storms
- 7 tropical depressions

Figure 4.15 – Historic Hurricane Tracks[12]



Notable storms that have impacted the region include:

- Hurricane Isabel (2003): Made landfall in North Carolina as a Category 2 hurricane, causing significant wind damage and flooding in the region.
- Tropical Storm Lee (2011): Brought heavy rainfall and flooding to the area.
- Hurricane Sandy (2012): Although it made landfall in New Jersey, its large size affected the region with high winds and heavy rainfall.

While major hurricanes (Category 3 or higher) are rare this far inland, their impacts can still be severe. More commonly, the region experiences the effects of weakening hurricanes or tropical storms, which can still cause significant damage through high winds, heavy rainfall, and occasional tornadoes.

Likelihood of Future Occurrence

The probability of future hurricane and tropical storm events affecting the RRRC Region is moderate. While direct hits from major hurricanes are infrequent, the region can expect to experience effects from tropical systems every few years. Climate change may influence future hurricane activity, potentially leading to more intense storms, though changes in frequency remain uncertain.

[12] *NOAA – Historical Hurricane Tracks https://coast.noaa.gov/hurricanes/#map=4/32/-80*

The FEMA National Risk Index estimates the annual probability of hurricane and tropical storm events based on previous trends for each locality in the RRRC region.

Table 4.10 – NRI Hurricane Probability

County	Annual Frequency
Culpeper	0.09
Fauquier	0.09
Madison	0.08
Orange	0.08
Rappahannock	0.09

4.1.10 TORNADOES

Tornadoes are violent windstorms characterized by twisting, funnel-shaped clouds extending from a cloud mass to the ground. Usually generated by thunderstorm activity, they may be spawned by hurricanes and other intense low-pressure systems. Wind speeds range from 40 to 300 miles per hour. Damage from high winds, flying debris, lightning and hail is often extreme, including leveling well-built structures and turning ordinary objects into deadly projectiles.

On average, there are about 1,200 tornadoes with 80 storm-related deaths and 1,500 injuries reported across the United States annually. Tornado season runs from late winter to mid-summer, with the majority of storms in the southeast occurring in the early part of the season. Tornadoes vary widely in wind speed and surface impact. Most are a few yards wide and touch down only briefly; however, extremely dangerous storms may extend over a mile in width and carve out a path of destruction several miles long. The storm's intensity, size and duration determine its impact. Tornadoes associated with tropical storms, which are more common in September and October, tend to form around the perimeter of the storm, often to the right and ahead of the storm path as it makes landfall.

As might be expected, tornadoes cause the greatest damage to lightly constructed buildings, particularly mobile homes. The Fujita-Pearson Scale for Tornadoes was developed to characterize tornado strength and associated damages. Although still commonly used, the Fujita Scale was revised in 2007 to reflect research by structural engineers and meteorologists who more precisely matched wind speed estimates with types of damage to 23 types of buildings and objects including trees, towers, and poles. Modifications made to the original scale were limited to ensure that the new Enhanced F-scale could continue to support the original tornado database.

The RRRC Region has experienced significant tornado activity, including a destructive F4 tornado on September 24, 2001. This tornado, which tracked from Culpeper County across the Fauquier County line, was 75 yards wide and seven miles long. It caused extensive damage, destroying multiple structures and injuring two people.

Location, Extent, and Magnitude
The extent and magnitude of tornadoes are primarily measured using the Enhanced Fujita (EF) Scale. The EF Scale rates tornadoes based on estimated wind speeds and related damage. It considers 28 specific damage indicators to standardize and improve rating assessments. The scale ranges from EF0 (weakest) to EF5 (strongest), with each category representing a range of wind speeds and typical damage patterns:

Table 4.11 Fujita Scale of Tornado & Winds Damage (1995-2017), & Enhanced Fujita (EF) Scale 2007

EF Scale	Class	MPH	Damage	# in VA	%	Deaths / Injuries	Damage ($ Mil)	Class	MPH
EF0	Weak	40-72	Light. Tree branches snapped; antennas and signs damaged.	239	51.1	0/19	7.9	Weak	65-85
EF1	Moderate	73-112	Moderate. Roofs off; trees snapped; trailers moved or overturned.	184	39.3	3/86	38.8	Moderate	86-110
EF2	Strong	113-157	Considerable. Weak structures and trailers demolished; cars blown off road.	33	7	1/50	112.2	Strong	111-135
EF3	Severe	158-206	Roofs & some walls torn off well-constructed buildings; some rural buildings demolished; cars lifted and tumbled.	11	2.3	8/308	57.8	Severe	136-165
EF4	Devastating	207-260	Houses leveled leaving piles of debris; cars thrown some distance.	1	.2	0/2	2	Devastating	166-200
EF5	Incredible	261-318	Cars are mangled and thrown hundreds, possibly thousands of yards away. Frame homes, brick homes, and small businesses are swept away, trees debarked, skyscrapers sustain major structural damage, plants ripped out of the ground.	0	0	0	0	Incredible	

Source: VDEM

In the RRRC Region, most recorded tornadoes have been in the EF0 to EF1 range. However, the region has experienced more powerful tornadoes, including the EF4 tornado in 2001. This event, with estimated wind speeds of up to 210 mph, represents the upper limit of tornado intensity experienced in the region to date.

The physical size of tornadoes can vary greatly, from narrow funnels only a few yards wide to massive vortexes over a mile in diameter. The path length of a tornado can range from a few hundred yards to several miles. The EF4 tornado that struck the region in 2001, for example, carved a path seven miles long and 75 yards wide.

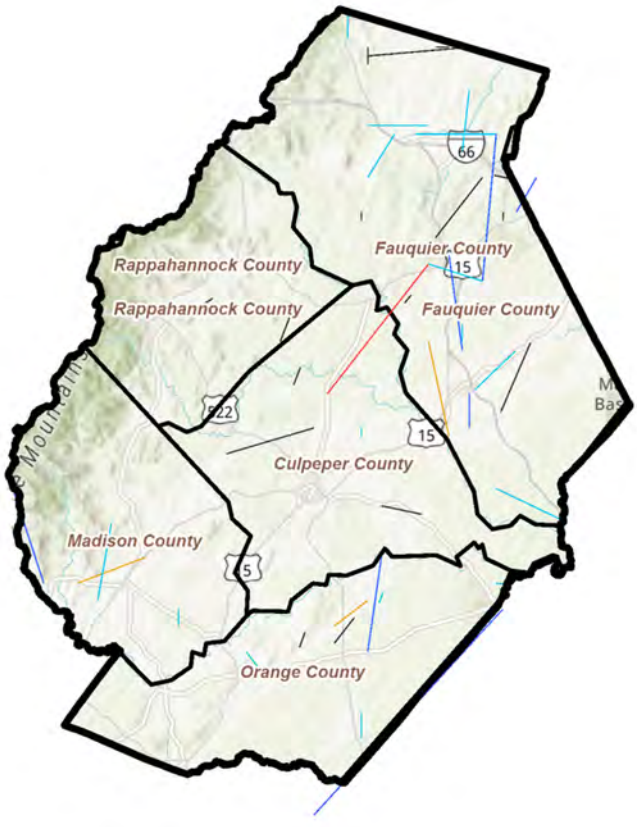
It's important to note that even relatively weak tornadoes can cause significant damage, especially to mobile homes, outbuildings, and trees. The region's varied topography, including both open areas and more densely forested zones, can influence tornado formation and behavior, potentially affecting the extent and magnitude of these events.

Past Occurrences

Only one F/EF4 tornado has touched down in Virginia since 1995. On September 24, 2001, the tornado travelled from Culpeper County in Rixeyville across the Fauquier County line (shown in Figure 4.16), both within the RRRC Region. The tornado was 75 yards wide and seven miles long. The tornado destroyed three trailer homes in Ponderosa Trailer Court picking up one and dropping it in pieces 300 yards away. Two people were injured. Four churches, four trailer homes, four houses and numerous trees and powerlines were damaged in Jeffersonton. Two barns and a garage were destroyed. The tornado has winds of up to 210 mph at its peak and it was during the tornado's peak that it leveled a home.

A full list of recorded tornadoes in each locality can be found in Appendix B.

Figure 4.16 Historic Tornado Tracks in the RRRC Region



Source: NOAA, ESRI

Likelihood of Future Occurrence

The probability of future tornado occurrences in the RRRC Region can be estimated through analysis of historical data, though it's important to note that tornado formation is a complex process, and past events do not guarantee future occurrences.

Tornadoes are more likely to occur in the Spring and Fall on average, coinciding with changing temperatures and a differential between the temperature of the sky and earth/large bodies of water. The average number of tornadoes per month in Virginia is provided below.

Table 4.12 Virginia Tornadoes by Month: 1998-2022 Average

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
0	1	1	4	3	2	2	2	4	1	0	0	20

Source: NOAA[13]

The FEMA National Risk Index calculates the annual tornado frequency for localities by mapping historical tornado paths to a larger grid, applying scaling factors based on geography and intensity, and aggregating to census tracts and counties. The number of expected tornadoes per year for each RRRC locality are shown below.

Table 4.13 NRI Annual Frequency of Tornados

County	Annual Frequency
Culpeper	0.214656
Fauquier	0.397182
Madison	0.161161
Orange	0.194006
Rappahannock	0.155993

It's worth noting that while the overall statewide probability of tornadoes is low compared to many other states and counties, the risk should not be discounted. The Virginia state Hazard Mitigation Plan indicates a higher incidence of tornadoes in the northern and eastern parts of the state, which aligns with the RRRC Region.

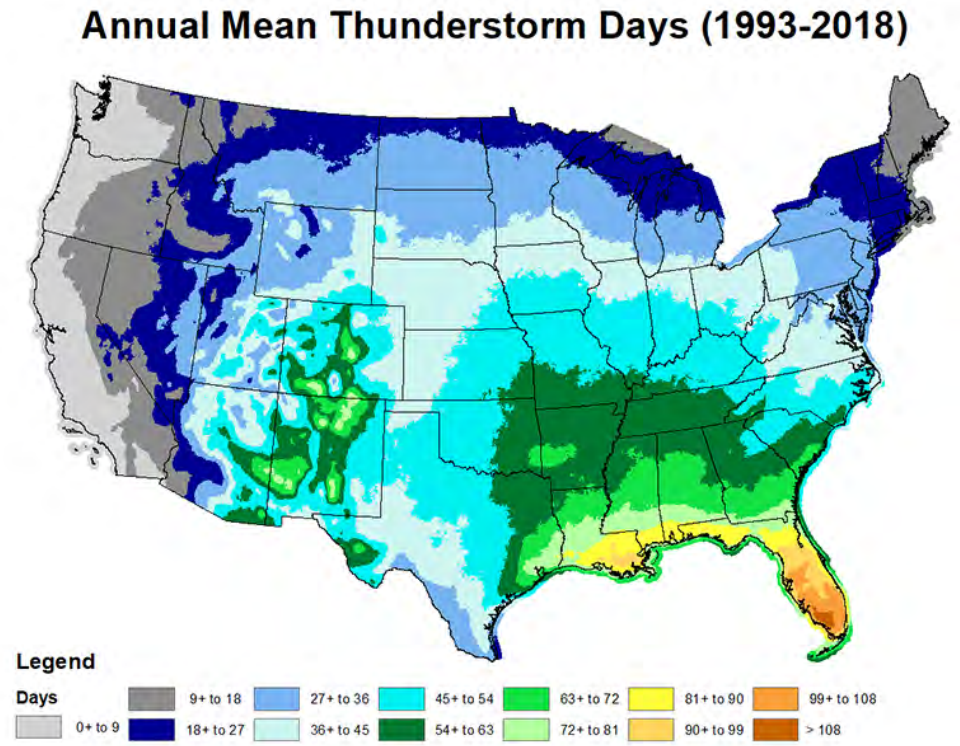
Climate change may also influence future tornado occurrences, potentially altering traditional patterns. While current climate models cannot predict specific tornado events, some research suggests that conditions favorable for tornado formation may become more frequent in the future.[14]

[13] https://www.spc.noaa.gov/wcm/permonth_by_state/
[14] Gensini, V.A., Brooks, H.E. Spatial trends in United States tornado frequency. https://doi.org/10.1038/s41612-018-0048-2

4.1.11 THUNDERSTORMS (STRONG WIND, LIGHTNING, & HAIL)

According to the National Weather Service, on average, the United States sees 100,000 thunderstorms each year. Thunderstorms are localized storms accompanied by lighting. Although thunderstorms generally affect only a small area, the extent of their impact is often enhanced by their ability to generate tornadoes, hailstorms, strong winds, damaging lightning and flash floods. Approximately 1,000 tornadoes develop from these storms and large hail results in nearly $1 billion in damage to property and crops. Thunderstorms occur in all regions of the United States and are quite common in the RRRC Region where topographic and atmospheric conditions combine to create ideal circumstances for generating these powerful storms.

Figure 4.17 – Average Number of Thunderstorm Days Per Year



Source: NOAA

Thunderstorms form when moist, unstable air is lifted vertically into the atmosphere by unequal heating of Earth's surface; orographic lifting due to topographic obstruction of air flow; or dynamic lifting along a front. Rising air cools and condenses forming cumulus clouds. Continued lifting and accompanying instability is needed for storm development. Thunderstorms may occur singly, in lines, or in clusters and may move through an area very quickly or linger in place for several hours.

Because "thunderstorms" cover a broad category of meteorological events, they have been separated out into their individual damaging natural hazards (aside from precipitation and flooding): Strong Wind, Lightning, and Hail.

Strong Wind

Strong Wind consists of damaging winds that are classified as exceeding 58 mph according to the FEMA National Risk Index. Thunderstorms frequently produce strong wind gusts along with heavy rain and sometimes hail or tornadoes. Multiple stormfronts can create damaging straight-line high winds known as derechos. Strong winds can also occur independently as part of larger weather systems or in the form of non-convective high wind events.

Location, Extent, and Magnitude

The entire RRRC Region is at risk of strong wind damage. The topography of the region, with its mix of mountains, valleys, and open plains, can influence the local intensity and impacts of strong wind events. Areas with higher elevations or less natural wind breaks may experience more severe effects.

The extent and magnitude of strong wind events can vary significantly. The National Weather Service classifies a thunderstorm as severe when it contains winds gusting in excess of 50 knots (57.5 mph). However, straight-line winds and derechos, which are a line of intense, widespread, and fast-moving windstorms and thunderstorms that can produce much higher wind speeds, potentially exceeding 100 mph in extreme cases.

The Beaufort Scale estimates wind speeds and potential damage:[15]

- 58-74 mph: Whole trees in motion; inconvenience in walking against the wind
- 75-89 mph: Slight structural damage occurs; branches break from trees
- 90-102 mph: Structural damage to roofs; mobile homes pushed off foundations
- 103-117 mph: Significant structural damage to buildings; mobile homes destroyed
- 118+ mph: Extensive widespread damage; structures completely destroyed

The magnitude of strong wind events in the region has historically ranged from minor damage to significant destruction. For example, the derecho that impacted the region on June 29, 2012, produced wind gusts of up to 80 mph, causing widespread power outages and substantial property damage across the region.

According to the Virginia State Hazard Mitigation Plan, the Northern Virginia region, which includes parts of the Rappahannock-Rapidan area, has historically experienced a high frequency of severe wind events. Counties such as Fauquier have reported over 200 non-tornadic wind events.

The potential impacts of strong winds extend beyond direct structural damage. These events can lead to power outages, transportation disruptions, and economic losses.

[15] https://www.weather.gov/mfl/beaufort

They also pose significant risks to public safety, particularly when combined with other hazards like heavy rainfall or lightning.

Lightning

Lightning is the discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm. The lightning flash occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit, hotter than the surface of the sun. Lightning rapidly heats the sky as it flashes but the surrounding air cools following the bolt. This rapid heating causes the air around the bolt to expand explosively, creating a shockwave perceived as thunder. Lightning can strike up to 10-15 miles from the rain portion of a storm.

There are several types of lightning:

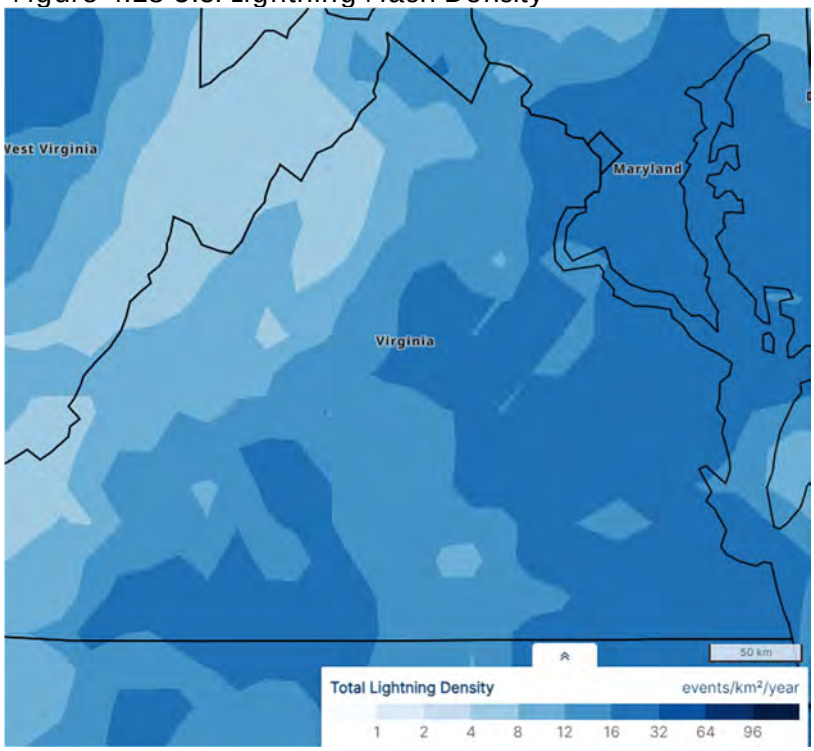
1. Cloud-to-Ground (CG): The most common type visible from the ground.
2. Intra-Cloud (IC): These flashes remain within the cloud and are the most frequent type of lightning.
3. Cloud-to-Air (CA): These extend from the cloud but do not reach the ground.
4. Cloud-to-Cloud (CC): Lightning that travels between separate clouds.

Location, Extent, and Magnitude

Lightning occurs throughout the entire RRRC Region, with Virginia averaging 35 to 45 thunderstorm days per year. While thunderstorms can happen any day of the year and at any time, they are most common in the late afternoon and evening during the summer months. The region's varied topography, from the Blue Ridge Mountains to the Piedmont plains, can influence thunderstorm development and lightning activity.

The extent and magnitude of lightning events can be measured by the lightning flash density, peak current measured in kiloAmps, frequency of strikes in an area, and especially the impacts, ranging from power surges, equipment damage, forest and structural fires, and fatalities.

Figure 4.18 U.S. Lightning Flash Density



Source: Vaisala (independent lightning research)[16]

Table 4.14 Virginia Lightning Statistics 1959-2005

Location	Deaths	Injuries
Open Space	16	39
Under Trees	17	52
On/Near Water	7	18
Golf Course	3	9
On Phone – land line	0	9
On/Near Heavy Equipment	3	9
Near Door/Window	3	15
Other/Unknown	17	18

[16] https://interactive-lightning-map.vaisala.com

Since 2006, there have been 6 additional deaths and 34 injuries due to lightning strikes in Virginia. The following table describes significant events from the FEMA National Climatic Data Center Storm Events Database for RRRC Region localities.

Past Occurrences

The table below from the NOAA National Climatic Data Center Storm Events Database shows significant lightning events in the RRRC Region that resulted in death or significant property damage.

Table 4.15 NCDC Lightning

County	Date	Deaths	Injuries	Total Dmg	Narrative
Orange Co.	8/11/2021	0	0	$100,000	Lightning struck a house causing significant structural damage in the 11500 block of VA-669 Marquis Road.

Hail

Hailstorms are usually associated with severe thunderstorms. High velocity updrafts within the storm carry ice crystals upward to regions of colder air where moisture precipitates on the crystal and freezes. The added weight causes the crystal to fall. If updrafts are strong enough, the crystal will make several trips up into higher, colder regions, adding a layer of ice each time. Once the weight of the pellet overcomes the force of the updraft, it falls to the ground as part of a hailstorm. Hail size directly reflects the severity of the storm.

Hail dents cars, shatters windows and green houses, damages roofs and damages or destroys crops. Farm animals may be injured. Every year, areas of Virginia are impacted by severe thunderstorms producing large hail measuring 0.75- inch (penny size) or larger.

Location, Extent, and Magnitude

Hailstorms can occur throughout the entire RRRC Region, with no area immune to their effects. However, the frequency and intensity of hail events can vary based on local topography and weather patterns. Areas more prone to severe thunderstorms may experience a higher incidence of hail events.

The extent and magnitude of hail events in the region typically range from pea-sized (1/4 inch) to quarter-sized (1 inch) hailstones. According to the National Weather Service, hail measuring 3/4 inch (penny-sized) or larger is considered severe.

The NOAA National Severe Storms Laboratory gives estimates of hail size and associated damage:[17]

- Pea (1/4 inch): Little to no damage to structures or vegetation
- Penny (3/4 inch): Slight damage to plants and crops

[17] https://www.nssl.noaa.gov/education/svrwx101/hail

- Quarter (1 inch): Significant damage to fruit trees, crops, and vegetation
- Half Dollar (1.25 inch): Severe damage to fruit and crops, damage to glass and plastic structures, paint, and wood siding
- Golf Ball (1.75 inch): Severe roof damage, risk of serious injuries, damage to aircraft bodywork
- Tennis Ball (2.5 inch): Severe roof damage, risk of severe injuries

While hail of tennis ball size (2.5 inches) or larger is extremely rare in the region, occurring on average only once or twice per year across the entire state of Virginia, the potential for such events exists.

Thunderstorm Past Occurrences
Table B.6 located in Appendix B contains significant thunderstorm (strong wind, lightning, and hail) events which occurred in each locality according to the National Climatic Data Center Storm Events Database.

Likelihood of Future Occurrence
Thunderstorms, along with their associated hazards of strong winds, lightning, and hail, will continue occurring in the RRRC Region, with multiple thunderstorm events expected annually.

Climate change projections suggest that the frequency and intensity of severe thunderstorms may increase in the future. Warmer temperatures and increased atmospheric moisture can provide more energy for storm development, potentially leading to more frequent and more intense thunderstorms.
The FEMA National Risk Index gives estimated annual frequencies (in expected number of events) for each thunderstorm-related hazard, noted in the table below for each RRRC region locality.

Table 4.16 - NRI Thunderstorm Hazards Frequency

County	Strong Wind	Lightning	Hail
Culpeper	5.574185	54.07601047	3.615757
Fauquier	6.563099	53.57743773	3.880116
Madison	4.332104	49.31064115	3.13916
Orange	4.518414	51.22800151	3.375065
Rappahannock	6.114574	47.52498234	3.682146

While the overall frequency of thunderstorms is high, the severity and specific impacts of individual storms can vary greatly. Some years may see more frequent or more severe storms than others due to larger-scale weather patterns.

4.1.12 WINTER STORMS & FREEZES

Description
Winter storms are variable in their extent and duration. They can range from moderate, short-lived snowfalls to full-blown blizzards with blinding, wind-driven snow lasting several days. Some winter storms may be large enough to impact several states, while others may affect only a single community.

Winter storms may include a full range of precipitation, from snow, sleet, and freezing rain, to a mix of all three. Sleet hits the ground as a frozen solid, accumulating like snow and causing slippery conditions for pedestrians and motorists. Freezing rain, as the term suggests, falls as a liquid, and freezes on contact, creating glazed surfaces and extreme hazards for all modes of mobility. Requiring surface temperatures below 32°F, freezing rain often results in multiple impacts. Even a limited accumulation can add significant weight to power lines and tree limbs, causing them to snap and break, disrupting communications and power, blocking roads and damaging structures.

A freeze or ice storm is characterized by a minimum of several hours of temperatures around 30°F, or lower. Under these conditions, impacts to agriculture are significant since all but the hardiest herbaceous plants will be affected.

Nor'easters have a deserved reputation as Virginia's worst winter storms. They result from the interaction of two pressure systems sitting just offshore over the Atlantic. The counterclockwise rotation of a low-pressure system and the clockwise rotation of a high-pressure system combine to bring wind and moisture to the East Coast from the northeast, hence the name. The ferocity of the storm depends on the strength, dynamics, and interaction of the two systems. Nor'easters can erode low-lying coastal areas with damaging surf, glaze the region with layers of ice and deposit heavy snow across extensive areas. Typically, these storms occur from November through April but are usually at their worst in January and February.

The economic impacts of winter storms can be substantial, including costs for snow and ice removal, business disruptions, and repair of storm damage. Agricultural impacts can be severe when freezes occur, damaging crops and threatening livestock.

Location, Extent, and Magnitude
Winter weather events have the potential to affect the entire RRRC Region, though impacts may vary based on local topography, elevation, and proximity to water bodies. The region often finds itself in the critical transition zone between rain and snow during winter storms, making accurate prediction of precipitation type and accumulation challenging.

The severity of winter storms in the region can range from light snow flurries with minimal accumulation to crippling blizzards that paralyze the area for days. Snowfall totals can vary widely, even within short distances. On average, the region receives between 15

to 20 inches of snow annually, with higher elevations in the western portions of the region typically seeing greater accumulations.

Historically, some of the most damaging winter weather events in the region have been ice storms. Even a quarter-inch accumulation of ice can add significant weight to tree limbs and power lines, causing widespread damage and power outages. Major ice storms in the region have produced over an inch of ice accumulation, resulting in catastrophic damage to infrastructure.

Nor'easters can produce snowfall rates of 2-3 inches per hour, with total accumulations potentially exceeding 2 feet in a single event. Wind gusts during nor'easters can reach 50-60 mph, creating blizzard conditions and dangerous wind chills.

Past Occurrences

The frequency of significant winter weather events varies, but the region typically experiences several notable winter storms each year. Major nor'easters tend to impact the area every few years, with truly historic events occurring once every decade or two.

The FEMA National Climatic Data Center Storm Events Database lists significant winter storm events from the region since 2018. Although no deaths, injuries, or damage were reported, the narratives serve to illustrate the effects and impacts of each event. This information can be found in Table B.7 – NCDC Winter Storms in Appendix B.

Likelihood of Future Occurrence

Climate change may be altering winter weather patterns in the region. While average winter temperatures are trending warmer, potentially reducing overall snowfall, there is evidence suggesting that extreme winter weather events may be becoming more frequent and intense. This could lead to a higher incidence of heavy snowstorms and ice events, even as total seasonal snowfall decreases.

The FEMA National Risk Index estimates annual chances for winter storm events (in number of events per year) based on past trends.

Table 4.17 – NRI Annual Frequency

County	Annual Events
Culpeper	43
Fauquier	48
Madison	54
Orange	45
Rappahannock	54

4.1.13 PANDEMIC/INFECTIOUS AGENT

A pandemic, as opposed to an epidemic, is a bacterial or viral disease outbreak that has spread rapidly across the world. The COVID-19 pandemic of 2020-2022 has brought to the forefront a challenging and multi-faceted hazard which few if any localities were prepared to handle. The CDC has guidelines on how to approach influenza outbreaks, but otherwise there is sparse information for how to respond to any individual infectious agent. The response to the novel coronavirus in Virginia was largely driven by federal recommendations but implemented locally through Virginia Department of Health (VDH) district offices, which led to different responses across the Commonwealth.

Because pandemics of this nature evolve as new information emerges, the recommendations for this Plan are more general and less prescriptive in nature. However, having examples of local planning and of emergency responses to specific pandemic-related threats provides for a solid baseline that is germane to the character of the RRRC Region.

Extent

Pandemics by their nature have far-reaching effects, even beyond the immediate loss of life due to disruptions in the economy, public and private services, and from protective orders deemed necessary to mitigate the spread. Typically, more densely populated areas see the greatest number of illnesses, although it depends on the epidemiological characteristics of the disease, its trajectory, and the vulnerability of the population. Pandemics are responsible for loss of life numbering from the thousands to the millions and have the capacity to alter daily life going forward. The COVID-19 pandemic has been responsible for thousands of “excess” deaths, or deaths above the expected average, as well as serious disruptions to supply chains, daily life, and services, including non-essential business lockdowns and strains on community health resources.

Location

Implied in the name, pandemics have a global spread and have the potential to infect people indiscriminately. However, as noted, more densely populated areas are usually more likely to see increased case rates due to the number of contacts with other people, some who travel from a greater variety of places.

Past Occurrences

Besides the novel coronavirus outbreak, other serious past flu pandemics include the 1918 H1N1 Spanish Flu outbreak, the 1957-1958 H2N2 influenza pandemic, the 1968 H3N2 flu pandemic, and the 2009 swine flu pandemic. Each occurrence killed millions of people and often led to upheavals in the social order.

Likelihood of Future Occurrences

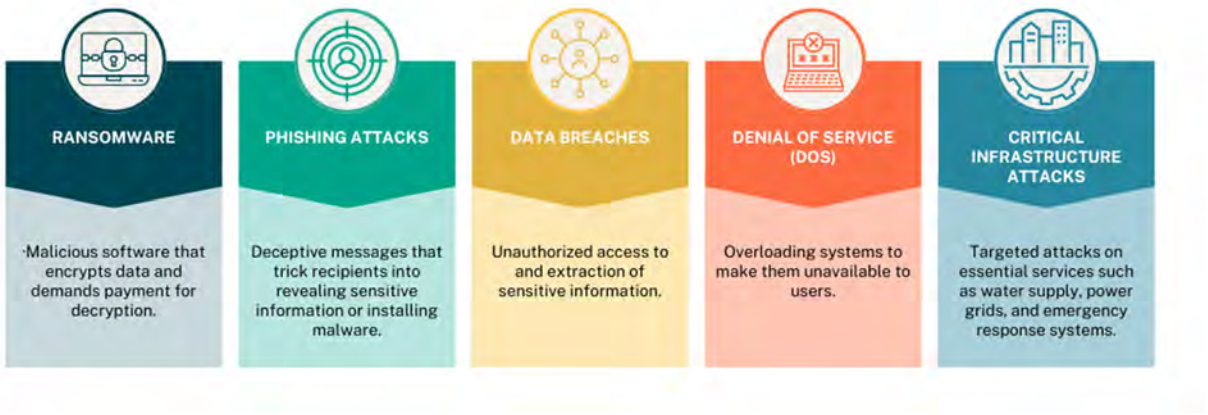
Although they are essentially random and difficult to predict, an increasingly interconnected world makes the likelihood of novel pandemics more likely. Roughly three major pandemics occur every century historically, although that rate may

increase in the future with further population growth and global interchange. COVID-19 exemplifies how quickly a novel virus can spread and evolve in our modern world, highlighting the importance of local preparedness for future pandemics.

4.1.14 CYBERSECURITY RISK

Description
Cybersecurity risks refer to the potential threats and vulnerabilities associated with the use of digital technology and information systems. In the RRRC Region of Virginia, these risks include various forms of cyberattacks that can disrupt operations, compromise data, and impact the community's safety and well-being. Key cybersecurity threats are shown in Figure 4.19.

Figure 4.19 - Key Cybersecurity Threats



Extent
Although incidents such as these are quite rare, they have the potential to be impactful across the region and among sectors.

Regional Impact: Cybersecurity incidents can affect a wide range of entities within the RRRC Region, including local governments, healthcare providers, educational institutions, and businesses.

Sectoral Reach: Risks are present across individual organizations or various sectors including public utilities, transportation, financial services, and emergency services.

Location
As with most of these non-natural hazards, technological hazards can occur anywhere; however, events associated with public services and emergency management will often affect local government facilities. Healthcare facilities and educational institutions storing personal and financial information of patients and students are often-impacted data sources. Water treatment plants, power stations, and transportation networks essential for regional functionality are often targets of regional cybersecurity attacks.

Past Occurrences
Ransomware Attack (2021), Colonial Pipeline Company experienced a ransomware attack, which resulted in the Company needing to proactively shut down its pipeline

system in response from May 7, 2021, to May 13, 2021.[18] This cyberattack created widespread disruption of U.S. fuel supplies along the East Coast, and the impact was so significant that it was declared a Federal state of emergency.

Ransomware attack on Change Healthcare (2024), This attack affected many healthcare institutions across the country, and the attack disrupted payment processing and prescription fulfillment systems. The Department of Veterans Affairs notified 15 million veterans about the potential exposure of their data.

Likelihood of Future Occurrences

The likelihood of cybersecurity incidents is increasing due to the growing sophistication of cyberattacks and expanding digital infrastructure. As more systems and services become digitalized, the potential attack surface grows, elevating the risk of future incidents. Cybersecurity risks in the RRRC Region present a significant and evolving threat to critical infrastructure, public services, and private sector operations.

[18] https://www.energy.gov/ceser/colonial-pipeline-cyber-incident

4.1.15 HAZARDOUS MATERIALS

Description
Human-induced risks associated with hazardous materials in the region include accidental or potentially purposeful release of harmful substances or chemicals which are hazardous to human health or have the potential to compound hazards, such as industrial chemicals, hazardous waste, and substances transported through the area.

- Industrial Chemicals: Used in manufacturing processes and storage facilities.
- Hazardous Waste: Generated by industries, medical facilities, and households.
- Transportation of Hazardous Materials: Movement of chemicals and waste through highways, railroads, and airports.

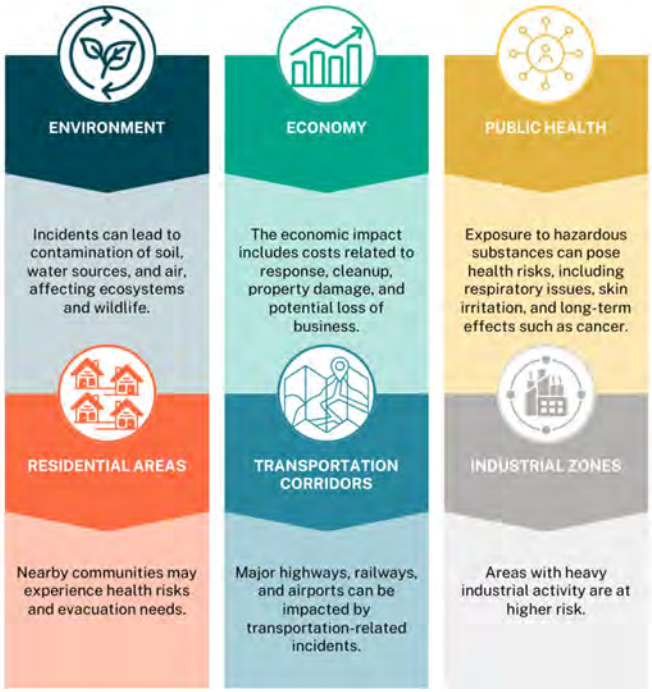
Industrial facilities handling large quantities of hazardous substances should analyze risks including spills, leaks, and explosions, which can lead to significant environmental and public health impacts. Regional Waste Management should understand the risks associated with improper disposal or accidental release of hazardous waste from landfills, treatment facilities, and waste storage sites. Assessment of the risks related to transportation accidents involving hazardous materials, including potential contamination of land and water resources should be evaluated and addressed accordingly.

Extent
The extent and magnitude of hazardous materials incidents in the region can vary widely, depending on several factors including the type of hazardous materials involved, the location of the incident, and the effectiveness of emergency response systems. Historically, the RRRC Region has experienced incidents related to hazardous materials, though they are relatively infrequent compared to other types of emergencies. These incidents have included:

- Chemical Spills: Spills involving chemicals from industrial facilities, transportation accidents, or storage tanks.
- Hazardous Waste Accidents: Accidents at waste management sites or during transportation of hazardous waste.
- Explosions and Fires: Incidents involving explosive materials or flammable substances.

Potential Impact Areas
The impact of hazardous materials incidents can affect various sections of the region. These potential affected sectors are found in Figure 4.20 Potential Impact Sectors – Hazardous Materials.

Figure 4.20 Potential Impact Sectors – Hazardous Materials



Past Occurrences

While there have not been any hazardous material incidents in the region, there have been incidents in recent history that emphasize the importance of planning and preparing for these hazards. For example, a derailment of a Norfolk Southern train carrying tank cars with hazardous materials occurred in East Palestine, Ohio in 2023.[19]

Likelihood of Future Occurrences

The extent and magnitude of hazardous material incidents in the region can range from minor, localized events to significant, large-scale emergencies, and the frequency is unknown. Regular assessment and updates to emergency plans, coupled with ongoing training and public awareness efforts, help manage the potential risks associated with hazardous materials in the region. It is within private and public interests to take proactive measures to avoid or lessen the potential exposure of the region to these hazards.

[19] https://abcnews.go.com/US/ntsb-reveals-cause-2023-toxic-train-crash-east/story?id=111398249#:~:text=The%20crash%20occurred%20on%20Feb,Palestine%2C%20Ohio%2C%20in%202023.

4.2 FUTURE CONDITIONS

4.2.1 CLIMATE CHANGE

The Rappahannock-Rapidan Region's future environment will be affected by climate change, population growth, and land use development trends. FEMA states, "Climate change increases the frequency, duration and intensity of storms, floods, fires, and extreme temperatures that threaten the well-being of people across our nation. These variations can increase risks and magnify challenges for state and local governments."[20]

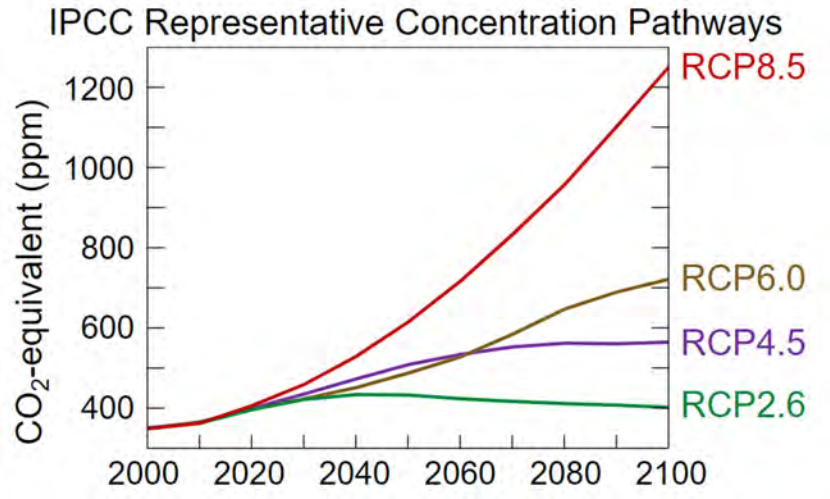
One of the guiding principles of the VA CFPF program is to acknowledge climate change and its consequences, and base decision making on the best available science.[21] Considering this, the Rappahannock-Rapidan Region will endeavor to incorporate climate change data into proposed initiatives where appropriate in order to increase community resiliency.

When considering a changing climate, it is important to understand the modelling projections that exist based on future conditions of emissions that affect the warming of the atmosphere. The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing science related to climate change. Generally, scientists must make assumptions about future emissions of greenhouse gases, which include Carbon dioxide, Methane, Nitrous oxide, and Fluorinated gases. Worldwide, net emissions of greenhouse gases from human activities increased by 43 percent from 1990 to 2015. Emissions of carbon dioxide, which account for about three-fourths of total emissions, increased by 51 percent over this period. As with the United States, the majority of the world's emissions result from transportation, electricity generation, and other forms of energy production and use.[22]

The IPCC have projected concentration pathways based on models that were run with differing levels of emissions; the Representative Concentration Pathways (RCPs) 2.6 projects a low greenhouse gas emission, and high mitigation future, in hopes to limit global warming to below 2ºC by 2100. By contrast, RCP8.5 is a high greenhouse gas emissions scenario in the absence of policies to combat climate change, leading to continued and sustained growth in atmospheric greenhouse gas concentrations.[23] Figure 4.2.1 indicates the levels of CO_2 emissions associated with IPCC adopted greenhouse gas concentration trajectories.

[20] FEMA, Hazard Mitigation Assistance Program and Policy Guide, 2023
[21] VA Community Flood Preparedness Fund
[22] US EPA Climate Indicators
[23] IPCC Summary for Policymakers
https://www.ipcc.ch/site/assets/uploads/sites/3/2019/11/03_SROCC_SPM_FINAL.pdf

Figure 4.21 - Representative Concentration Pathways, or RCPs



(Source: IPPC)

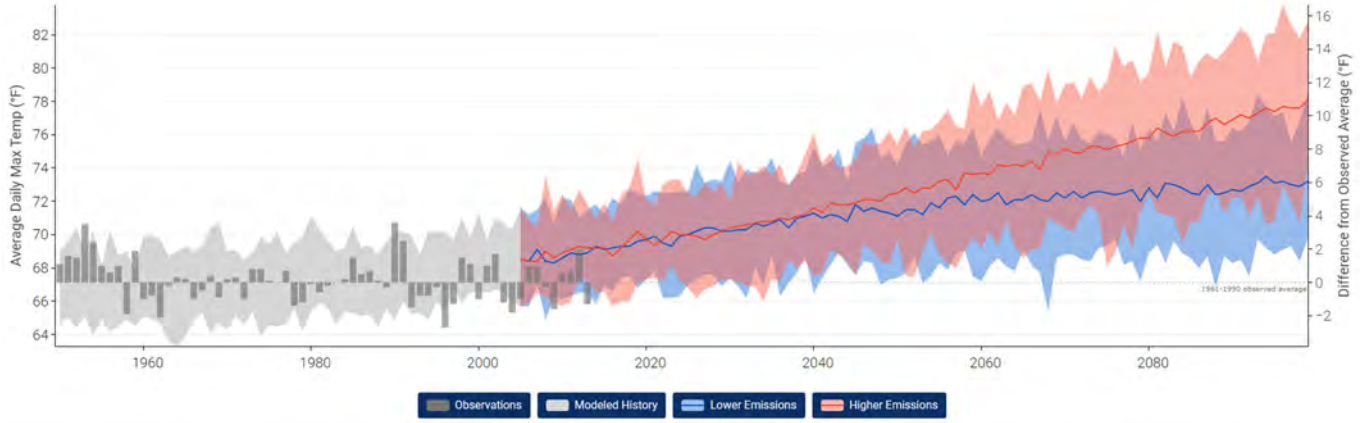
Looking to the future, if emissions continue to rise, the earth will warm more quickly, and climate change impacts will be more severe. If emissions fall, the earth may not warm as much. Thus, taking into account a range of climate scenarios may assist in understanding how the climate may change in the future. This variability will likely lead to:

- More frequent and more intense precipitation events punctuated by deeper episodes of drought.
- Drier winter and summer seasons, which could deplete reservoirs and challenge drinking water supplies and agricultural production.
- Stronger storms at a greater frequency, which may threaten lives, damage infrastructure, and cause significant power outages.
- Increasing summer heat waves could threaten public health.

4.2.1.1 Average Temperature Increase

Looking at the Rappahannock-Rapidan Region, the average daily temperature is expected to increase, as are extreme temperatures on the hottest days of the year. This excess heat for longer periods may stress critical infrastructure such as roads and bridges. More hot days may also stress the electrical grid, and the use of potable water may increase as people may need more irrigation for crops and landscaping. This type of heat may affect public health and may lead to economic impacts through disruptions in agriculture and manufacturing. Human health, stream and river health, and infrastructure are all threatened by higher temperatures.

Figure 4.22 - Days w/ maximum temp > 95°F Culpeper, VA



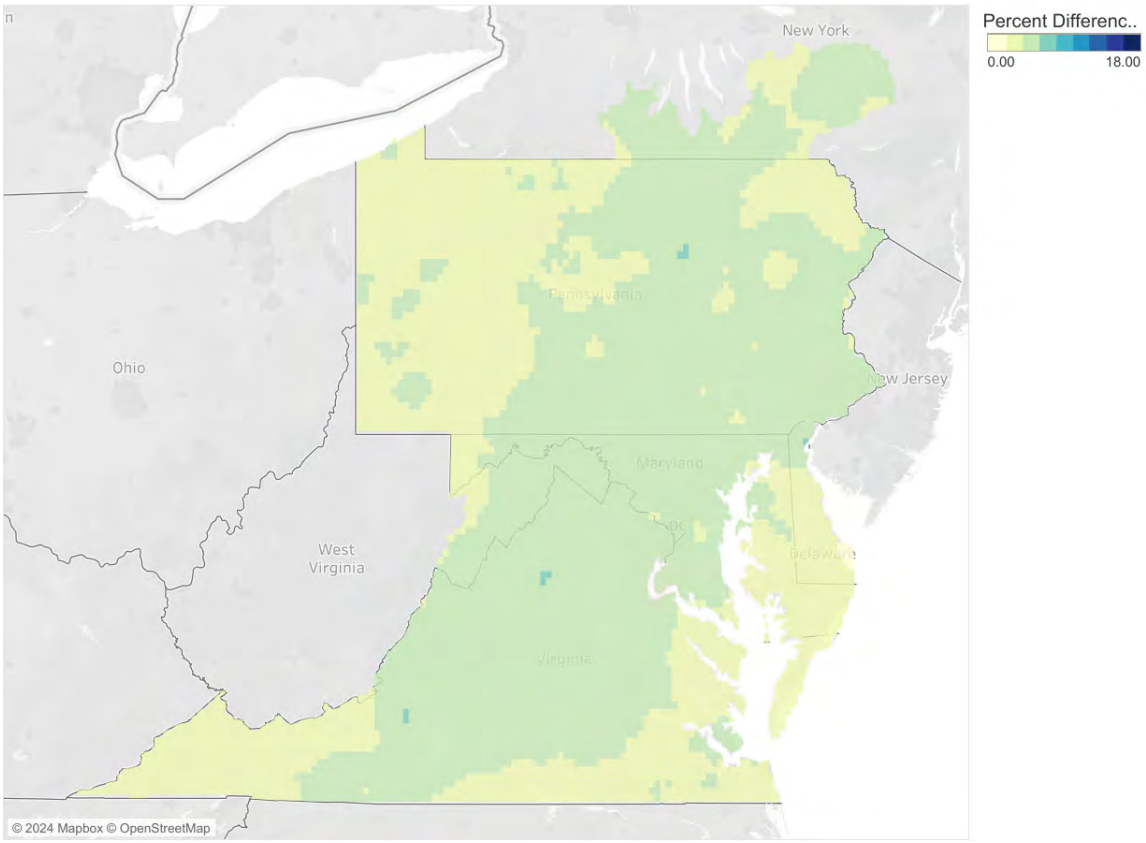
Source: U.S. Climate Resilience Toolkit Climate Explorer

4.2.1.2 Heavy Precipitation

According to the NOAA Mid-Atlantic RISA projections,[24] the region can expect to see more extreme variability in precipitation over the next 50 years, with some months seeing 15% less and other months seeing up to 30% more compared to the average from the years 1991-2020. In general, the entire Appalachian and Piedmont regions can expect mild 1-2% average increases in rainfall compared to the past 30 years' average.[25] While it is difficult to know exactly how the RRRC Region will be impacted, it is strongly encouraged to build in redundancy and extra capacity for stormwater and other water infrastructure to account for higher precipitation scenarios.

[24] https://www.midatlanticrisa.org/data-tools/climate-data-tools/projected-changes-in-total-monthly-precipitation.html, MARISA
[25] https://www.midatlanticrisa.org/data-tools/climate-data-tools/difference-from-normal-total-annual-precipitation.html, MARISA

Figure 4.23 - Projected Percent Difference in Total Annual Precipitation



Source: MARISA

4.2.1.3 Drought

As mentioned, there will likely be climate variability and potentially more extreme weather in the future. This may lead to more frequent and intense droughts in the region. Rising temperatures, changing precipitation patterns, and increased evaporation rates could reduce water availability, stressing both natural ecosystems and human water supply systems. Although the region is historically a water-rich area, the variability in rainfall combined with potential shifts in seasonal weather patterns may lead to prolonged dry periods. This could have significant impacts on agriculture, water resources, and overall ecological health in the region. Efforts to manage water resources, enhance drought preparedness, and implement sustainable practices will be critical in mitigating the impacts of future droughts.

4.2.1.4 Extreme Winds

Climate change is likely to influence the frequency, intensity, and patterns of storms, including hurricanes, nor'easters, and severe thunderstorms, which are major sources of extreme winds in the region.

Warmer ocean temperatures and altered atmospheric conditions can lead to more intense hurricanes and tropical storms, potentially bringing stronger winds to coastal areas. Additionally, changes in the jet stream and atmospheric circulation may

contribute to more frequent and severe wind events, especially during the colder months when nor'easters are more common.

While the exact increase in wind speeds and storm frequency is still uncertain and varies by specific location, there is a general consensus that the risk of extreme wind events will rise as the climate continues to warm. This could lead to more damage to infrastructure, increased power outages, and greater risks to safety in the region.

4.2.1.5 Winter Weather

Climate change is expected to have a significant impact on winter weather in the RRREC Region. As global temperatures rise, the region may experience warmer winters overall, with fewer extremely cold days. However, this warming trend does not mean an end to cold weather or snowstorms. In fact, climate change could lead to more variable winter weather, with the potential for both unusually mild and unexpectedly severe winter events.

Warmer atmospheric temperatures can hold more moisture, leading to heavier snowfall during storms when temperatures are cold enough. At the same time, the region might see an increase in winter rainfall instead of snow, especially during the transitional months. The timing and duration of winter weather could shift, with potentially shorter and more intense winter seasons.

Additionally, the warming of the Arctic and the resulting changes in the jet stream can lead to more frequent and persistent cold air outbreaks, bringing periods of intense cold and snow to the Mid-Atlantic, even as average winter temperatures rise. Overall, the winter weather patterns in the Mid-Atlantic are likely to become more unpredictable due to the effects of climate change.

4.2.2 Population Projections

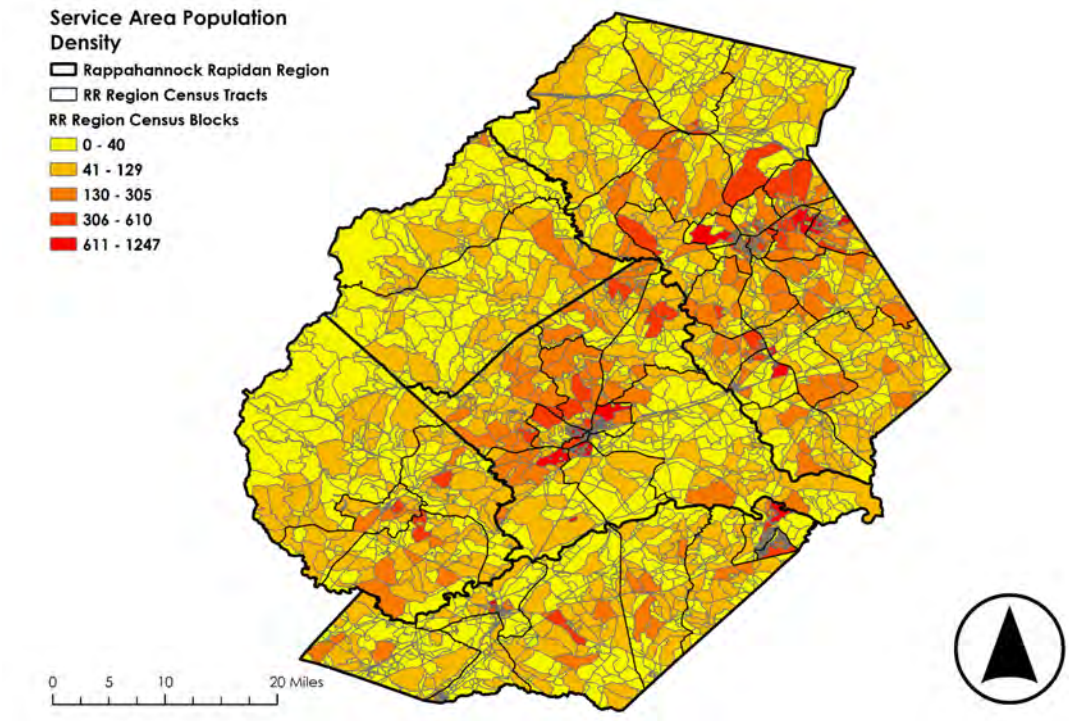
Table 4.18 below shows the total population change between the 2010 Census and the 2020 Census. The eastern counties in the Region, Orange, Fauquier, and Culpeper Counties, all experienced significant population growth over the decade, ranging from 8% to 11%. In contrast, the more western counties of Madison and Rappahannock experienced a slower 4% growth rate and a slight population decline, respectively. This is a result of development spreading from east to west within the Region.

Table 4.18 US Census 2020 – RRRC Region Population Demographics

US Census Statistic	Rappahannock County, Virginia	Orange County, Virginia	Madison County, Virginia	Fauquier County, Virginia	Culpeper County, Virginia
Population, Census, April 1, 2020	7,348	36,254	13,837	72,972	52,552
Population, Census, April 1, 2010	7,373	33,481	13,308	65,203	46,689
Persons under 5 years, percent	3.70%	5.80%	5.00%	5.70%	6.10%
Persons under 18 years, percent	16.50%	21.30%	19.70%	22.90%	24.50%
Persons 65 years and over, percent	29.00%	20.60%	23.60%	17.70%	17.30%

Much of the population within the Region is also clustered within the counties as shown in Figure 4.21.

Figure 4.21 Region Population Density Distribution by Census Block



Source: US Census 2020

The western counties of Madison and Rappahannock have not, as of yet, experienced the high growth rates that the eastern portion of the Region has. However, they are expected to experience higher growth rates from 2030 to 2050. Similar rates of growth to the 2010-2020 period are forecasted for the eastern counties.

Table 4.19 Region Projected Population Demographics

RRRC Locality	Current Pop. (2020)	2030 Projection	2040 Projection	2050 Projection
Fauquier County	72,972	79,584	87,195	96,112
Culpeper County	52,552	57,578	65,739	74,884
Orange County	36,254	38,468	43,010	48,197
Madison County	13,837	14,160	14,600	15,259
Rappahannock County	7,348	7,218	7,291	7,474
Regional Total	182,963	197,008	217,835	241,926

Source: University of Virginia Weldon Cooper Center for Public Service. (2022). Virginia Population Projections.

This same growth pattern also presents itself in the age cohorts, with those counties experiencing slower growth having relatively larger older cohorts than the eastern counties, who are relatively younger.

4.2.3 Development Trends

As mentioned in the previous section, as population growth occurs in the RRRC Region, development will follow suit. Most of the housing in the region is comprised of single-family homes, and associated vehicle oriented commercial use, which contributes to a suburban development pattern.

Increased suburban development and climate change interact in several ways, often exacerbating the impacts of both. One significant interaction is through the urban heat island effect, where the expansion of suburban areas leads to more roads, buildings, and other infrastructure that absorb and retain heat. This effect, combined with rising global temperatures due to climate change, can result in even hotter conditions in these areas, increasing energy demand for cooling and heightening health risks during heatwaves. Additionally, suburban development reduces the amount of permeable land that can absorb rainfall, leading to increased surface runoff and a higher risk of flooding. Climate change, with its projected increase in the frequency and intensity of heavy rainfall events, further intensifies this problem, especially in areas with inadequate stormwater management infrastructure. While the rural development patterns may likely persist in the western counties, the eastern Counties will likely see pockets of these types of issues.

The expansion of suburban areas also leads to the loss of natural habitats and a decline in biodiversity, as forests, wetlands, and other ecosystems are fragmented or destroyed. Climate change exacerbates this issue by altering habitats, shifting species distributions, and increasing the vulnerability of wildlife, accelerating the decline in biodiversity.

Moreover, suburban areas tend to be more car-dependent and have larger homes, leading to higher greenhouse gas emissions. These emissions contribute to climate change, creating a feedback loop where development-driven emissions worsen climate impacts, which in turn make suburban living less sustainable due to increased heat and energy costs. Finally, suburban development increases demand for water resources, straining local supplies, particularly in areas already facing water stress. Climate change, which can alter precipitation patterns and reduce water availability, compounds this issue, leading to more severe water scarcity problems. Overall, the interaction between suburban development and climate change underscores the need for sustainable development practices and climate adaptation strategies.

Regional Hazard Mitigation Plan (2025 Update) and Resilience Plan

Chapter 5
Vulnerability Assessment

Rappahannock-Rapidan
REGIONAL COMMISSION

CHAPTER 5 – VULNERABILITY ASSESSMENT

The vulnerability assessment estimates the extent of injury and damage that may result from various natural hazards within the Rappahannock-Rapidan region. Vulnerability can be quantified in some instances where there is an identified hazard area, and where unique data can be applied to such an estimate. In these instances, the numbers and types of buildings subject to the hazard can be counted and their values tabulated. In cases where no definitive data exists, estimates of potential damage can still be attempted by using past events as a rough predictor of the future.

This Chapter includes an analysis of the risks associated with each hazard, and the vulnerability of localities within the region. The risk analysis includes total potential loss estimates based upon the amount of infrastructure in the jurisdiction, the number of critical facilities that would potentially be affected, loss of business where appropriate, as would be affected by the location, extent, and severity of a potential hazard occurrence. In order to conduct this analysis, the infrastructure, population, and development in each jurisdiction was updated using the best available data.

In Chapter 4, this Plan identified a range of natural hazards faced by the region, drawing particular attention to those with medium to high hazard potential based on past events and local judgment. Some hazards, such as drought, are broad, general conditions whose impact will be felt by the entire region, while other hazards, such as floods, have impacts that are highly focused, and are based on specific features such as local topography.

Additionally, Chapter 4 also identifies several human-caused hazards identified as being important to the Region and its localities, these being Pandemic/Infectious Agent, Cybersecurity Risk, and Hazardous Materials. While identified and discussed in Chapter 4, it is important for localities to consider when planning for hazard mitigation, vulnerability to these hazards is not assessed within this Chapter due to the lack of data and ability to quantify frequency and impacts with reasonable certainty.

For the purpose of assessing hazard vulnerability in the region, this Plan considers those hazards which are likely to impact the entire region equally when they occur, and those hazards where the effects will be more specific or localized; these are:

Vulnerability Assessment

- Drought
- Dam/Levee Failure
- Extreme Heat
- Wildfire
- Earthquake
- Sinkhole
- Landslide
- Flood
- Hurricanes & Tropical Storms
- Tornados
- Thunderstorms
- Winter Weather

Assessment Methodologies

- Assessment tools used included:
    - HAZUS 6.0;
    - GIS (Non-HAZUS) Risk Assessment using FEMA National Risk Index; and
    - Qualitative feedback from the public and the Project Management Team

HAZUS, a geographic information loss estimation software tool, provided by the Federal Emergency Management Agency (FEMA), was used alongside regional and local GIS analysis to quantitatively assess potential hazards. Qualitative information was derived from data provided by members of the Project Management Team who assigned values to the likelihood of occurrence, spatial extent and potential of each hazard studied.

It should be noted that the vulnerability determinations presented in this section are based upon best available data and represent an approximation of risk. While useful in understanding relative risk and potential loss, all such analyses include inherent uncertainty reflecting incomplete knowledge and the approximations and simplifications that are an integral part of any loss estimation methodology.

Additionally, historical and anecdotal data were collected for the identified hazard types. By examining the historical occurrences of each hazard, along with the impacts, the Project Management Team was able to identify the hazards that pose the most significant risks to the region. This identification will allow the region's jurisdictions the ability to focus their hazard mitigation planning efforts on the hazards most likely to have an impact on them in the future, based on the probability that a certain type of natural hazard would affect the region, and the potential extent and severity of the damage caused by that hazard.

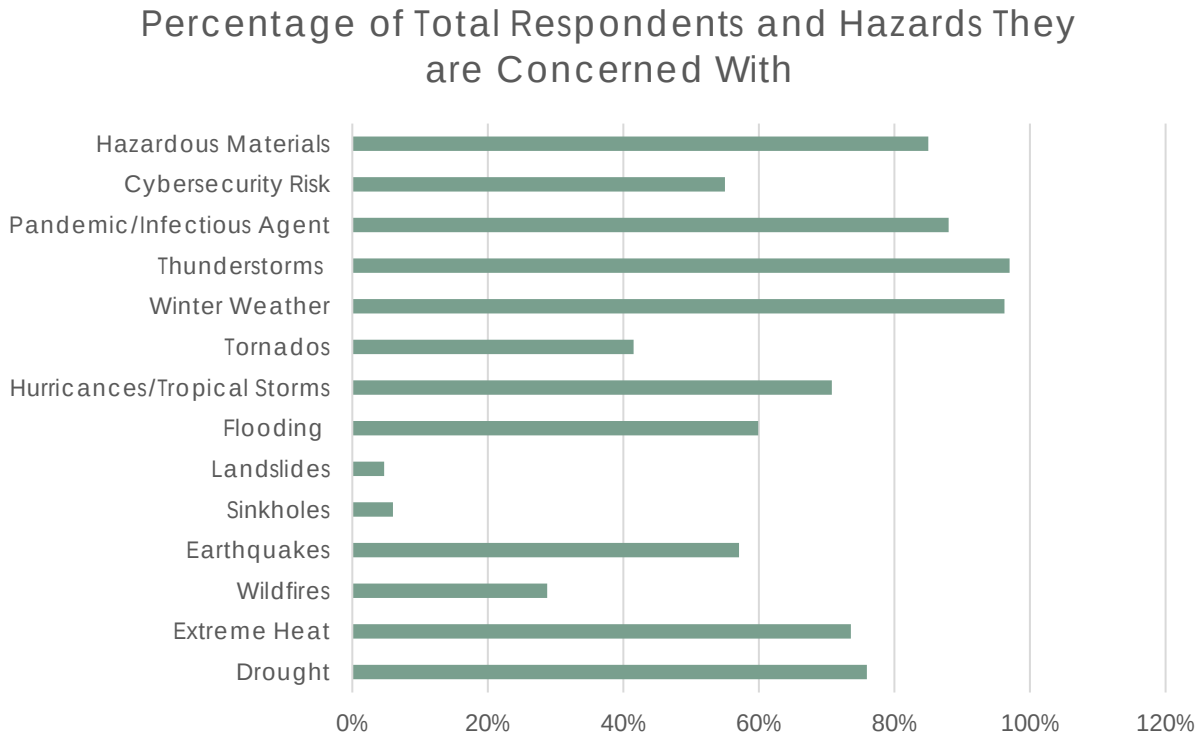
The probability of occurrence for each hazard was determined using available data, including the history of events, from sources such as the FEMA National Risk Index (NRI), National Climate Data Center (NCDC), Virginia State agencies, and others. Certain hazards, such as landslides and technological risks, do not have sufficient underlying

data with which to analyze them, and instead the possible impacts will be discussed using rare historical occurrences as a measure.

Community Feedback

To gauge respondents perspectives regarding hazard impacts to the region and localities, a series of questions were asked concerning whether respondents had experienced specific hazards, whether they were concerned about these hazards, whether there were other hazards that they were concerned about, whether their property had sustained damage as the result of a hazard event, whether damages had been reported, and perspectives about increasing or decreasing instances or intensity of hazards. The table below shows which hazards residents and business owners in the region are most concerned about.

Figure 5.1 - Public Survey Response, 2024



5.1 – REGIONAL AND COMMUNITY VULNERABILITY ASSESSMENT

For this Plan update, FEMA National Risk Index (NRI) data was utilized to estimate total annual dollar exposure of agricultural land, buildings, and people in the region.[1] Total dollar exposure accounts for both the building and the building's contents and are based on a percentage of the building's value.[2] For impacts to people, the NRI uses

[1] Annual exposure means the total value of all buildings, land, and lives divided by the estimated annual risk.
[2] Building values are transformed and normalized to account for the large skew in the prices which affect the average.

FEMA's "value of a statistical life," where 1 death or 10 injuries equates to $7.6MM.[3] The table below breaks out NRI loss estimates by locality.

Table 5.1: Expected Annual Loss (in Dollars) of Property and Agriculture by Locality (FEMA National Risk Index 2020)

County	Buildings	Population Eq.	Agriculture	Total
Culpeper	$ 2,439,196	$ 1,344,362	$ 517,784	$ 4,301,342
Fauquier	$ 4,118,787	$ 2,232,914	$ 275,946	$ 6,627,647
Madison	$ 1,319,986	$ 406,789	$ 327,196	$ 2,053,971
Orange	$ 3,578,982	$ 697,195	$ 1,144,183	$ 5,420,360
Rappahannock	$ 765,215	$ 240,882	$ 144,843	$ 1,150,941
Region Total	$12,222,166.00	$4,922,142.00	$2,409,952.00	$19,554,261.00

Expected Annual Loss (EAL) represents the average economic loss in dollars resulting from natural hazards each year. It is calculated for each hazard type and quantifies loss for relevant consequence types: buildings, people, and agriculture.

The index score on the FEMA National Risk Index (NRI) is a numerical value that quantifies the relative risk of various hazards in a community. It is calculated based on a combination of factors including a natural hazards component (Expected Annual Loss), a consequence enhancing component (Social Vulnerability), and a consequence reduction component (Community Resilience). A community's score is represented by its percentile ranking among all other communities at the same level for Risk, Expected Annual Loss, Social Vulnerability and Community Resilience. For example, if a given Census tract's Risk Index percentile for a hazard type is 84.32 then its Risk Index value is greater than 84.32% of all US Census tracts.[4]

Natural hazards that were classified as affecting the entire Rappahannock-Rapidan Region were drought and various types of severe weather events. For these hazards, the potential impacts are presented below.

5.1.1 - DROUGHT VULNERABILITY ASSESSMENT

FEMA's National Risk Index defines a Drought as "a deficiency of precipitation over an extended period of time resulting in a water shortage."[5] Drought impacts may include physical, bio-physical, social, and economic consequences. Physically, there may be a reduction in water supply for consumption, domestic use, and irrigation purposes with a subsequent impact of increased pumping costs. The ground water level may be depleted, and the flow of perennial water sources reduced. Bio-physical impacts include damage to crop quantity and quality, damage to wildlife and habitat, an

[3] This VSL can greatly affect risk determinations depending on the hazard and are sometimes not highlighted in the overall analysis. Widespread hazards that may have low death rates but
[4] FEMA National Risk Index: Understanding Scores and Ratings https://hazards.fema.gov/nri/understanding-scores-ratings
[5] National Risk Index Technical Documentation Section 9. Drought https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf

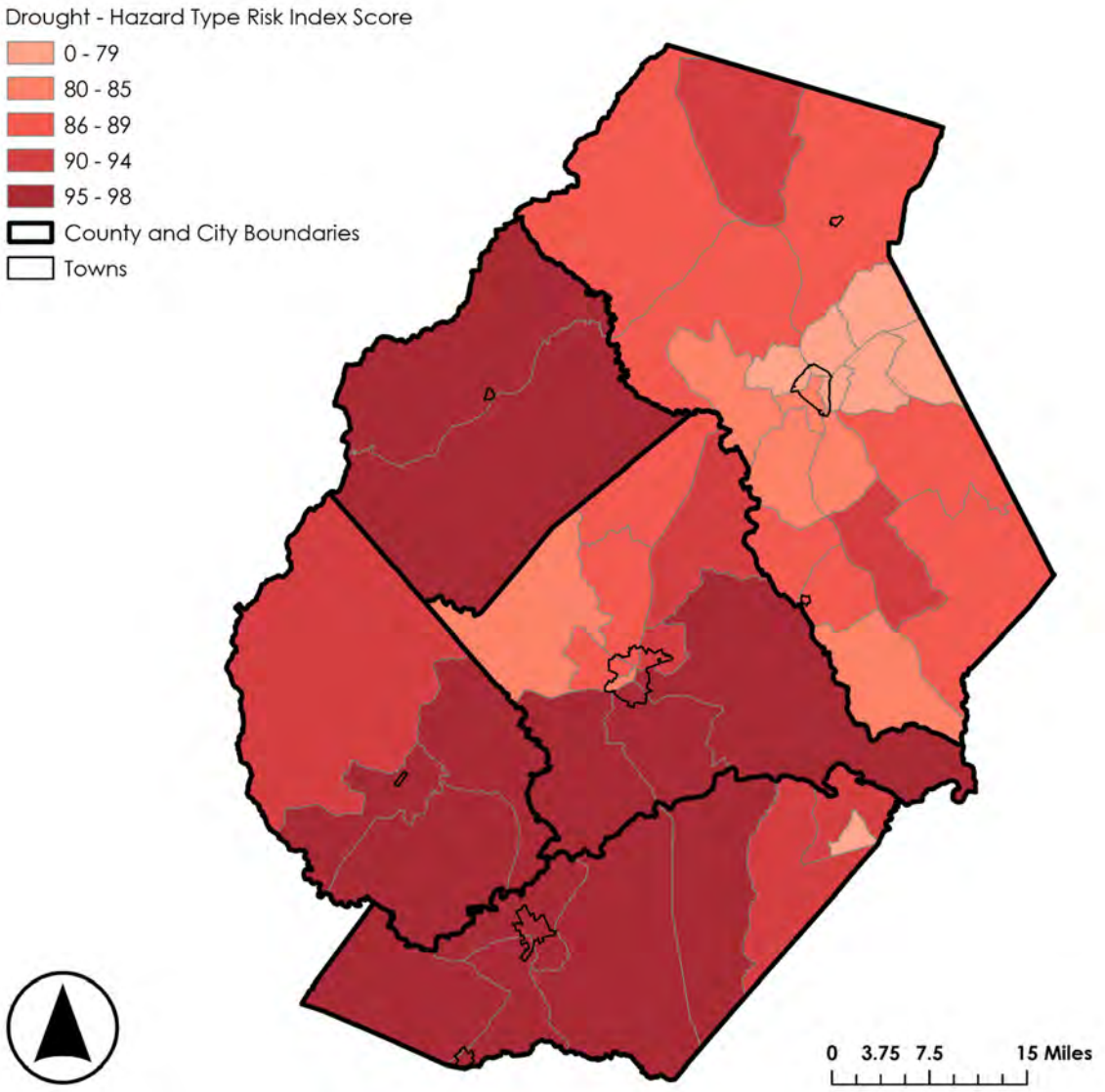
increase in invasive/noxious weeds, and the deterioration of water quality. Economically, there may be a loss in livestock production and increased prices for commodities.

The entire Rappahannock-Rapidan Region is vulnerable to drought. Since 1995, the counties in the Rappahannock-Rapidan region have been affected by drought on several occasions, most notably in 1999 and 2002. The National Climatic Data Center attributes nearly $31 million in crop loss to these events. It is assumed that all buildings and facilities are exposed to drought but would experience negligible damage in the occurrence of a drought event, but crops would suffer the greatest amount of damage. This is of particular importance to officials in this region because farming is a major industry in the region. Additionally, before this period, little historical data existed on past drought events. The following table and maps below show losses by locality and overall regional risk.

Table 5.2 - Drought Expected Annual Loss (in Dollars) by Locality (FEMA National Risk Index 2020)

	Culpeper	Fauquier	Madison	Orange	Rappahannock
Buildings	-	-	-	-	-
Population	-	-	-	-	-
Agriculture	$225,445	$43,084	$116,855	$460,483	$73,717
Total Annual Loss	$225,445	$43,084	$116,855	$460,483	$ 73,717

Figure 5.2.1 -Drought Overall Risk Score for RRRC Region



Source: FEMA National Risk Index, 2020

Figure 5.2.2.a - Culpeper County - Drought - Annual Loss - Agriculture Value

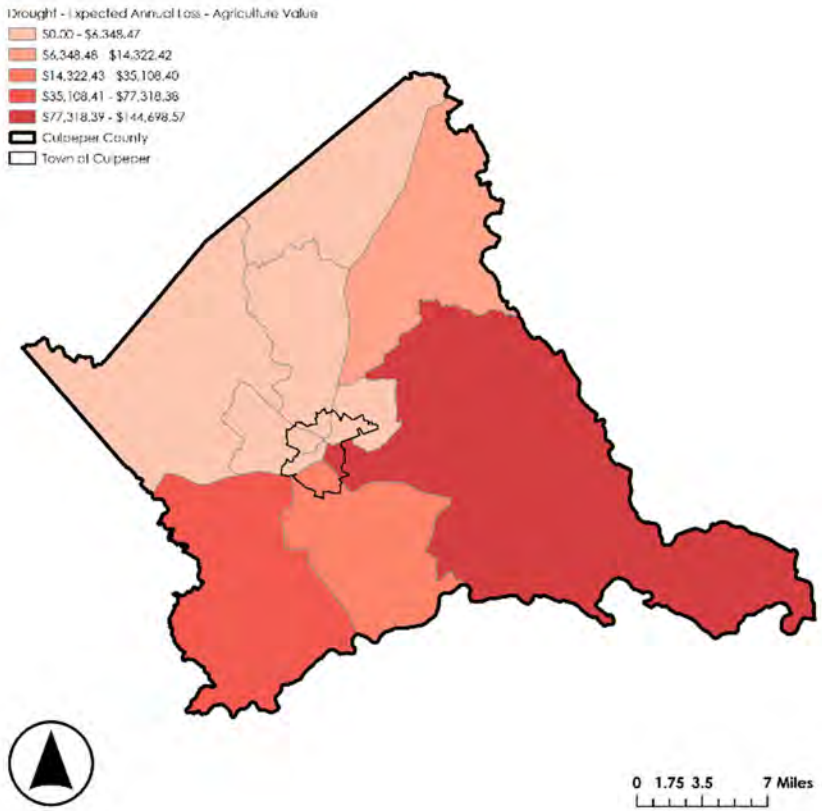


Figure 5.2.2.b - Culpeper County - Drought - Annualized Frequency

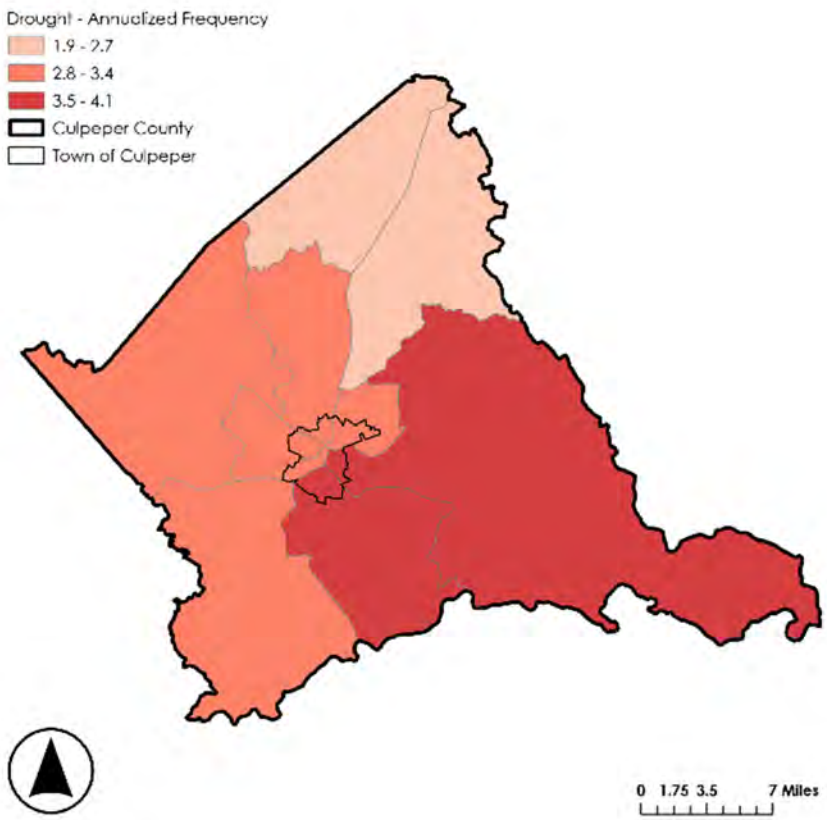


Figure 5.2.2.c - Culpeper County - Drought - Expected Annual Loss - Total

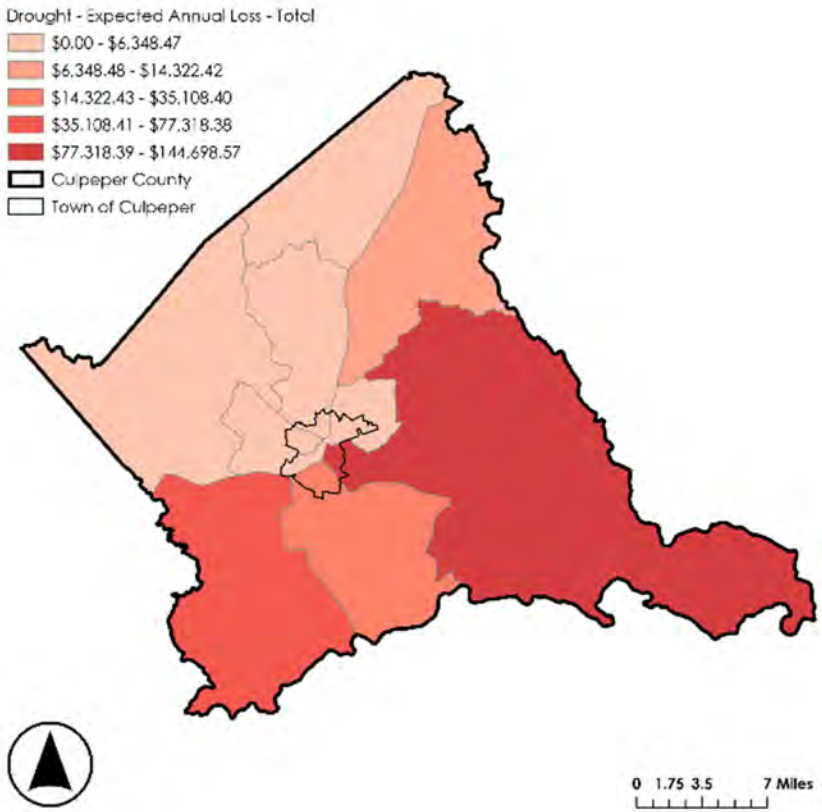


Figure 5.2.2.d - Culpeper County - Drought – Hazard Type Index Score

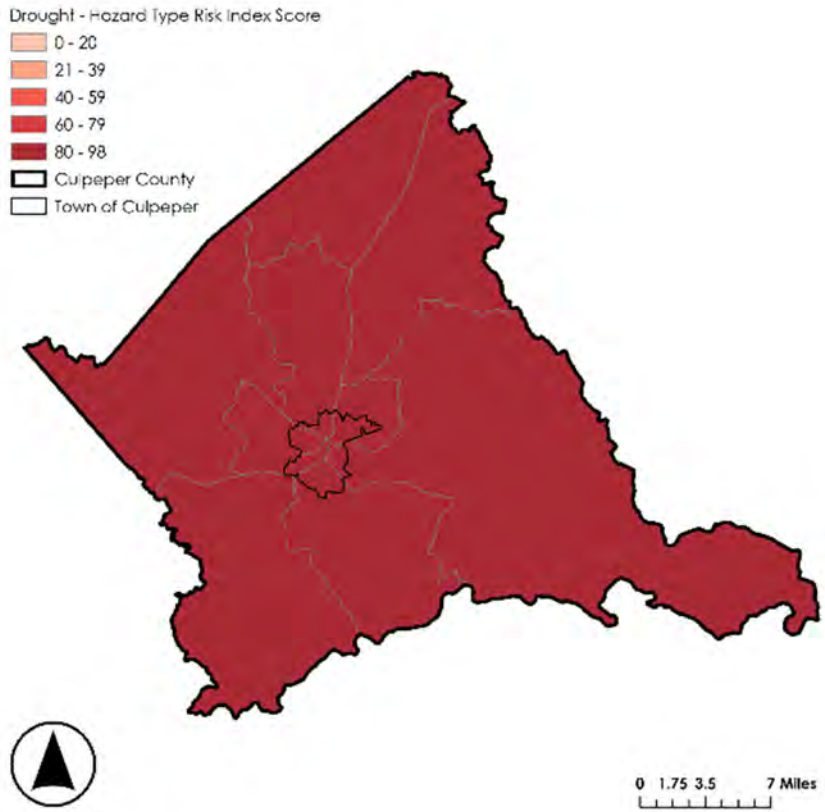


Figure 5.2.3.a Fauquier County - Drought - Annual Loss Annualized Agriculture Value

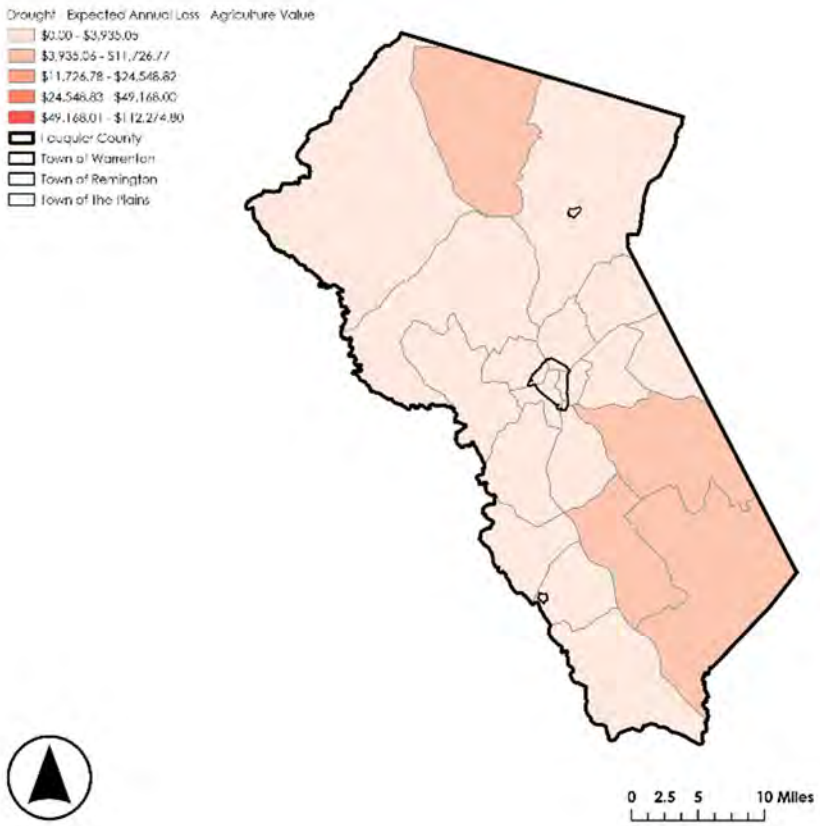


Figure 5.2.3.b -Fauquier County – Drought – Frequency

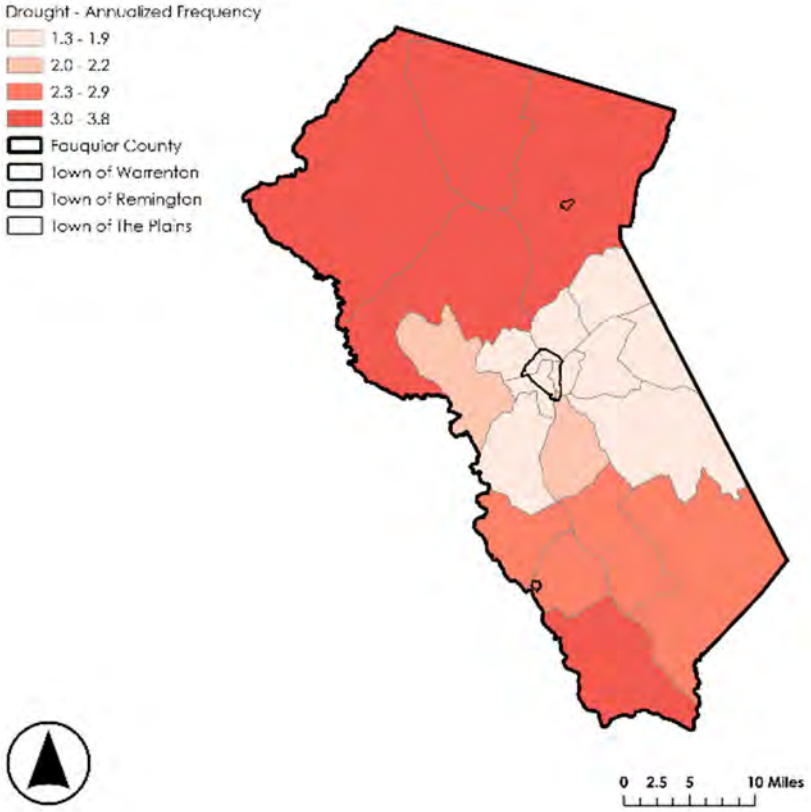


Figure 5.2.3.c - Fauquier County - Drought – Expected Annual Loss - Total

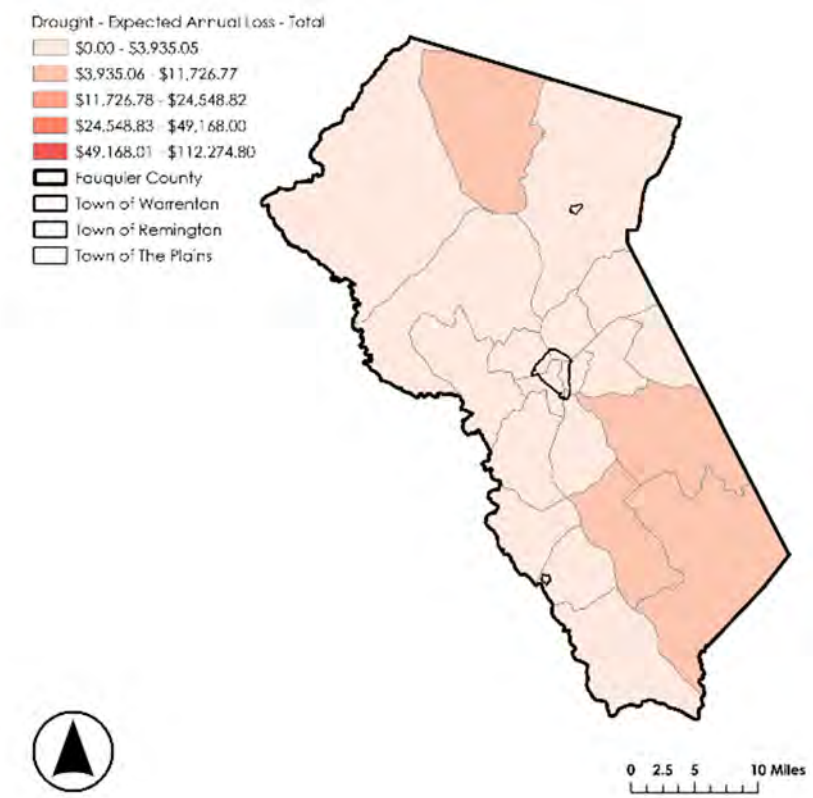


Figure 5.2.3.d – Fauquier County - Drought – Hazard Type Index Score

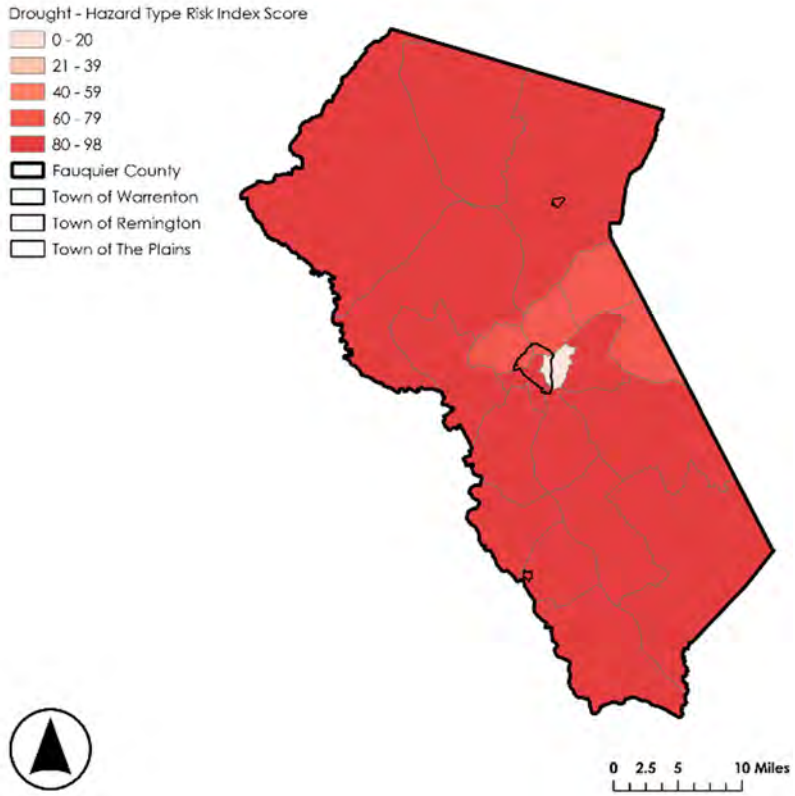


Figure 5.2.4.a Madison County - Drought - Annual Loss – Agriculture Value

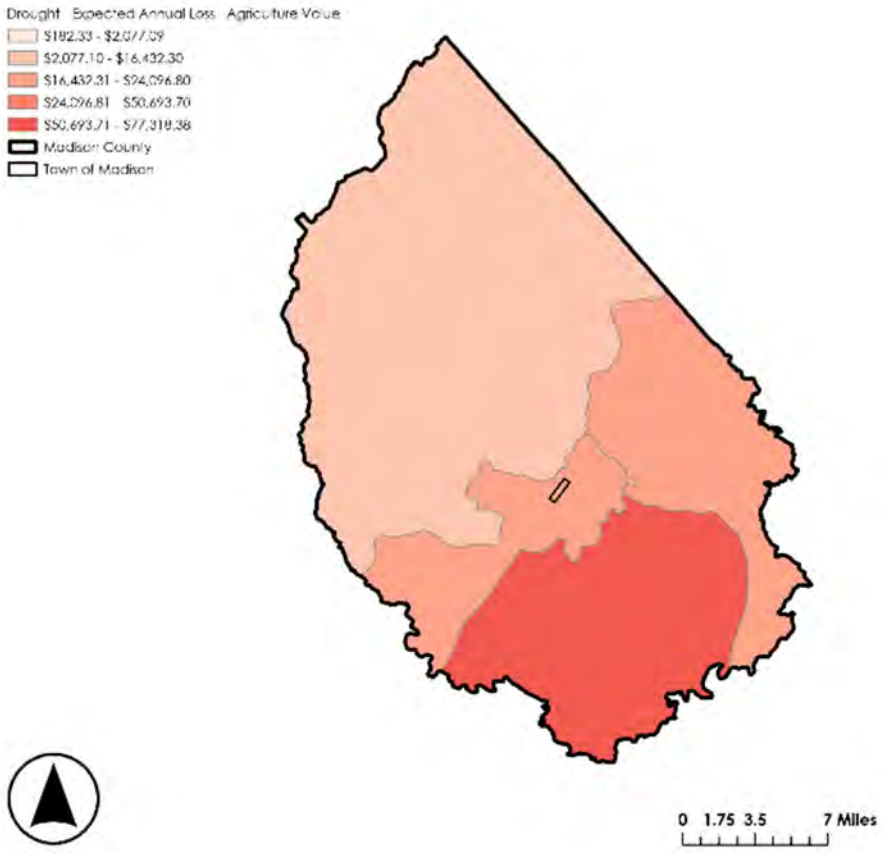


Figure 5.2.4.b -Fauquier County – Drought – Annualized Frequency

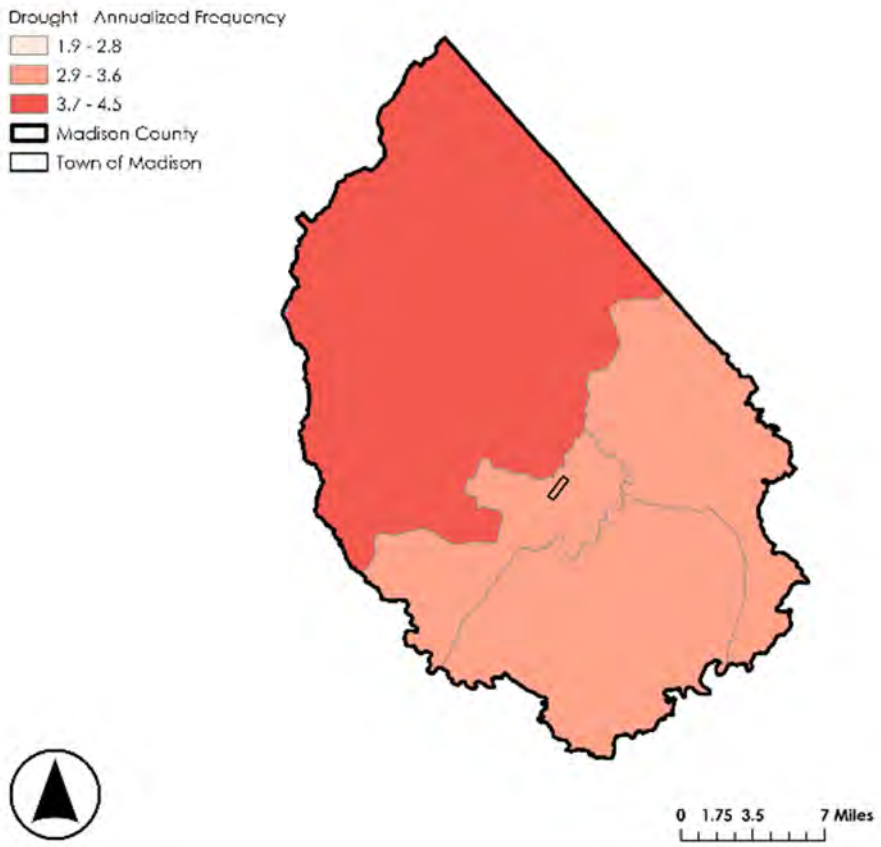


Figure 5.2.4.c – Madison County - Drought – Expected Annual Loss - Total

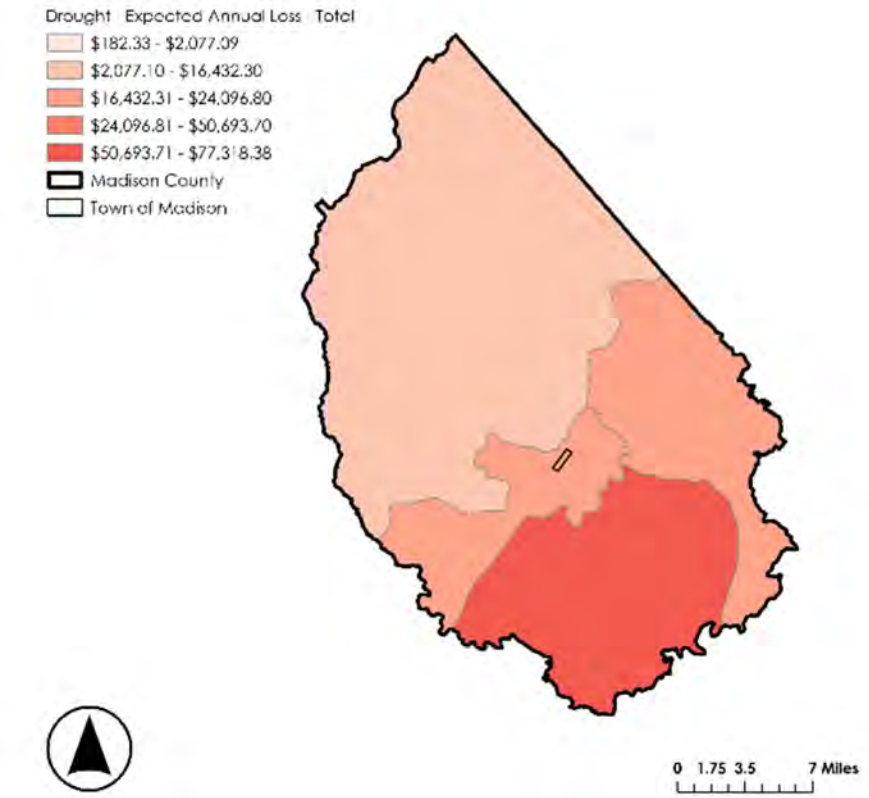


Figure 5.2.4.d – Madison County - Drought – Hazard Type Index Score

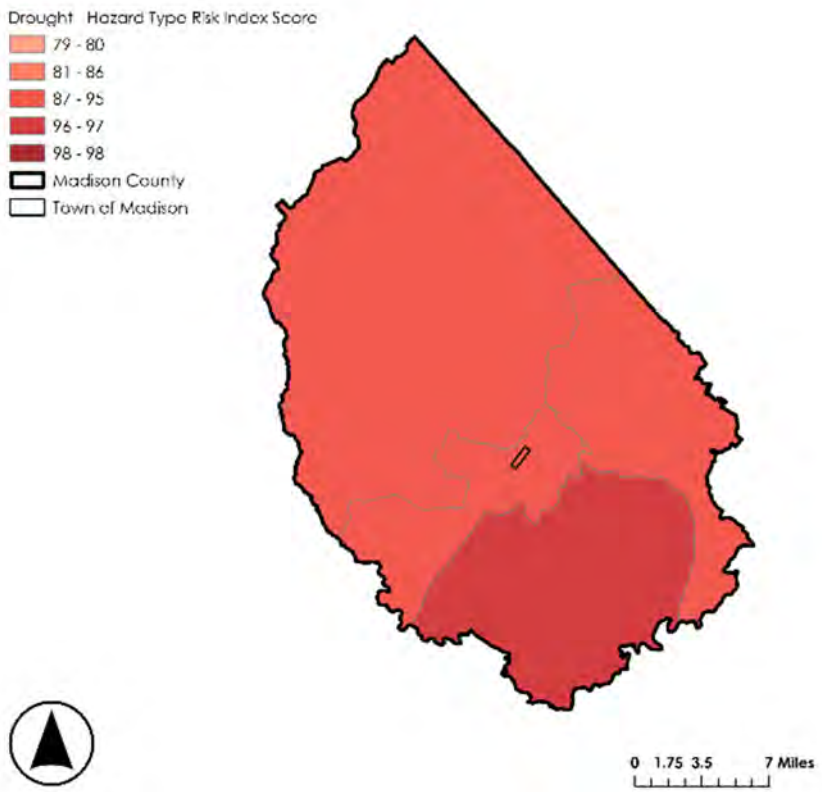


Figure 5.2.5.a – Orange County - Drought - Annual Loss – Agriculture Value

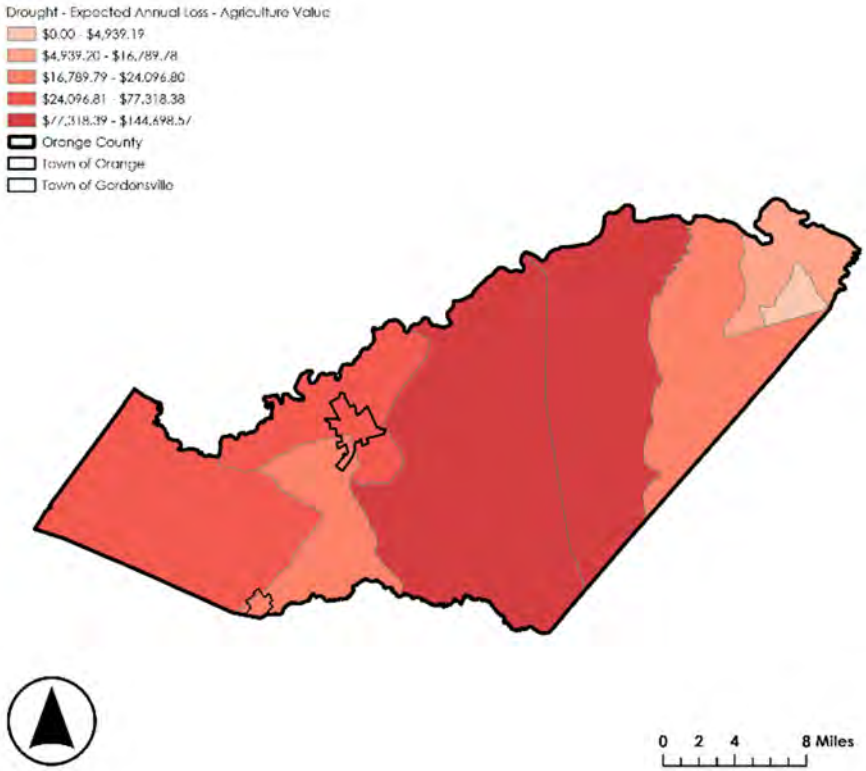


Figure 5.2.5.b -Orange County – Drought – Annualized Frequency

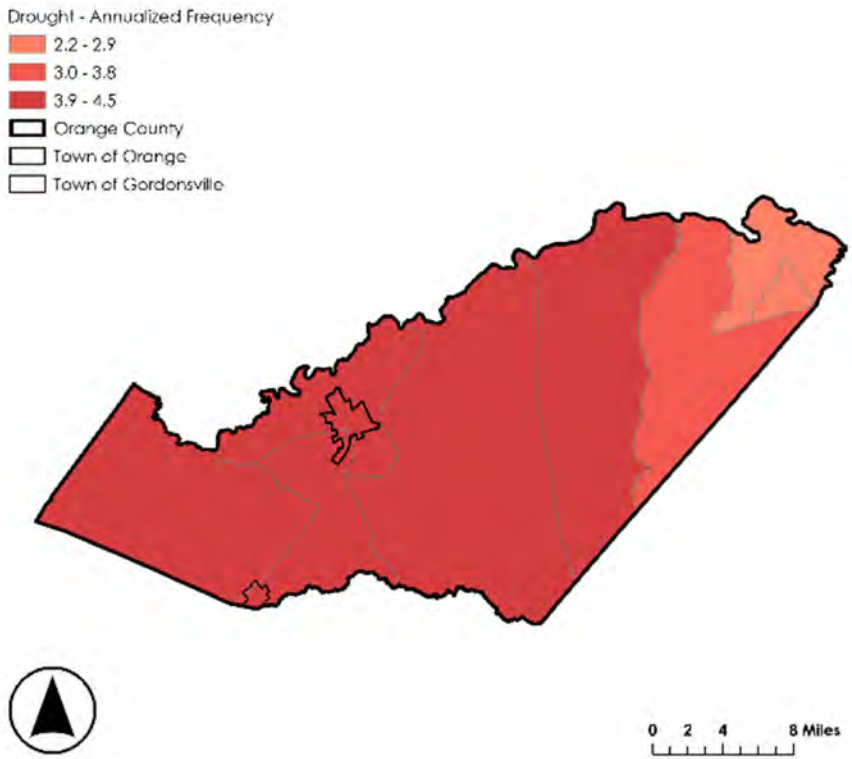


Figure 5.2.5.c – Orange County - Drought – Expected Annual Loss - Total

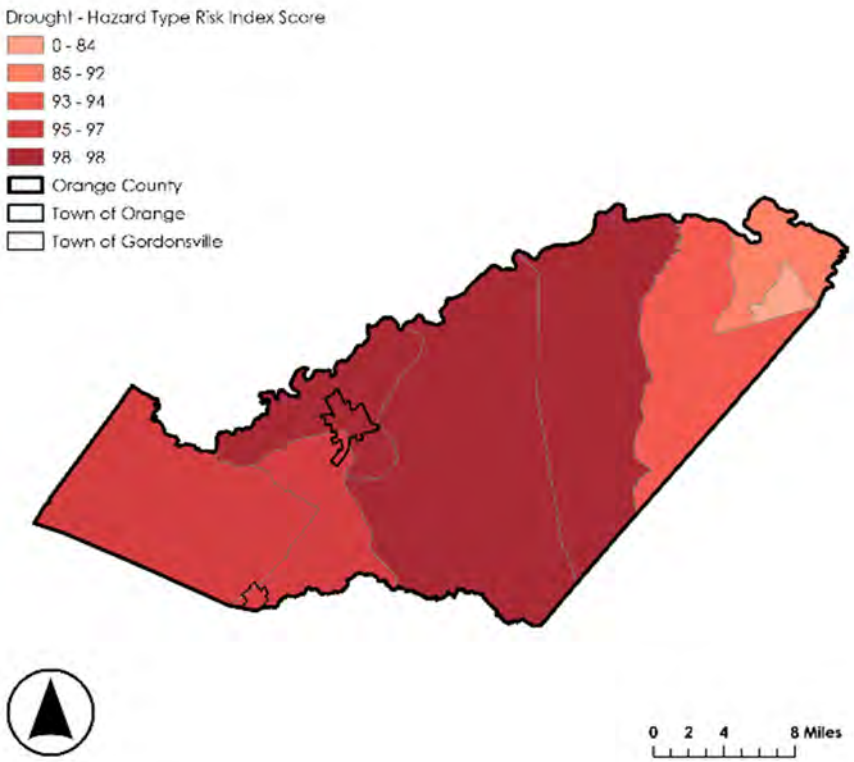


Figure 5.2.5.d – Orange County - Drought – Hazard Type Index Score

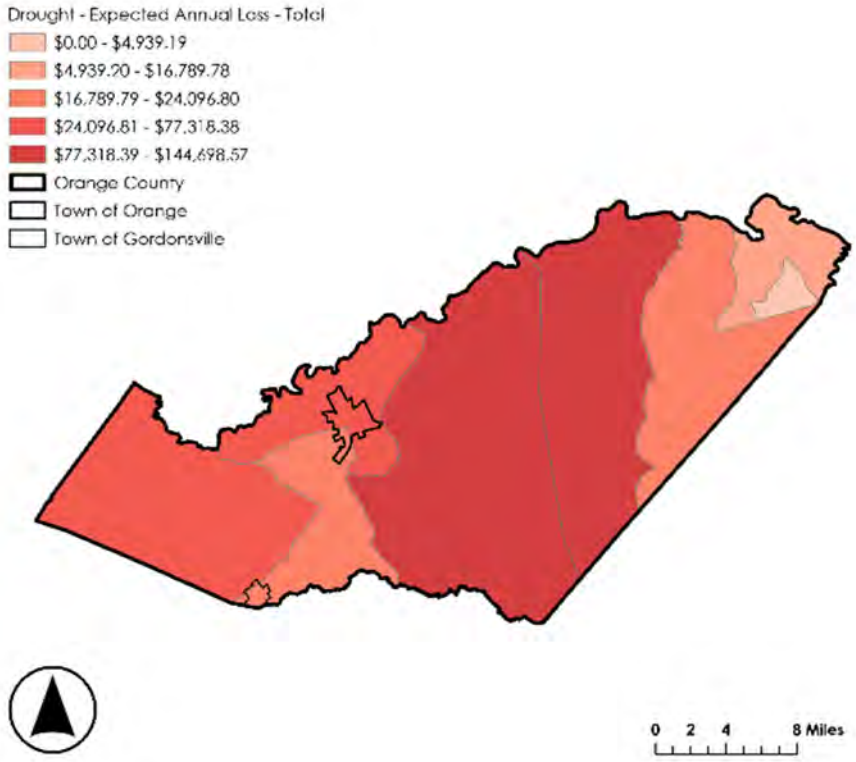


Figure 5.2.6.a - Drought – Rappahannock County – Expected Annual Loss – Agriculture Value

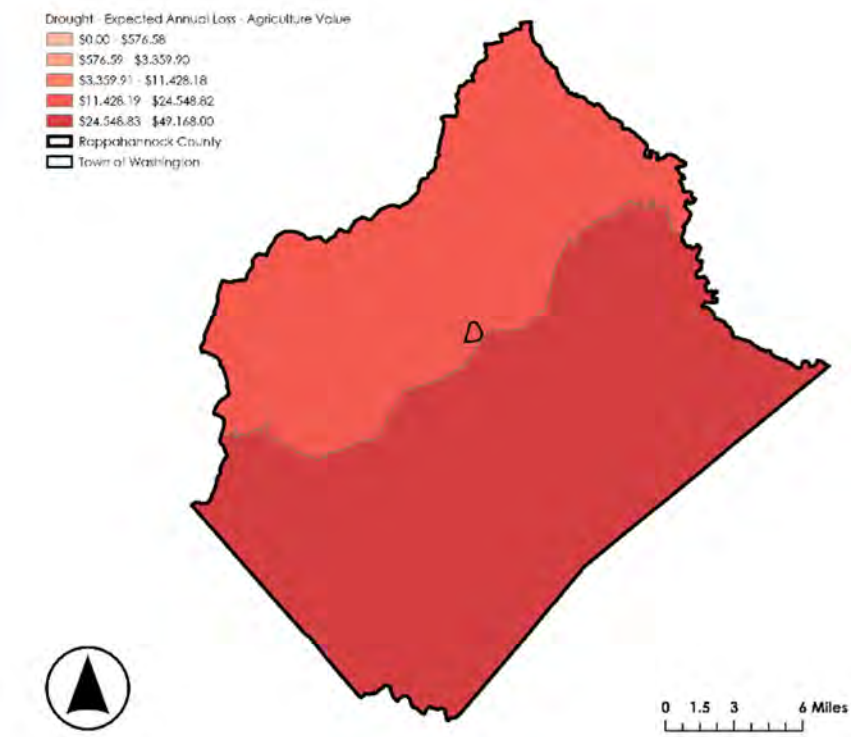


Figure 5.2.6.b – Rappahannock County – Annualized Frequency

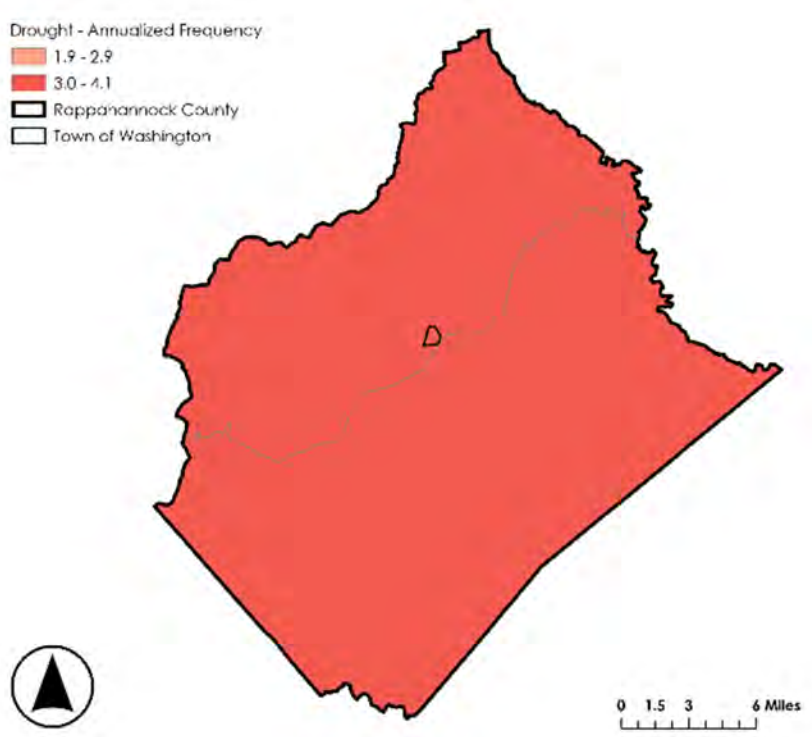


Figure 5.2.6.c – Rappahannock County - Drought – Expected Annual Loss - Total

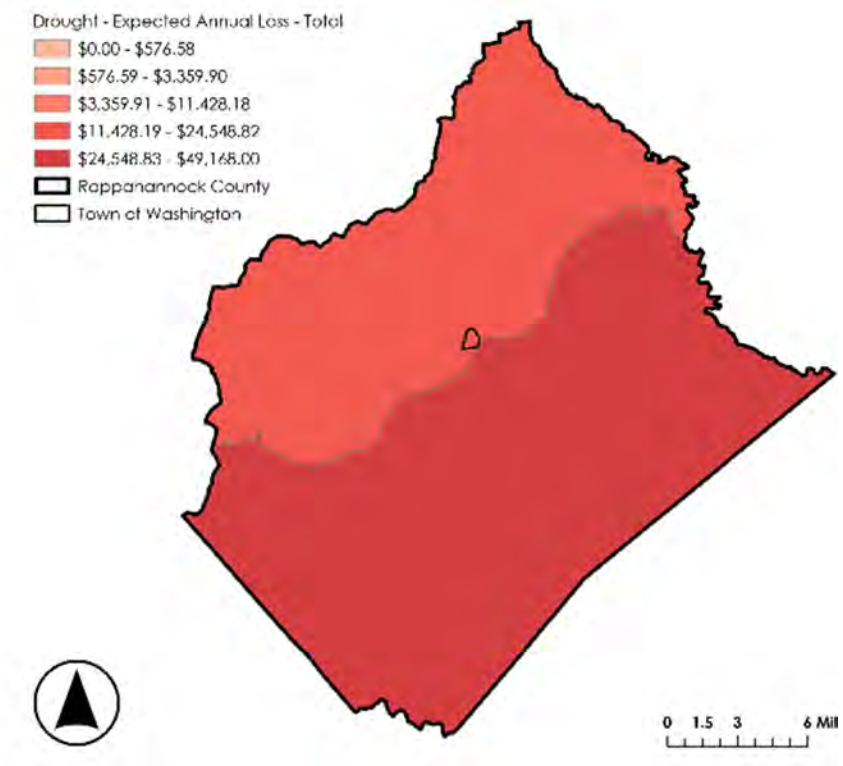
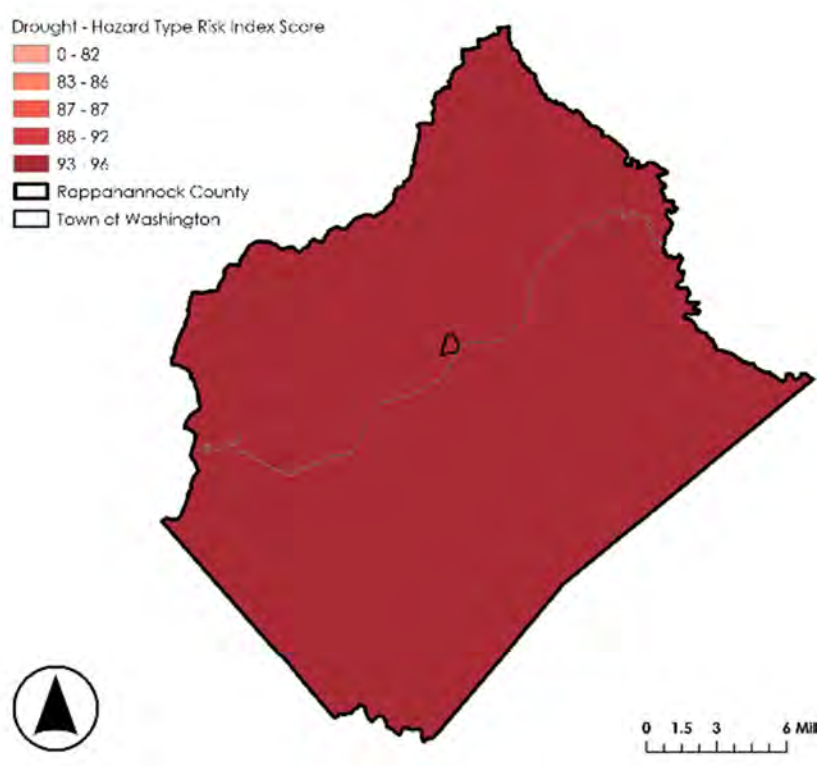


Figure 5.2.6.d – Rappahannock County - Drought – Hazard Type Index Score



5.1.2 – DAM/LEVEE VULNERABLITY ASSESSMENT

Like sinkholes and landslides, dam failure should be considered a semi-natural hazard. Dams are created by human intervention but may cause flooding and erosion in the event of their failure. Dam failure can occur if pressure behind the dam exceeds design capacity, or overtopping causes rushing water to scour the base of the dam. The Virginia Soil and Water Conservation Board (VSWCB) established the Virginia Dam Safety Program to provide dam safety. Dams that meet specific regulatory criteria must obtain operation and maintenance certificates and provide emergency action plans to local emergency officials.

The VA DCR compiles an Inventory of Dams ranking each dam on its downstream hazard potential in the event of failure. Hazard potential is unrelated to the structural integrity of a dam. Rather it is directly related to potential adverse downstream impacts should the given dam fail.

Table 5.3 Hazard Potential of Dams in RRRC Region

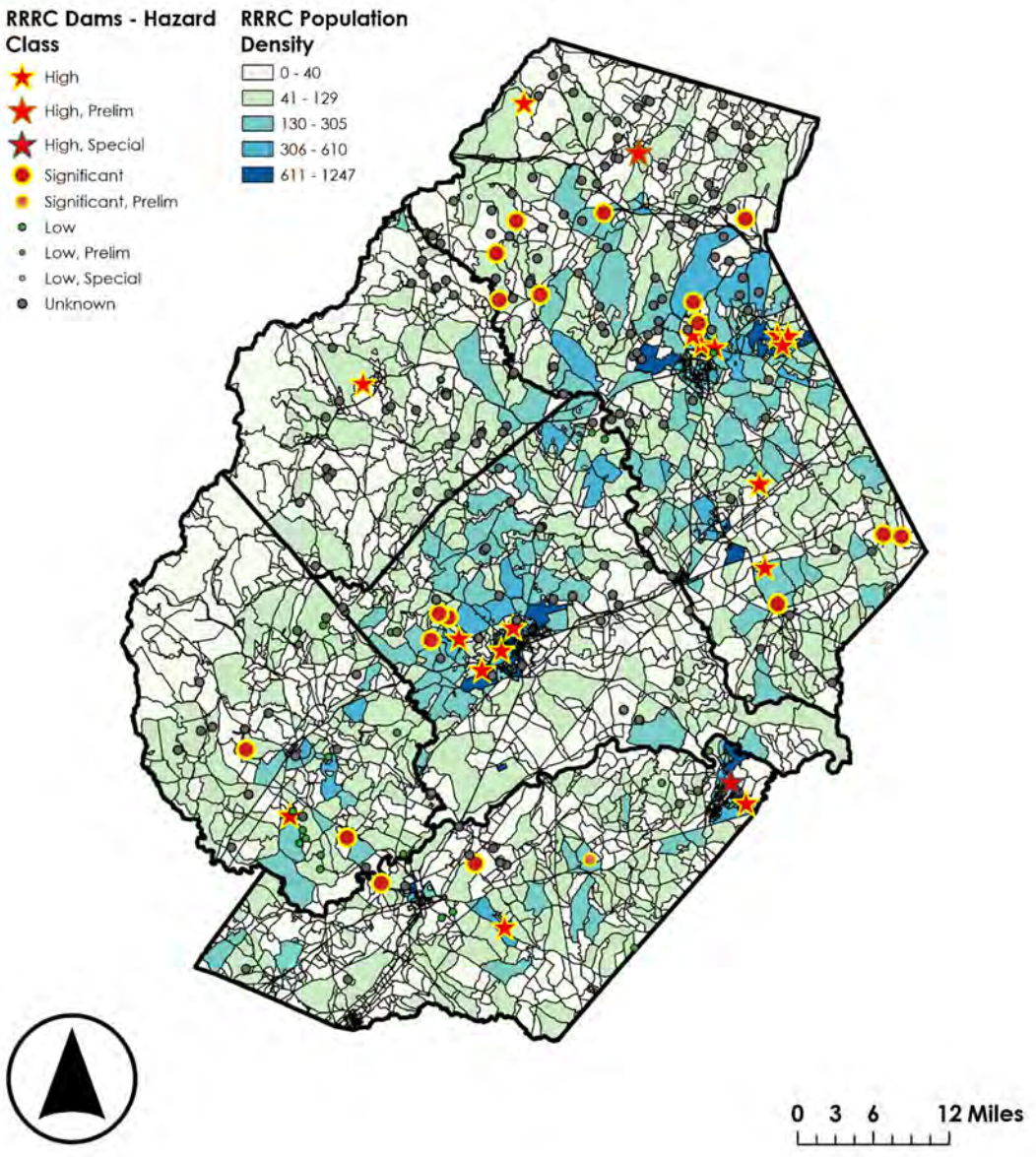
Community	Downstream Hazard Potential				
	High	High "Special"	Significant	Low	Undetermined
Culpeper County	4	0	3	3	21
Fauquier County	10	0	9	4	59
Madison County	1	0	2	11	6
Orange County	2	1	2	5	8
Rappahannock County	2	0	0	0	22
RRRC Total	19	1	16	23	65

Source: National Inventory of Dams (https://nid.sec.usace.army.mil/#/) Accessed on 08/18/2025

Downstream hazard potential is rated Low if damage would likely be limited to the owner's property, with no probable loss of human life and low economic or environmental loss. Ratings of Significant indicate no probable loss of human life, but the possibility of economic loss or the disruption of lifeline facilities. Downstream hazard potential is rated High when the failure of a dam would likely cause the loss of human life. Those with a subclass of "Prelim" mean more study is needed but are rated as noted. Those with a subclass of "Special" mean the owners who meet strict conditions (approved & exercised EAP, DBIZ mapping, annual PE inspections, insurance, etc.) may use a reduced Spillway Design Flood. VA DCR's dataset shorthand these as "High – Special," but the underlying hazard class is still High. A Hazard rating of High means a probable loss of life, but also flags circumstances where:

- There is a large downstream population at risk (for example, dense residential areas, schools, or critical facilities directly in the inundation zone).
- Infrastructure critical to public safety (major highways, hospitals, emergency facilities) would be significantly impacted.
- The inundation zone extends unusually far or would cause complex, cascading effects if failure occurred.

In practice, a High Hazard dam should have the strictest regulatory oversight, including certified Emergency Action Plans (EAPs), detailed Dam Break Inundation Zone (DBIZ) studies, and higher design/review standards for development in the DBIZ areas, because the scale of potential consequences. The map below illustrates the dam hazard rating for the RRRC region in relation to population density.

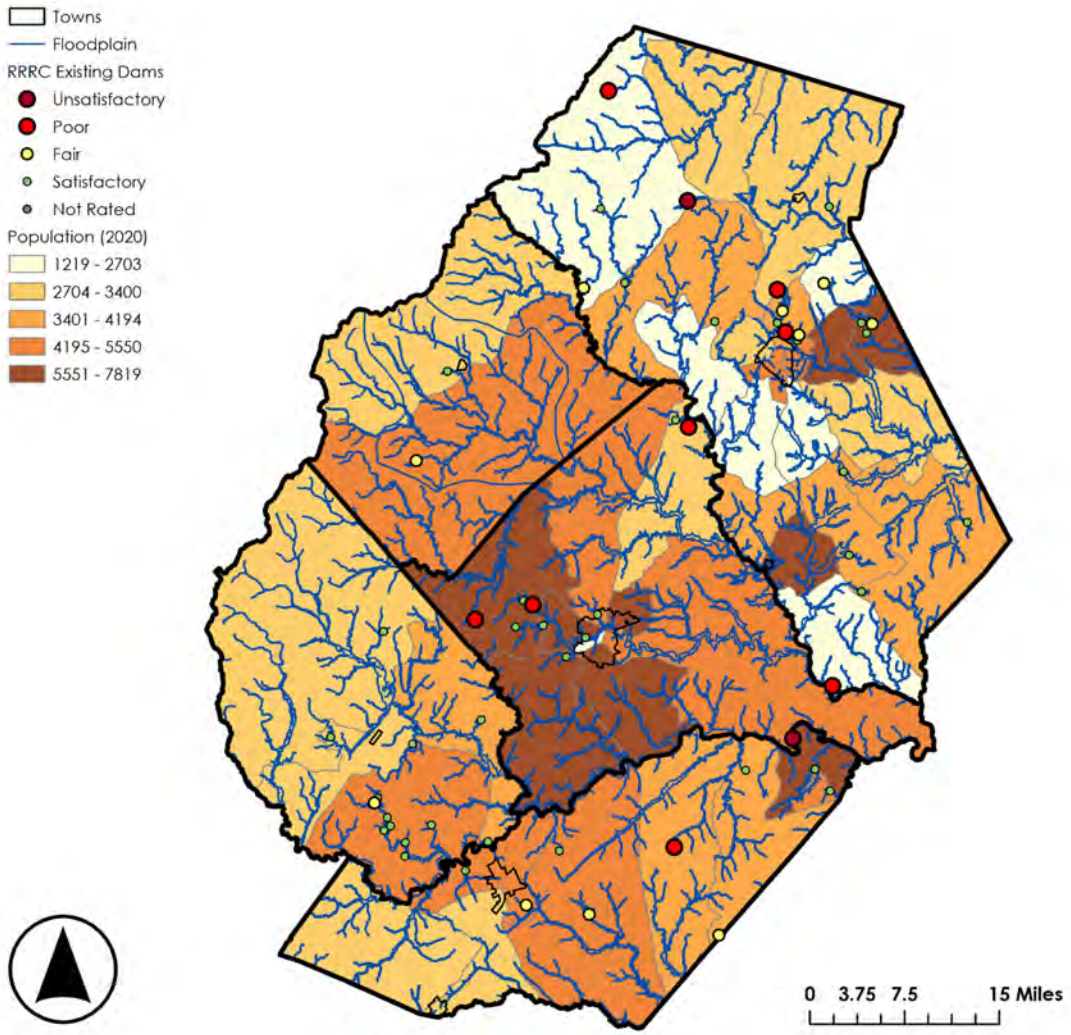


Source: Source: Virginia Department of Conservation and Recreation

Figure 5.3 - Dam Hazard Potential in RRRC Region

The following map shows the location, and documented condition of dams in the Rappahannock-Rapidan Region in relation to population density. The majority are in satisfactory or fair condition, but 1 in Fauquier County and 1 in Orange County are rated as being in unsatisfactory condition. These should be prioritized for improvements. There are a total of 7 dams that have been classified as “Poor” condition and these should be further assessed.

Figure 5.31 - Dam Failure Overall Risk for RRRC Region



Source: Virginia Department of Conservation and Recreation and US Census, 2024

5.1.3 – HEAT WAVE VULNERABILITY ASSESSMENT

FEMA's National Risk Index defines a Heat Wave as "a period of abnormally and uncomfortably hot and unusually humid weather typically lasting two or more days with temperatures outside the historical averages for a given area."[6] High heat and humidity (high Heat Index) can present dangers to human life. When heat gain exceeds the level at which the body can remove heat, body temperature begins to rise, and heat related illnesses and disorders may develop, including damage to the brain and vital organs. The Heat Index (HI) is the temperature the body feels when heat and humidity are combined. According to the Centers for Disease Control and Prevention (CDC), infants, and children up to 4 years of age, as well as people 65 years of age and older, are at greatest risk for heat-related illness.

The region is home to significant populations of young children and adults over 65, both of whom may be especially impacted by extreme heat hazards. Extreme heat does not generally affect buildings but does disproportionately affect human populations, and its effect on agriculture is captured by drought assessments found in Section 5.1.1 Drought Vulnerability Assessment. The table and maps below show losses by locality and overall regional risk. Urbanized areas (and therefore critical infrastructure) are most at risk for extreme heat events. All critical facilities are shown in the Appendix.

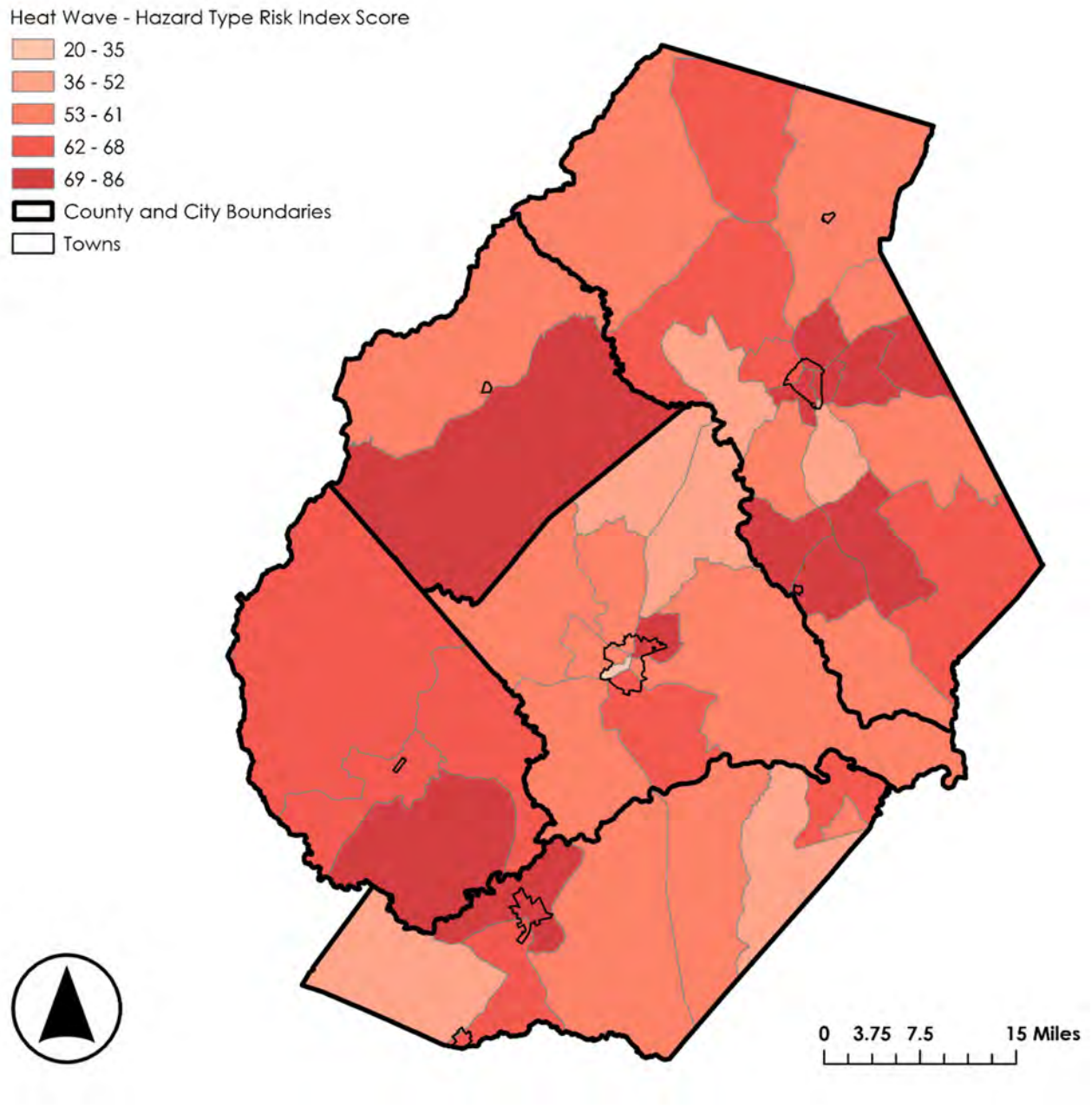
Table 5.4: Extreme Heat Expected Annual Loss (in Dollars) by Locality

County	Culpeper	Fauquier	Madison	Orange	Rappahannock	Region
Buildings	-	-	-	-	-	-
Population Eq.	$116,806	$526,700	$82,171	$110,625	$38,084	$874,386.00
Agriculture	$9	$10	$3	$22	$1	$45.00
Total Annual Loss	$116,815	$526,711	$82,174	$110,647	$38,085	$874,432.00

FEMA National Risk Index, 2020

[6] National Risk Index Technical Documentation Section 12. Heat Wave https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf

Figure 5.4.1 - Heat Wave Overall Risk for RRRC Region



Source: FEMA National Risk Index, 2020

5.1.4 WILDFIRE VULNERABILITY

The Virginia Department of Forestry ("VDOF") tracks wildfire events, including their location, size, frequency, and damages caused. Using this data, among other resources, VDOF classifies areas of the state based on their relative fire risk. This plan

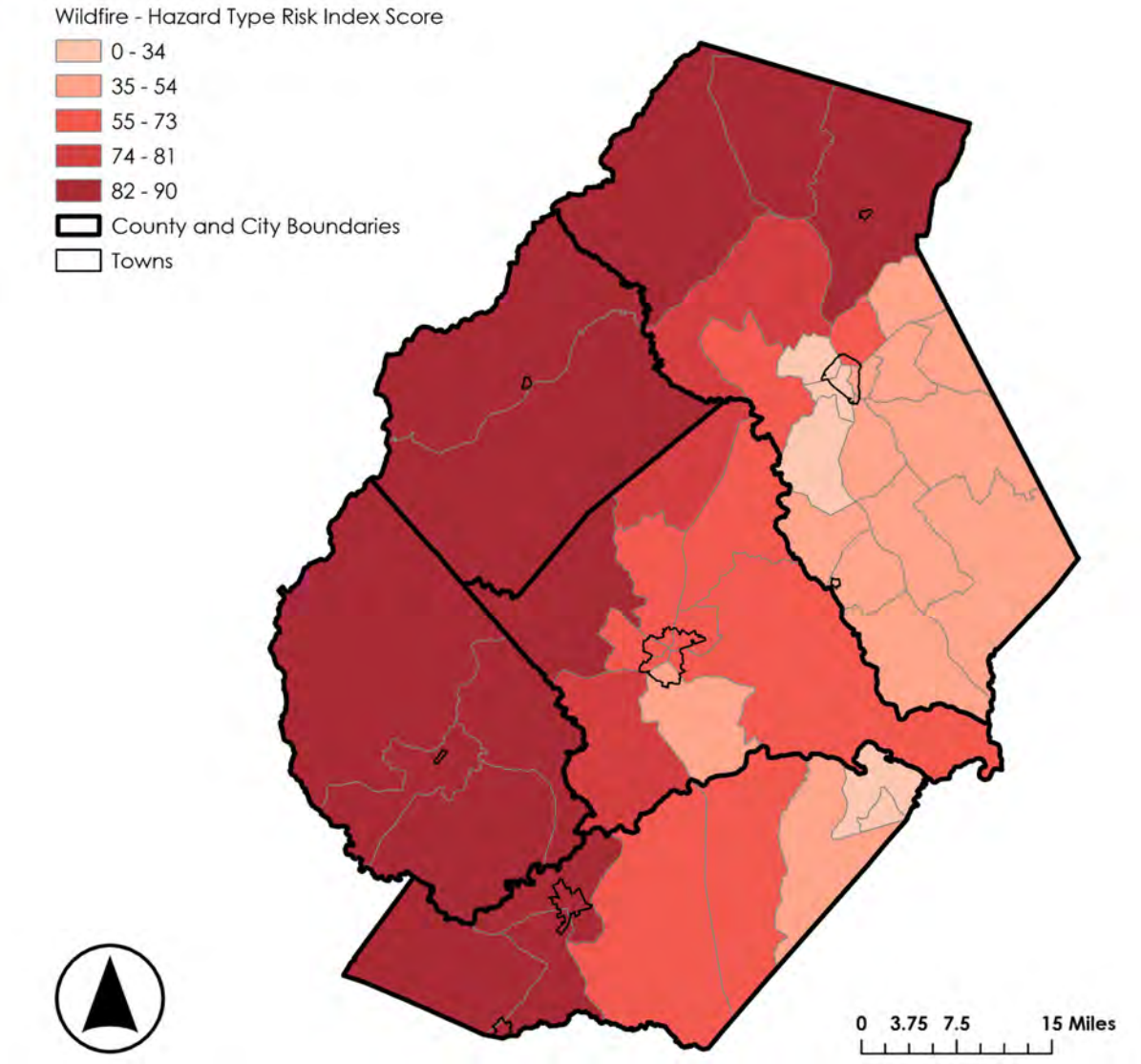
intersects wildfire area classifications generated by the VDOF with local parcel mapping and tax assessment data to determine the number of parcels located within high wildfire risk zones, and to quantify the value of real estate improvements (mainly buildings) that would be at risk in the event of a wildfire. Based on information obtained from the FEMA NRI Data and VDOF Open Data, the table and maps below show losses and overall risk by county.

All the population, buildings, and agricultural assets in Madison and Rappahannock County are at relatively moderate risk of wildfire with the Northern portion of Fauquier County also at moderate risk. All critical facilities are listed and shown in the Appendix. Figure 5.5.2. Location of Wildfire Incidents and Fire Stations in the RRRC Region depicts the density of fire stations located within a wildfire zone for response and vulnerability context.

Table 5.5: Wildfire Expected Annual Loss (in Dollars) by Locality (FEMA National Risk Index 2020)

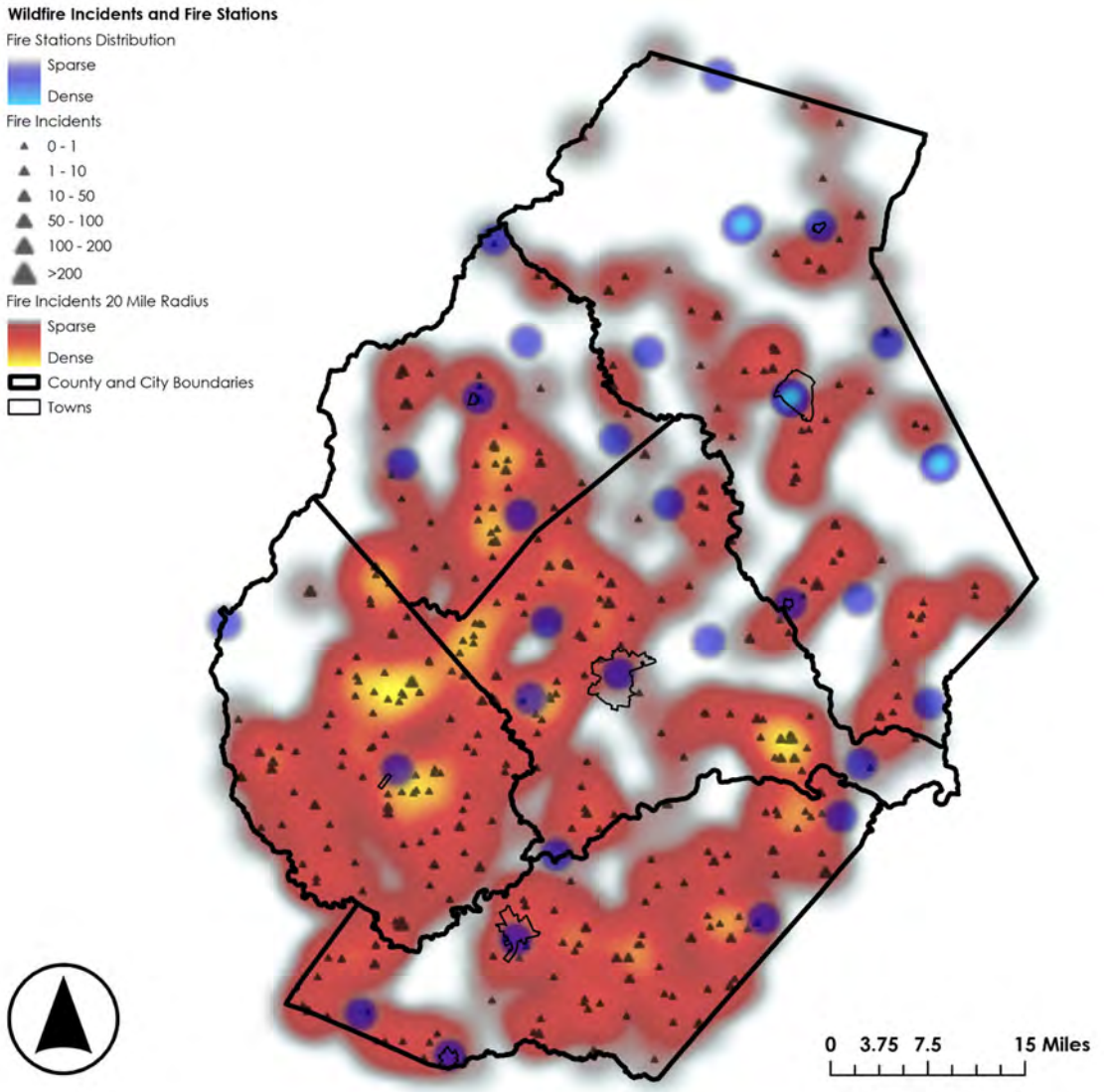
County	Culpeper	Fauquier	Madison	Orange	Rappahannock	Region
Buildings	$39,790	$72,718	$70,976	$45,564	$55,300	$284,348.00
Population Eq.	$645	$3,867	$1,181	$380	$3,665	$9,738.00
Agriculture	$13	$25	$58	$48	$22	$166.00
Total Annual Loss	$40,448	$76,611	$72,215	$45,993	$58,987	$294,254.00

Figure 5.5.1 Wildfire Overall Risk Score (FEMA National Risk Index, 2020).



Source: FEMA National Risk Index, 2020

Figure 5.5.2 Location of Wildfire Incidents and Fire Stations in the RRRC Region



**Note: The map above includes historic wildfire events and incidents from 2002-2020.*

5.1.5 – SINKHOLE, LANDSLIDE AND EARTHQUAKE VULNERABILTY ASSESSMENT

Sinkholes, landslides, and earthquakes should be considered semi-natural hazards in the context of the Rappahannock-Rapidan Region. While natural topographic features such as degrading limestone may cause sinkholes, and while erosion of naturally steep slopes may cause damaging landslides alongside earthquakes, these dangers are virtually unknown as natural conditions in the region. Instead, sinkholes in this region may sometimes be caused when underground stormwater pipes fail, allowing rushing water to erode soil, eventually causing the collapse of the ground above.

The Region has a generally low risk of earthquakes, but if a significant event, were to occur, the potential for losses would be considered moderate. Still, USGS Earthquake Search reports just six (6) measurable earthquakes in the region since 1974, all with magnitude less than 3.2 on the Richter Scale. The August 23, 2011, earthquake had an epicenter in Mineral, Louisa County, located south of the Rappahannock-Rapidan Region. Damage was most severe in Louisa County, but there was significant damage in Culpeper and Orange counties, resulting in FEMA identifying those counties as eligible for Individual Assistance on December 29, 2011. It is assumed that all buildings and facilities that are exposed to an earthquake would experience negligible damage in the occurrence of an event, and there is no expected annual loss for crop damage. The National Risk assessment states an annualized frequency of 0.040% chance per year in Orange County and 0.032% chance per year in Culpeper County (2021 data). All critical facilities are listed and shown in the Appendix that could be affected.

Similarly, landslide events can occur in the Region but are confined mainly to human-caused slopes that have been improperly graded, or the failure of constructed retaining walls. The following data is the estimated annualized losses for landslide and earthquake hazards in the region based on the FEMA NRI Data.

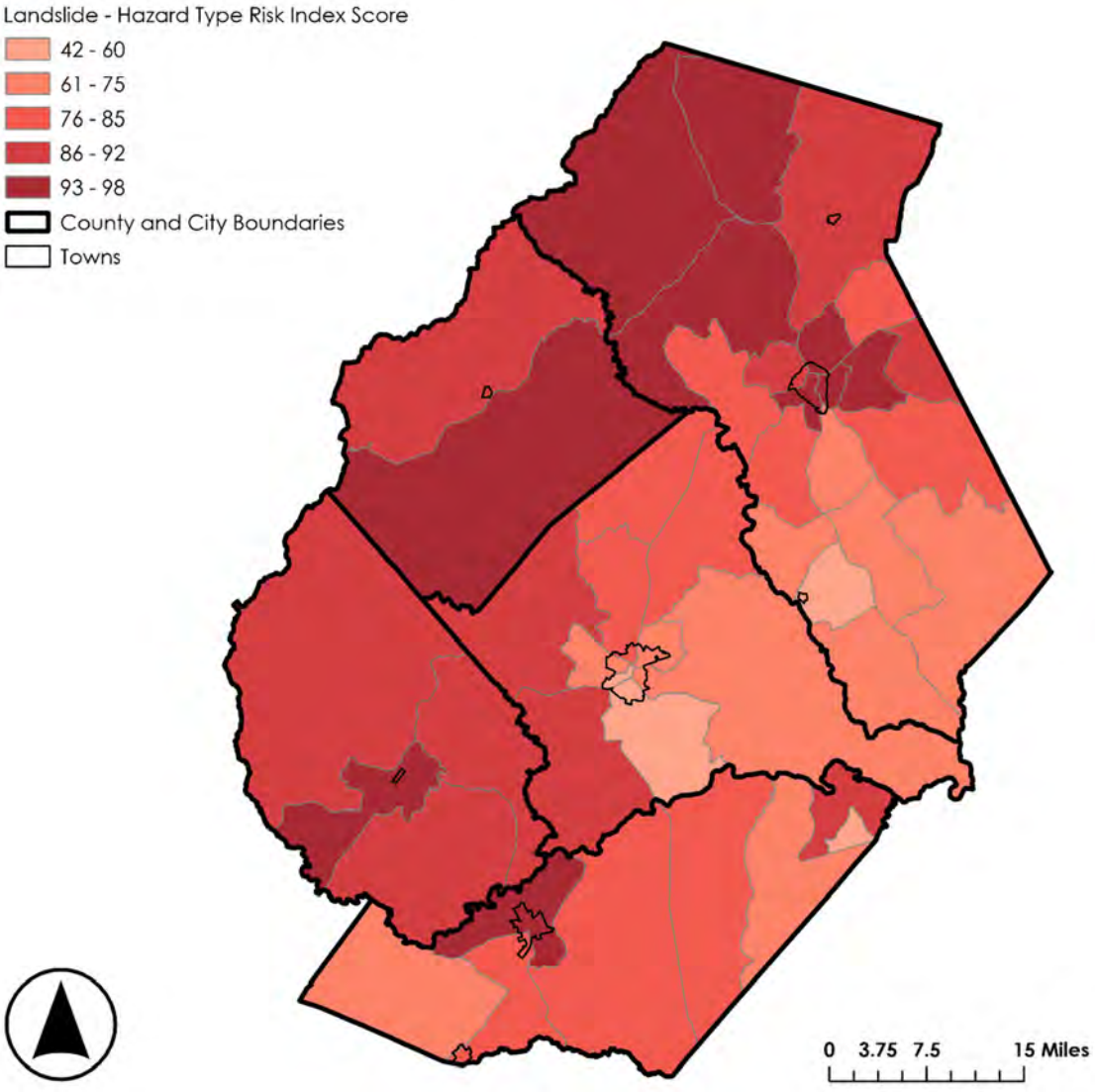
Table 5.6.1: Landslides Expected Annual Loss (in Dollars) by Locality (FEMA National Risk Index 2020)

County	Culpeper	Fauquier	Madison	Orange	Rappahannock	Region
Buildings	$4,500	$105,000	$4,500	$4,500	$4,500	$123,000.00
Population Eq.	$17,400	$17,400	$17,400	$17,400	$17,400	$87,000.00
Agriculture	-	-	-	-	-	-
Total Annual Loss	$21,900	$122,400	$21,900	$21,900	$21,900	$210,000.00

Table 5.6.2 Earthquakes Expected Annual Loss (in Dollars) by Locality (FEMA National Risk Index 2020)

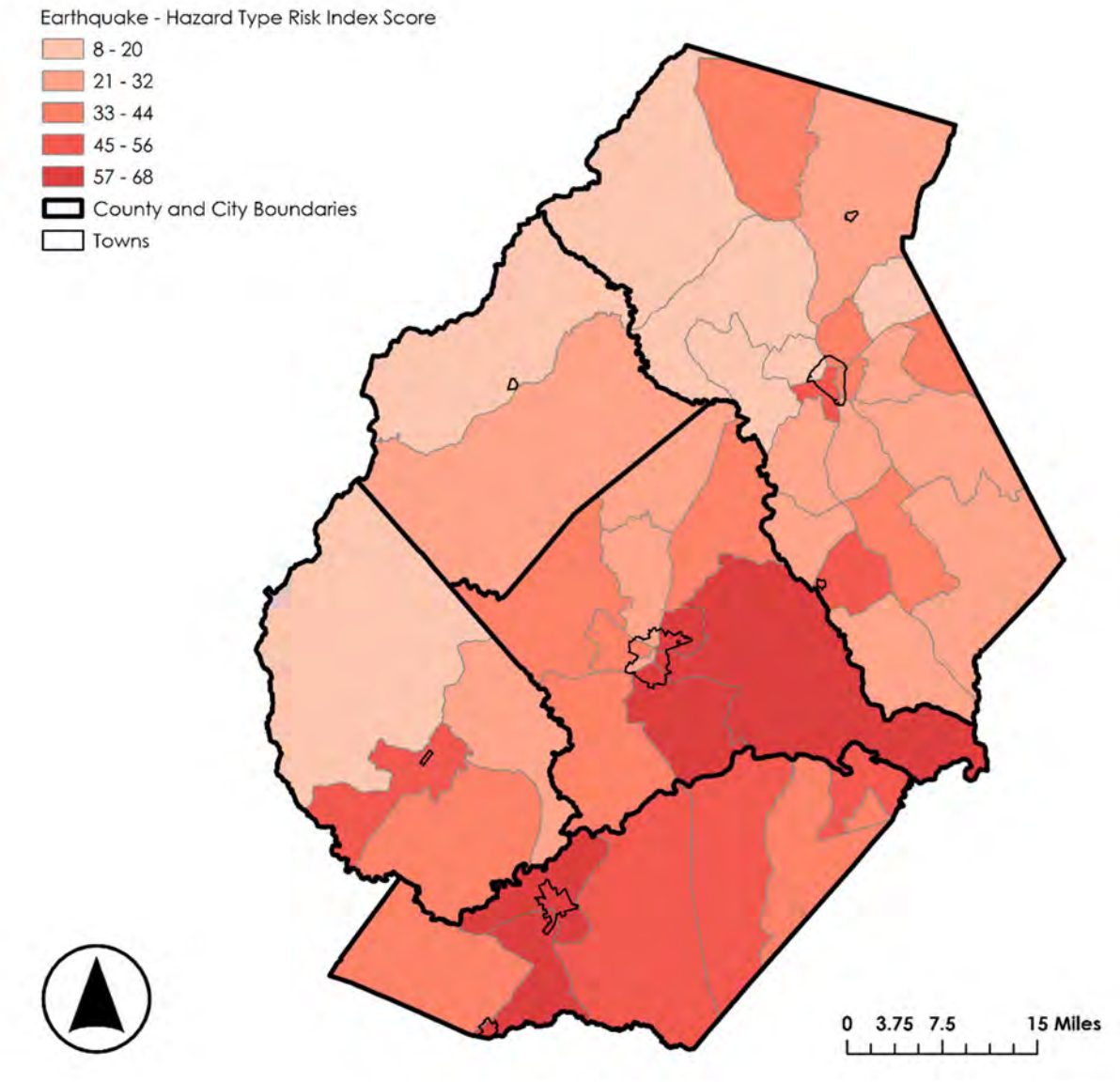
County	Culpeper	Fauquier	Madison	Orange	Rappahannock	Region
Buildings	$86,389	$99,160	$23,067	$87,216	$6,155	$301,987.00
Population Eq.	$19,093	$19,455	$5,416	$17,794	$1,255	$63,013.00
Agriculture	-	-	-	-	-	-
Total Annual Loss	$105,482	$118,615	$28,483	$105,010	$7,410	$365,000.00

Figure 5.6.1 - Landslide Overall Risk Score in RRRC Region



Source: FEMA National Risk Index, 2020

Figure 5.6.2 -Earthquake Overall Risk Score in RRRC Region



Source: FEMA National Risk Index, 2020

Figure 5.6.3.a - Culpeper County – Earthquake Vulnerability - Annualized Frequency

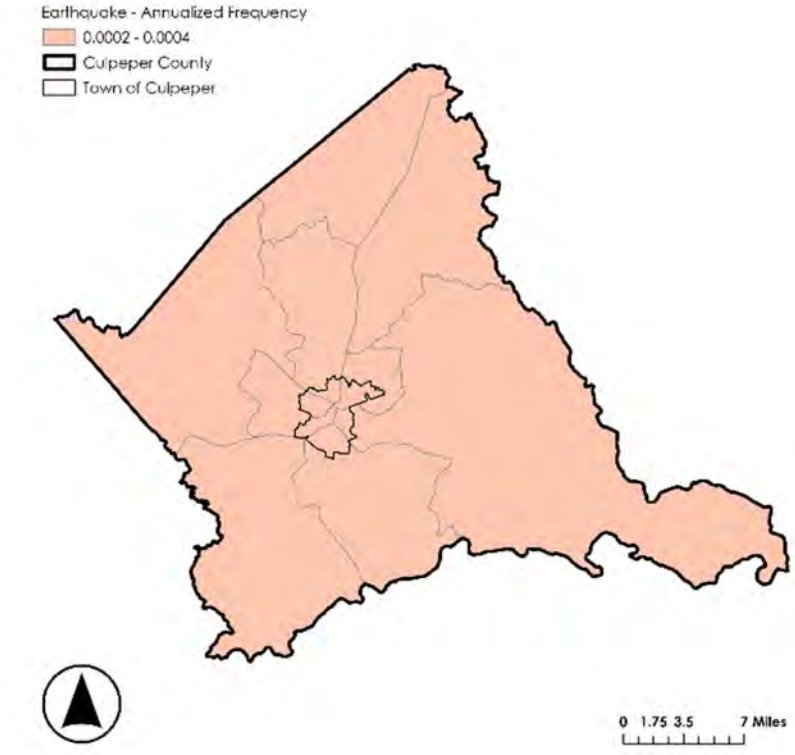


Figure 5.6.3.b - Culpeper County – Earthquake Vulnerability – Expected Annual Loss – Population Equivalences

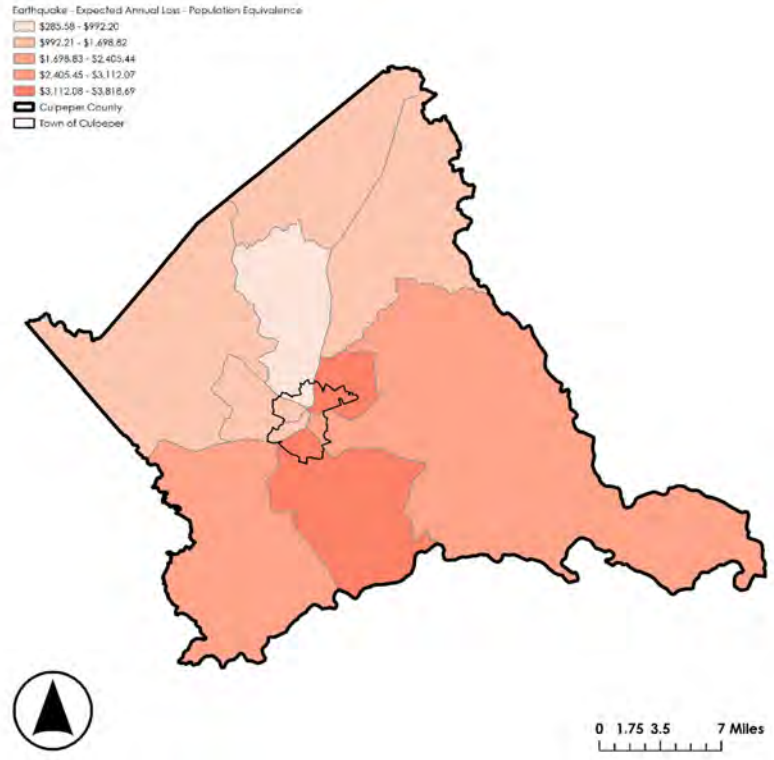


Figure 5.6.3.c - Culpeper County – Earthquake Vulnerability – Expected Annual Loss – Building Value

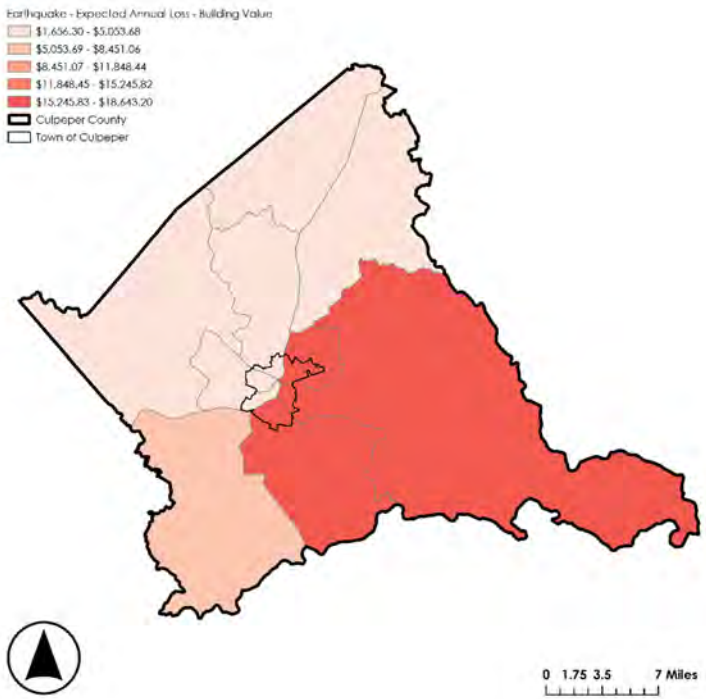


Figure 5.6.3.d - Culpeper County – Earthquake Vulnerability – Expected Annual Loss – Total

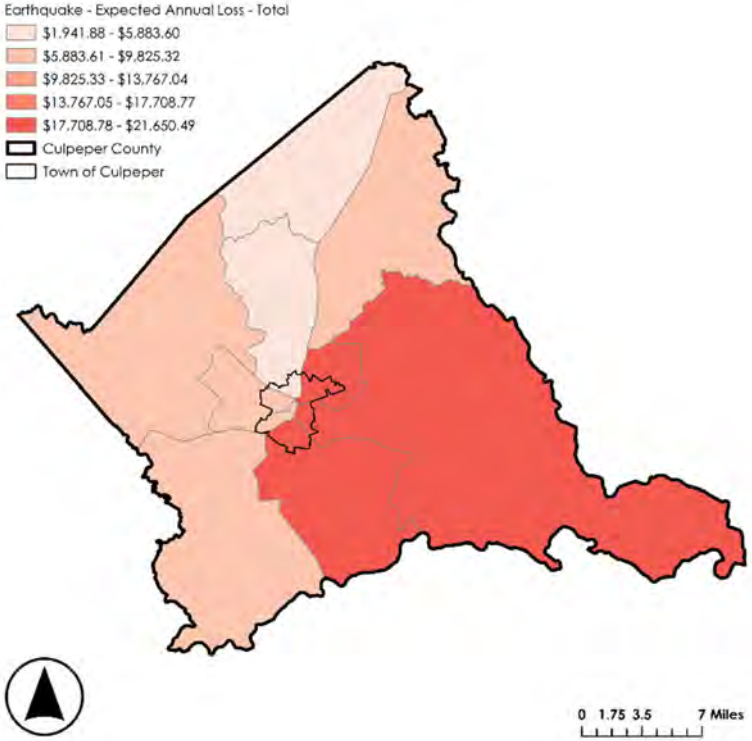


Figure 5.6.3.e - Culpeper County – Earthquake Vulnerability – Hazard Type Risk Index Score

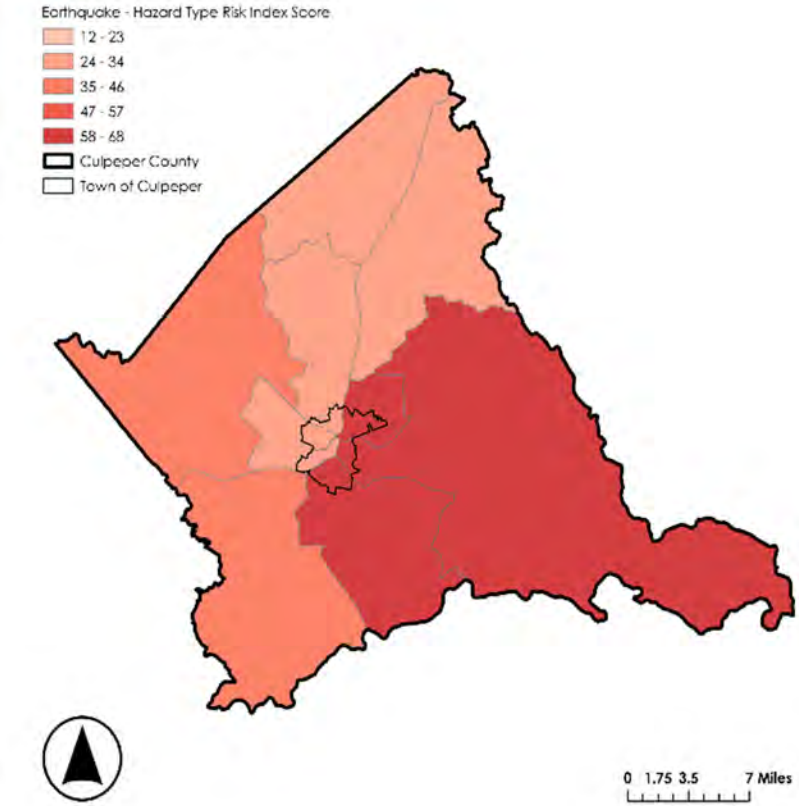


Figure 5.6.4.a - Fauquier County – Earthquake Vulnerability - Annualized Frequency

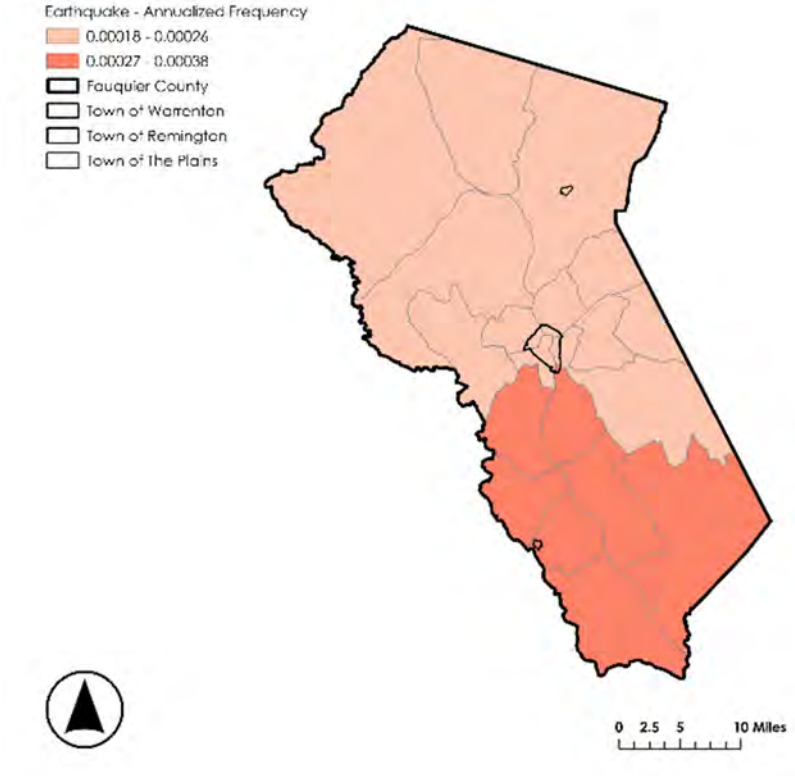


Figure 5.6.4.b – Fauquier County – Earthquake Vulnerability – Expected Annual Loss – Population Equivalences

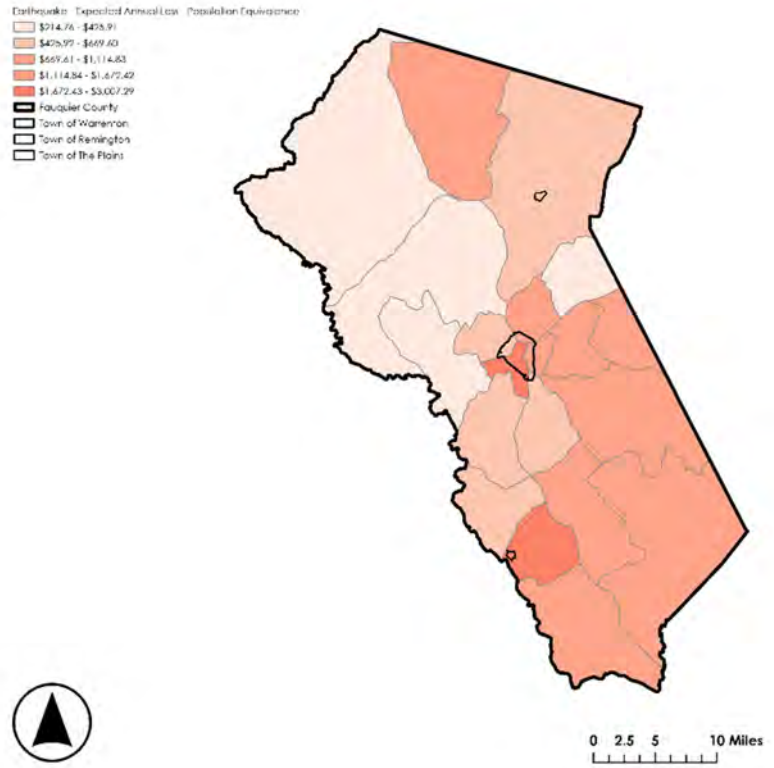


Figure 5.6.4.c - Fauquier County – Earthquake Vulnerability – Expected Annual Loss – Building Value

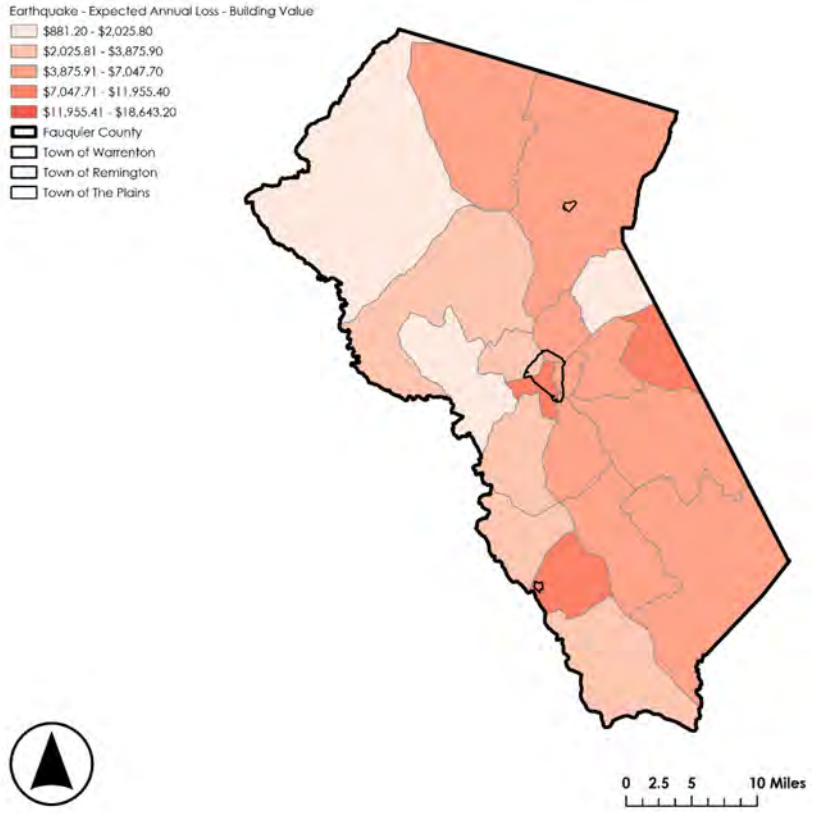


Figure 5.6.4.d - Fauquier County – Earthquake Vulnerability – Expected Annual Loss – Total

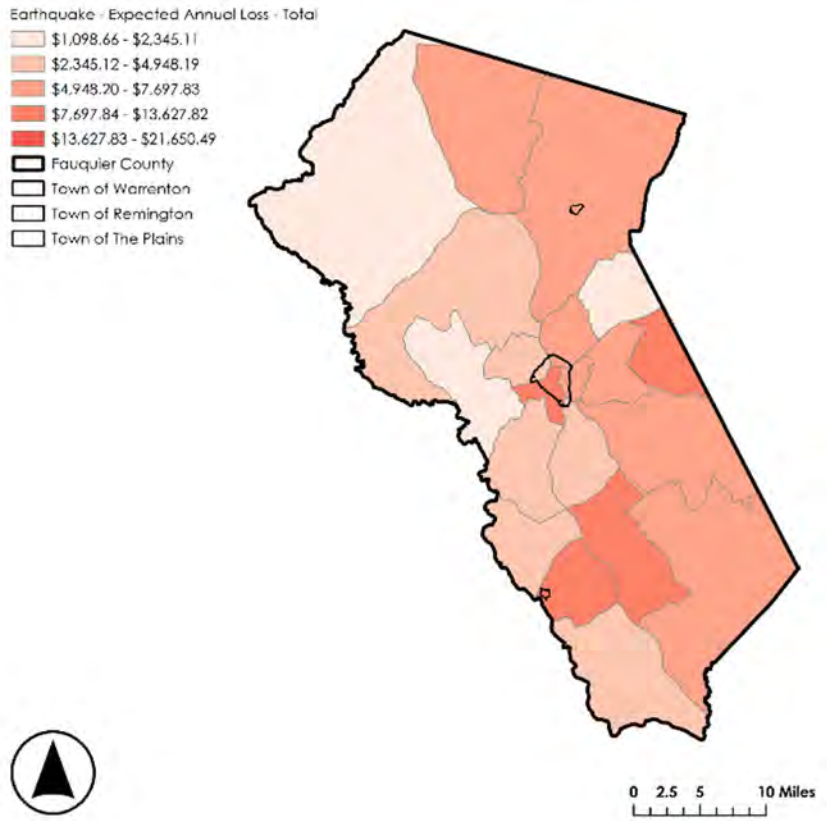


Figure 5.6.4.e - Fauquier County – Earthquake Vulnerability – Hazard Type Risk Index Score

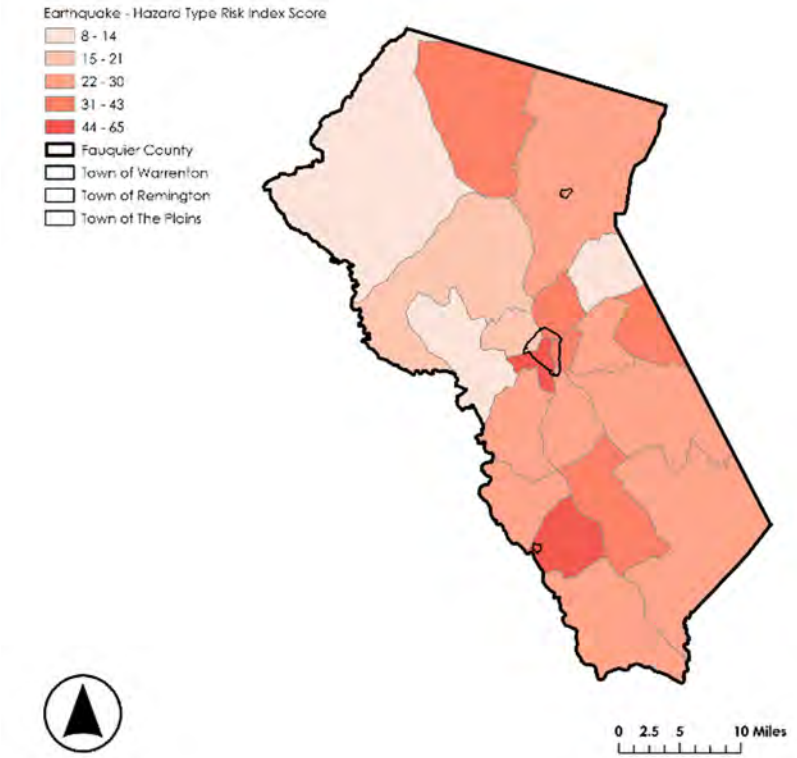


Figure 5.6.5.a - Madison County – Earthquake Vulnerability - Annualized Frequency

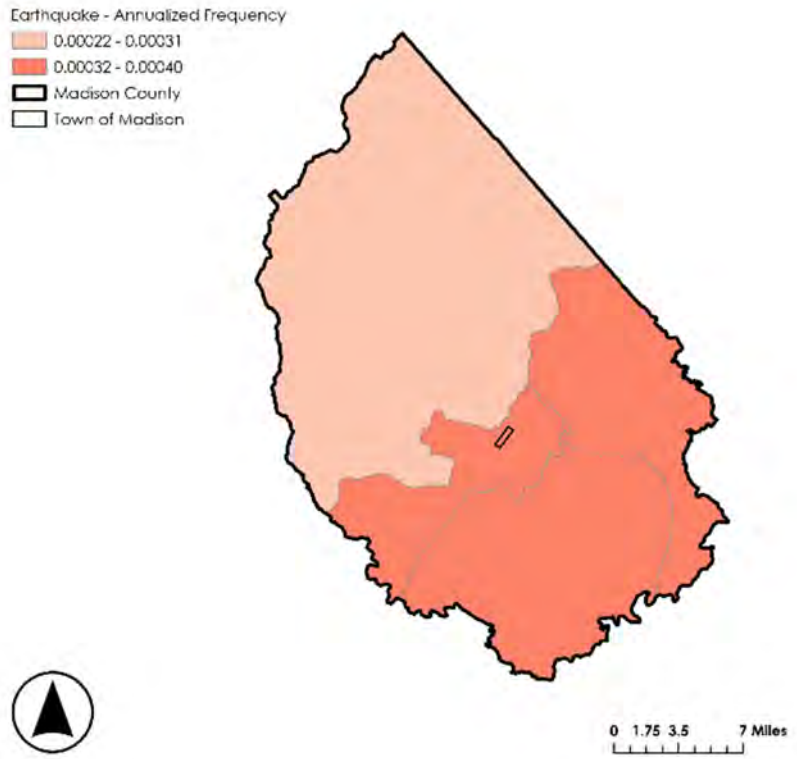


Figure 5.6.5.b – Madison County – Earthquake Vulnerability – Expected Annual Loss – Population Equivalences

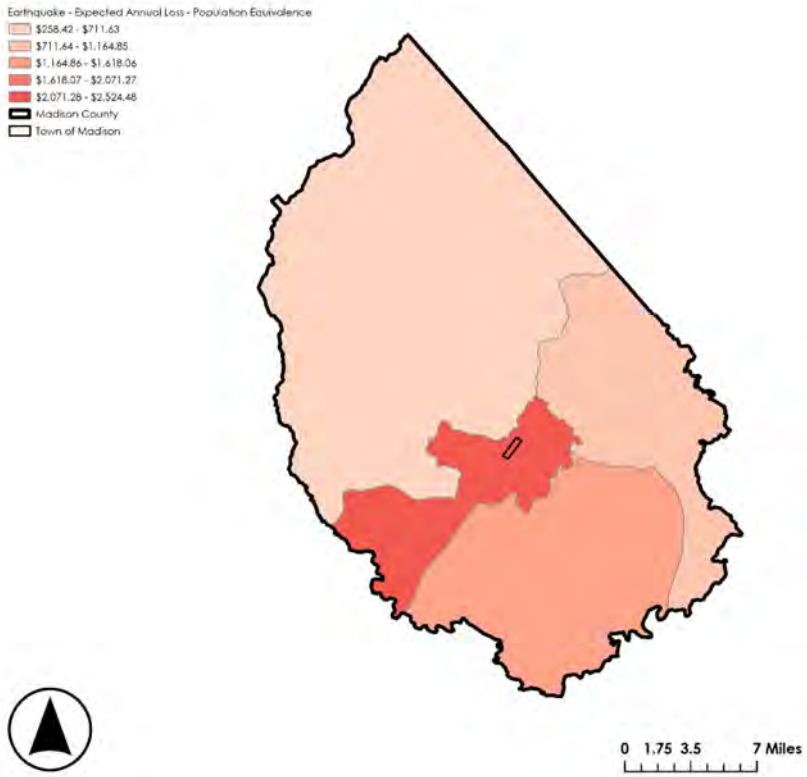


Figure 5.6.5.c - Madison County – Earthquake Vulnerability – Expected Annual Loss – Building Value

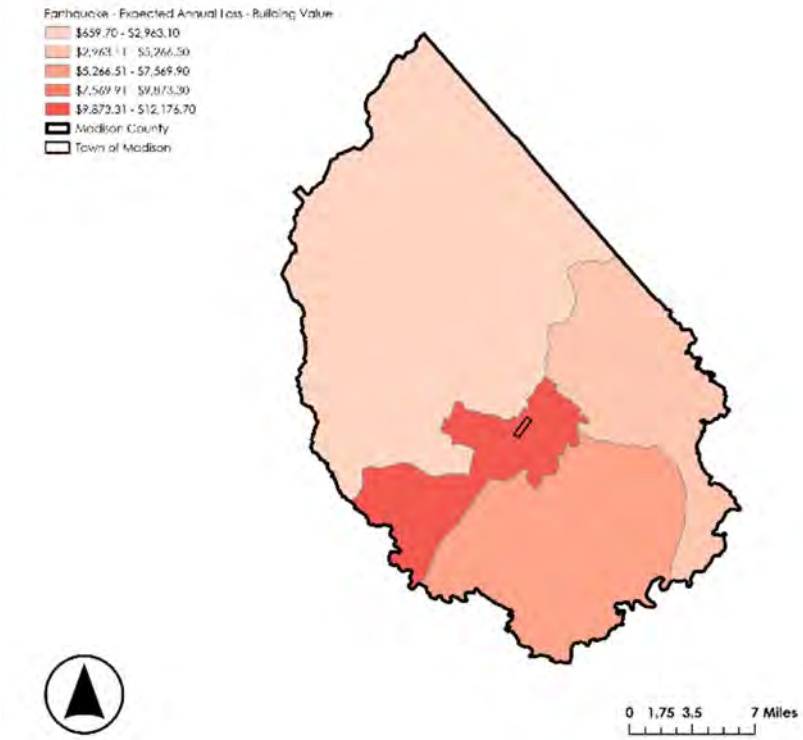


Figure 5.6.5.d - Madison County – Earthquake Vulnerability – Expected Annual Loss – Total

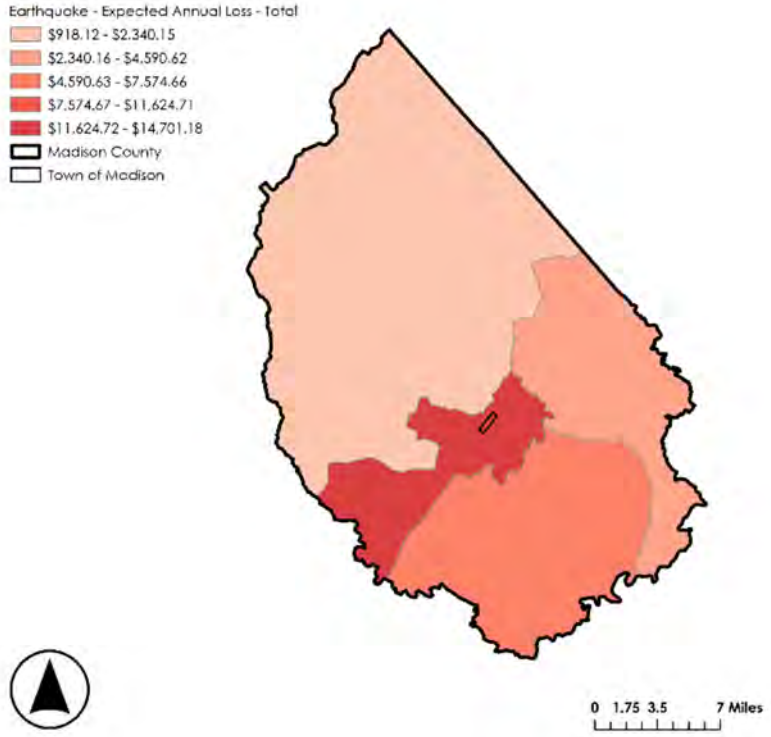


Figure 5.6.5.e - Madison County – Earthquake Vulnerability – Hazard Type Risk Index Score

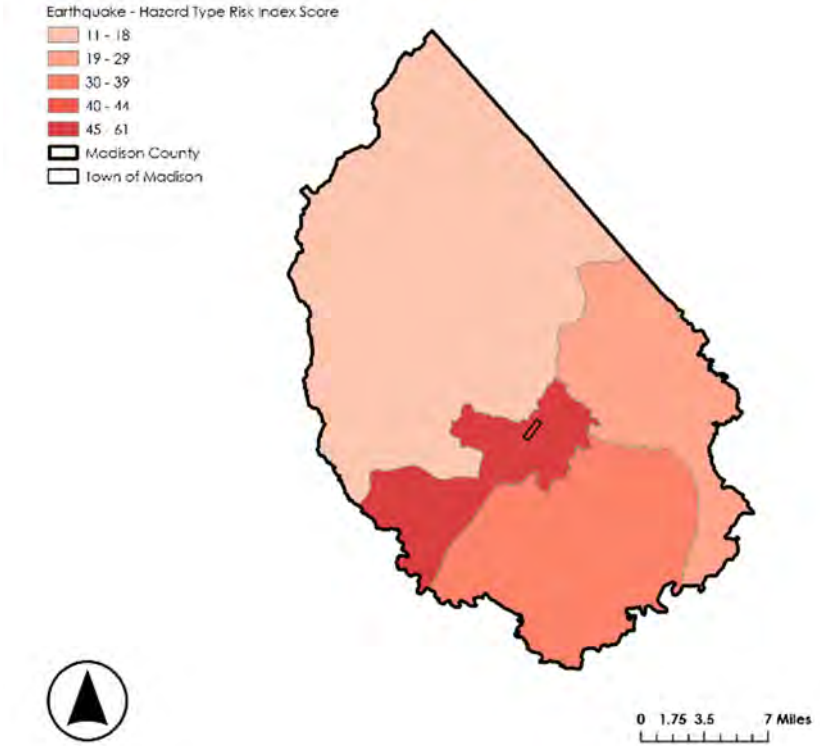


Figure 5.6.6.a - Orange County – Earthquake Vulnerability - Annualized Frequency

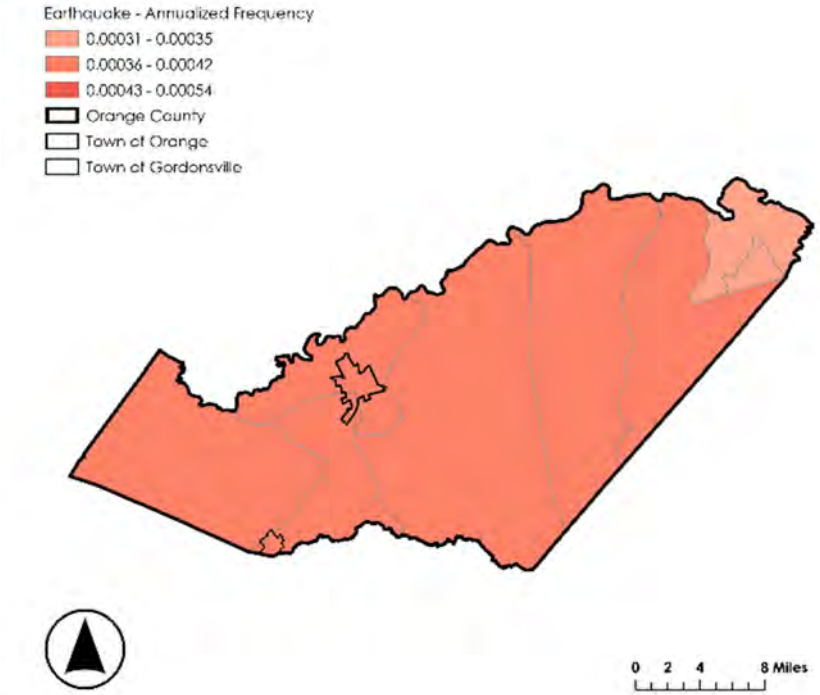


Figure 5.6.6.b – Orange County – Earthquake Vulnerability – Expected Annual Loss – Population Equivalences

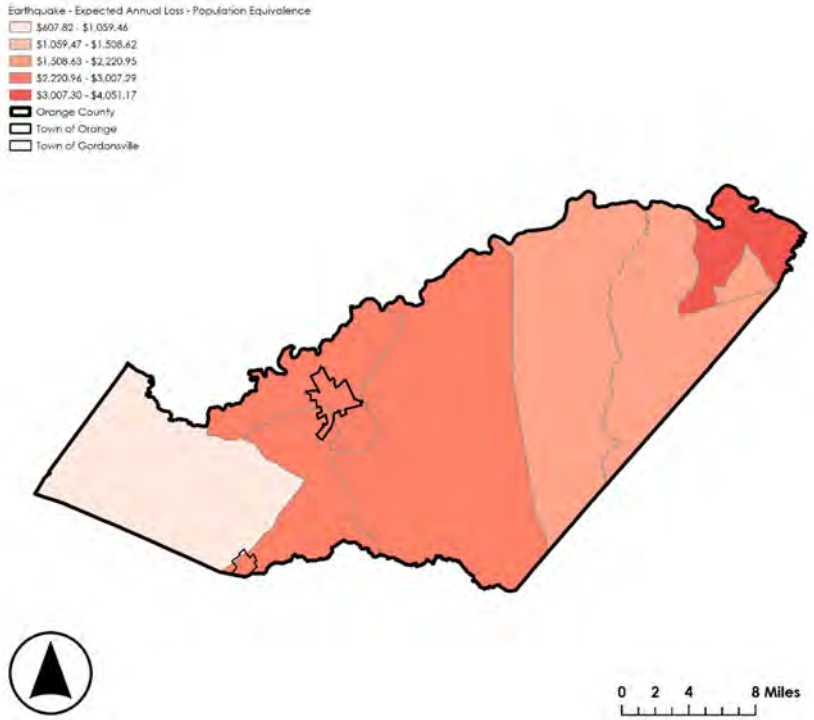


Figure 5.6.6.c - Orange County – Earthquake Vulnerability – Expected Annual Loss – Building Value

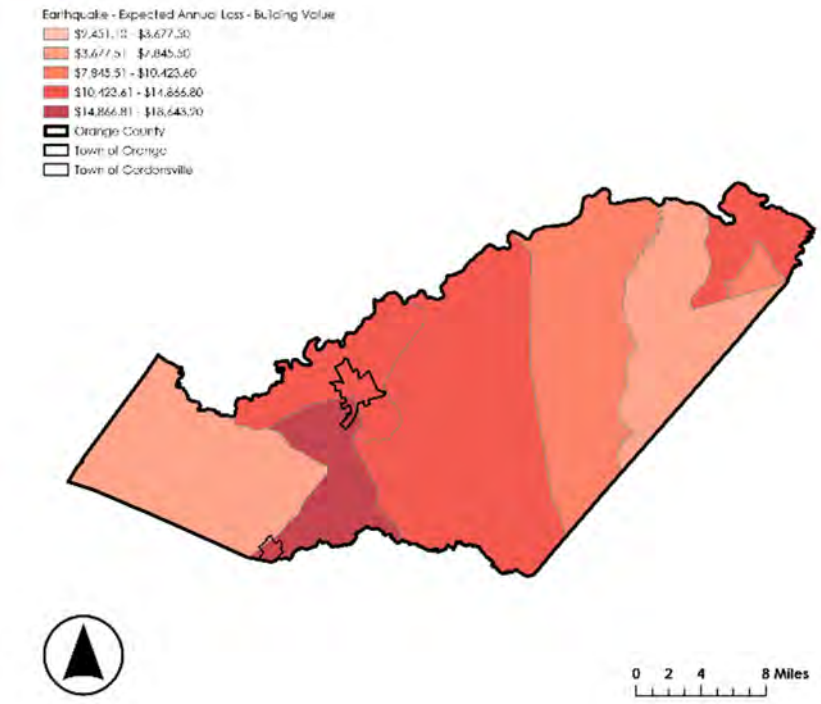


Figure 5.6.6.d - Orange County – Earthquake Vulnerability – Expected Annual Loss – Total

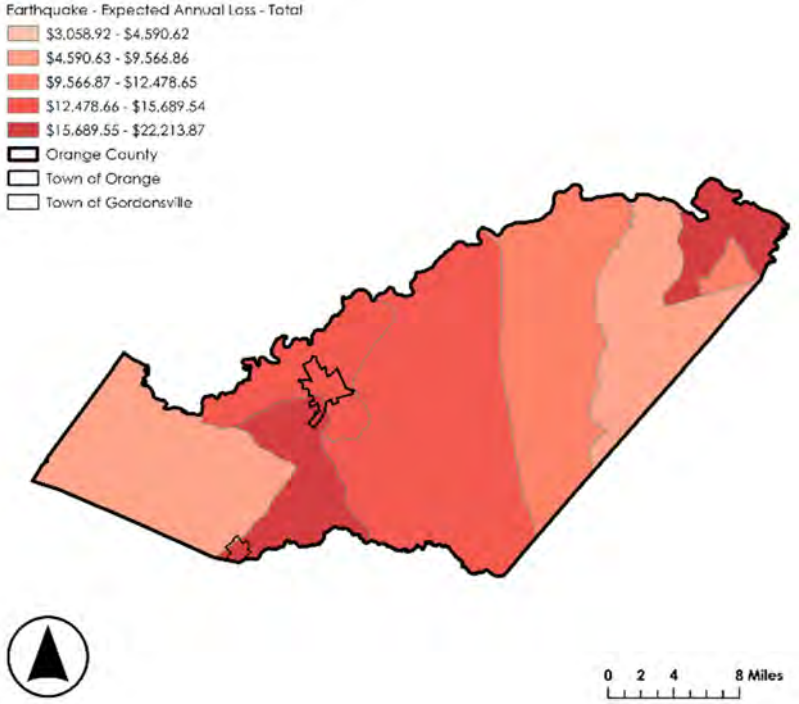


Figure 5.6.6.e - Orange County – Earthquake Vulnerability – Hazard Type Risk Index Score

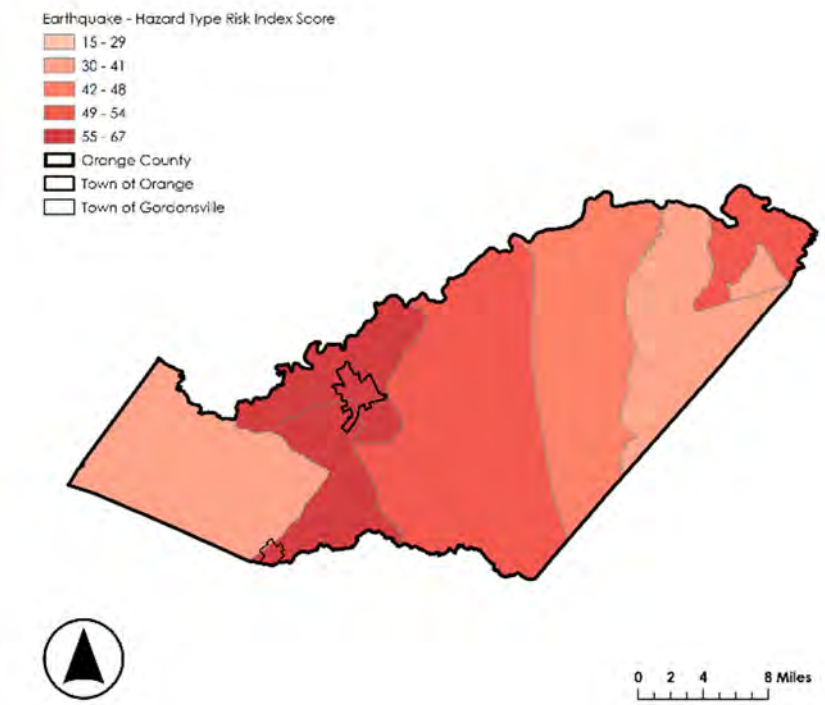


Figure 5.6.7.a - Rappahannock County – Earthquake Vulnerability - Annualized Frequency

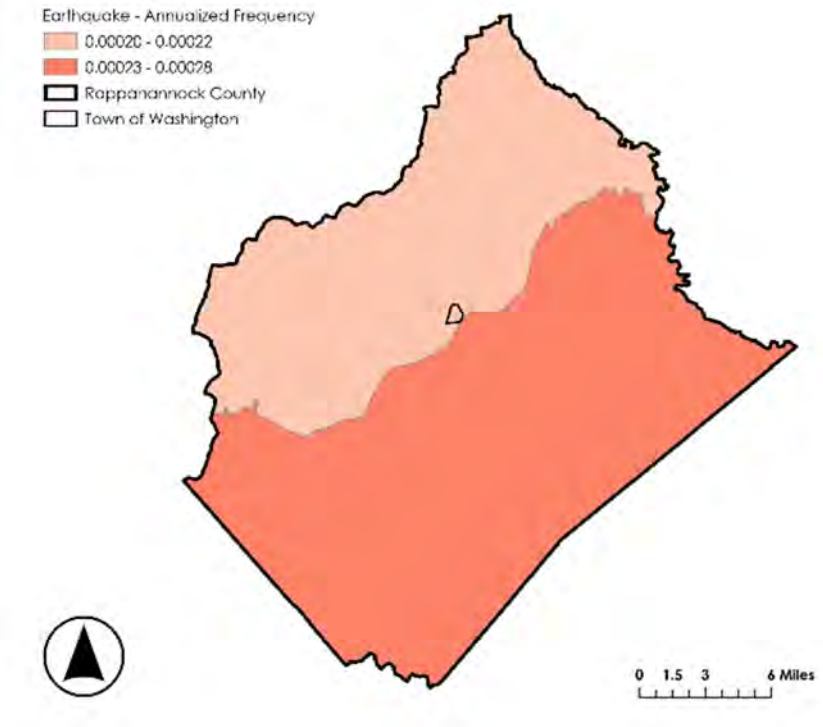


Figure 5.6.7.b – Rappahannock County – Earthquake Vulnerability – Expected Annual Loss – Population Equivalences

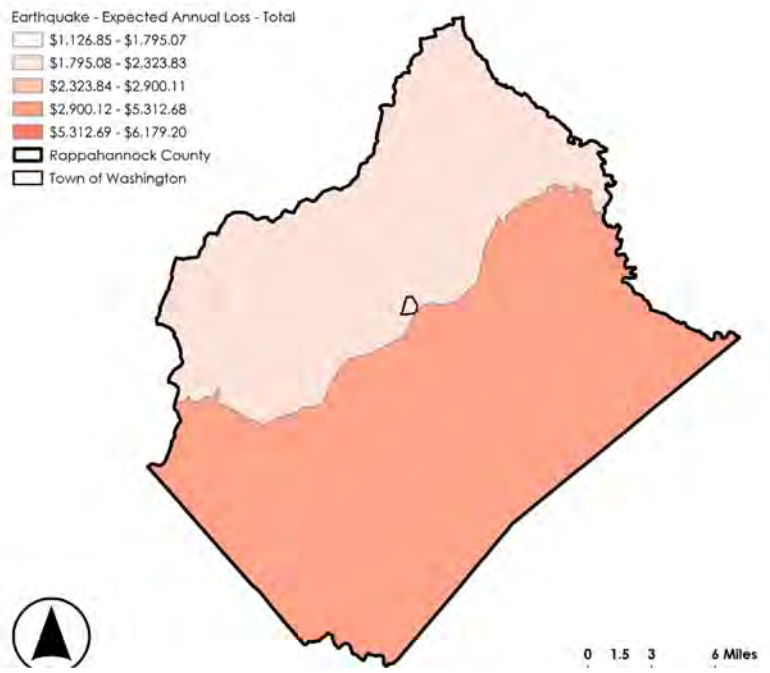


Figure 5.6.7.c - Rappahannock County – Earthquake Vulnerability – Expected Annual Loss – Building Value

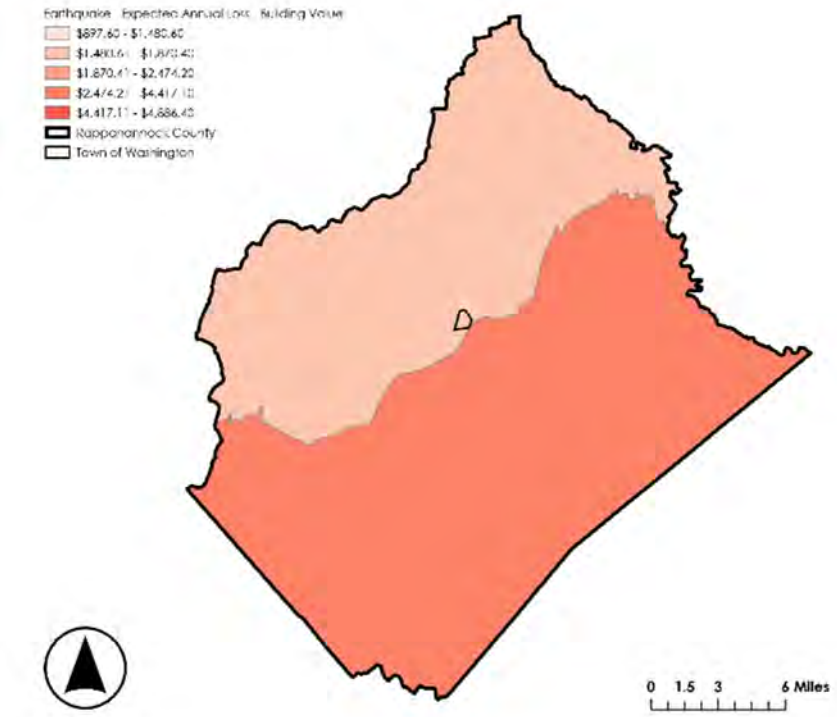


Figure 5.6.7.d - Rappahannock County – Earthquake Vulnerability – Expected Annual Loss – Total

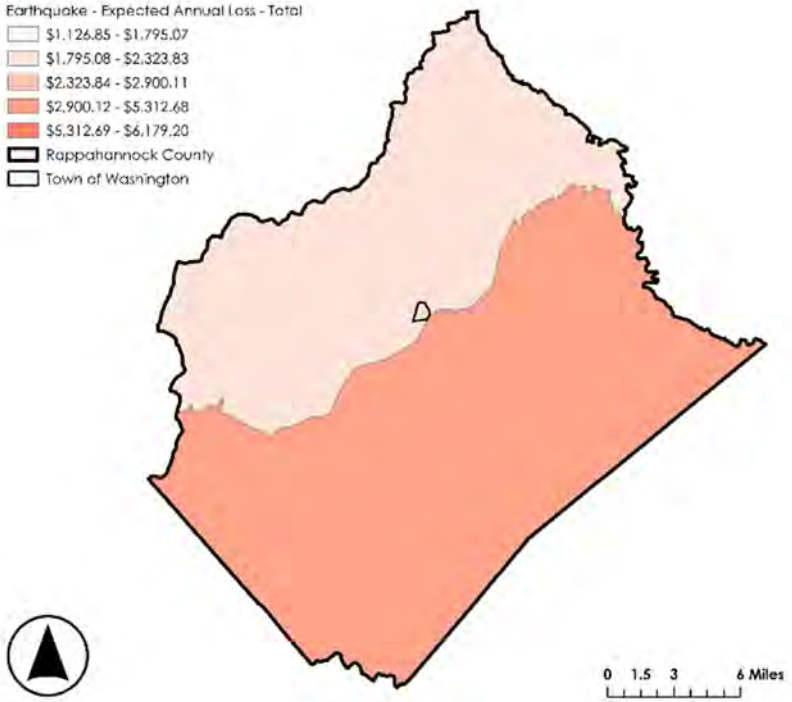


Figure 5.6.7.e - Rappahannock County – Earthquake Vulnerability – Hazard Type Risk Index Score

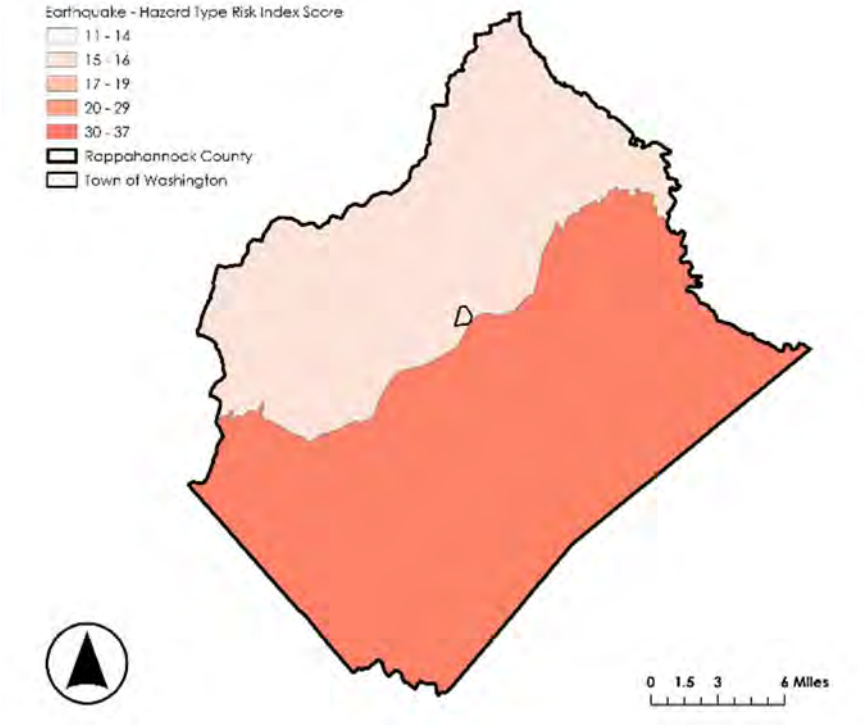


Figure 5.6.8.a - Culpeper County – Landslide Vulnerability - Annualized Frequency

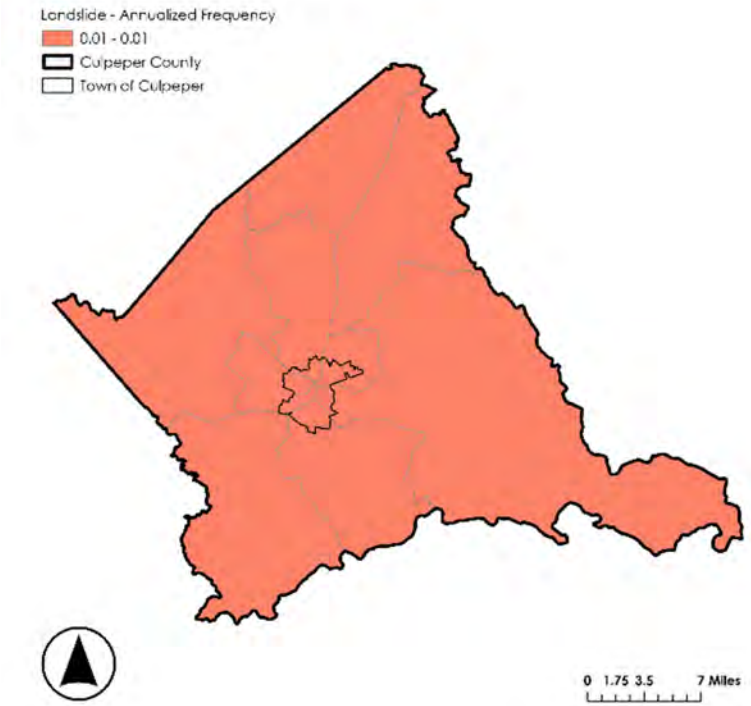


Figure 5.6.8.b - Culpeper County – Landslide Vulnerability – Expected Annual Loss – Population Equivalences

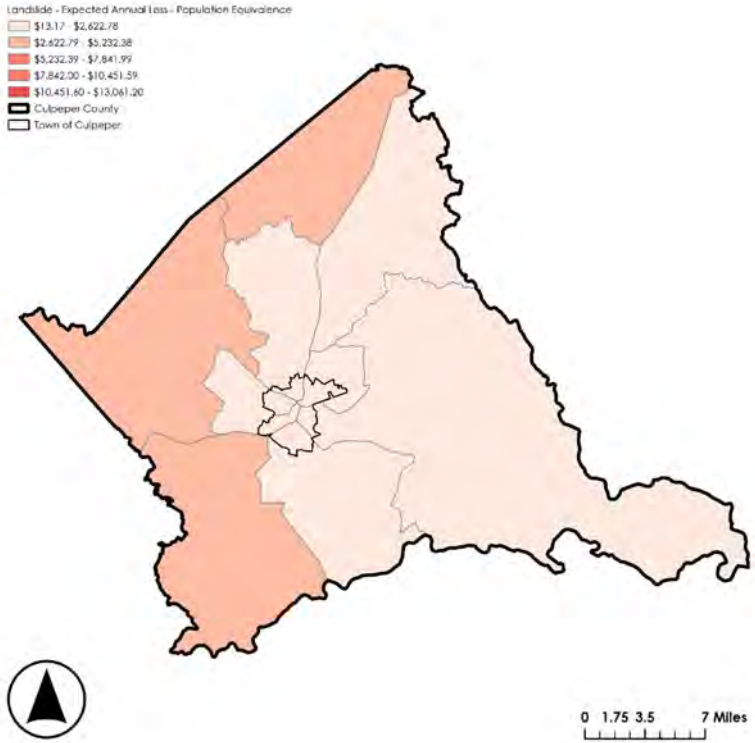


Figure 5.6.8.c - Culpeper County – Landslide Vulnerability – Expected Annual Loss – Building Value

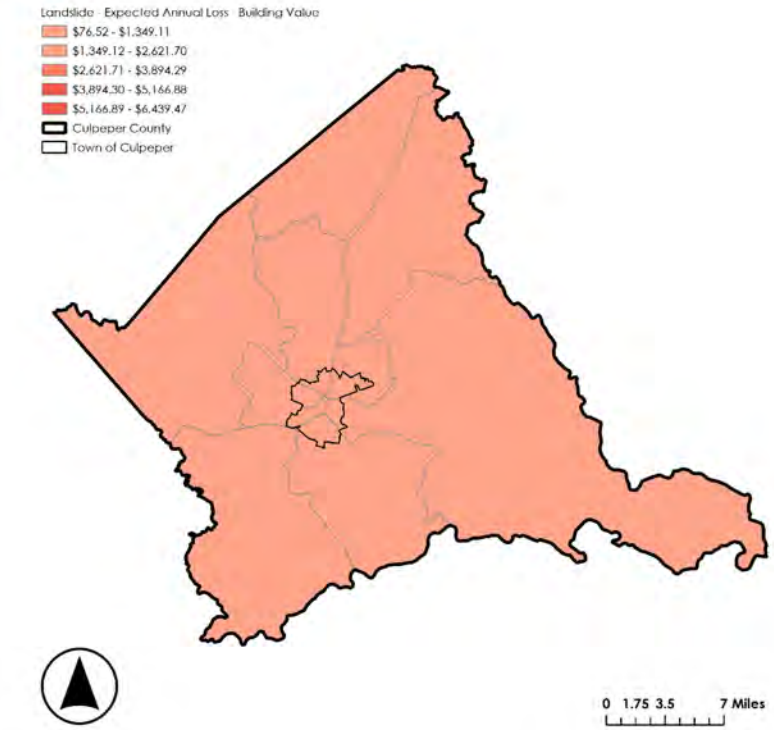


Figure 5.6.8.d - Culpeper County – Landslide Vulnerability – Expected Annual Loss – Total

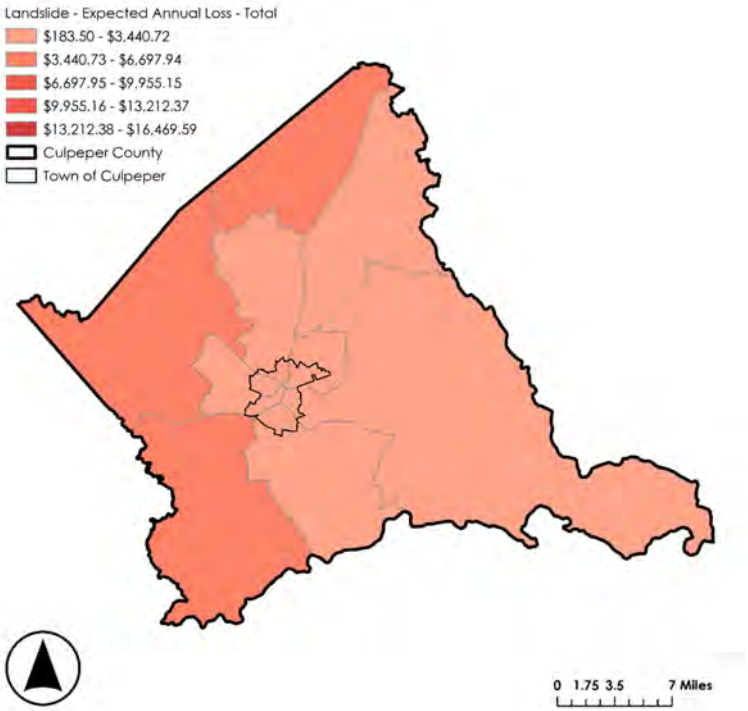


Figure 5.6.8.e - Culpeper County – Landslide Vulnerability – Hazard Type Risk Index Score

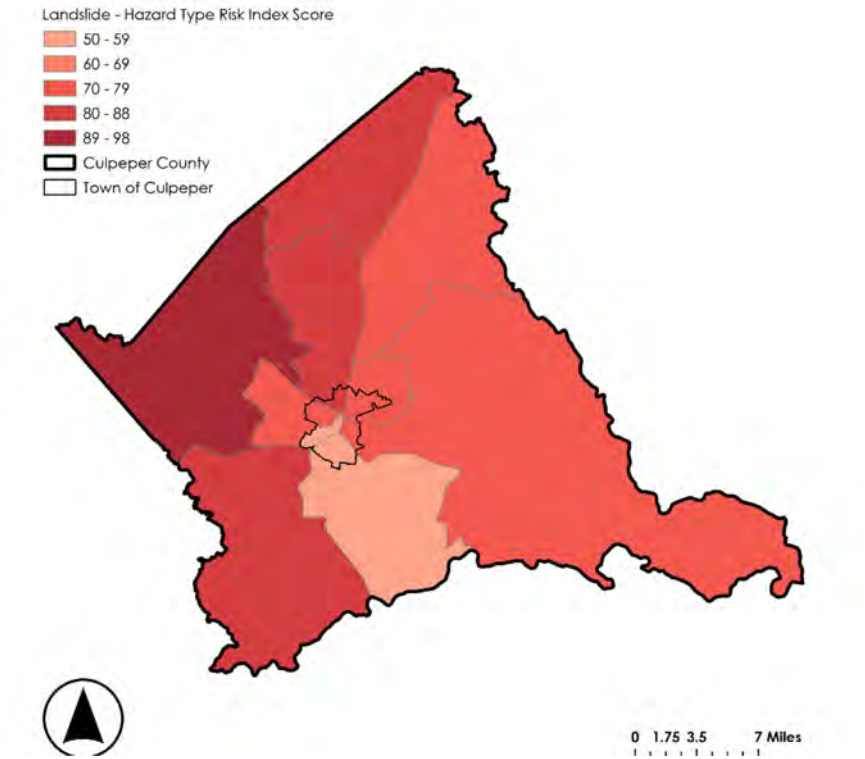


Figure 5.6.9.a - Fauquier County – Landslide Vulnerability - Annualized Frequency

Figure 5.6.9.b - Fauquier County – Landslide Vulnerability – Expected Annual Loss – Population Equivalences

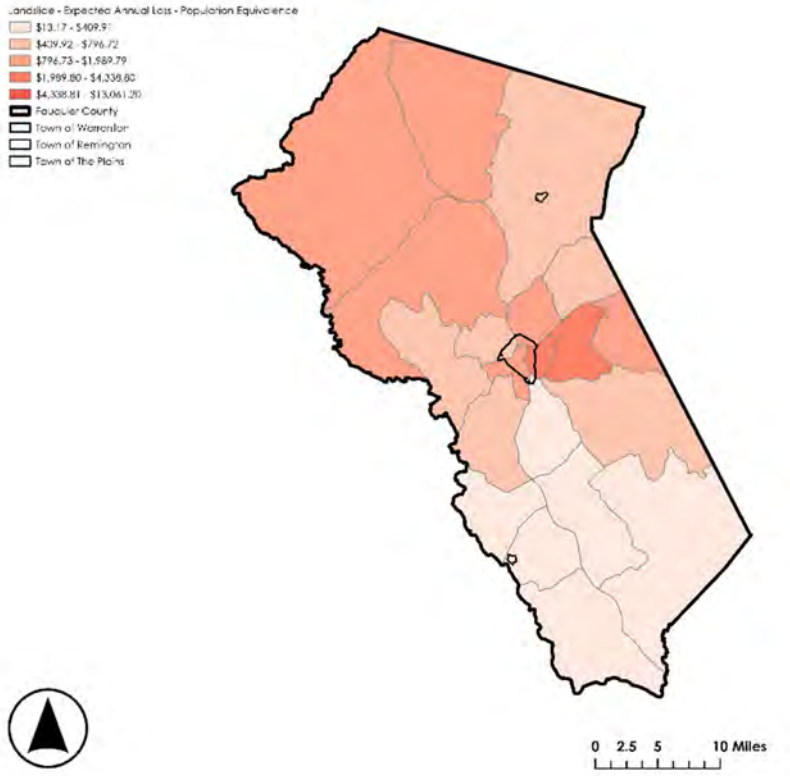


Figure 5.6.9.c - Fauquier County – Landslide Vulnerability – Expected Annual Loss – Building Value

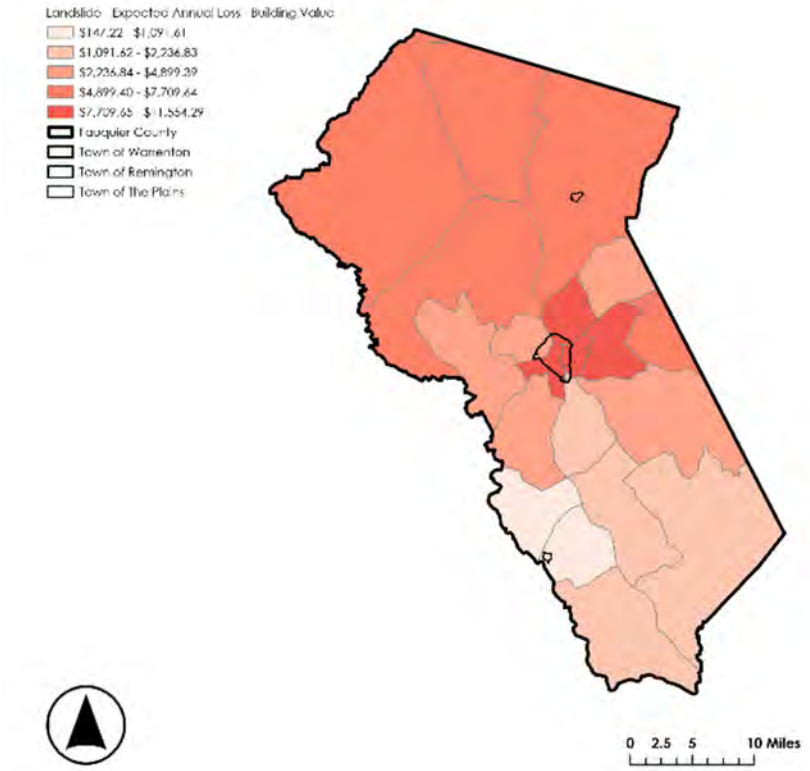


Figure 5.6.9.d - Fauquier County – Landslide Vulnerability – Expected Annual Loss – Total

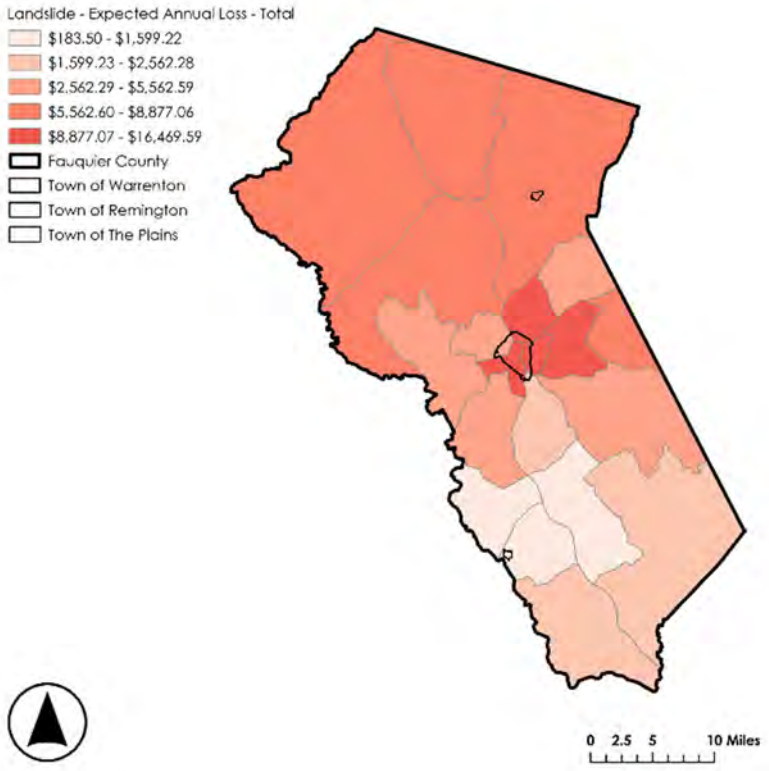


Figure 5.6.9.e - Fauquier County – Landslide Vulnerability – Hazard Type Risk Index Score

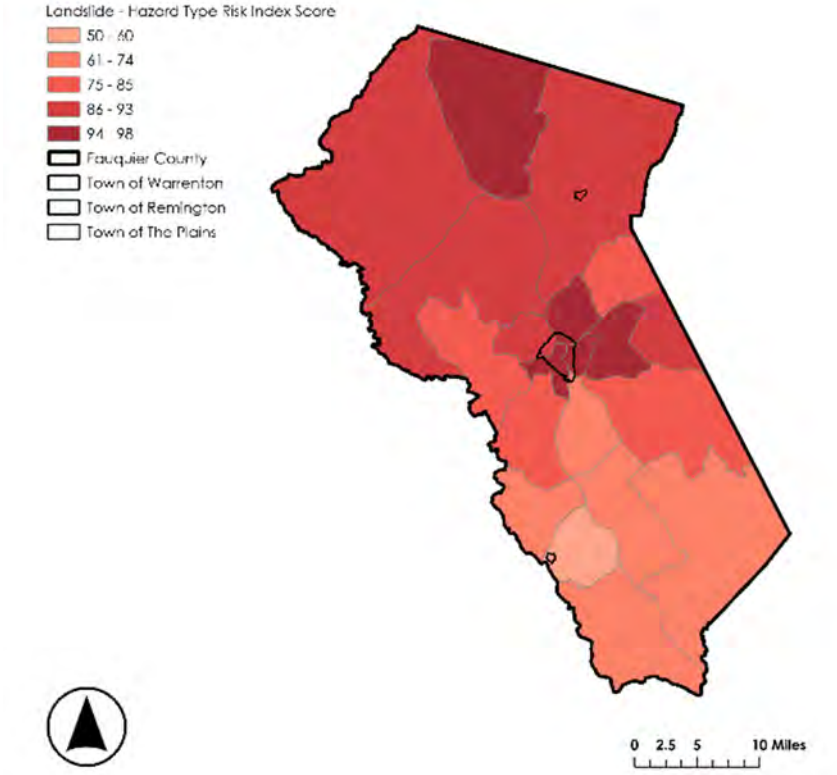


Figure 5.6.10.a - Madison County – Landslide Vulnerability - Annualized Frequency

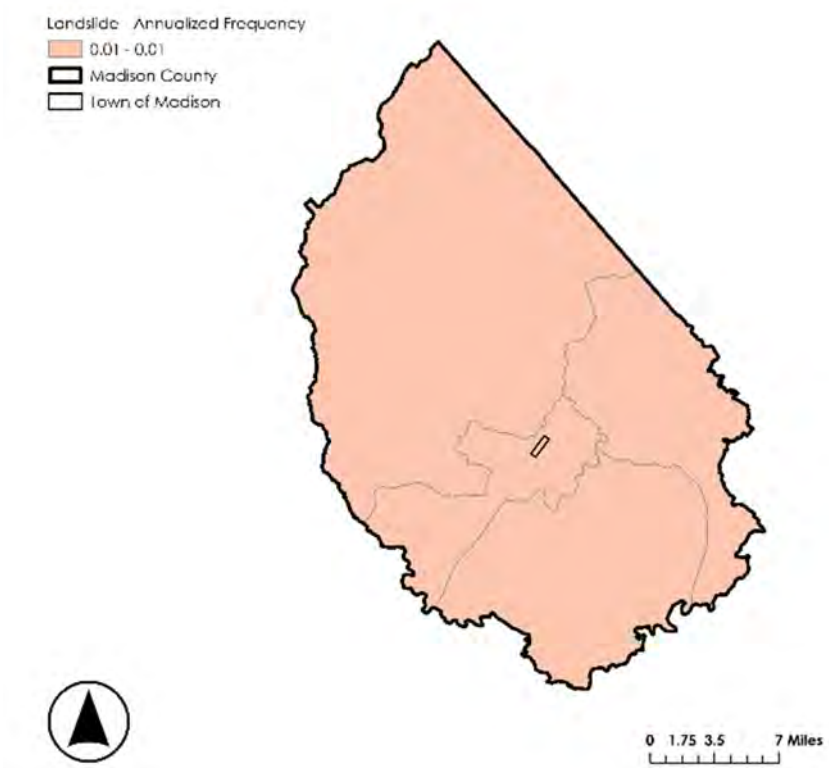


Figure 5.6.10.b - Madison County – Landslide Vulnerability – Expected Annual Loss – Population Equivalences

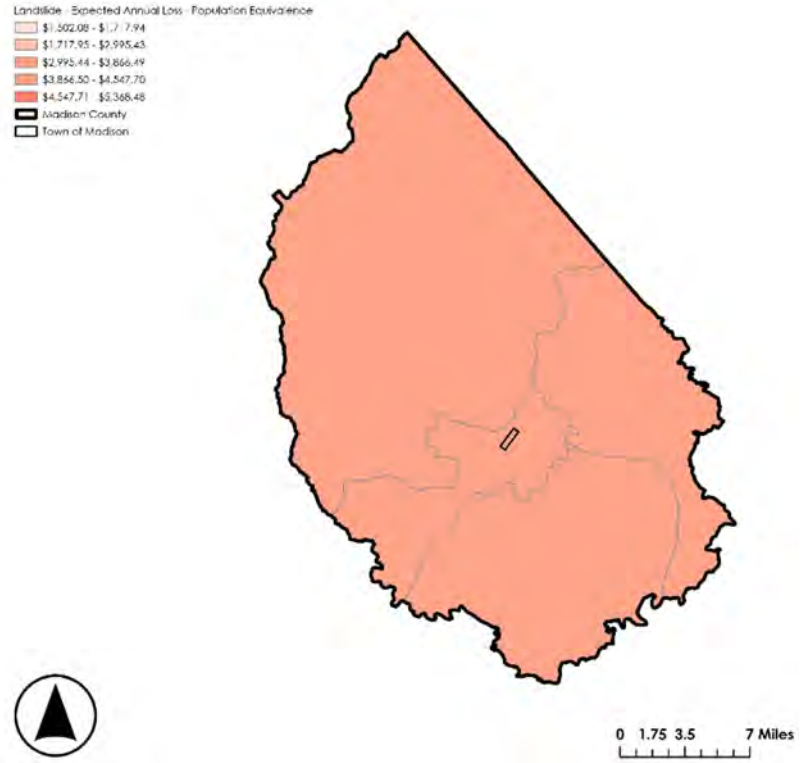


Figure 5.6.10.c - Madison County – Landslide Vulnerability – Expected Annual Loss – Building Value

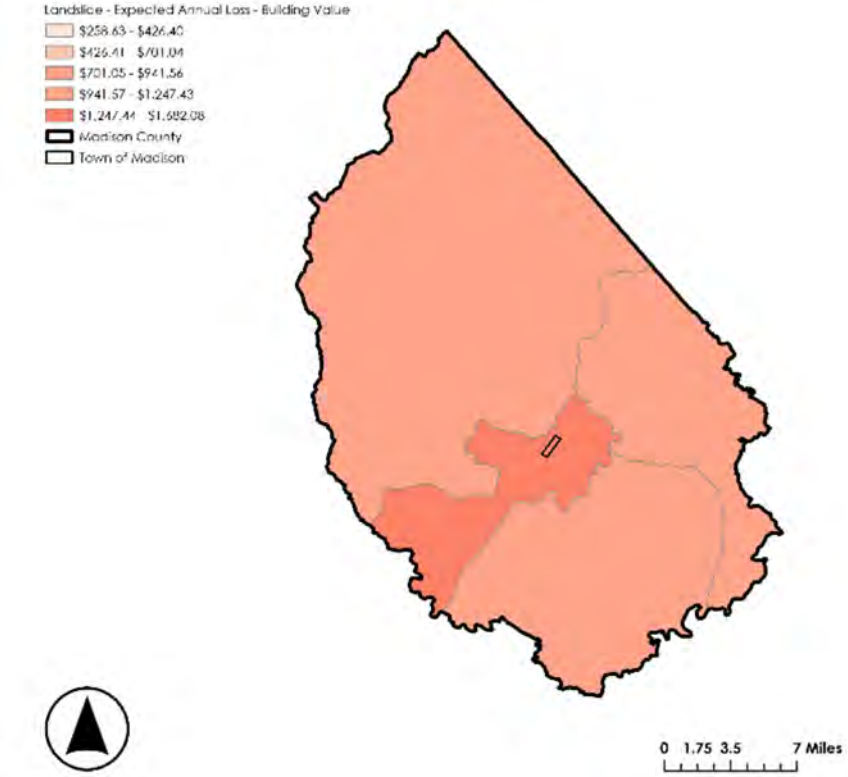


Figure 5.6.10.d - Madison County – Landslide Vulnerability – Expected Annual Loss – Total

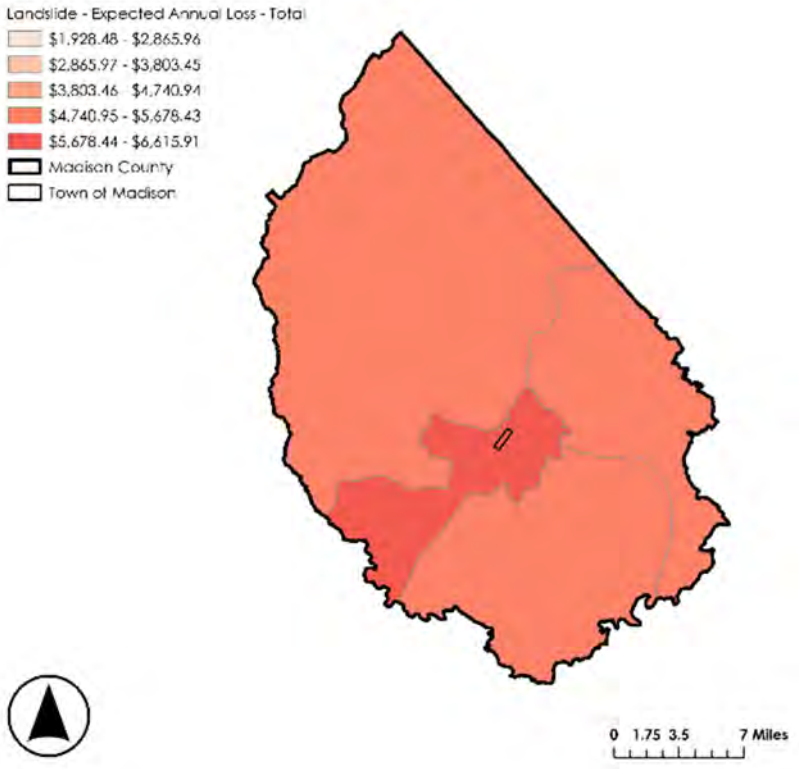


Figure 5.6.10.e - Madison County – Landslide Vulnerability – Hazard Type Risk Index Score

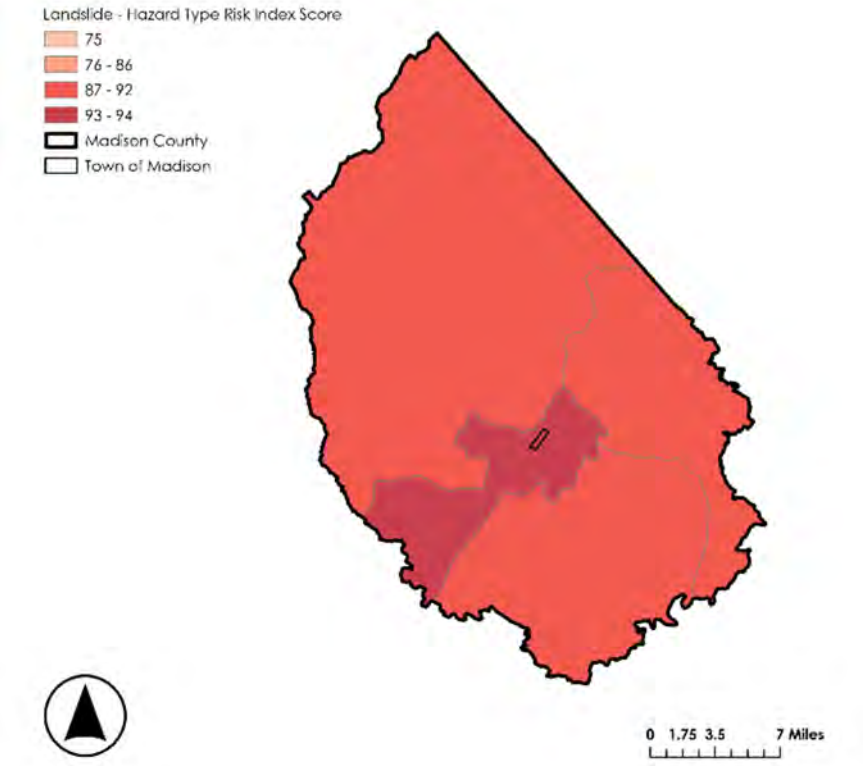


Figure 5.6.11.a - Orange County – Landslide Vulnerability - Annualized Frequency

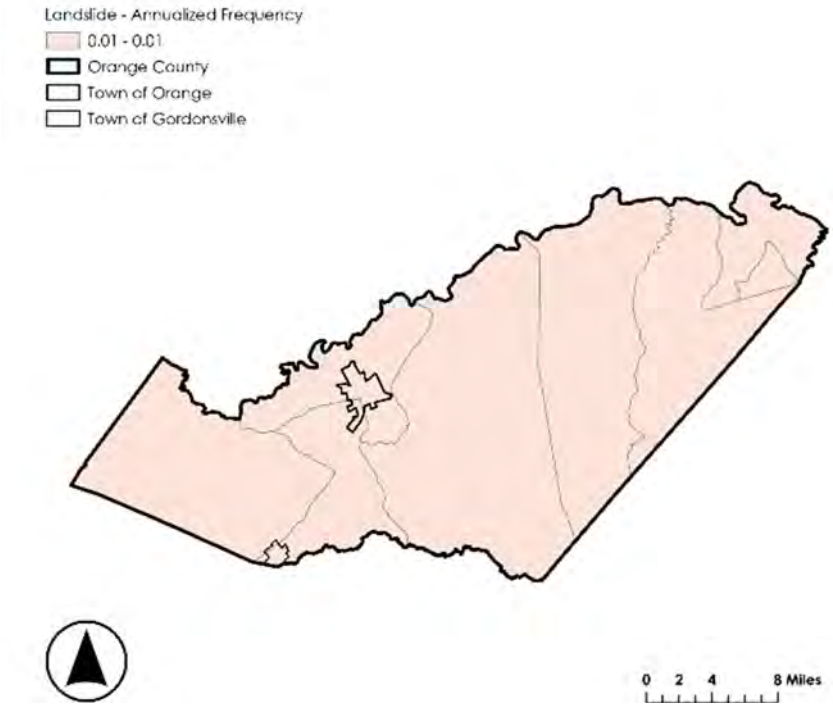


Figure 5.6.11.b - Orange County – Landslide Vulnerability – Expected Annual Loss – Population Equivalences

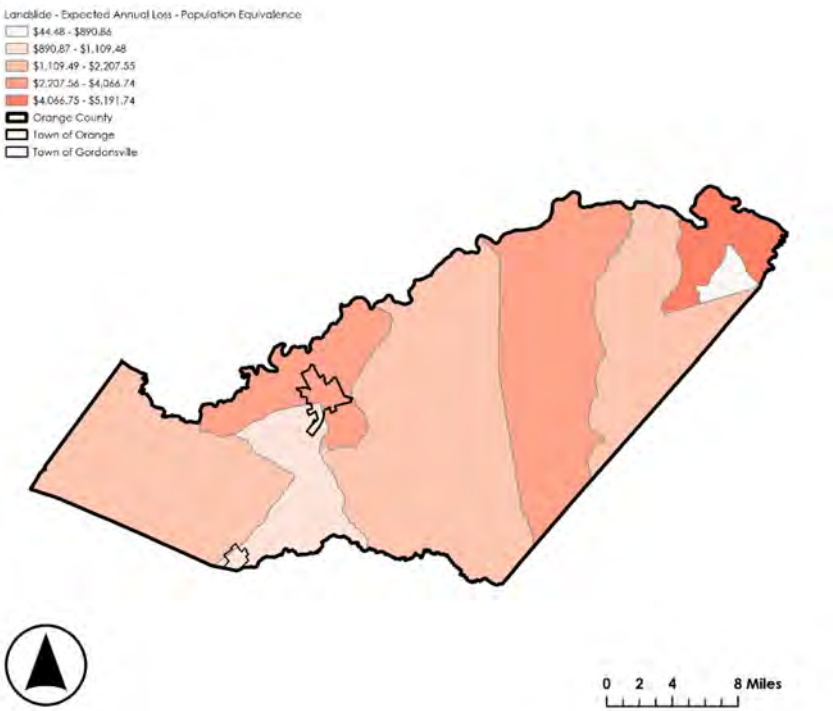


Figure 5.6.11.c - Orange County – Landslide Vulnerability – Expected Annual Loss – Building Value

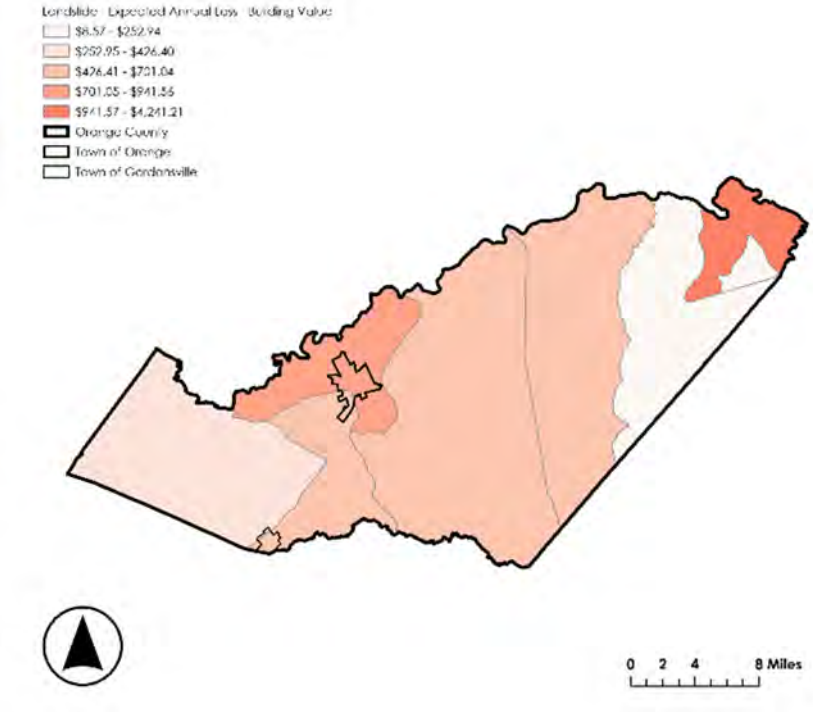


Figure 5.6.11.d - Orange County – Landslide Vulnerability – Expected Annual Loss – Total

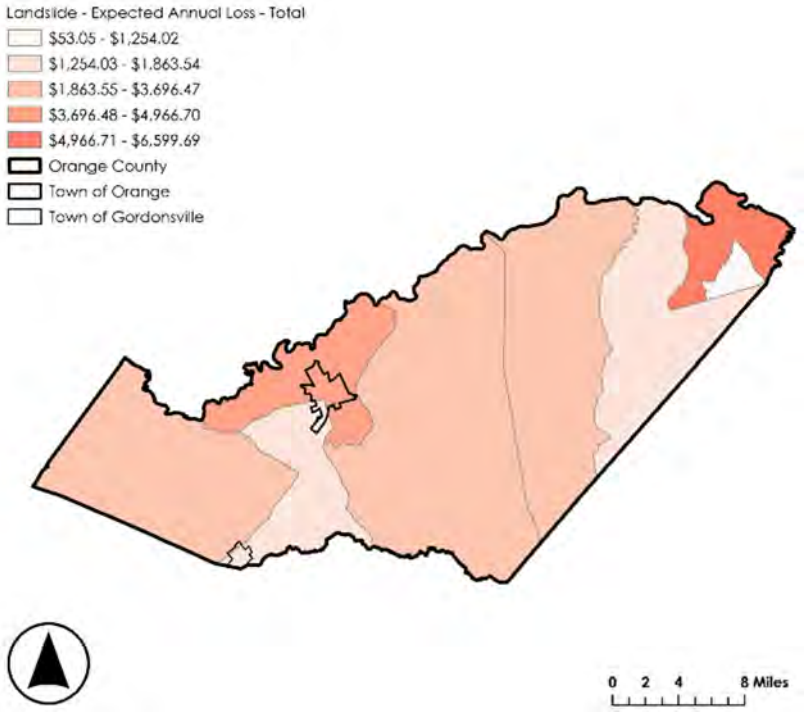


Figure 5.6.11.e - Orange County – Landslide Vulnerability – Hazard Type Risk Index Score

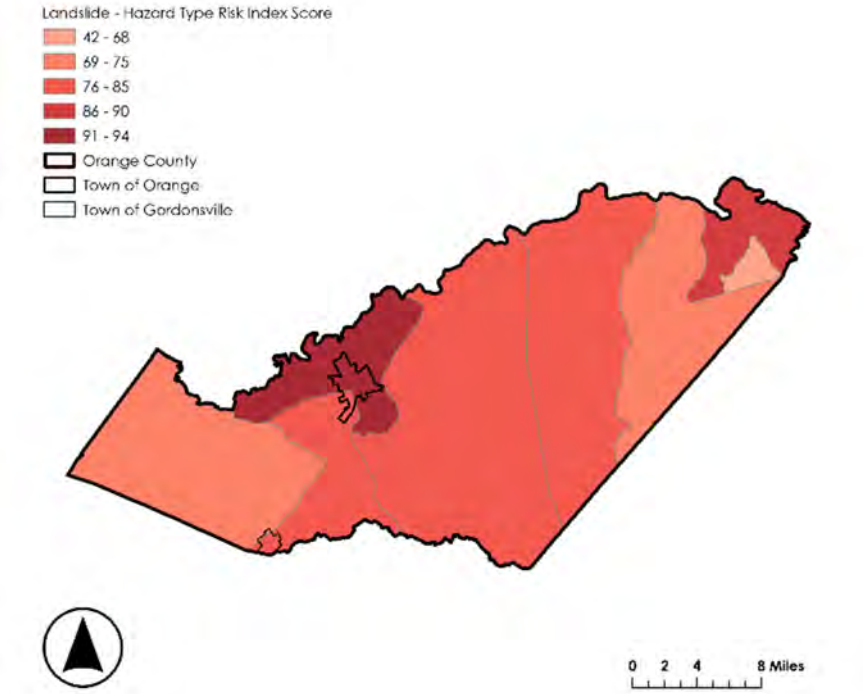


Figure 5.6.12.a - Rappahannock County – Landslide Vulnerability - Annualized Frequency

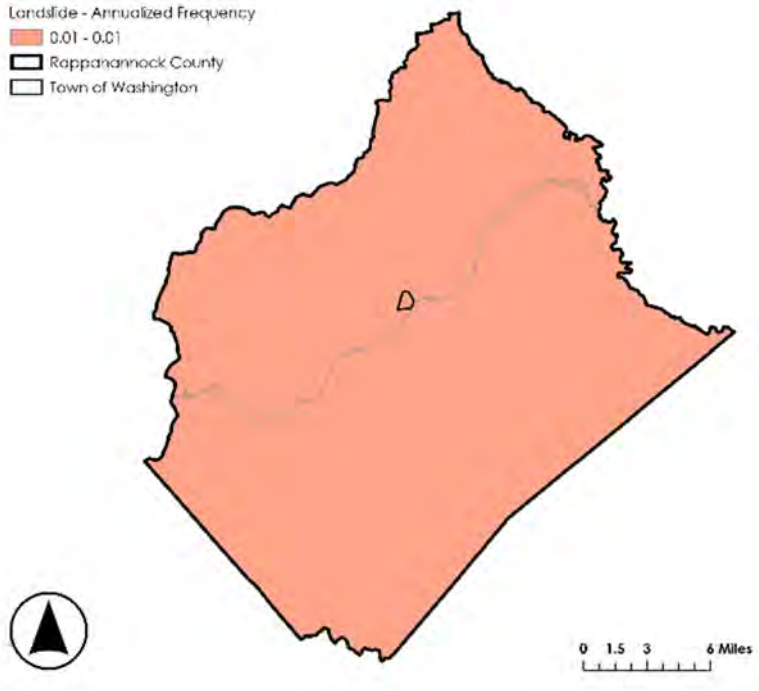


Figure 5.6.12.b – Rappahannock County – Landslide Vulnerability – Expected Annual Loss – Population Equivalences

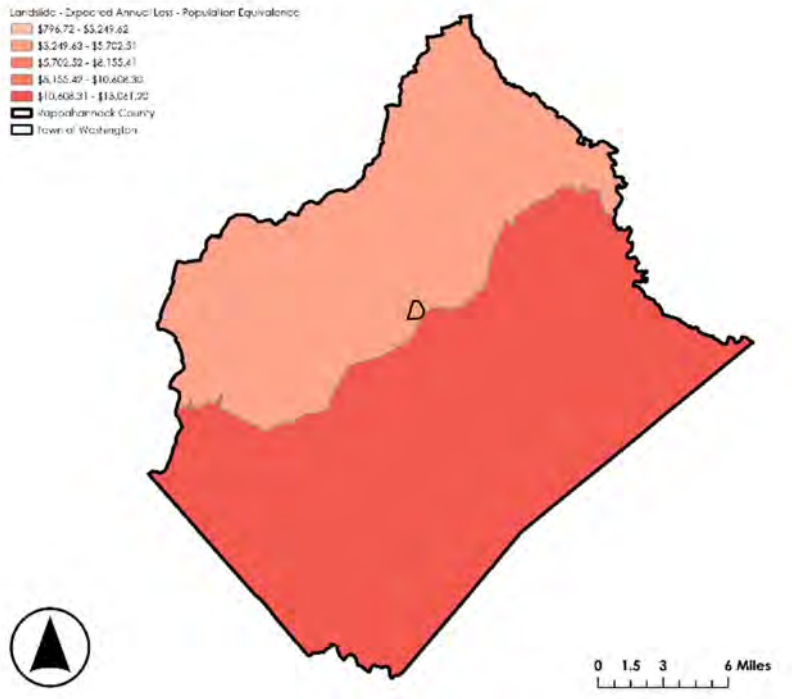


Figure 5.6.12.c - Rappahannock County – Landslide Vulnerability – Expected Annual Loss – Building Value

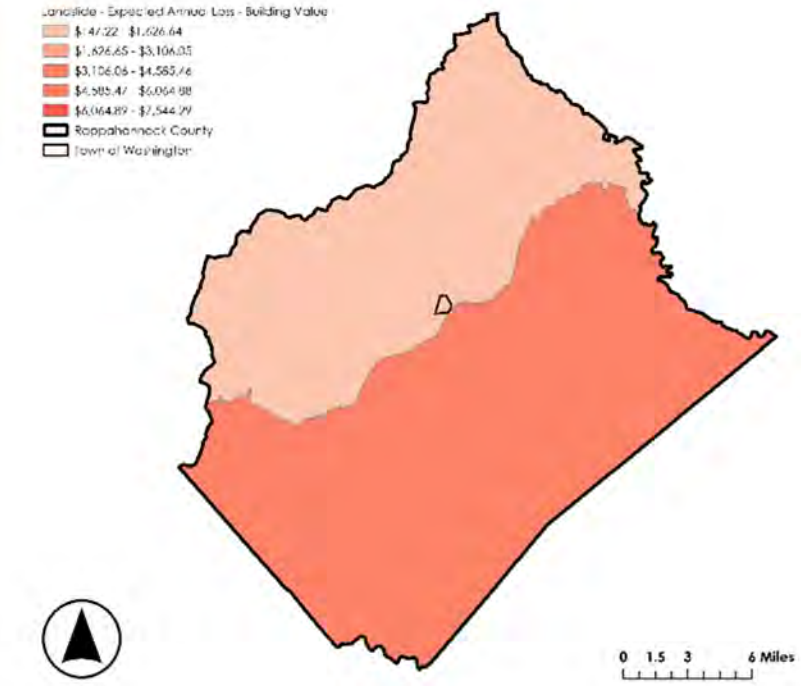


Figure 5.6.12.d - Rappahannock County – Landslide Vulnerability – Expected Annual Loss – Total

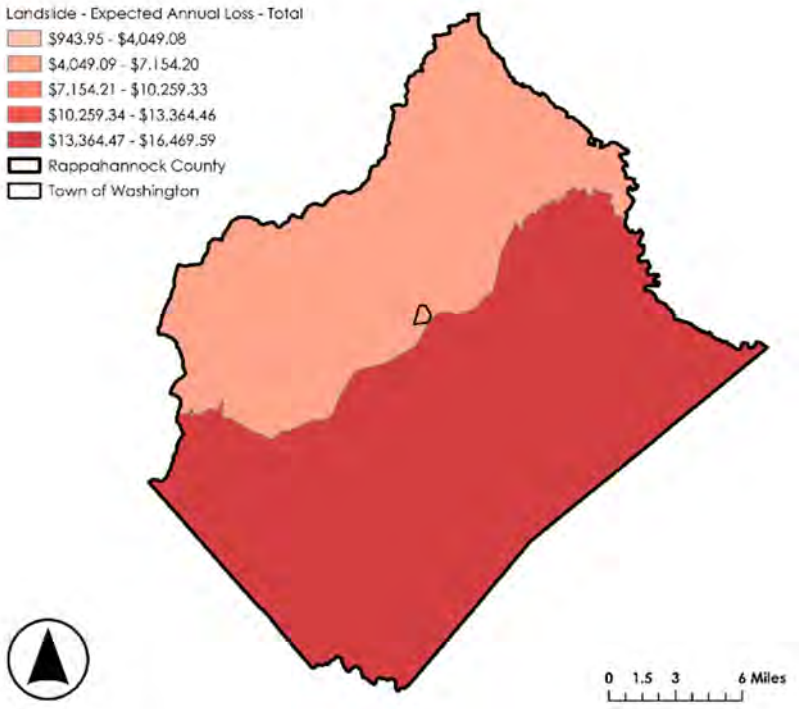
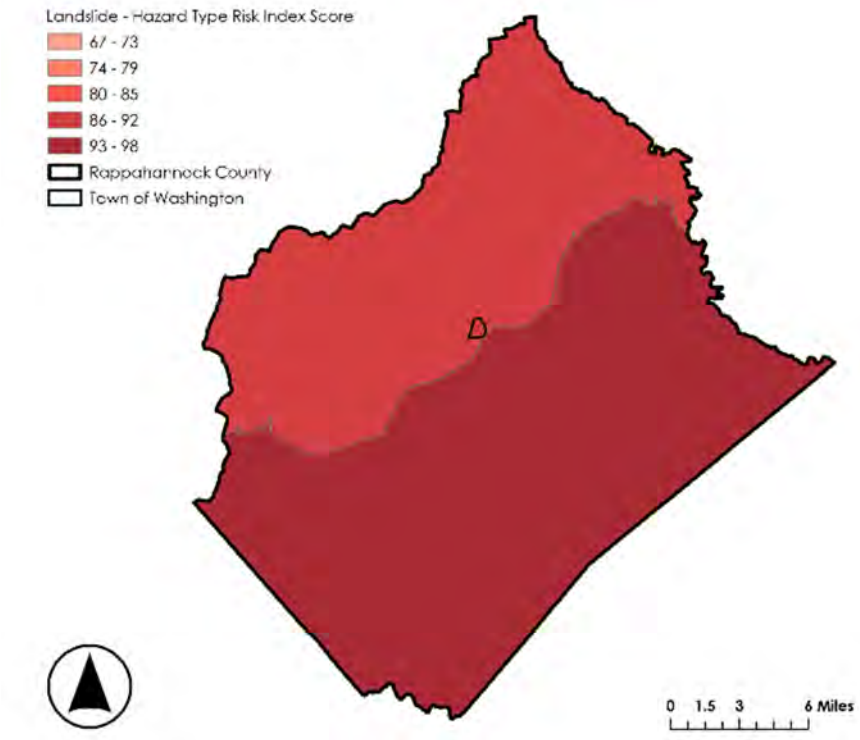


Figure 5.6.12.e - Rappahannock County – Landslide Vulnerability – Hazard Type Risk Index Score



5.1.6 RIVERINE FLOOD VULNERABILITY

Excess water from snowmelt, rainfall, or storm surge can accumulate and overflow onto adjacent floodplains. While many floodplain boundaries are mapped by FEMA's National Flood Insurance Program (NFIP), floods sometimes go beyond the mapped floodplains or change courses due to erosion, sedimentation, or human development like building, grading, and debris blockage. Flood vulnerability is extremely high in and around mapped floodplains, with potential for moving water to destroy structures and wash away vehicles and other debris, and for property damage resulting from inundation by sediment and debris-filled water.

The vulnerability assessment for the flood hazard in the Rappahannock-Rapidan Region is based on two separate methodologies. FEMA's NRI tool was utilized to perform a hurricane hazard analysis for the region to estimate potential losses in the event of natural disasters. NRI has data of calculations regarding earthquake, hurricane, and flood hazards as well as potential economic losses associated with these hazards. The next methodology utilized the Flood Modeling capabilities of HAZUS^{MH} 6.1, using the default data provided with HAZUS^{MH} MR4. The basic analysis used the Flood Hazard Analysis process defined in the HAZUS^{MH} MR4 User Manual – *Running HAZUS Flood with Default Data.*

For the Rappahannock-Rapidan region, the analysis consisted of a Riverine Hazard assessment. The HAZUS^{MH} 6.1 hydraulics analysis was run for return periods of 10, 50, 100, 200 and 500 years to develop an annualized loss estimate for the entire region. The HAZUS^{MH} 6.1 hydraulics analysis was run on 4/2/2024.

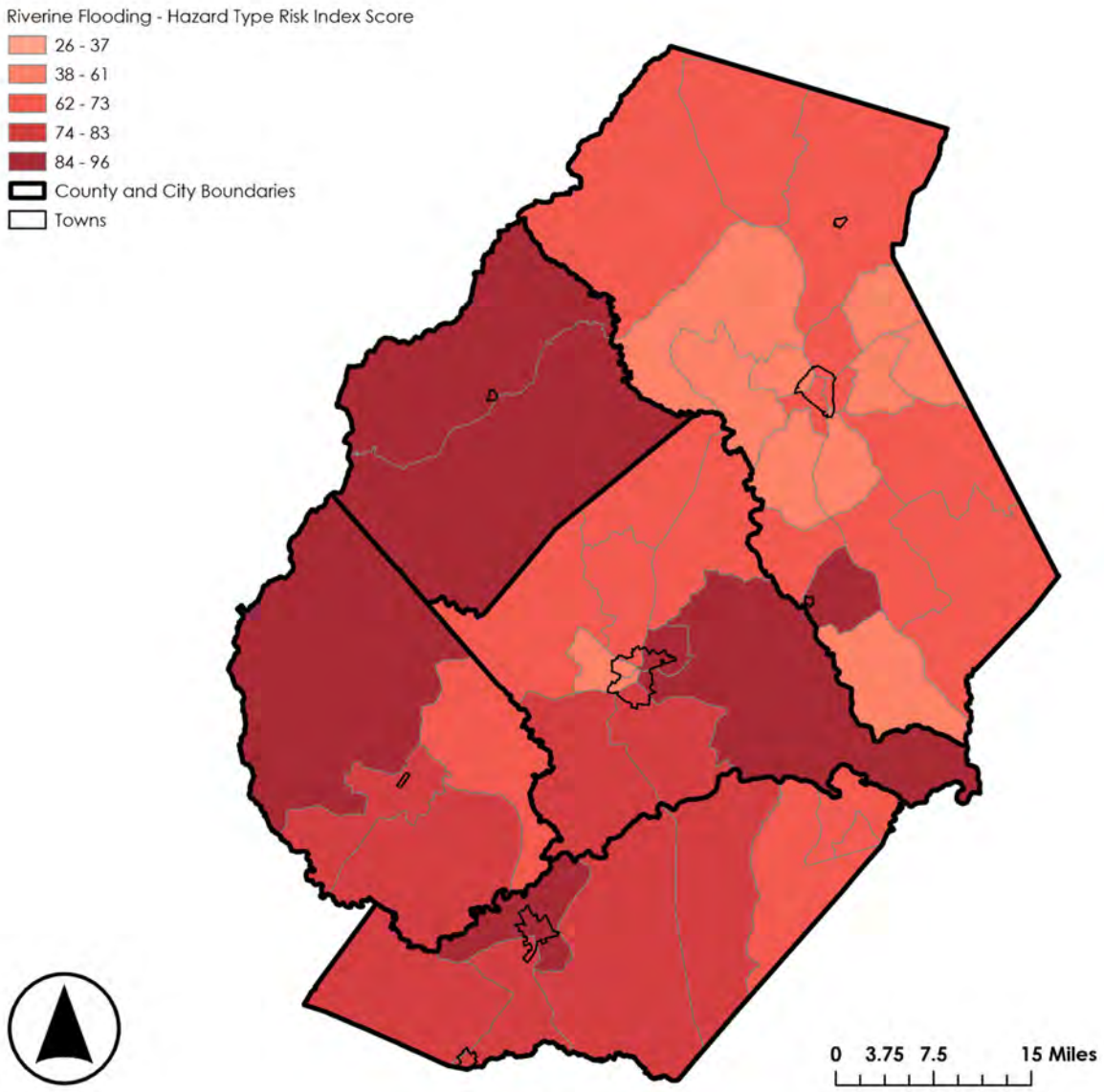
The HAZUS Flood Model analysis returned 131 reaches in the Rappahannock-Rapidan region, which were in turn divided into five scenarios to minimize processing time for the hydraulics analysis. The HAZUS analysis did not return any essential facilities such as fire stations, hospitals, police stations and schools as resulting in a loss of use under a 500-year flood event scenario.

The following table and maps present the estimated annualized losses for the localities in the region based on data from FEMA's NRI Database.

Table 5.7 - Flood Expected Annual Loss (in Dollars) by Locality (FEMA National Risk Index 2020)

County	Culpeper	Fauquier	Madison	Orange	Rappahannock	Region
Buildings	$162,365	$217,310	$374,646	$208,643	$299,446	$1,262,410.00
Population Eq.	$260,017	$263,005	$77,947	$9,520	$33,604	$644,093.00
Agriculture	$159,007	$90,390	$82,622	$162,395	$12,881	$507,295.00
Total Annual Loss	$581,389	$570,705	$535,214	$380,559	$345,931	$2,413,798.00

Figure 5.7.1 - Riverine Flooding Overall Risk Score in RRRC Region



Source: FEMA National Risk Index, 2020

Figure 5.7.2.a - Culpeper County – Riverine Flooding Vulnerability - Annualized Frequency

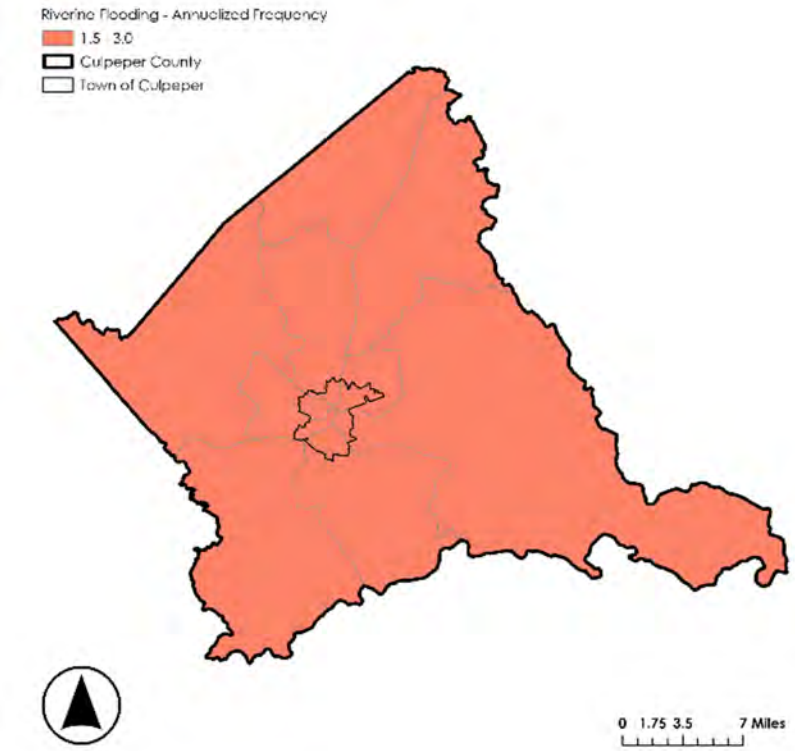


Figure 5.7.2.b - Culpeper County – Riverine Flooding Vulnerability – Expected Annual Loss – Agriculture Value

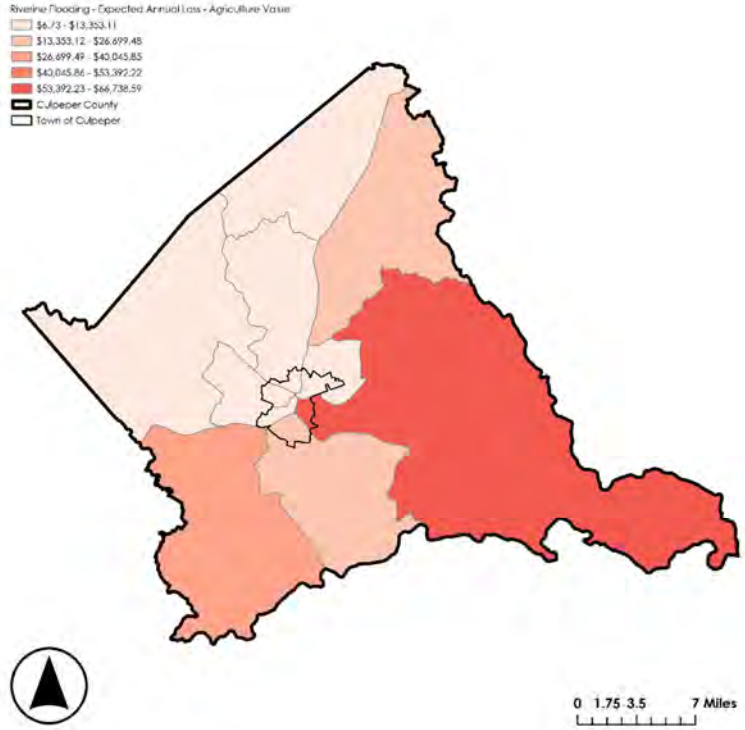


Figure 5.7.2.c - Culpeper County – Riverine Flooding Vulnerability – Expected Annual Loss – Population Equivalence

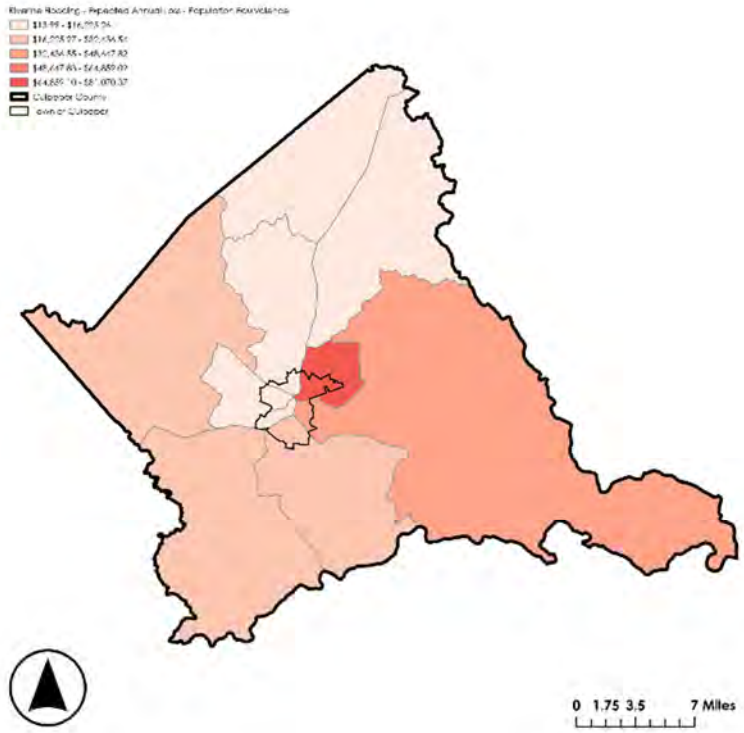


Figure 5.7.2.d - Culpeper County – Riverine Flooding Vulnerability – Expected Annual Loss – Building Value

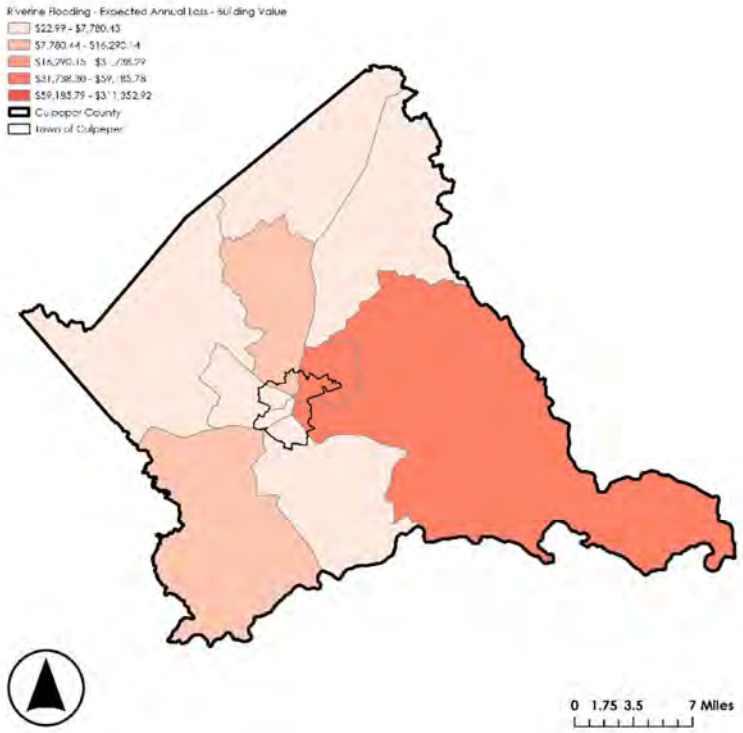


Figure 5.7.2.e - Culpeper County – Riverine Flooding Vulnerability – Expected Annual Loss - Total

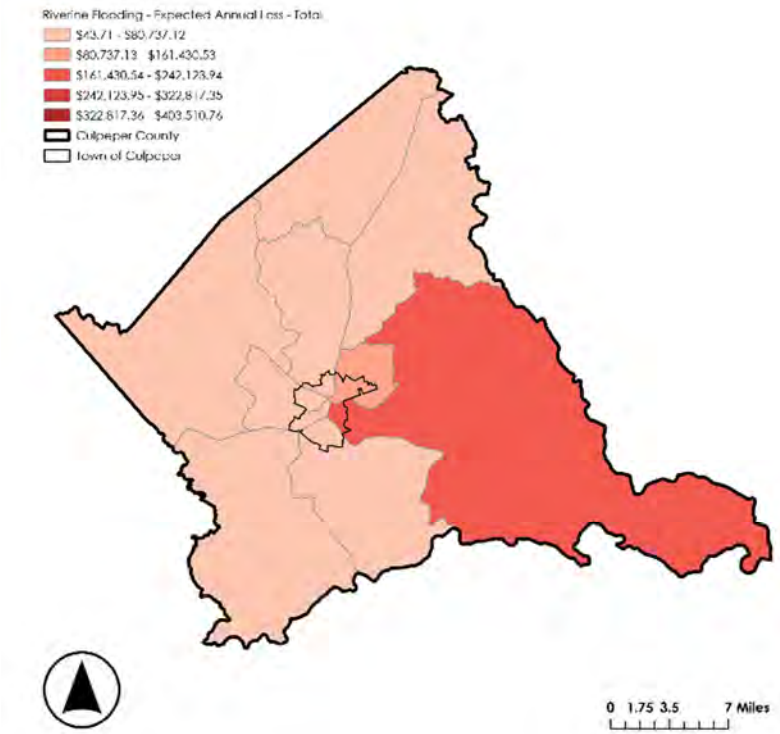


Figure 5.7.2.f - Culpeper County – Riverine Flooding Vulnerability – Hazard Type Risk Index Score

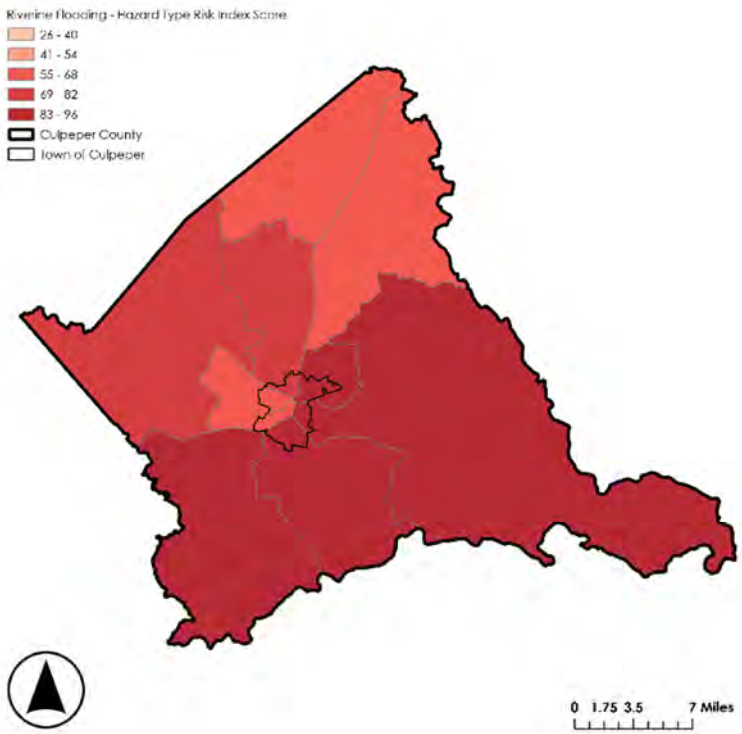


Figure 5.7.3.a - Fauquier County – Riverine Flooding Vulnerability - Annualized Frequency

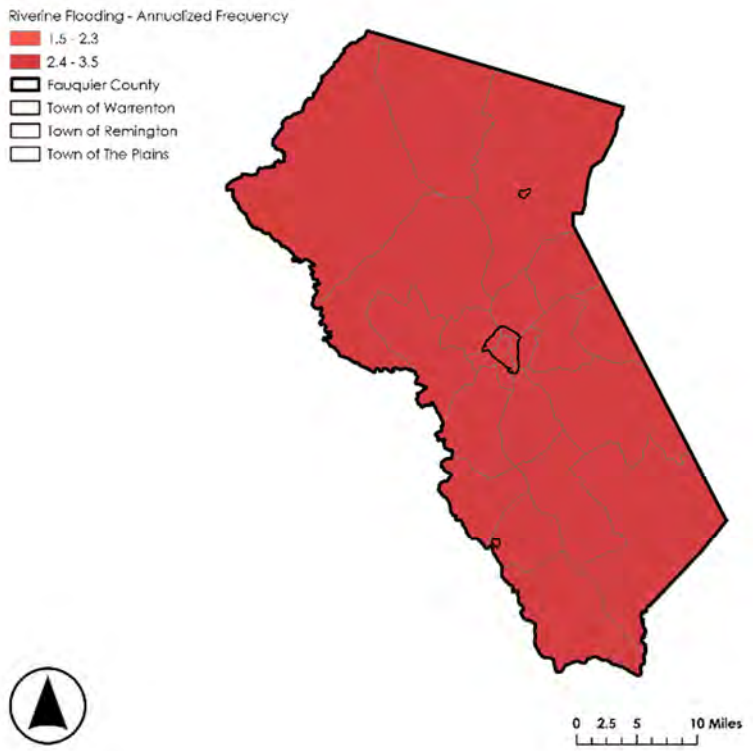


Figure 5.7.3.b - Fauquier County – Riverine Flooding Vulnerability – Expected Annual Loss – Agriculture Value

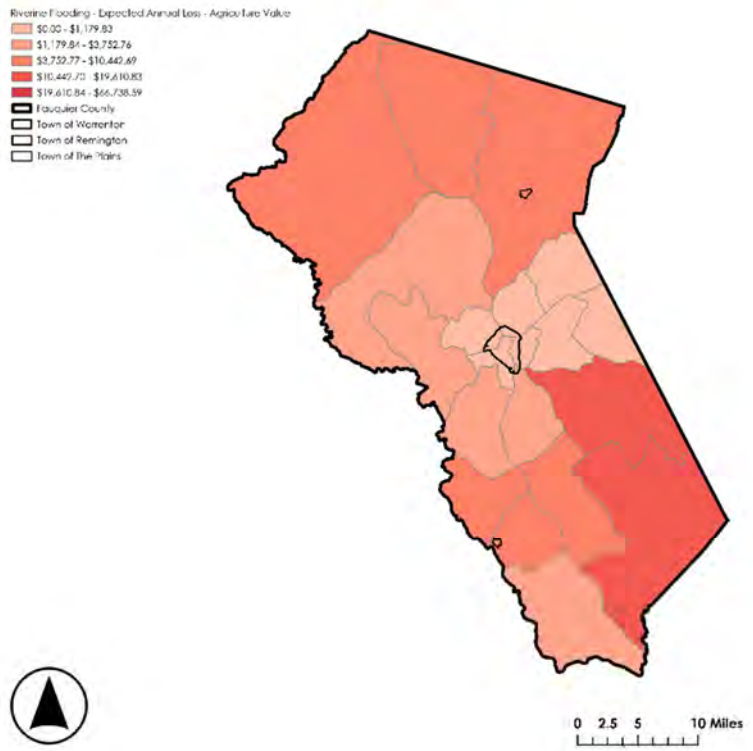


Figure 5.7.3.c - Fauquier County – Riverine Flooding Vulnerability – Expected Annual Loss – Population Equivalence

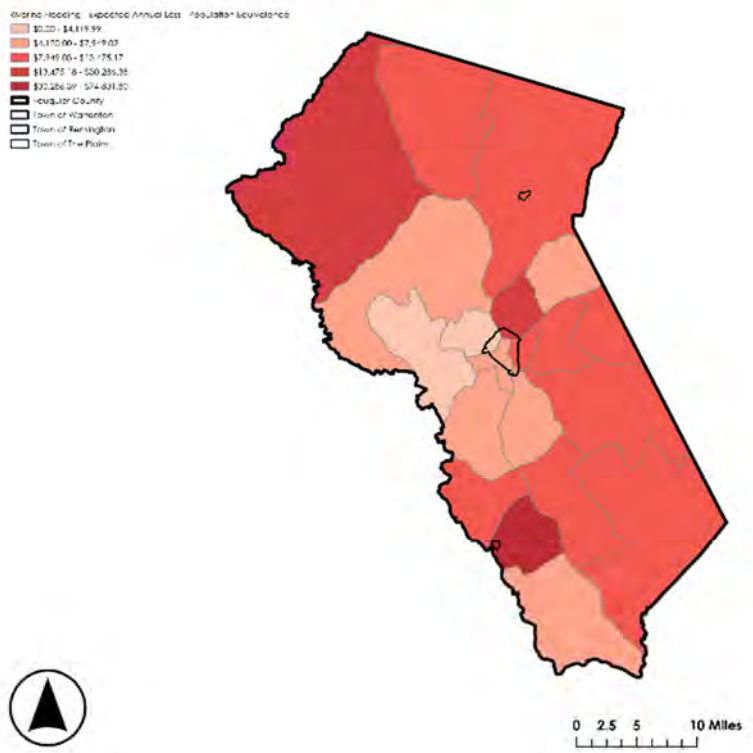


Figure 5.7.3.d - Fauquier County – Riverine Flooding Vulnerability – Expected Annual Loss – Building Value

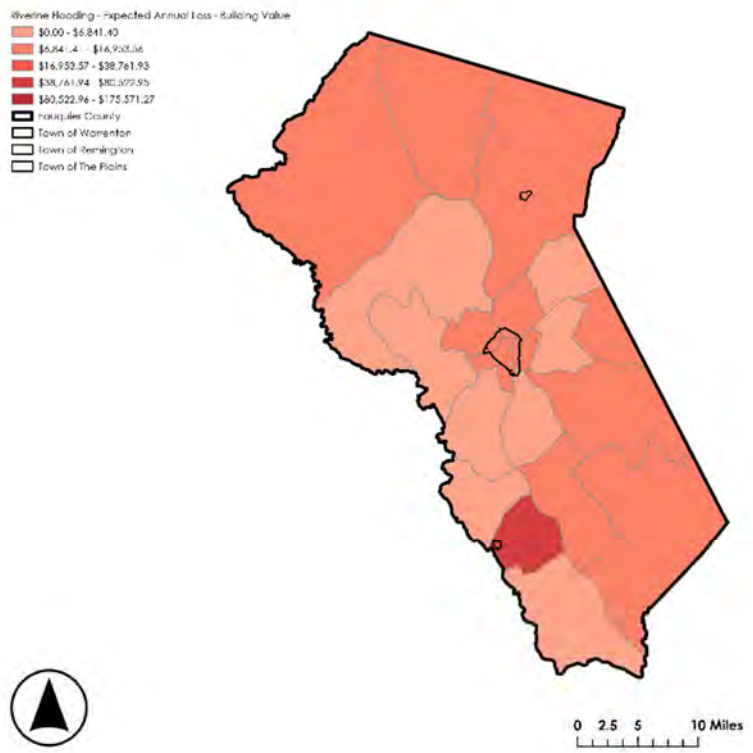


Figure 5.7.3.e - Fauquier County – Riverine Flooding Vulnerability – Expected Annual Loss - Total

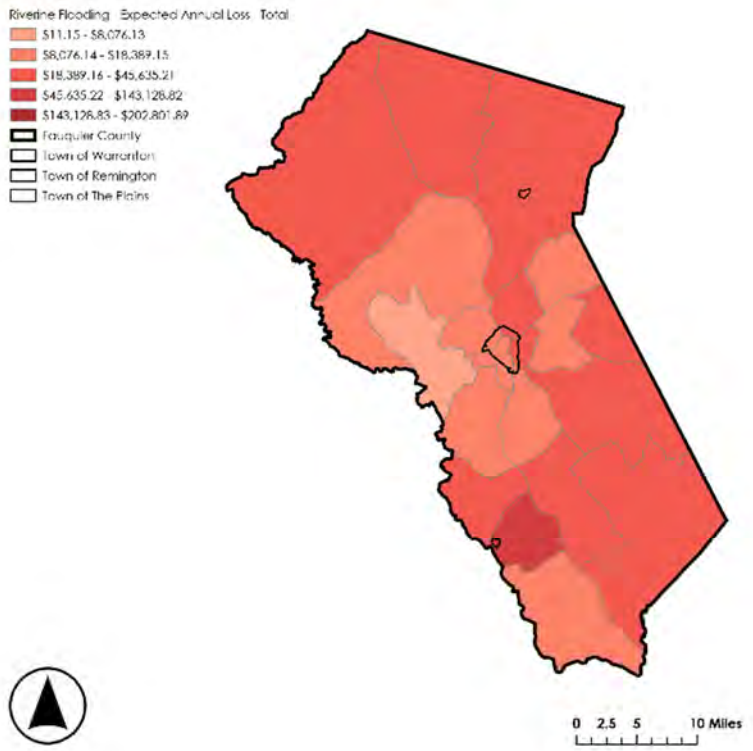


Figure 5.7.3.f - Fauquier County – Riverine Flooding Vulnerability – Hazard Type Risk Index Score

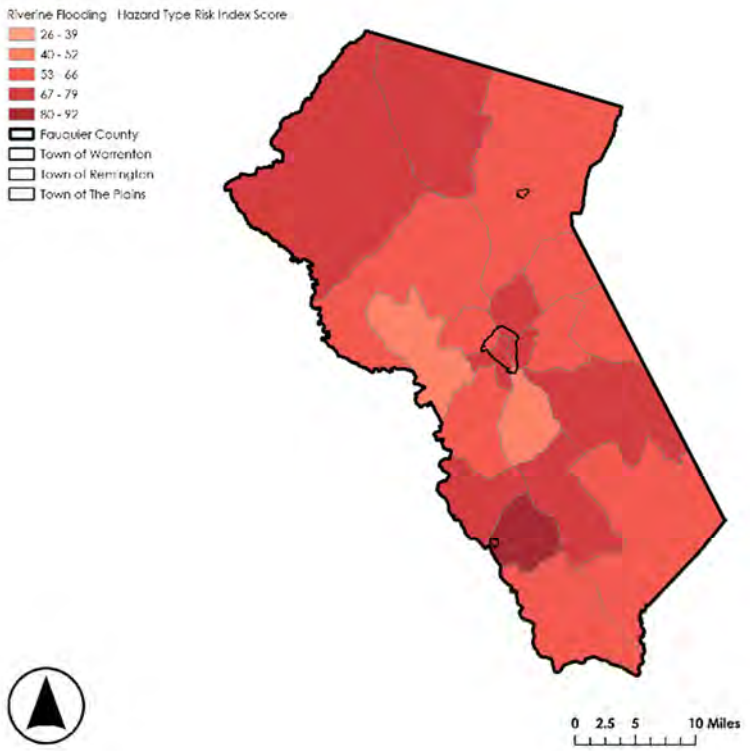


Figure 5.7.4.a - Madison County – Riverine Flooding Vulnerability - Annualized Frequency

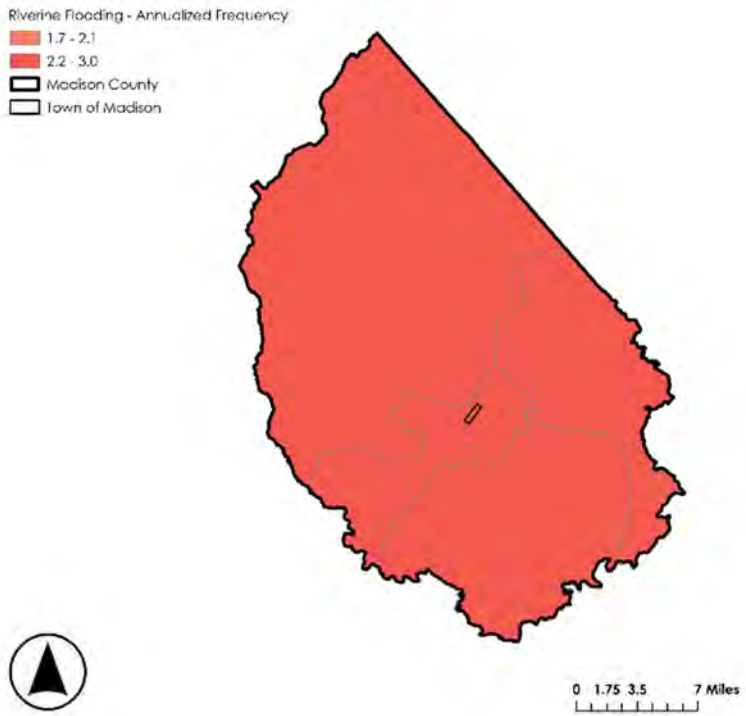


Figure 5.7.4.b - Madison County – Riverine Flooding Vulnerability – Expected Annual Loss – Agriculture Value

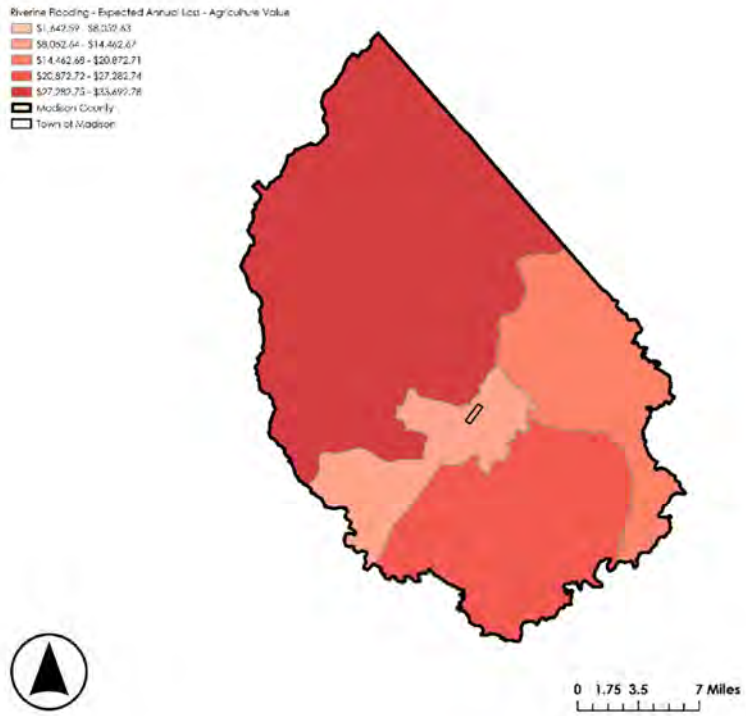


Figure 5.7.4.c - Madison County – Riverine Flooding Vulnerability – Expected Annual Loss – Population Equivalence

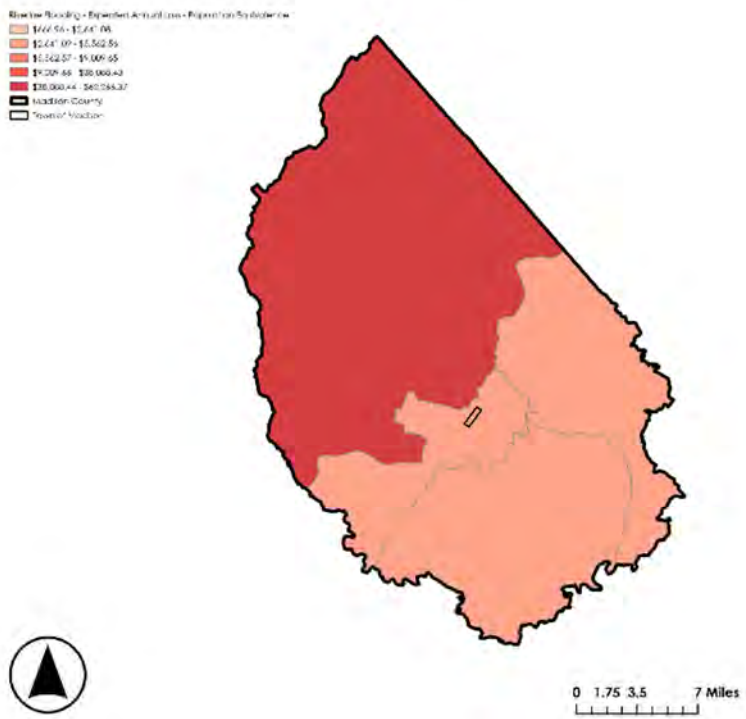


Figure 5.7.4.d - Madison County – Riverine Flooding Vulnerability – Expected Annual Loss – Building Value

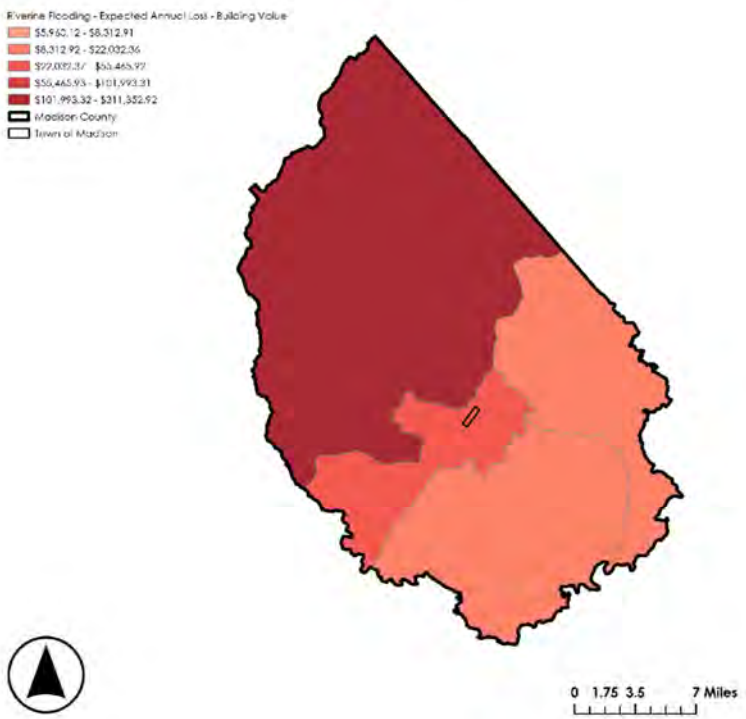


Figure 5.7.4.e - Madison County – Riverine Flooding Vulnerability – Expected Annual Loss - Total

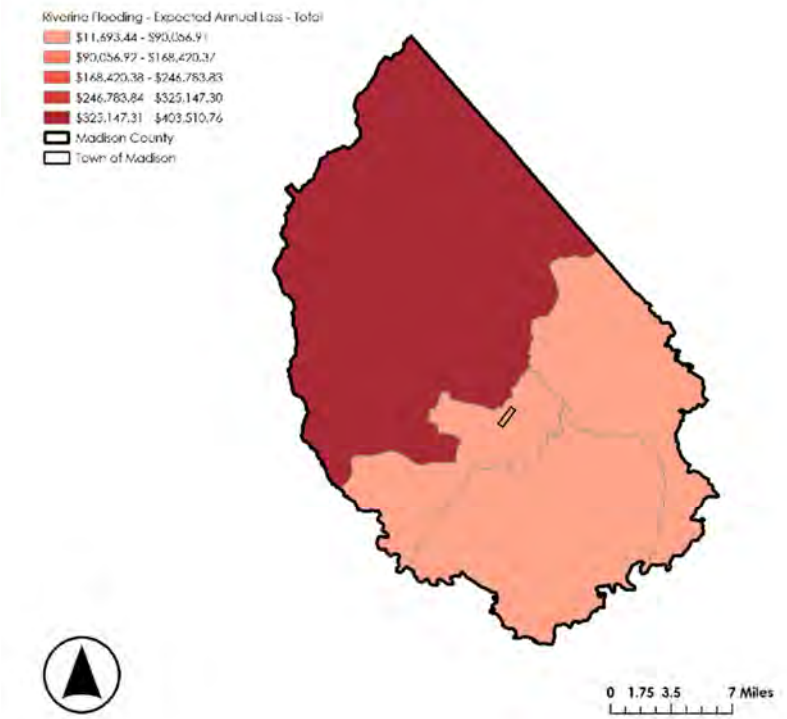


Figure 5.7.4.f - Madison County – Riverine Flooding Vulnerability – Hazard Type Risk Index Score

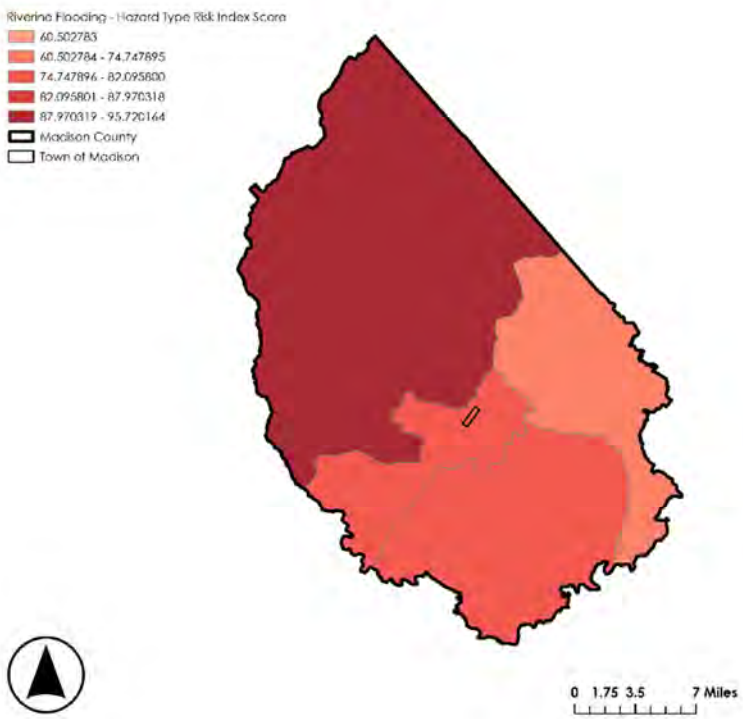


Figure 5.7.5.a - Orange County – Riverine Flooding Vulnerability - Annualized Frequency

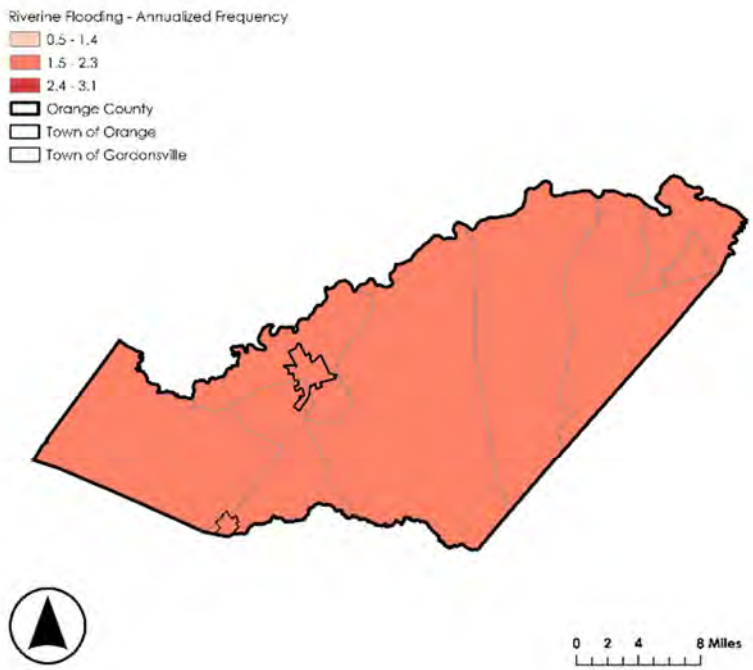


Figure 5.7.5.b - Orange County – Riverine Flooding Vulnerability – Expected Annual Loss – Agriculture Value

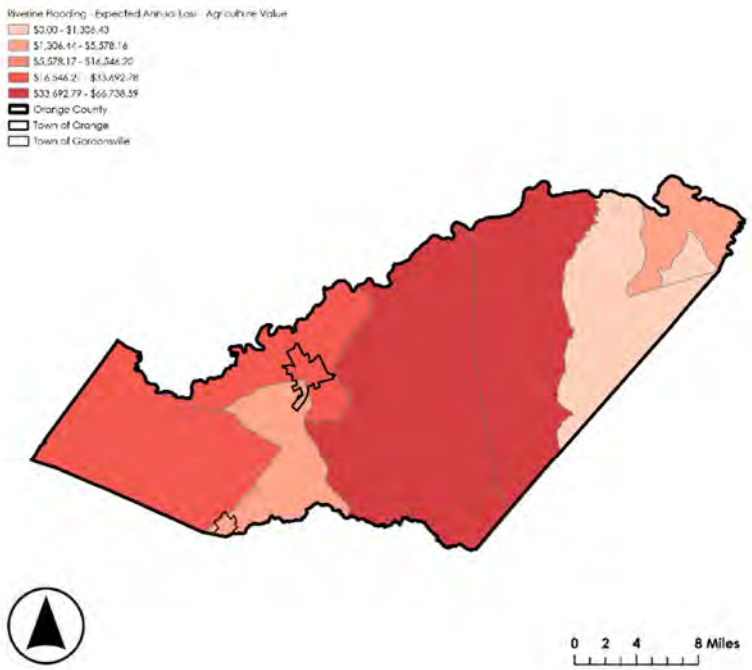


Figure 5.7.5.c - Orange County – Riverine Flooding Vulnerability – Expected Annual Loss – Population Equivalence

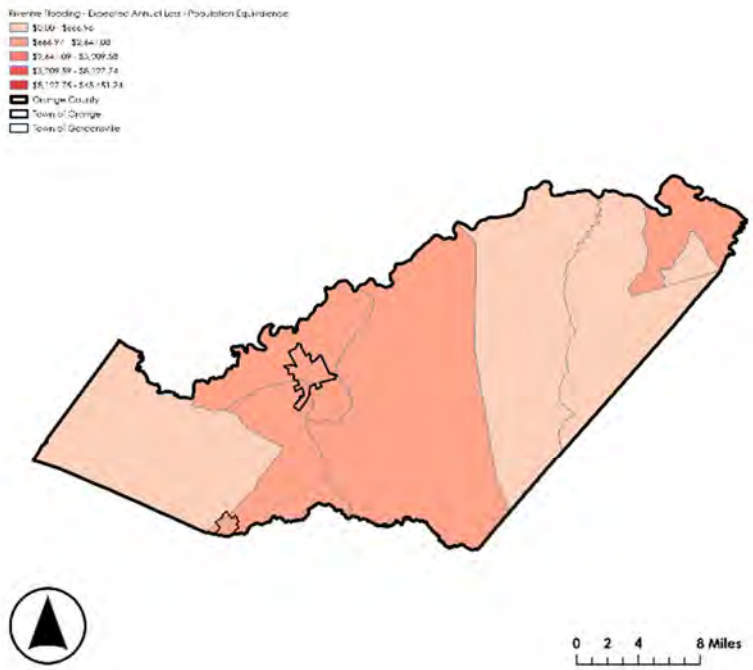


Figure 5.7.5.d - Orange County – Riverine Flooding Vulnerability – Expected Annual Loss – Building Value

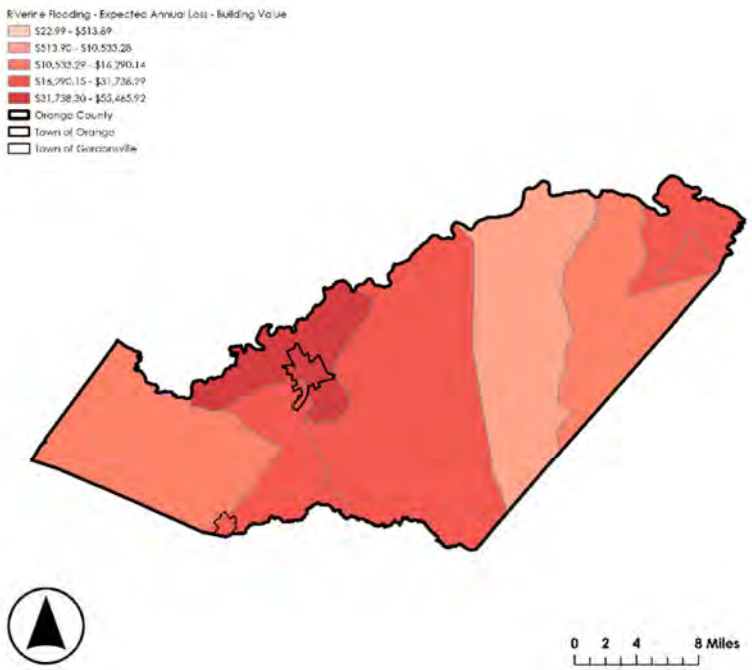


Figure 5.7.5.e - Orange County – Riverine Flooding Vulnerability – Expected Annual Loss - Total

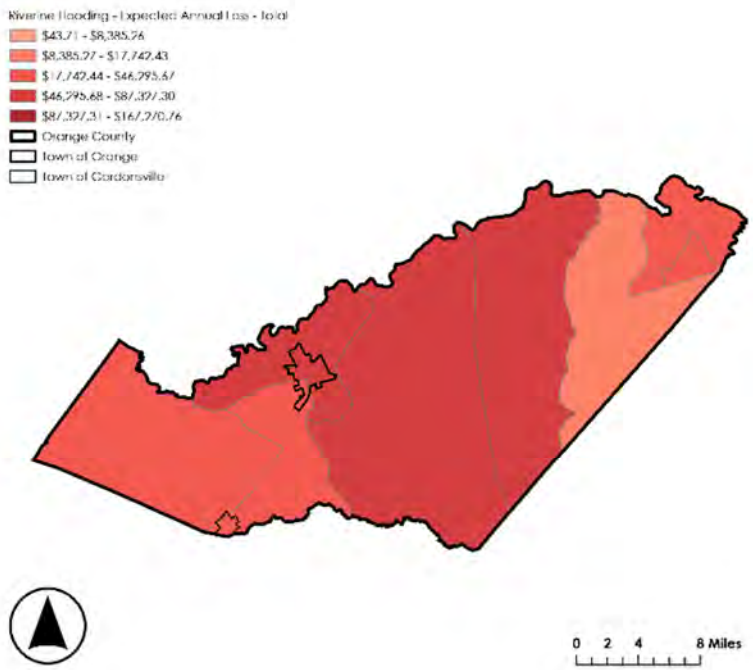


Figure 5.7.5.f - Orange County – Riverine Flooding Vulnerability – Hazard Type Risk Index Score

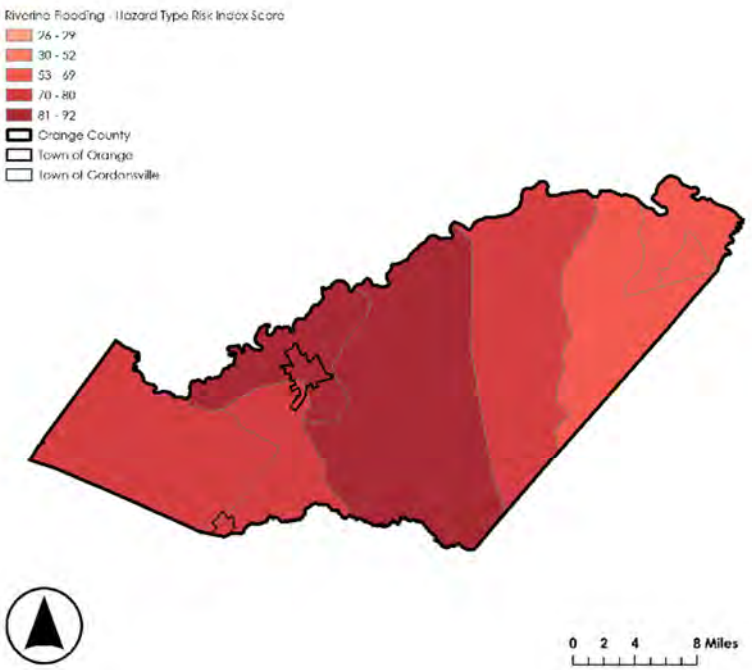


Figure 5.7.6.a - Rappahannock County – Riverine Flooding Vulnerability - Annualized Frequency

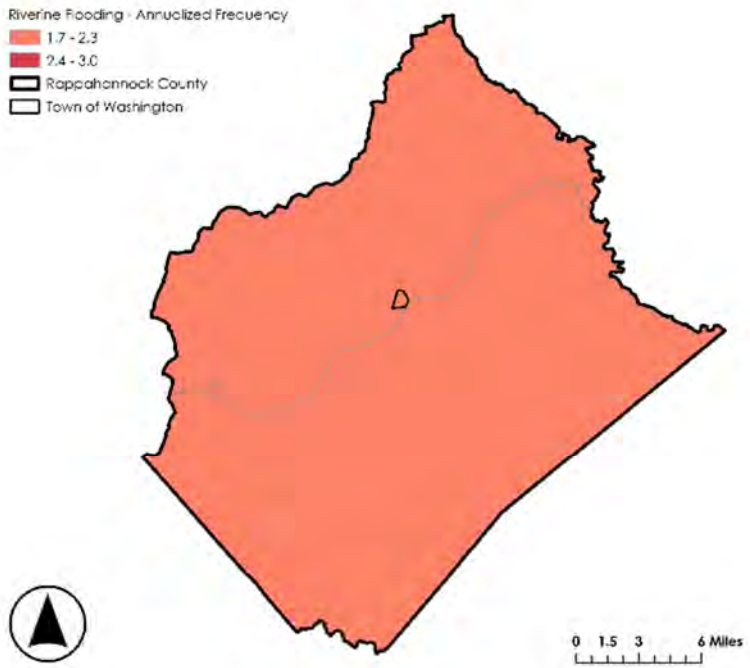


Figure 5.7.6.b - Rappahannock County – Riverine Flooding Vulnerability – Expected Annual Loss – Agriculture Value

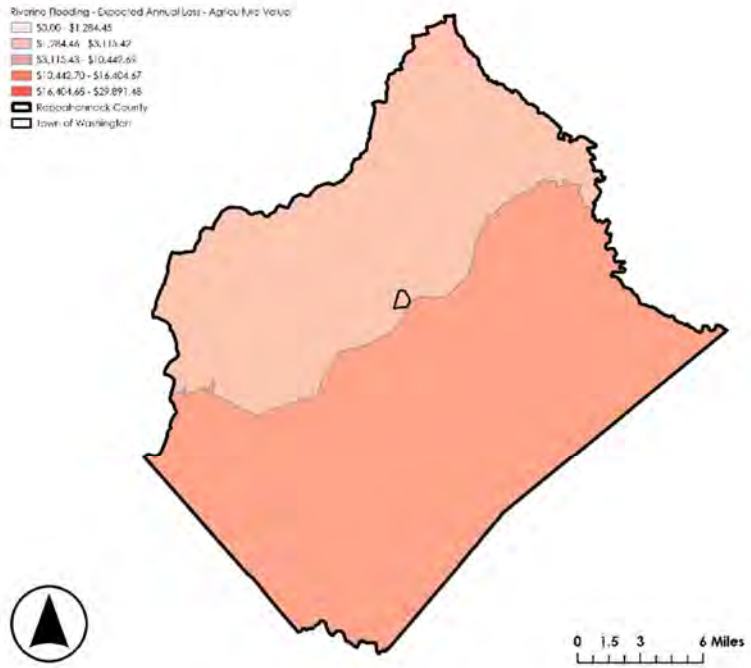


Figure 5.7.6.c - Rappahannock County – Riverine Flooding Vulnerability – Expected Annual Loss – Population Equivalence

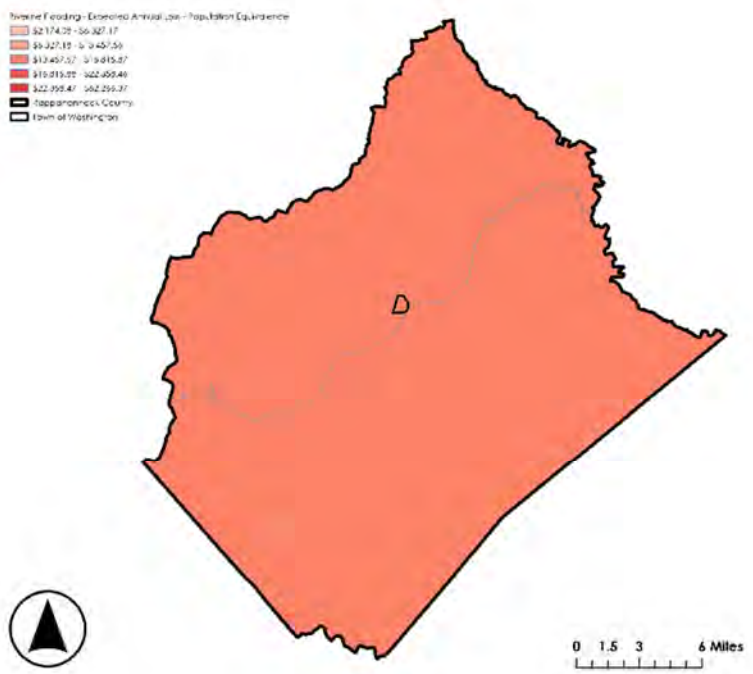


Figure 5.7.6.d - Rappahannock County – Riverine Flooding Vulnerability – Expected Annual Loss – Building Value

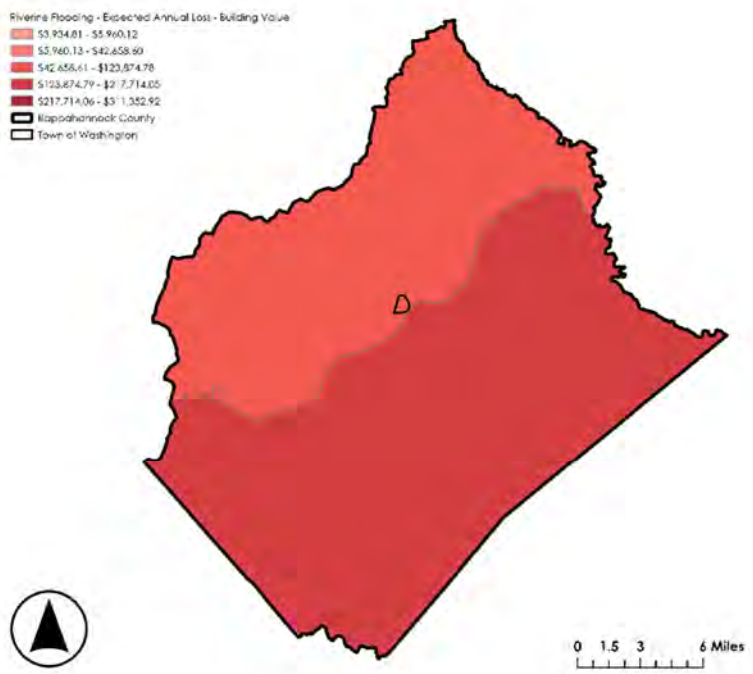


Figure 5.7.6.e - Rappahannock County – Riverine Flooding Vulnerability – Expected Annual Loss - Total

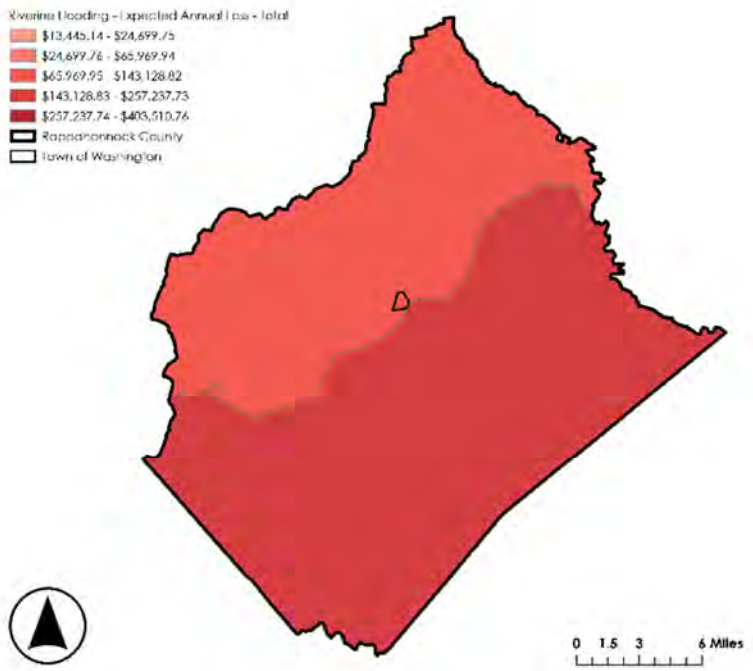
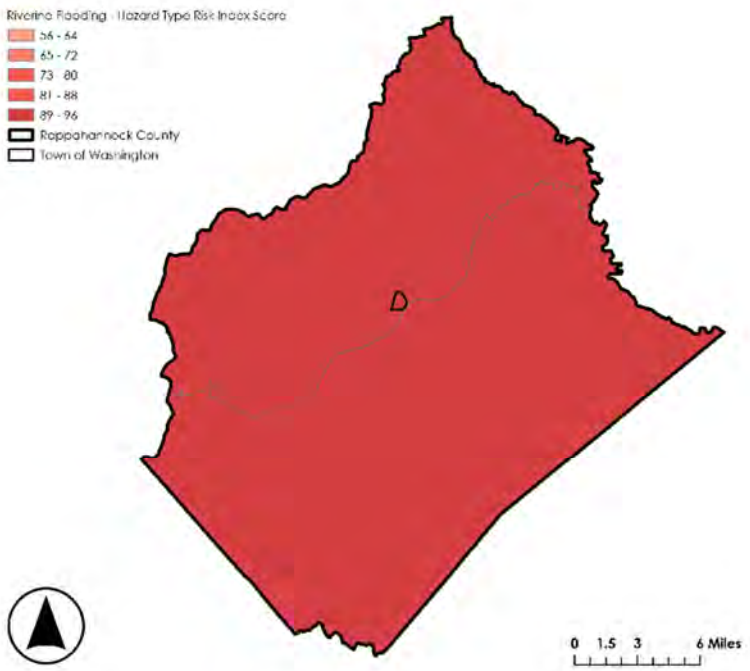


Figure 5.7.6.f - Rappahannock County – Riverine Flooding Vulnerability – Hazard Type Risk Index Score



5.1.7 – HURRICANE VULNERABILITY ASSESSMENT

The severe weather scenarios evaluated by this plan – hurricanes, tornados, and winter storms - all share common impacts, including damage to infrastructure, particularly damage to overhead power and communication lines, road closures, and interruption in business and school activities. Utility outages can impact anything relying on electricity and include secondary impacts such as interruption to water and sewage services, heat and refrigeration, fuel supplies, computers, and cell phones. If interruption to business occurs for an extended period, economic impacts can be severe. Also of concern would be the impacts on populations with special needs such as the elderly, those requiring the use of electric medical equipment, and homeless populations. Populations located in the rural areas of the region may have an increased interruption time due to the remote access. Depending on the nature of a given storm, all areas within the Rappahannock-Rapidan region are equally at risk; however, those areas relying on above ground utilities could suffer the greatest damage.

FEMA's NRI tool was utilized to perform a hurricane hazard analysis for the Rappahannock-Rapidan Region to estimate potential losses in the event of natural disasters. NRI includes data that calculates earthquake, hurricane, and flood hazards as well as potential economic losses associated with these hazards. Table 5.4 below lists the number and dollar value of exposed structures based on occupancy type for region.

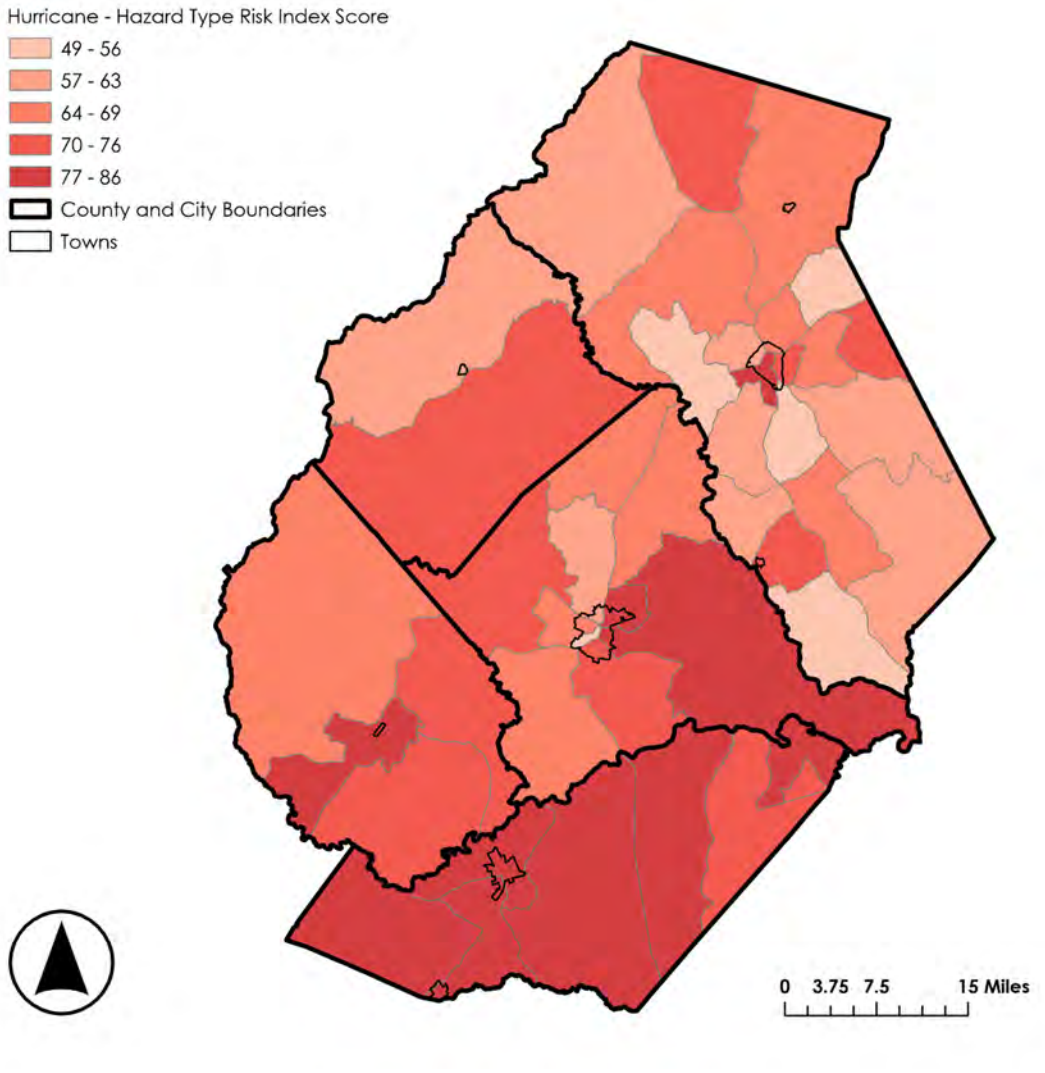
The default data set provided for NRI is based on the 2020 census data and HAZUS calculations. This analysis depicts the probability of occurrence and can generally be used to estimate potential damage due to associated hazard impacts. Since residential structures make up a significant portion of the buildings in the region, the data are presented in the table below. Minor damage to a structure is defined as receiving minimal damage and is habitable without repairs. A moderately damaged structure is uninhabitable. Minor repairs are necessary to make it habitable. These repairs will take less than 30 days. Severely damaged structures are currently uninhabitable; extensive repairs are necessary to make it habitable. These repairs will take more than 30 days. Totally destroyed structures are a total loss. These structures may not be economically feasible to rebuild.

Estimated annualized losses for the Region, based on data from the FEMA National Risk Index are illustrated in the table below, with the following maps giving visual analysis of the risk.

Table 5.8: Hurricane and Tropical Storms Expected Annual Loss (in Dollars) by Locality (FEMA National Risk Index 2020)

County	Culpeper	Fauquier	Madison	Orange	Rappahannock	Region
Buildings	$1,442,323	$2,634,935	$671,647	$2,686,243	$239,351	$7,674,499.00
Population Eq.	$30,697	$44,797	$11,737	$36,767	$3,797	$127,795.00
Agriculture	$75,546	$89,707	$93,869	$423,254	$14,966	$697,342.00
Total Annual Loss	$1,548,567	$2,769,439	$777,253	$3,146,264	$258,114	$8,499,637.00

Figure 5.8.1 Hurricane Overall Risk Score RRRC Region



Source: FEMA National Risk Index, 2020

Figure 5.8.2.a - Culpeper County – Hurricane Vulnerability - Annualized Frequency

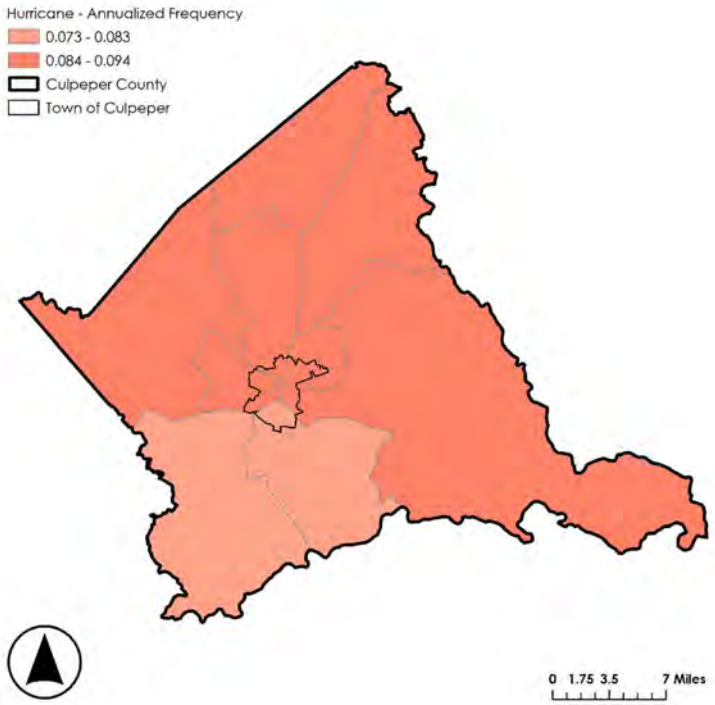


Figure 5.8.2.b - Culpeper County – Hurricane Vulnerability – Expected Annual Loss – Agriculture Value

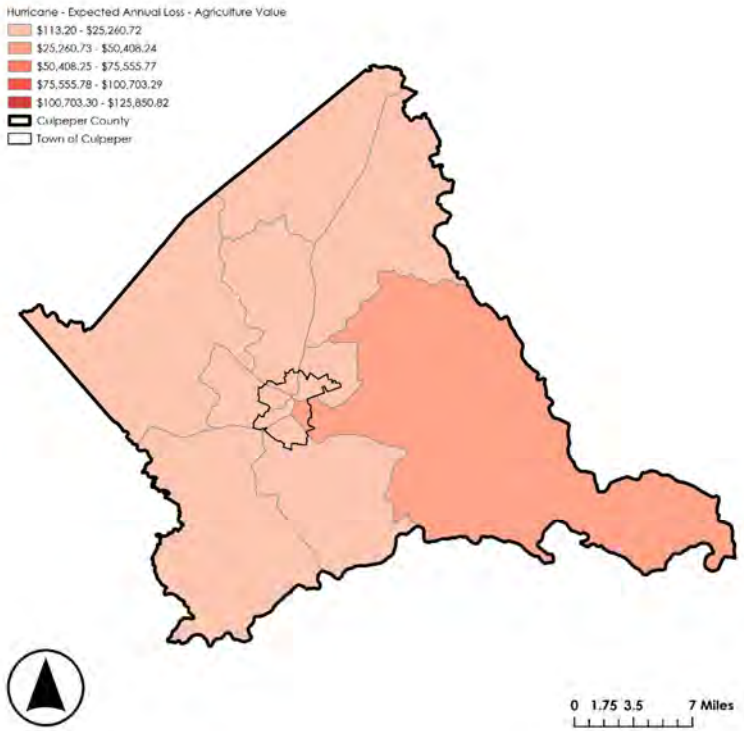


Figure 5.8.2.c - Culpeper County – Hurricane Vulnerability – Expected Annual Loss – Population Equivalence

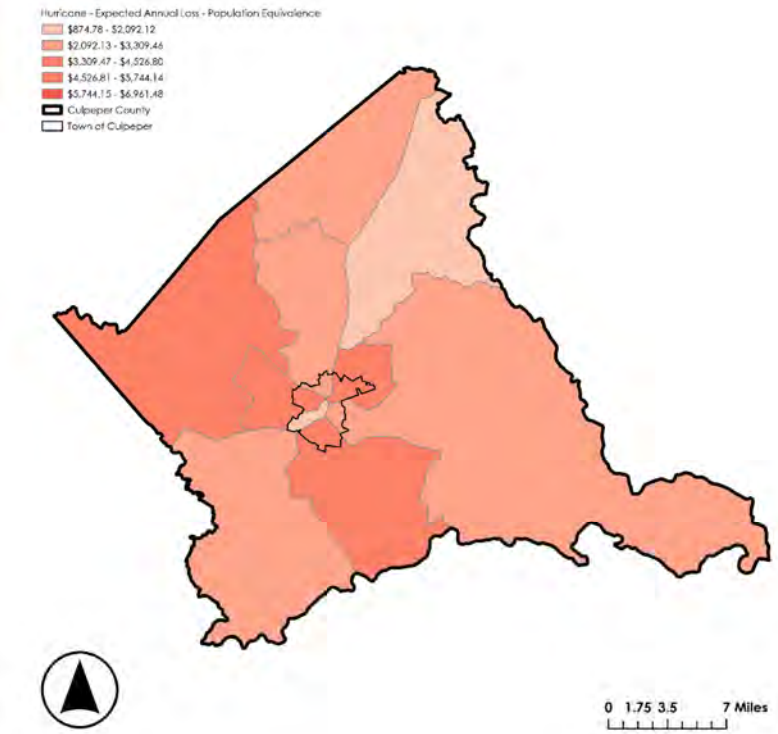


Figure 5.8.2.d - Culpeper County – Hurricane Vulnerability – Expected Annual Loss – Building Value

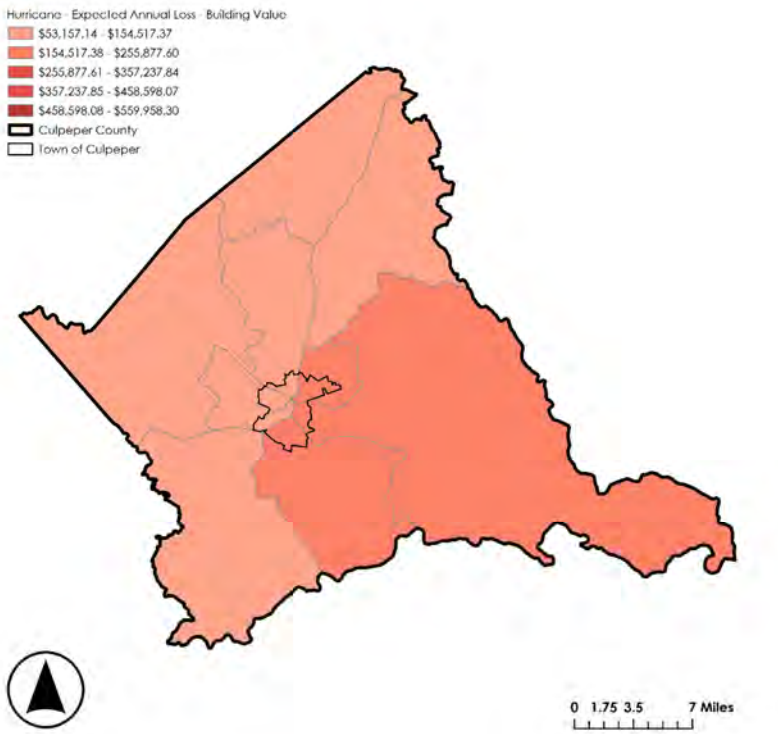


Figure 5.8.2.e - Culpeper County – Hurricane Vulnerability – Expected Annual Loss - Total

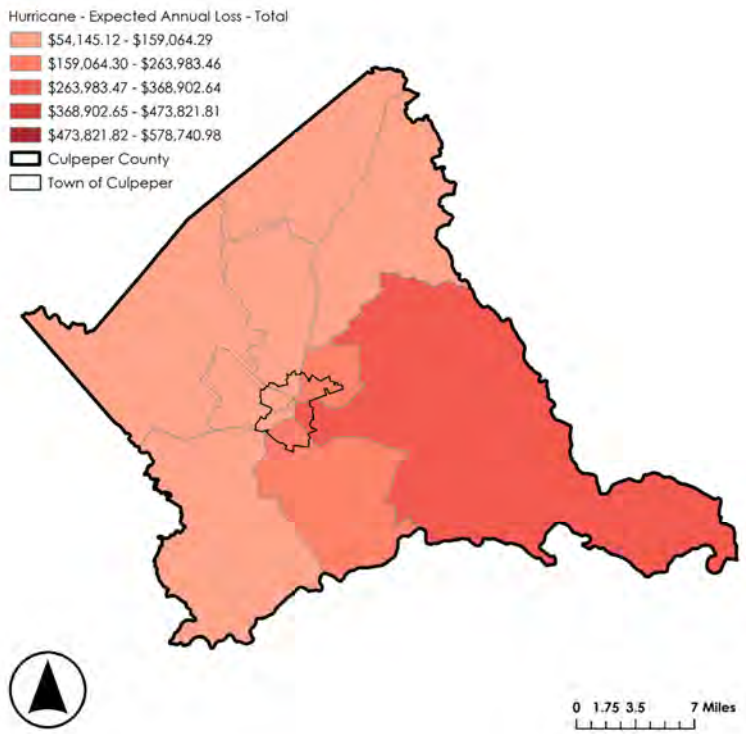


Figure 5.8.2.f - Culpeper County – Hurricane Vulnerability – Hazard Type Risk Index Score

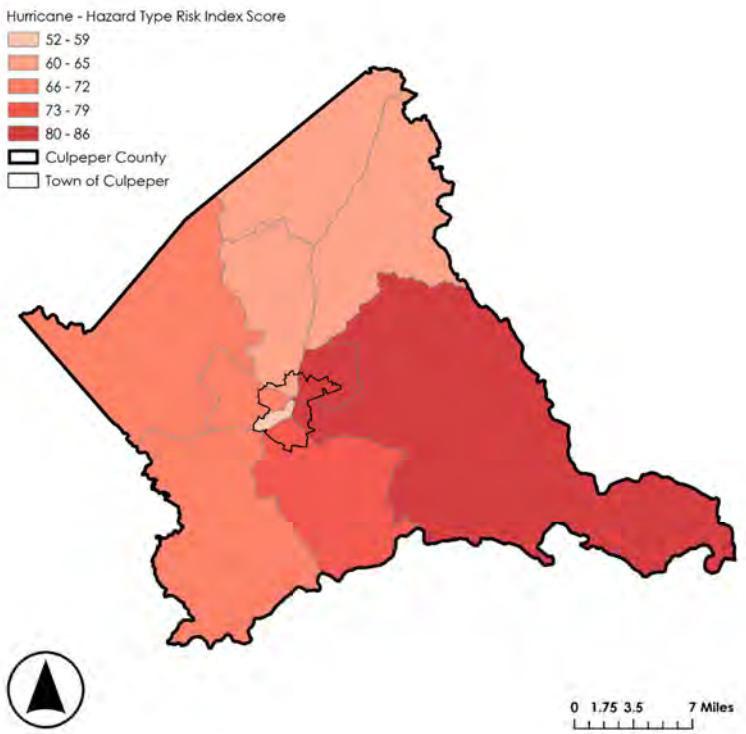


Figure 5.8.3.a - Fauquier County – Hurricane Vulnerability - Annualized Frequency

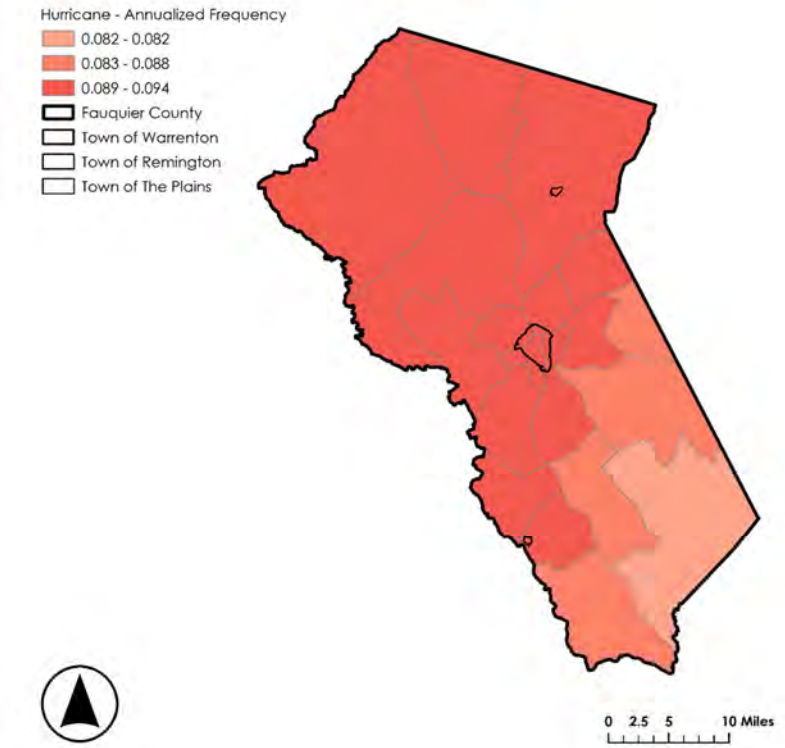


Figure 5.8.3.b - Fauquier County – Hurricane Vulnerability – Expected Annual Loss – Agriculture Value

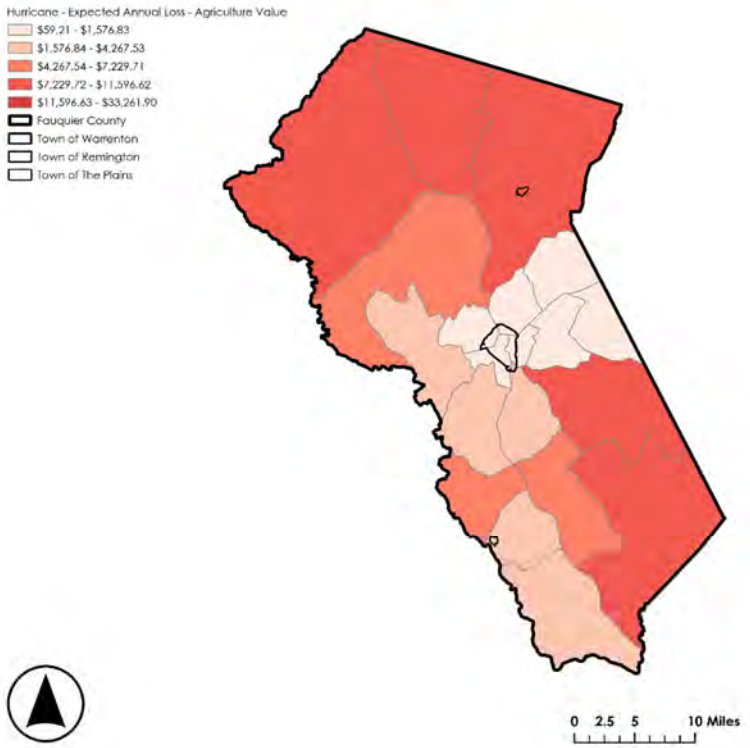


Figure 5.8.3.c - Fauquier County – Hurricane Vulnerability – Expected Annual Loss – Population Equivalence

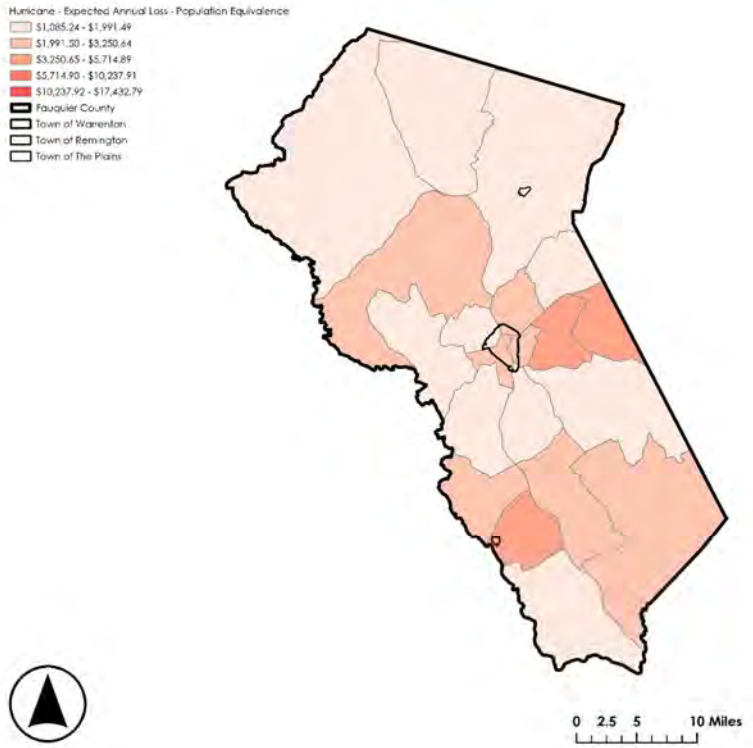


Figure 5.8.3.d - Fauquier County – Hurricane Vulnerability – Expected Annual Loss – Building Value

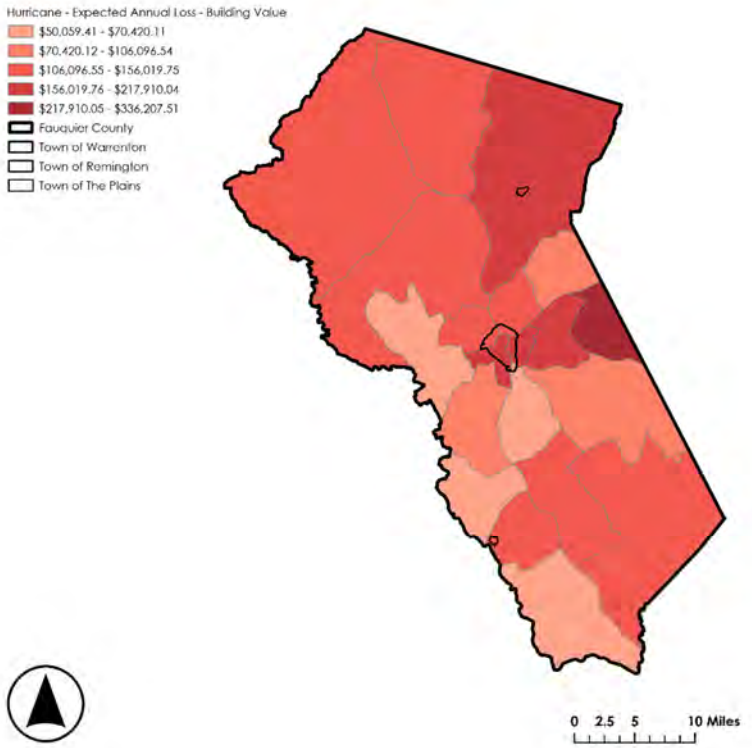


Figure 5.8.3.e - Fauquier County – Hurricane Vulnerability – Expected Annual Loss - Total

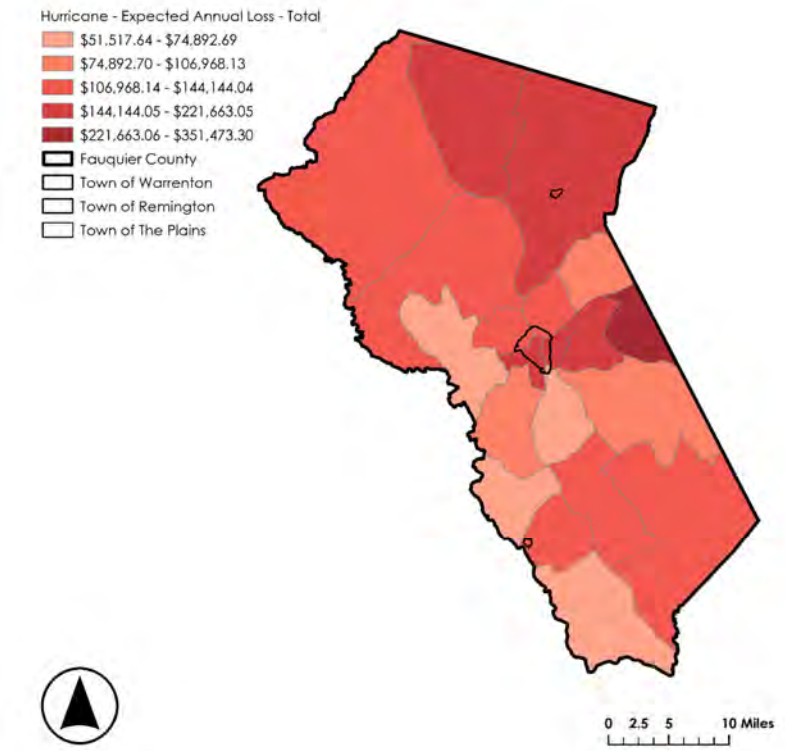


Figure 5.8.3.f - Fauquier County – Hurricane Vulnerability – Hazard Type Risk Index Score

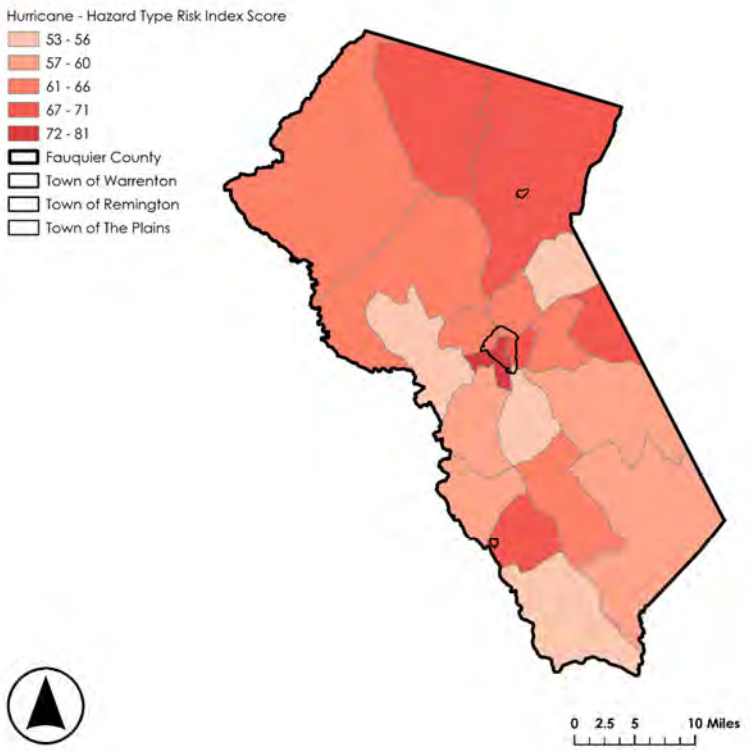


Figure 5.8.4.a - Madison County – Hurricane Vulnerability - Annualized Frequency

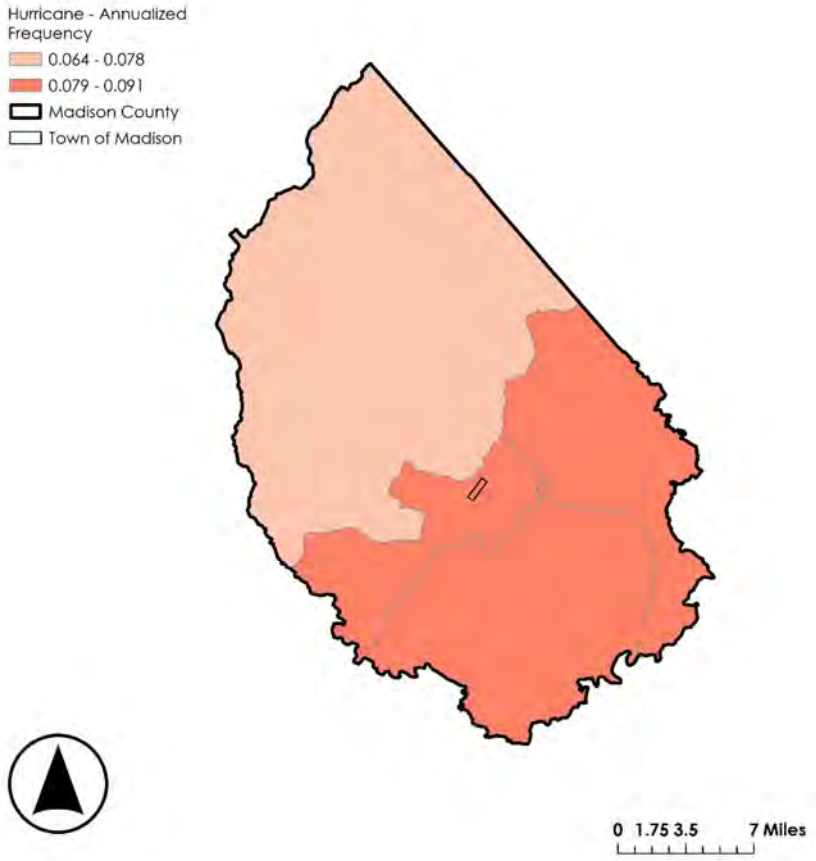


Figure 5.8.4.b - Madison County – Hurricane Vulnerability – Expected Annual Loss – Agriculture Value

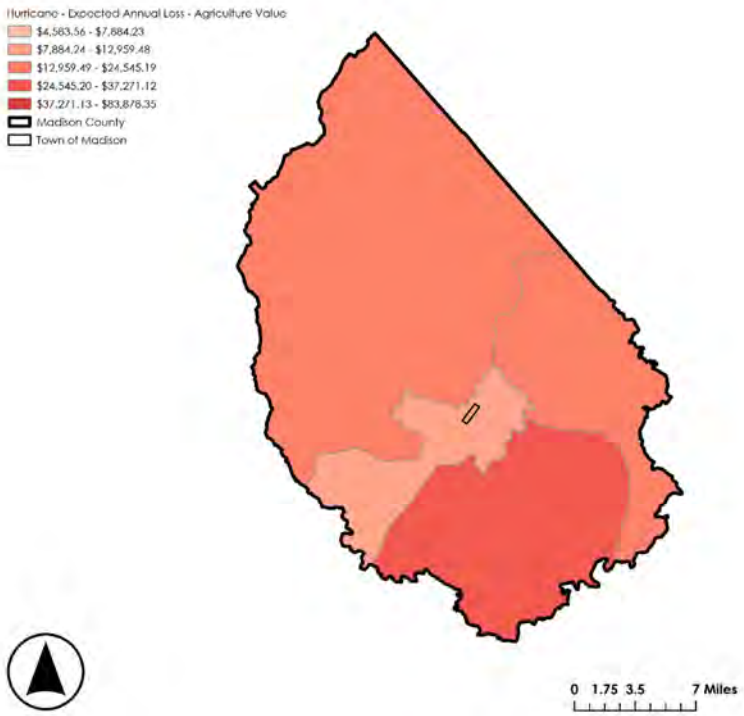


Figure 5.8.4.c - Madison County – Hurricane Vulnerability – Expected Annual Loss – Population Equivalence

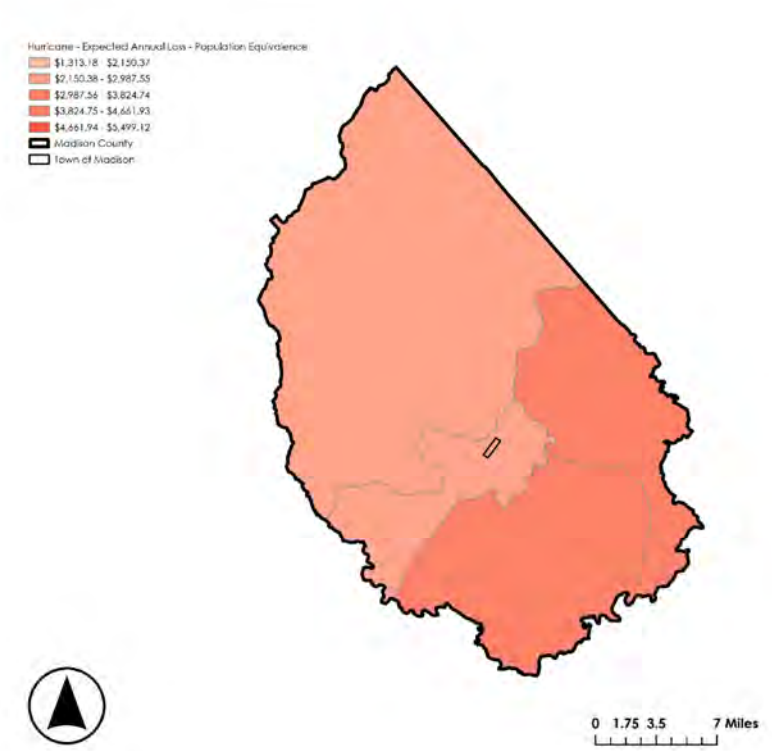


Figure 5.8.4.d - Madison County – Hurricane Vulnerability – Expected Annual Loss – Building Value

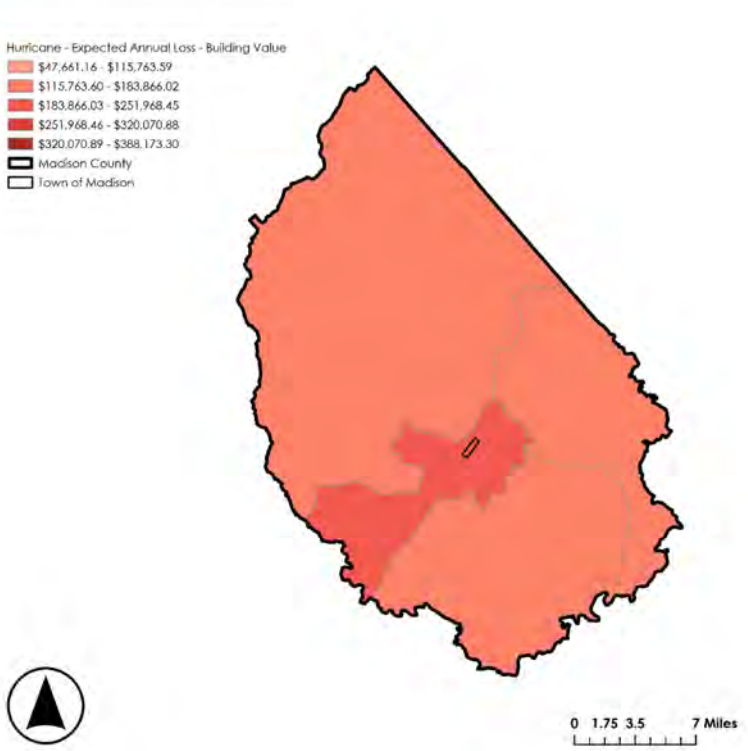


Figure 5.8.4.e - Madison County – Hurricane Vulnerability – Expected Annual Loss - Total

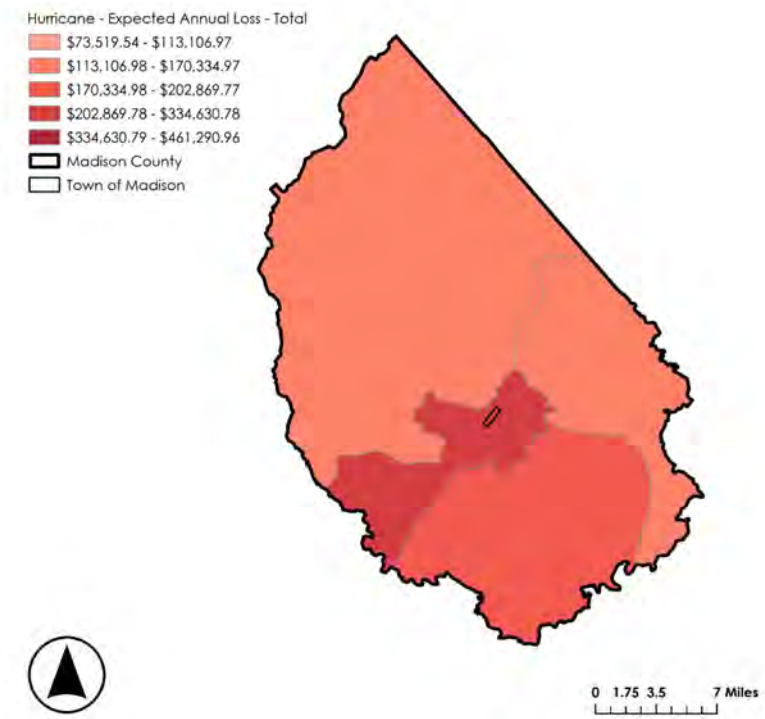


Figure 587.4.f - Madison County – Hurricane Vulnerability – Hazard Type Risk Index Score

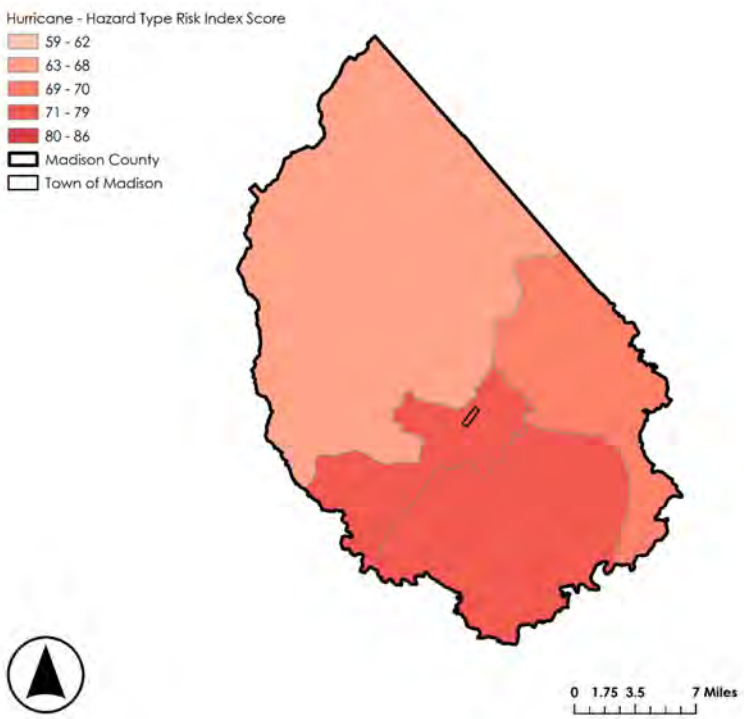


Figure 5.8.5.a - Orange County – Hurricane Vulnerability - Annualized Frequency

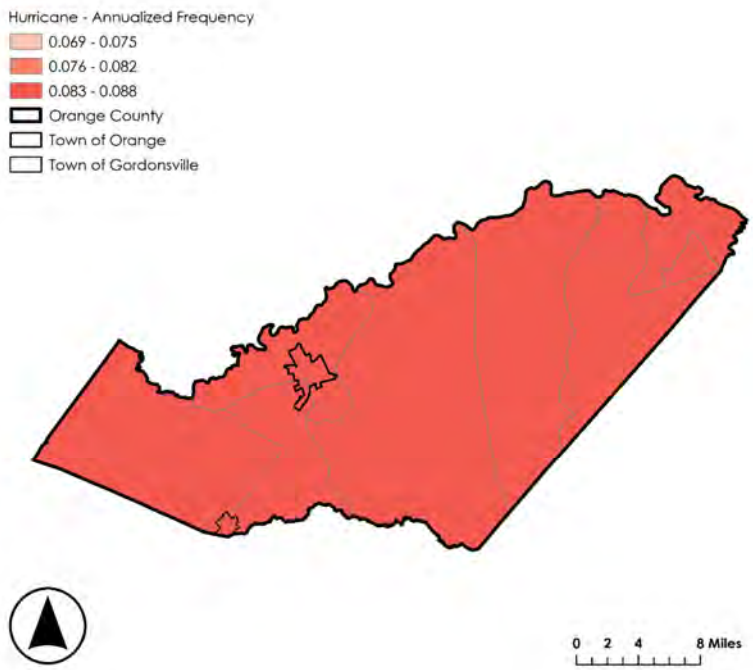


Figure 5.8.5.b - Orange County – Hurricane Vulnerability – Expected Annual Loss – Agriculture Value

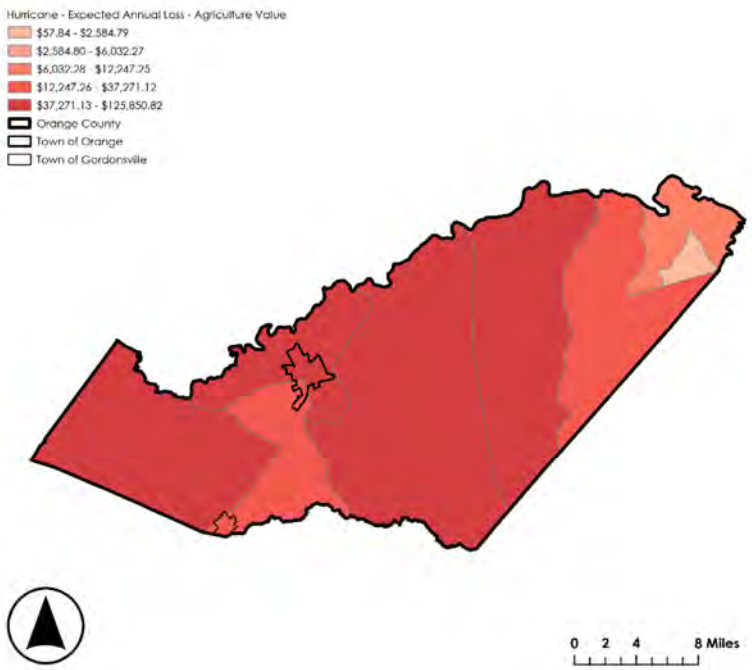


Figure 5.8.5.c - Orange County – Hurricane Vulnerability – Expected Annual Loss – Population Equivalence

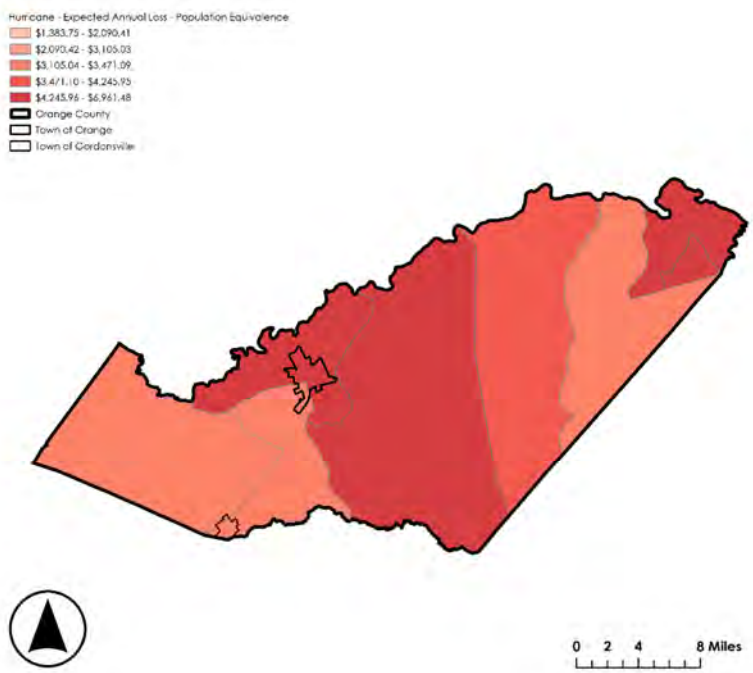


Figure 5.8.5.d - Orange County – Hurricane Vulnerability – Expected Annual Loss – Building Value

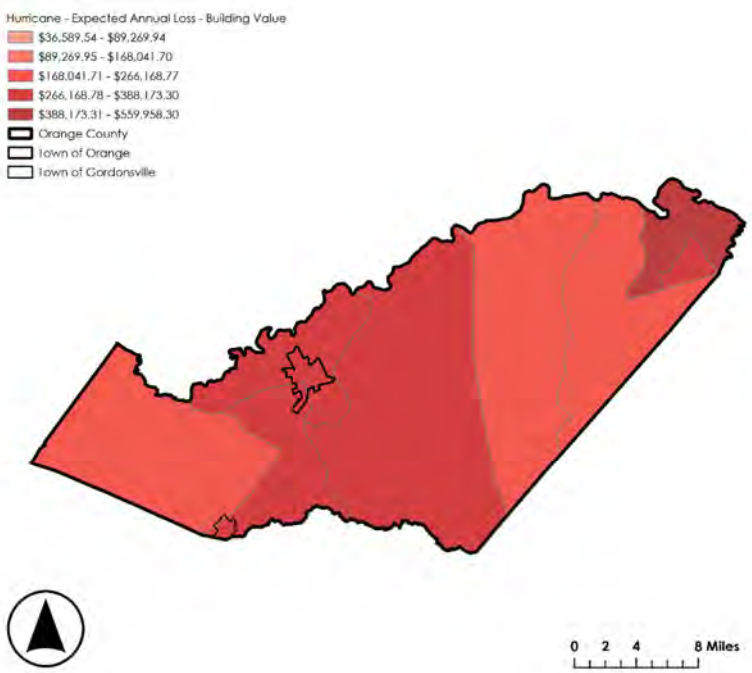


Figure 5.8.5.e - Orange County – Hurricane Vulnerability – Expected Annual Loss - Total

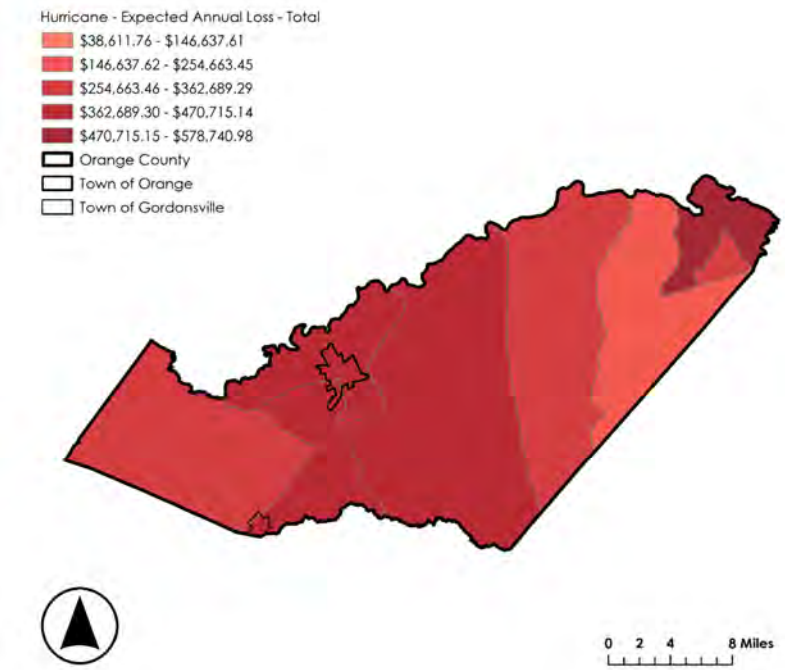


Figure 5.8.5.f - Orange County – Hurricane Vulnerability – Hazard Type Risk Index Score

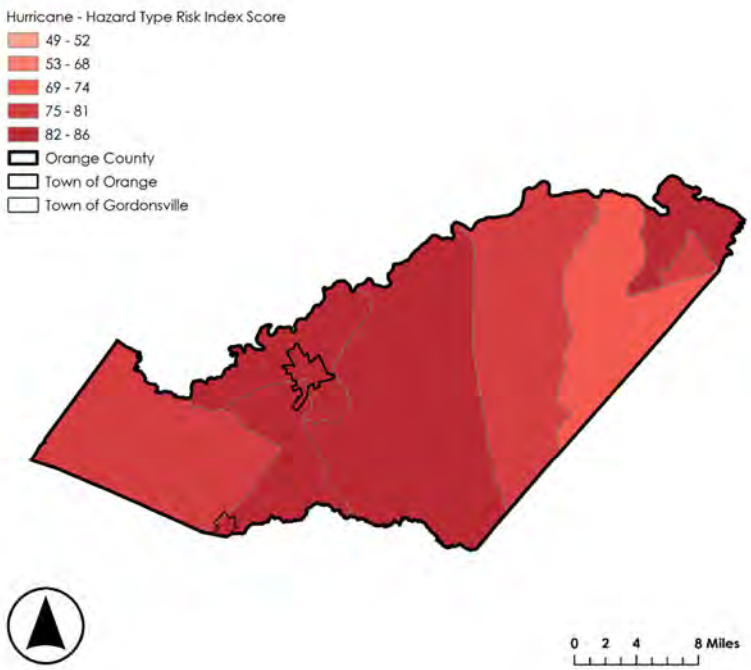


Figure 5.8.6.a - Rappahannock County – Hurricane Vulnerability - Annualized Frequency

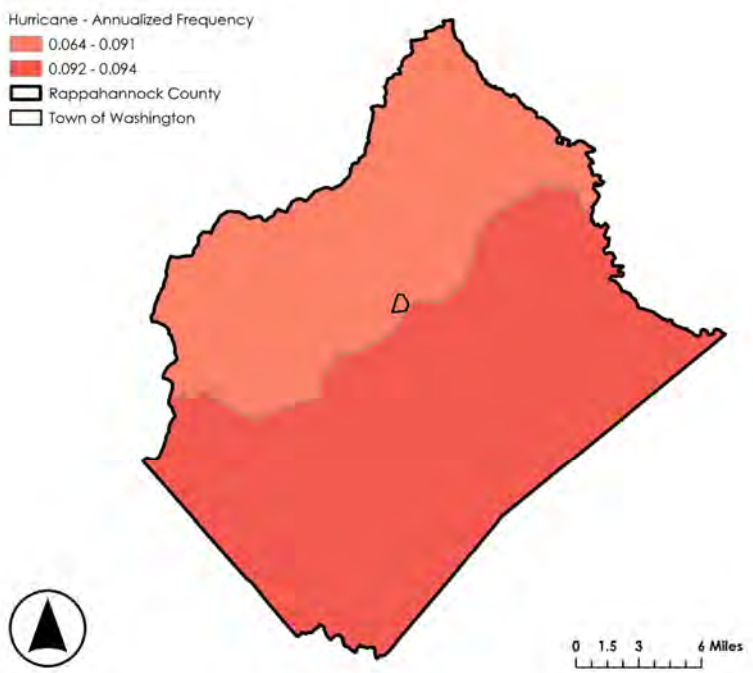


Figure 5.8.6.b - Rappahannock County – Hurricane Vulnerability – Expected Annual Loss – Agriculture Value

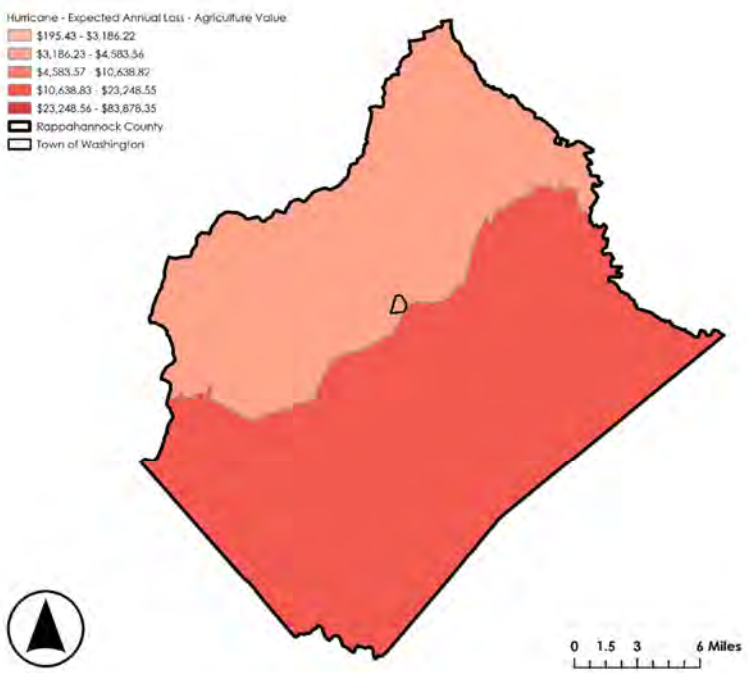


Figure 5.8.6.c - Rappahannock County – Hurricane Vulnerability – Expected Annual Loss – Population Equivalence

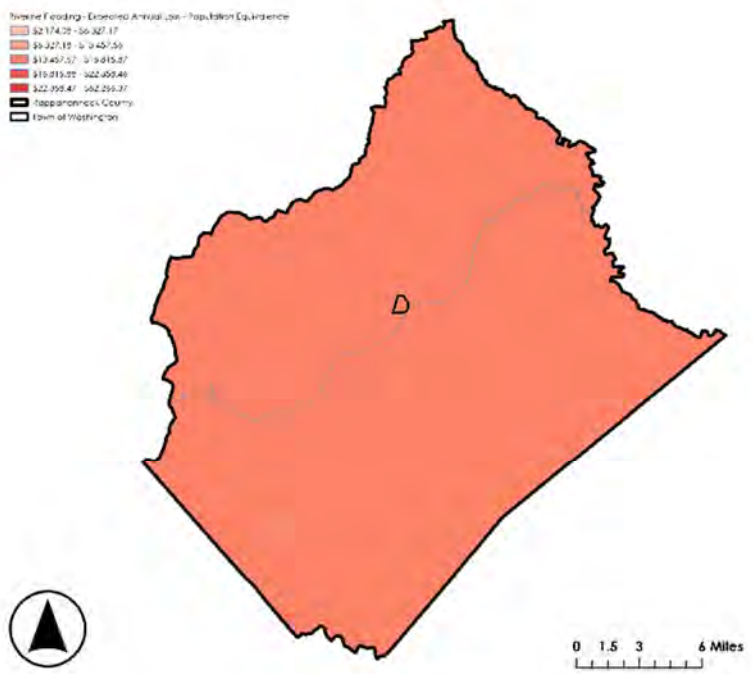


Figure 5.8.6.d - Rappahannock County – Hurricane Vulnerability – Expected Annual Loss – Building Value

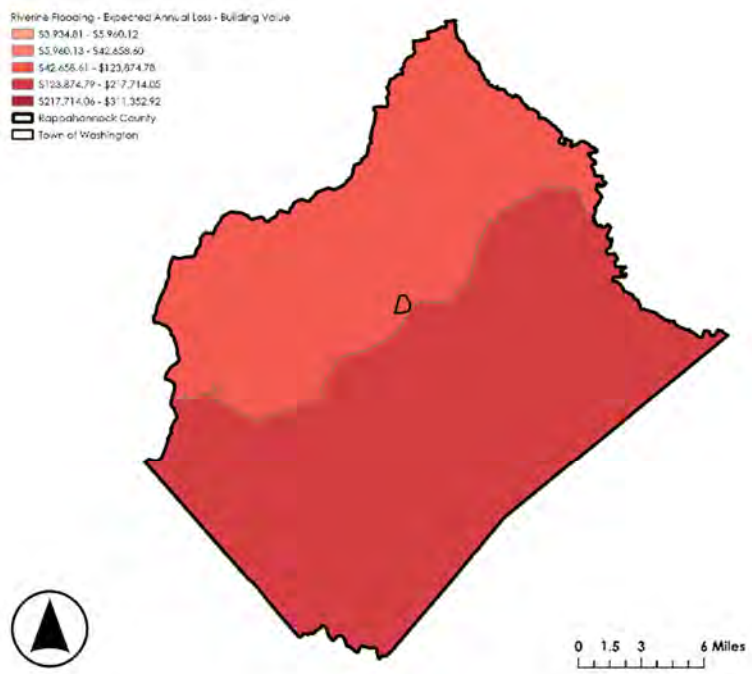


Figure 5.8.6.e - Rappahannock County – Hurricane Vulnerability – Expected Annual Loss - Total

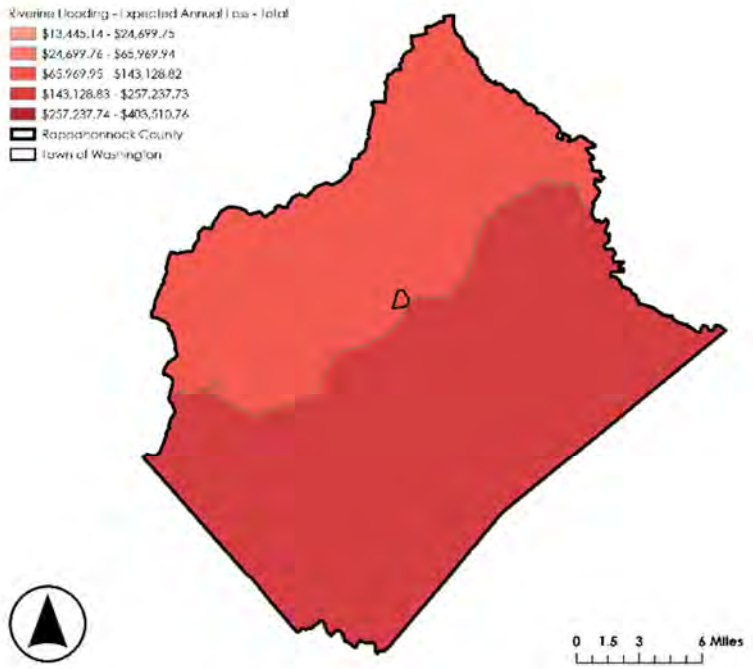
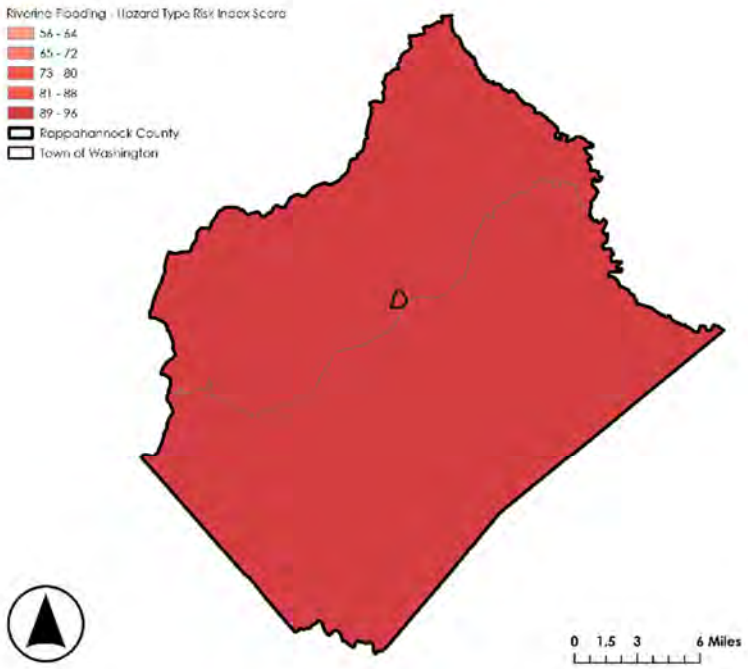


Figure 5.8.6.f - Rappahannock County – Hurricane Vulnerability – Hazard Type Risk Index Score



5.1.8 – TORNADO VULNERABILITY ASSESSMENT

Tornados are a region-wide threat, with no individual locality at greater risk than others. While tornado reports for the Rappahannock-Rapidan Region have been relatively few and minor, the risk of future tornadoes is present, and so is their potential to cause significant damage.

While historical evidence shows that most of the state is vulnerable to effects of thunderstorms, it is significant to note that sometimes these events have resulted in tornado activities. Tornadoes may also occur during a tropical storm or hurricane as discussed in Chapter 4.1.9 Hurricanes and Tropical Storms.

The severe weather scenarios evaluated by this plan – hurricanes, tornadoes, and winter storms - all share common impacts, including damage to infrastructure, particularly damage to overhead power and communication lines, road closures, and interruption in business and school activities. Utility outages can impact anything relying on electricity and include secondary impacts such as interruption to water and sewage services, heat and refrigeration, fuel supplies, computers, and cell phones. If interruption to business occurs for an extended period, economic impacts can be severe. Also of concern would be the impacts on populations with special needs such as the elderly and those requiring the use of electronic medical equipment. Depending on the nature of a given storm, all areas within the region are equally at risk; however, those areas relying on above ground utilities could suffer the greatest damage. Based on information obtained from the FEMA NRI Data, the table and maps below show losses and overall risk by county.

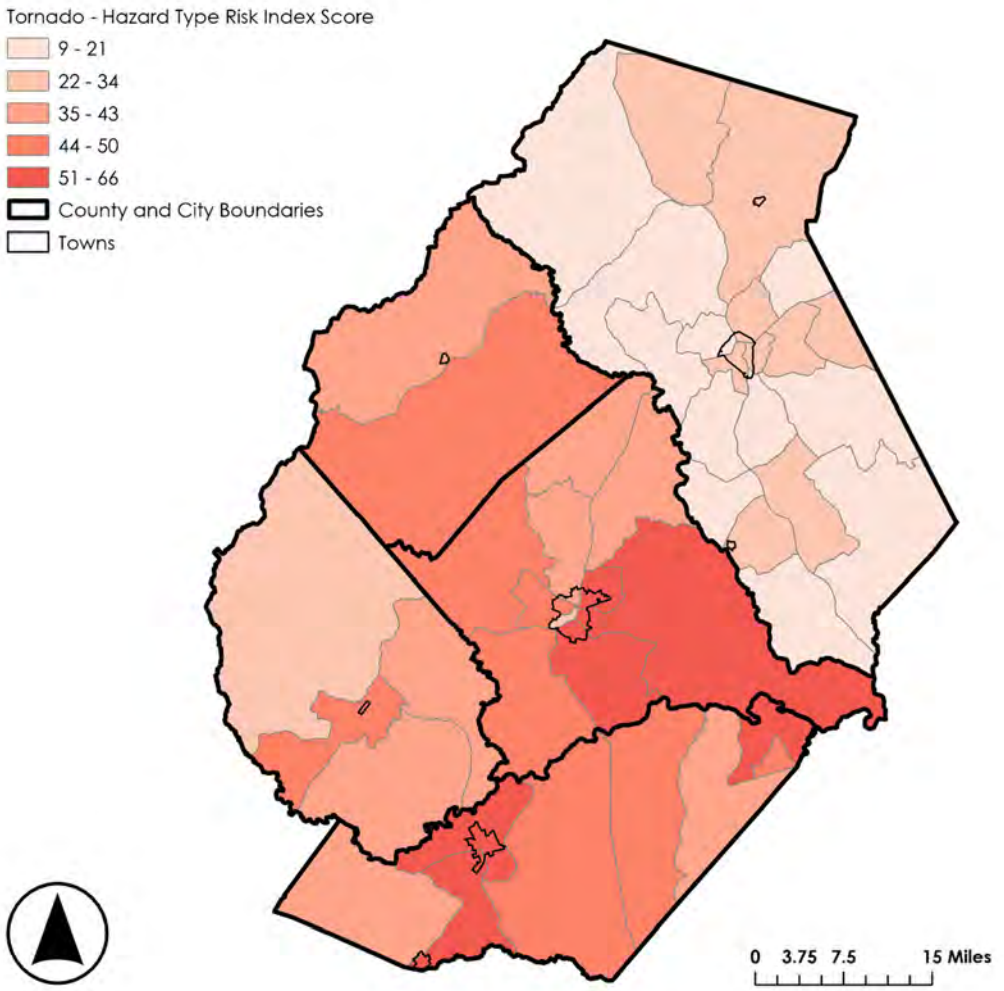
According to Figure 5.9.1, there is relatively moderate risk in the Town of Orange which could affect the fire station, nursing homes, locality structures including town offices and schools as well as places of worship. Town of Gordonsville is also susceptible at a moderate risk including the police station, schools, library, places of worship and power stations. The eastern portion of Culpeper County potentially affecting the areas places of worship, a regional college, wastewater treatment plants, and schools is also at a moderate risk compared to relatively low risk in the remaining areas of the region. The buildings and populations in these areas are more susceptible to damage caused by Tornados. All critical facilities are located in the Appendix.

Table 5.9: Tornadoes Expected Annual Loss (in Dollars) by Locality

County	Culpeper	Fauquier	Madison	Orange	Rappahannock	Region
Buildings	$355,041	$186,566	$79,376	$320,609	$45,100	$986,692.00
Population Eq.	$147,367	$35,160	$37,586	$111,470	$30,972	$362,555.00
Agriculture	$1,137	$1,512	$691	$2,532	$275	$6,147.00
Total Annual Loss	$503,545	$223,238	$117,653	$434,611	$76,347	$1,355,394.00

(FEMA National Risk Index 2020)

Figure 5.9.1: Tornado Overall Risk Score RRRC Region



Source: FEMA National Risk Index, 2020

Figure 5.9.2.a - Culpeper County – Tornado Vulnerability - Annualized Frequency

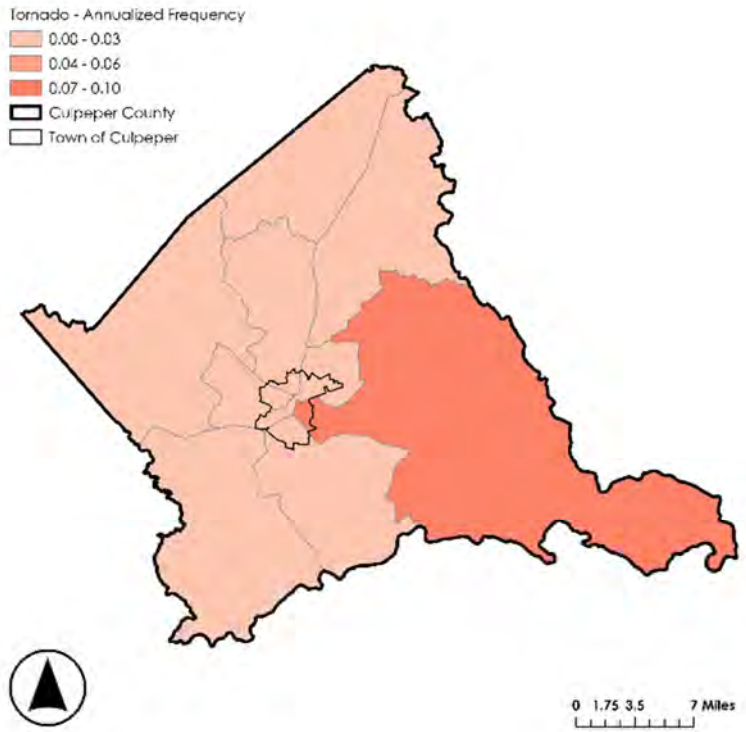


Figure 5.9.2.b - Culpeper County – Tornado Vulnerability – Expected Annual Loss – Agriculture Value

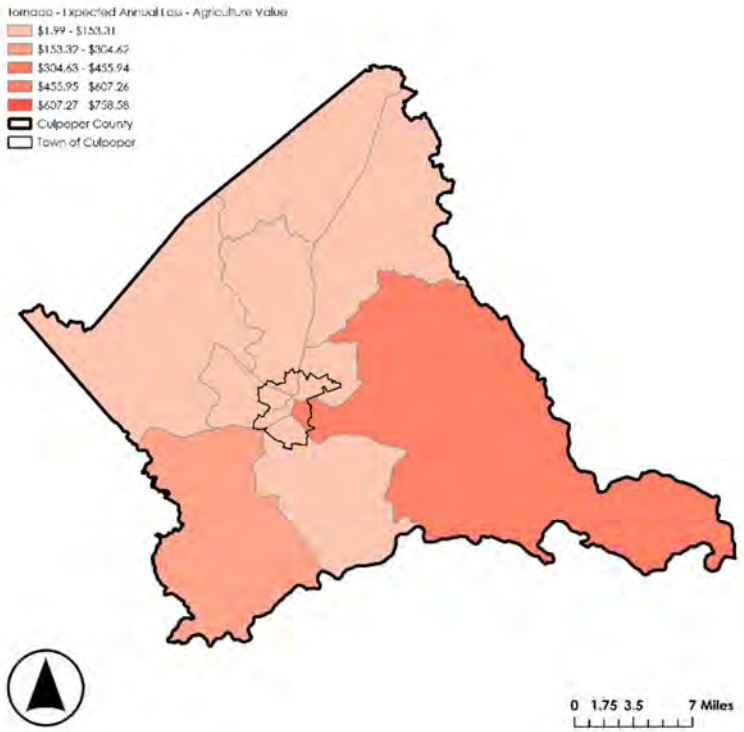


Figure 5.9.2.c - Culpeper County – Tornado Vulnerability – Expected Annual Loss – Population Equivalence

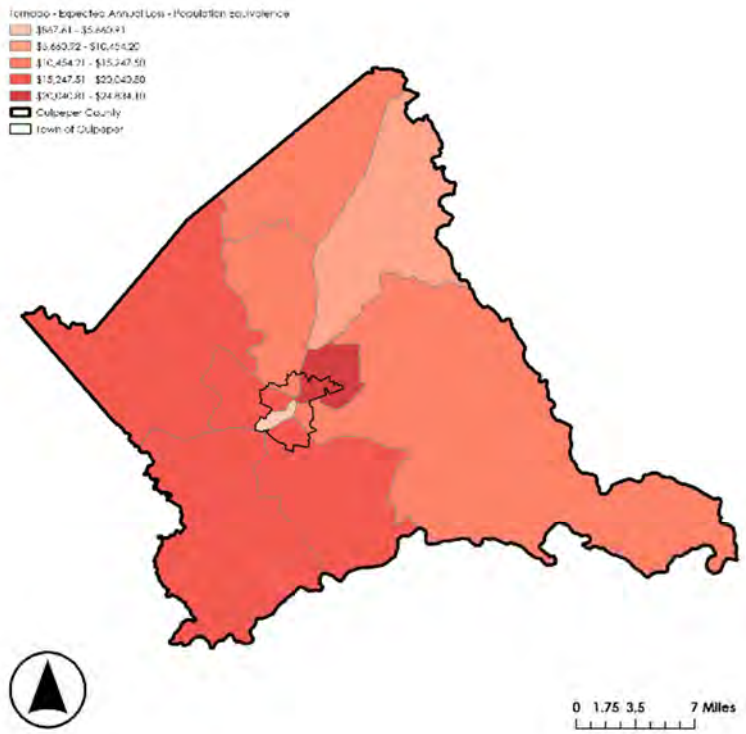


Figure 5.9.2.d - Culpeper County – Tornado Vulnerability – Expected Annual Loss – Building Value

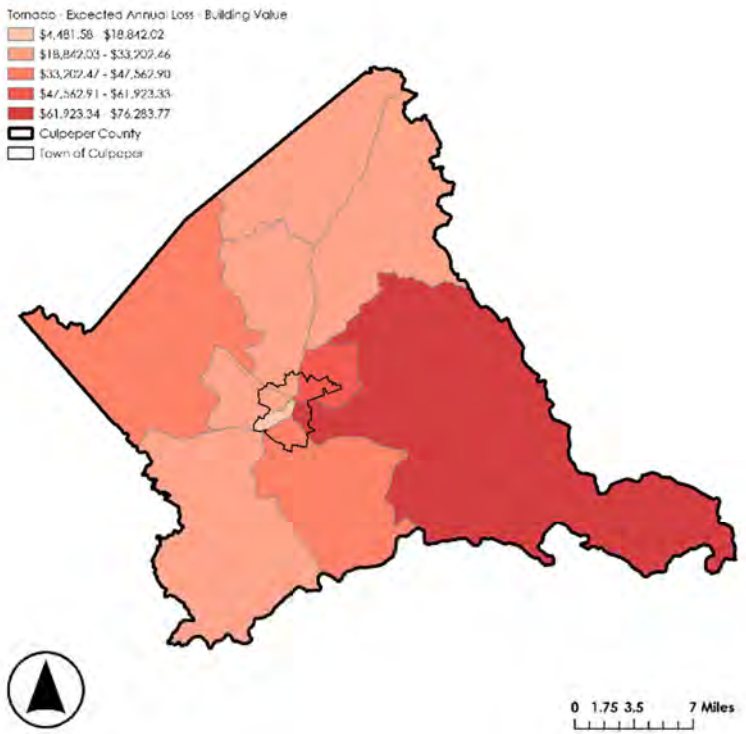


Figure 5.9.2.e - Culpeper County – Tornado Vulnerability – Expected Annual Loss – Total

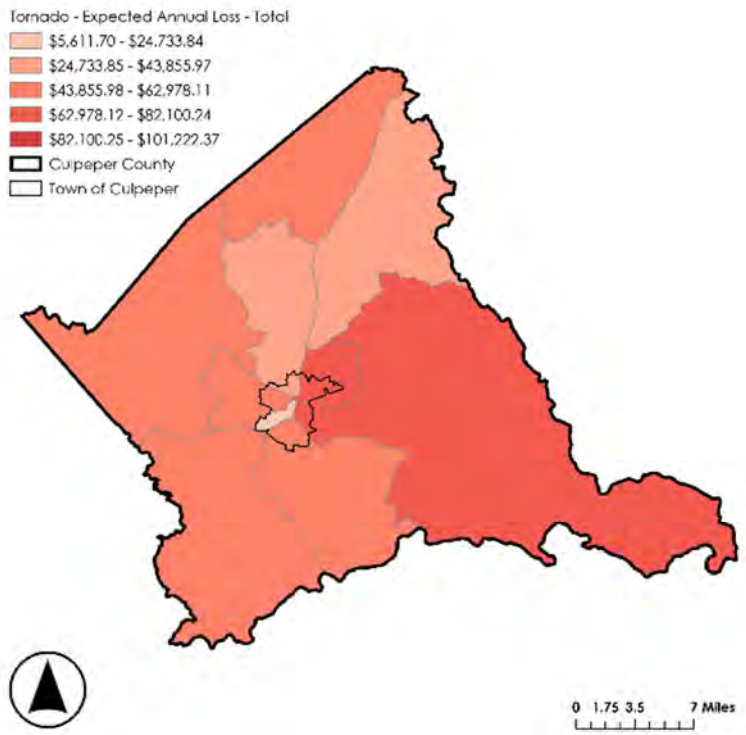


Figure 5.9.2.f - Culpeper County – Tornado Vulnerability – Hazard Type Risk Index Score

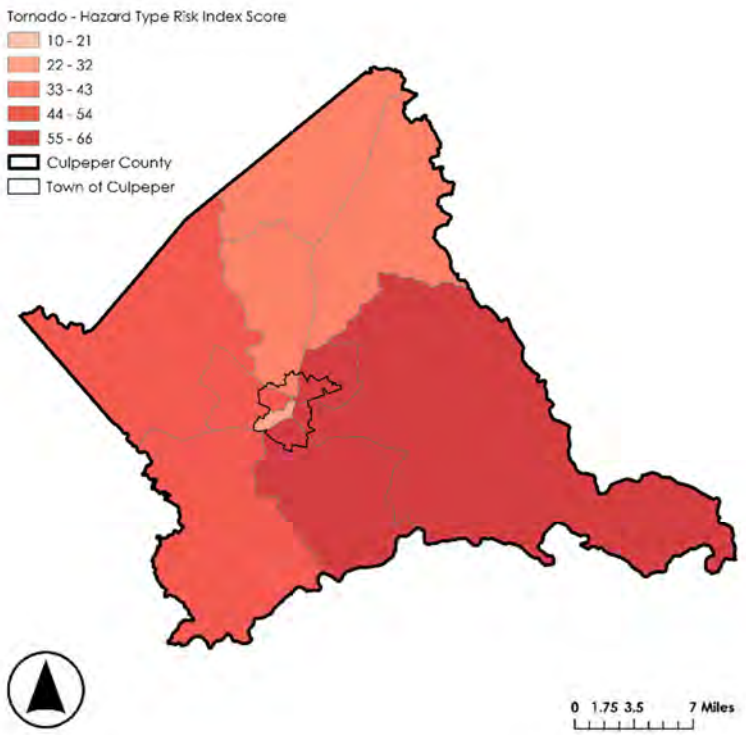


Figure 5.9.3.a - Fauquier County – Tornado Vulnerability - Annualized Frequency

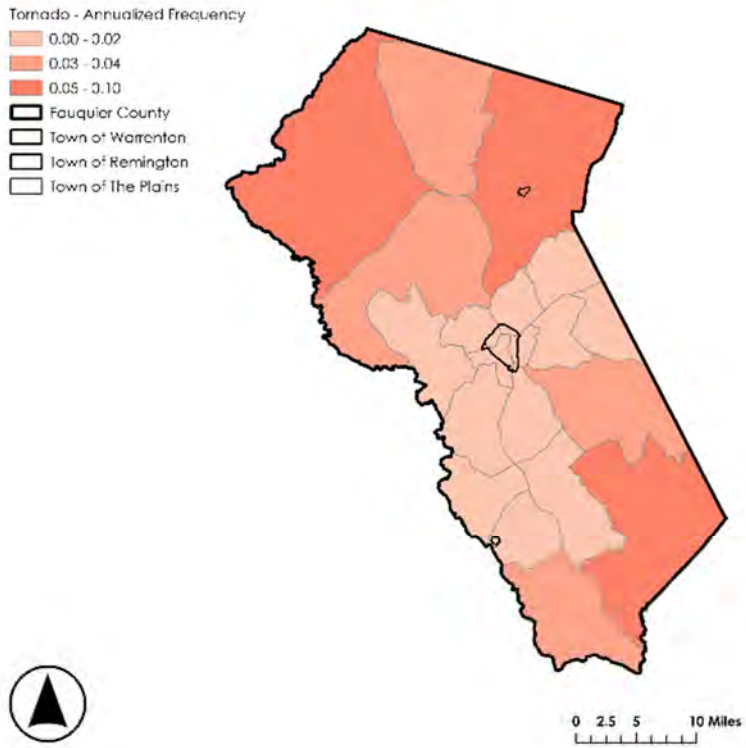


Figure 5.9.3.b - Fauquier County – Tornado Vulnerability – Expected Annual Loss – Agriculture Value

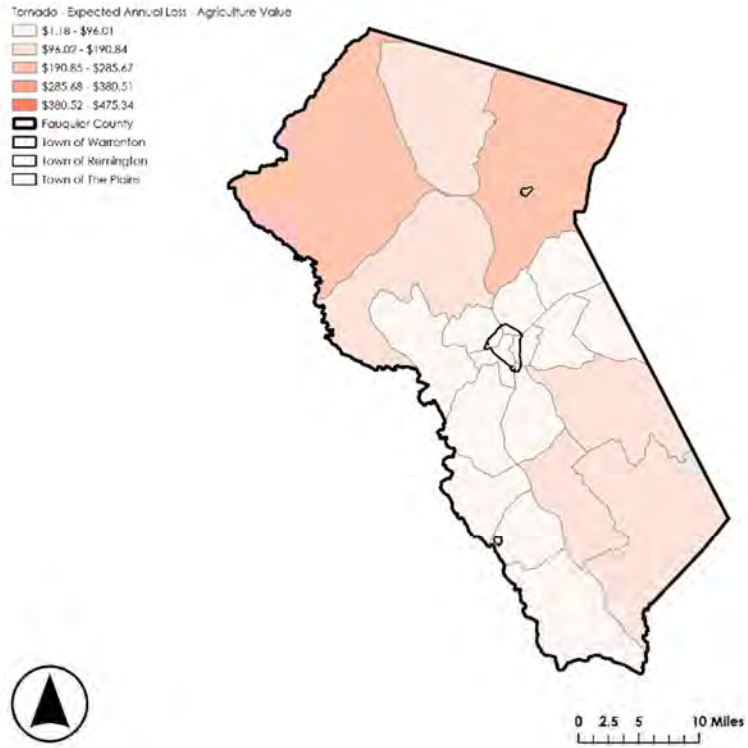


Figure 5.9.3.c - Fauquier County – Tornado Vulnerability – Expected Annual Loss – Population Equivalence

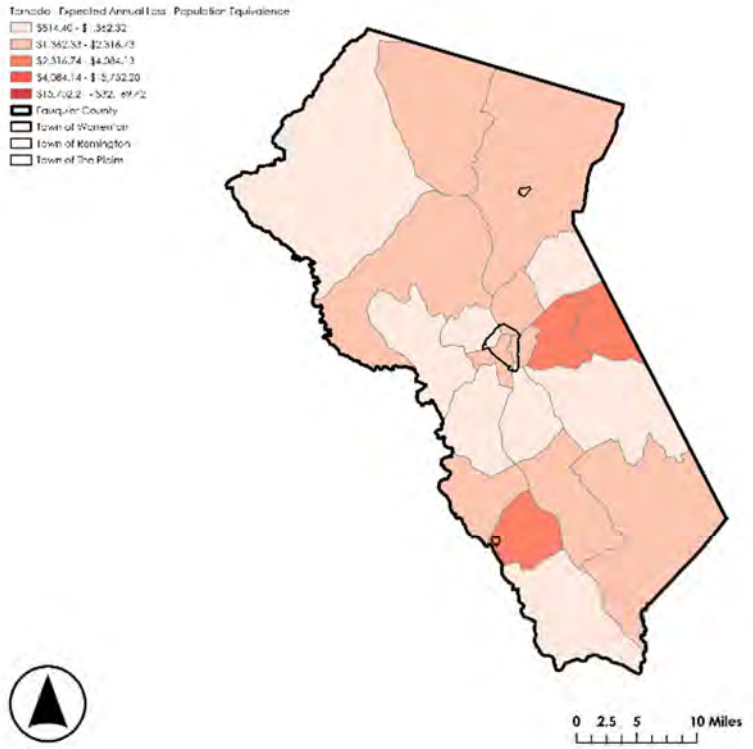


Figure 5.9.3.d - Fauquier County – Tornado Vulnerability – Expected Annual Loss – Building Value

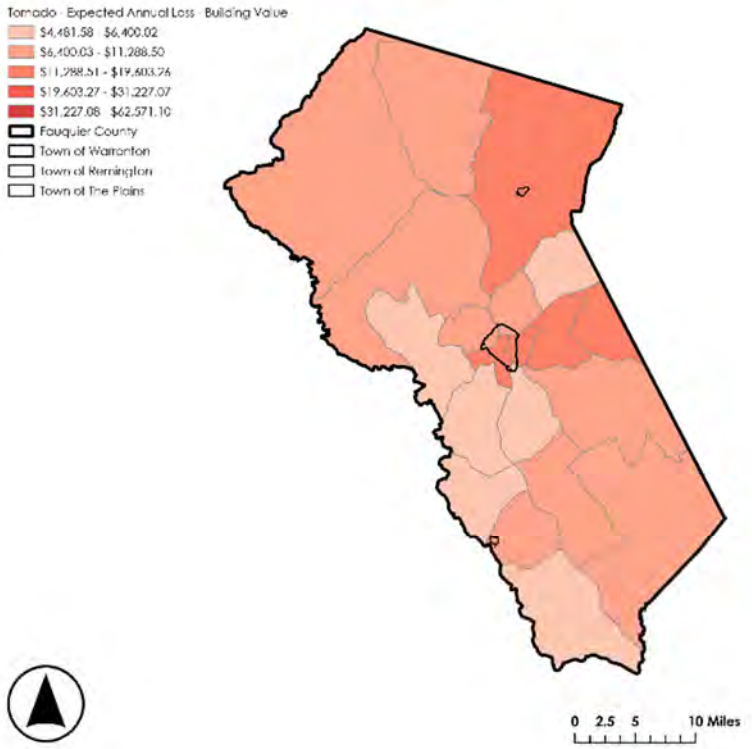


Figure 5.9.3.e - Fauquier County – Tornado Vulnerability – Expected Annual Loss – Total

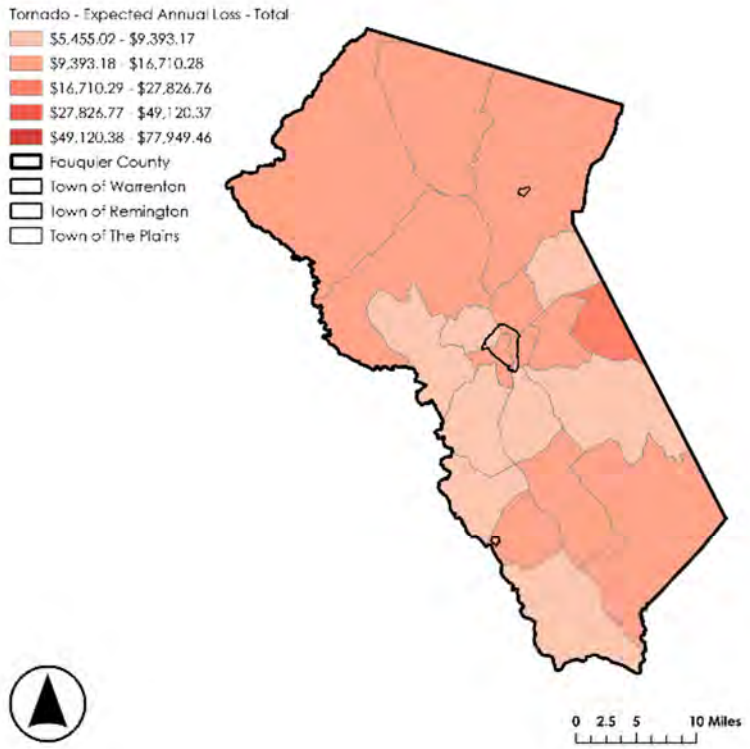


Figure 5.9.3.f - Fauquier County – Tornado Vulnerability – Hazard Type Risk Index Score

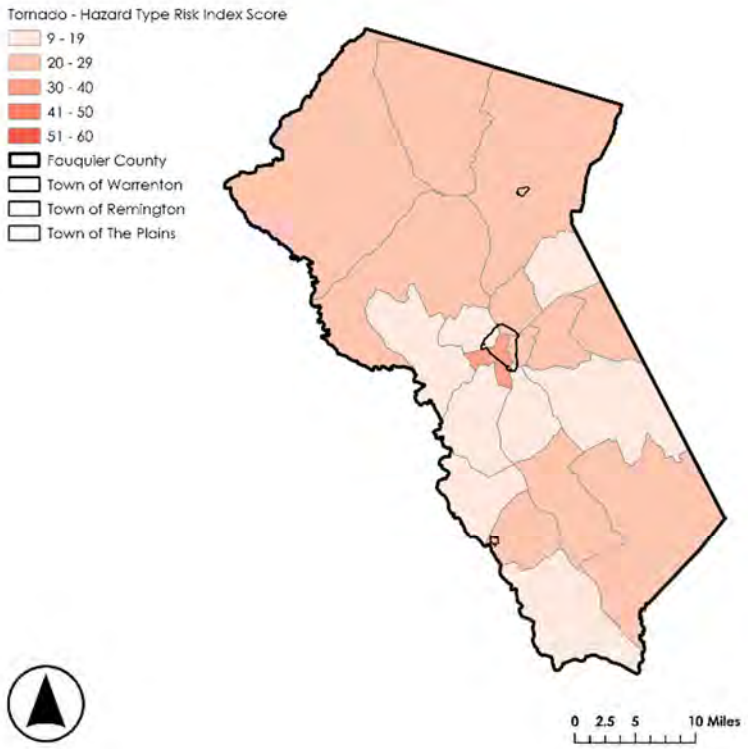


Figure 5.9.4.a - Madison County – Tornado Vulnerability - Annualized Frequency

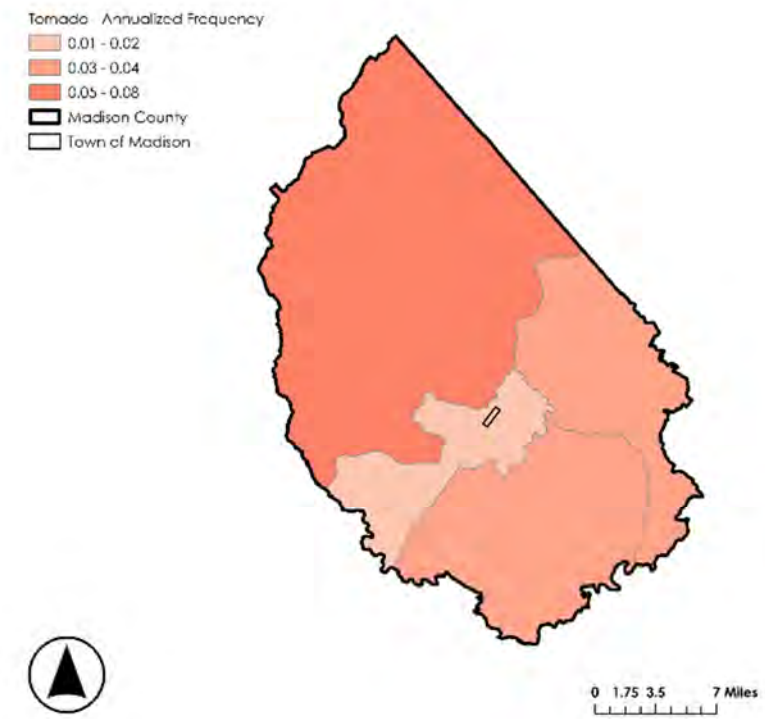


Figure 5.9.4.b - Madison County – Tornado Vulnerability – Expected Annual Loss – Agriculture Value

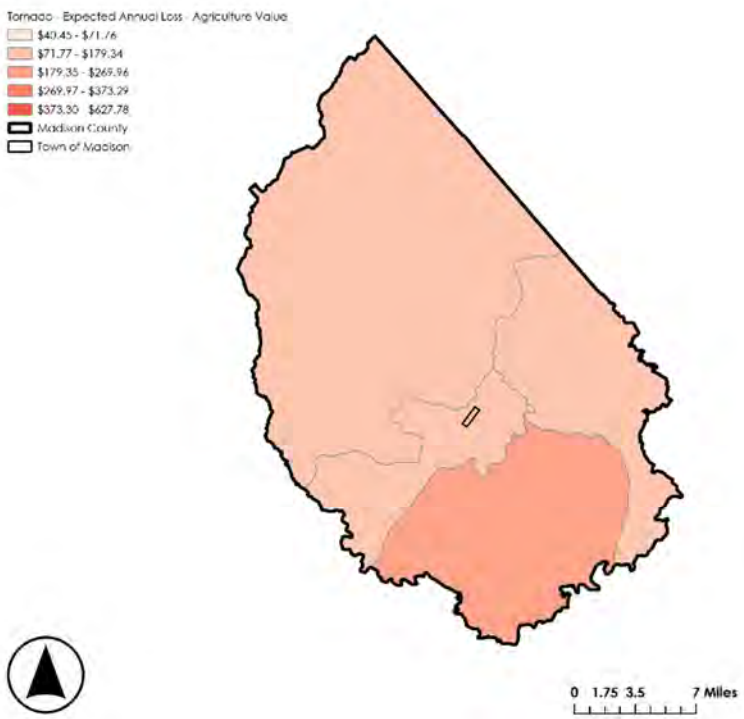


Figure 5.9.4.c - Madison County – Tornado Vulnerability – Expected Annual Loss – Population Equivalence

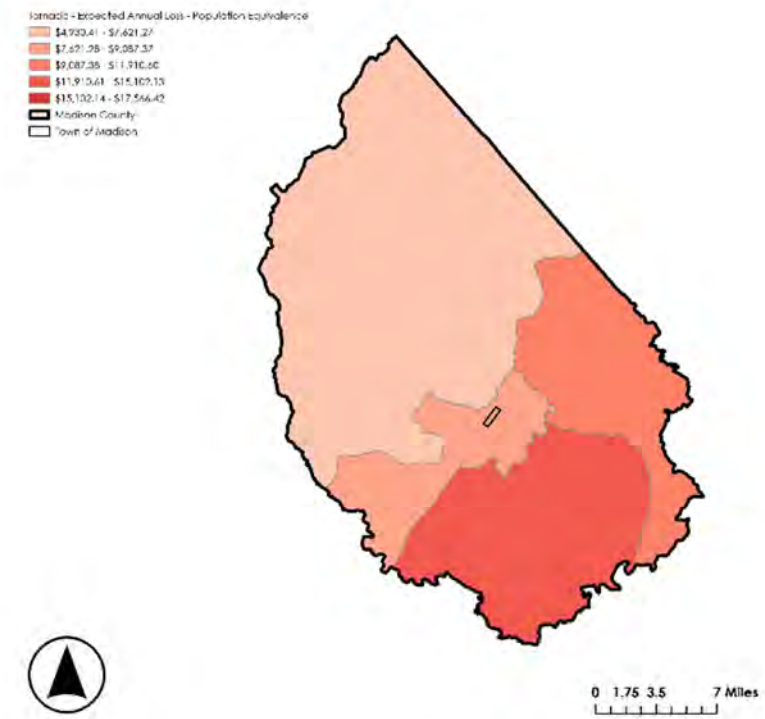


Figure 5.9.4.d - Madison County – Tornado Vulnerability – Expected Annual Loss – Building Value

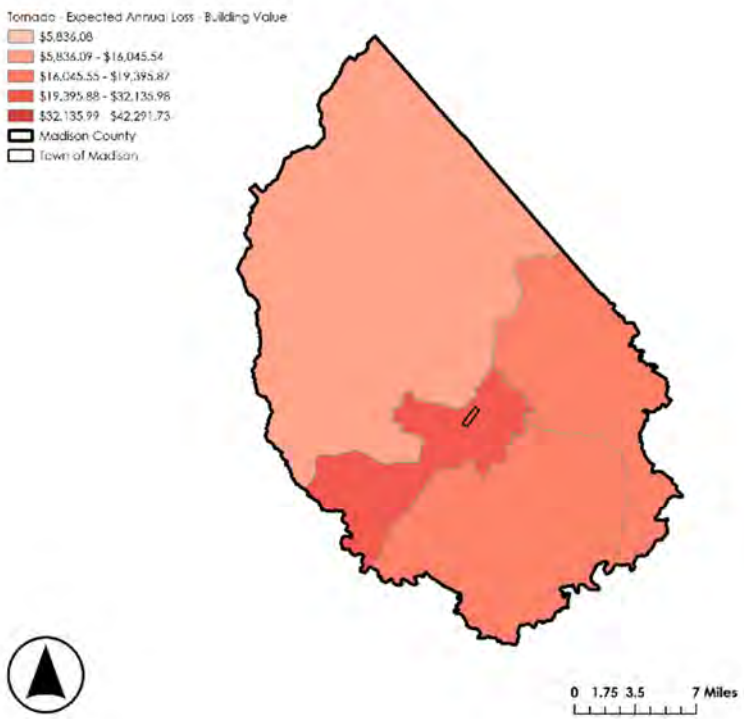


Figure 5.9.4.e - Madison County – Tornado Vulnerability – Expected Annual Loss – Total

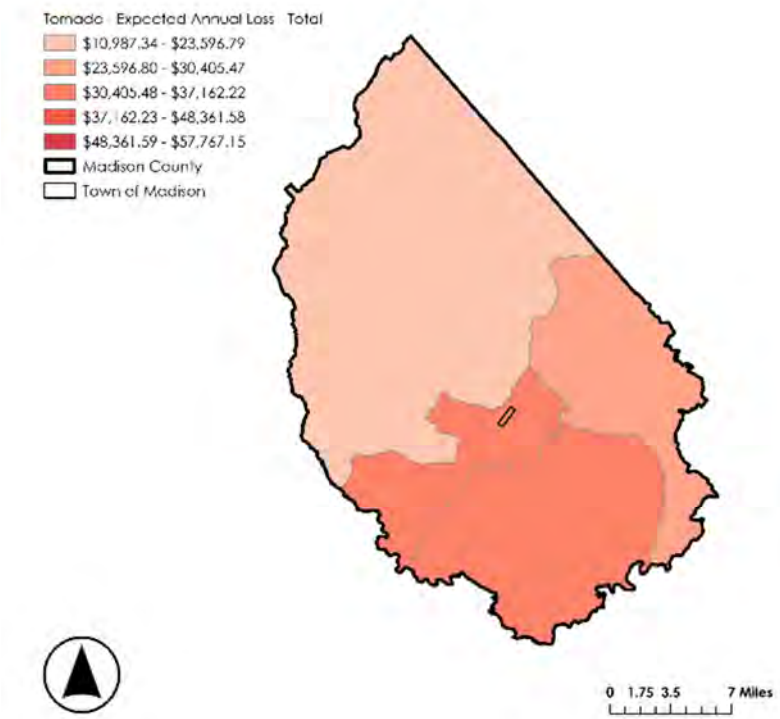


Figure 5.9.4.f - Madison County – Tornado Vulnerability – Hazard Type Risk Index Score

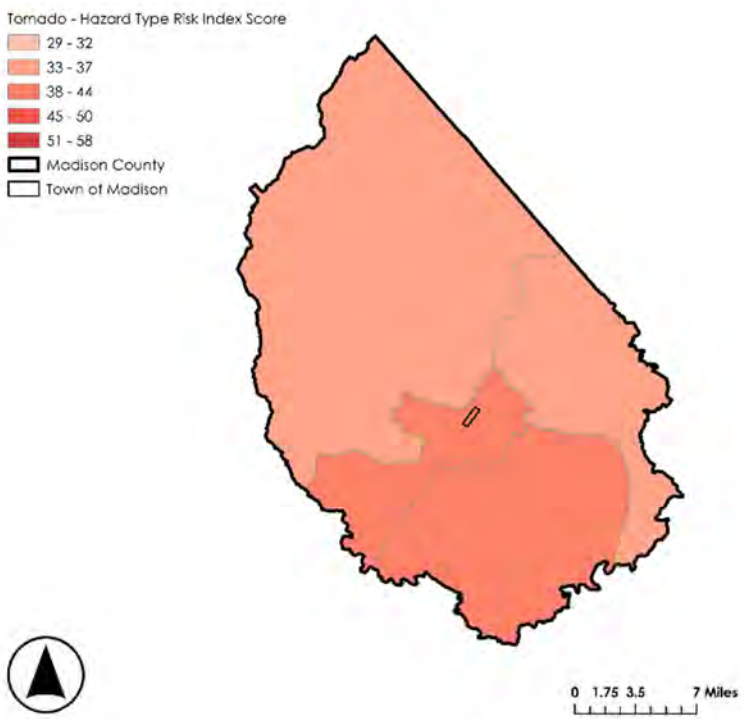


Figure 5.9.5.a - Orange County – Tornado Vulnerability - Annualized Frequency

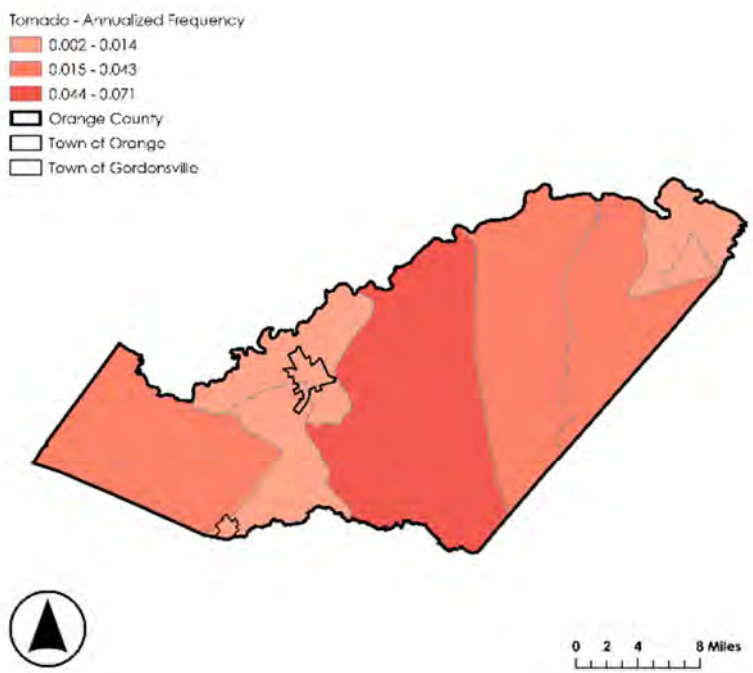


Figure 5.9.5.b - Orange County – Tornado Vulnerability – Expected Annual Loss – Agriculture Value

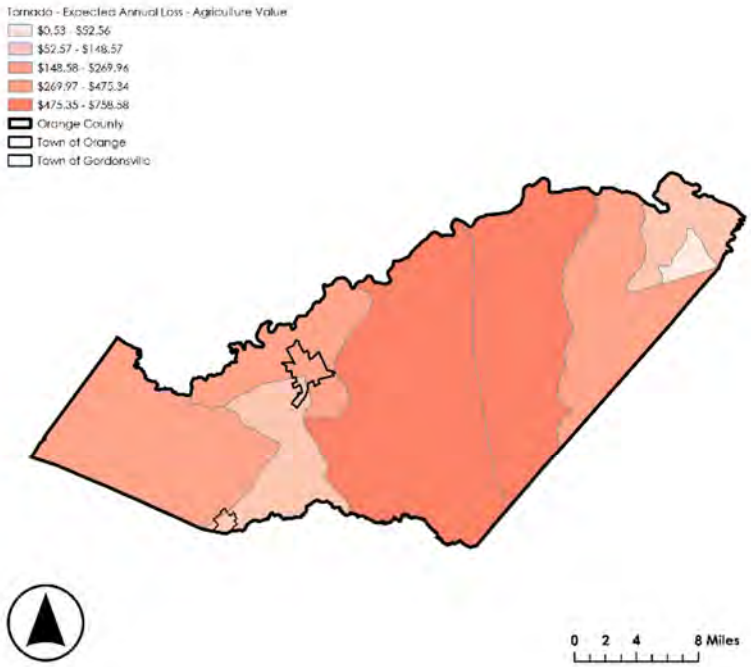


Figure 5.9.5.c - Orange County – Tornado Vulnerability – Expected Annual Loss – Population Equivalence

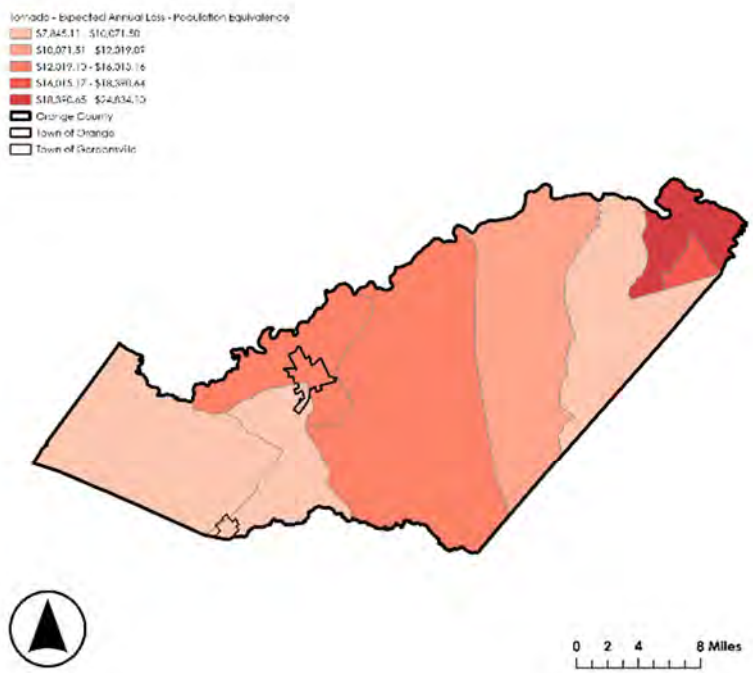


Figure 5.9.5.d - Orange County – Tornado Vulnerability – Expected Annual Loss – Building Value

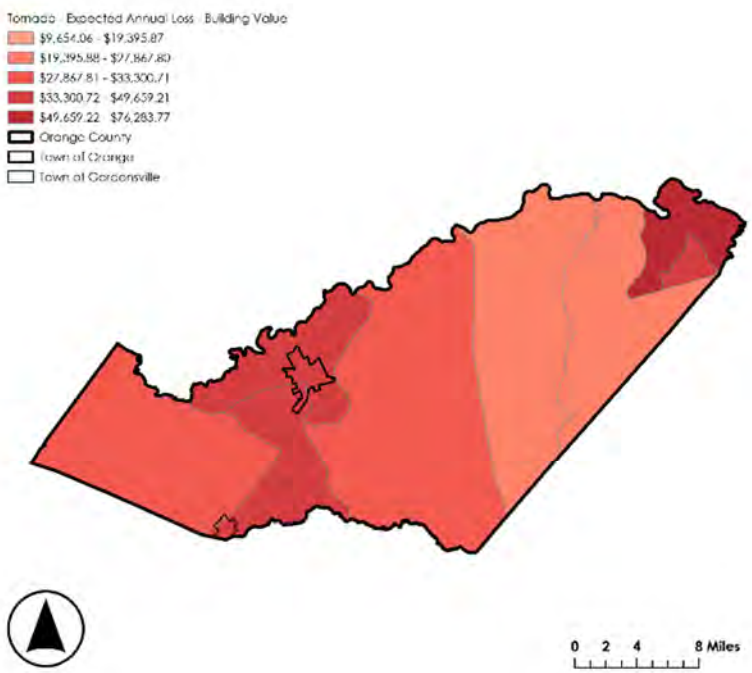


Figure 5.9.5.e - Orange County – Tornado Vulnerability – Expected Annual Loss – Total

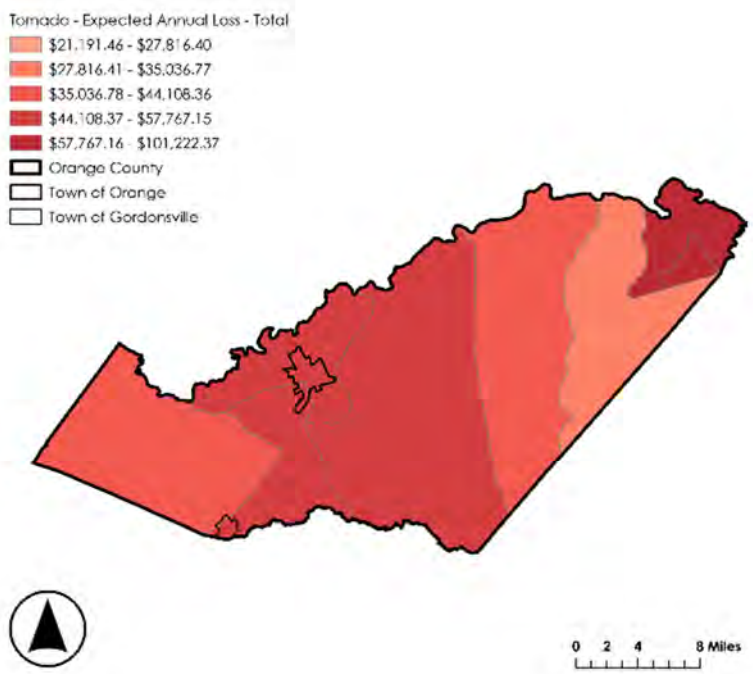


Figure 5.9.5.f - Orange County – Tornado Vulnerability – Hazard Type Risk Index Score

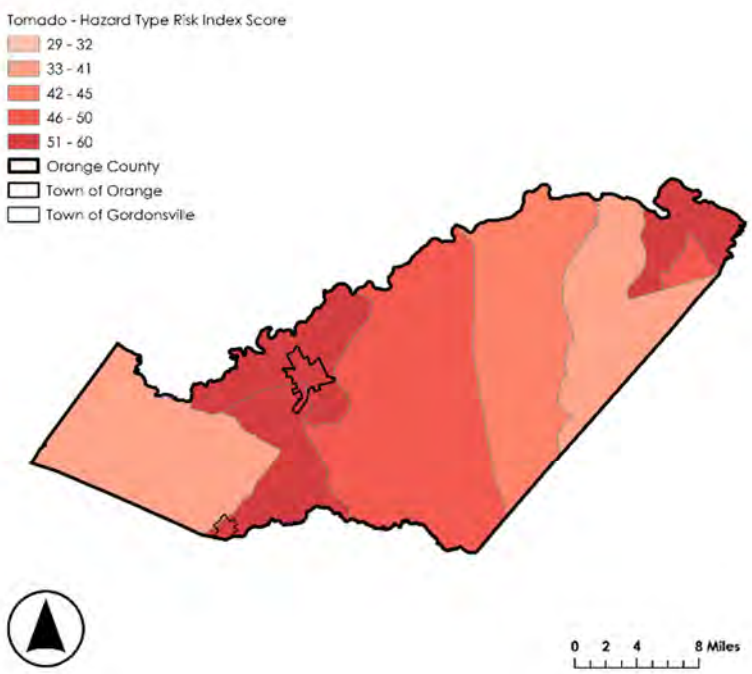


Figure 5.9.6.a - Rappahannock County – Tornado Vulnerability - Annualized Frequency

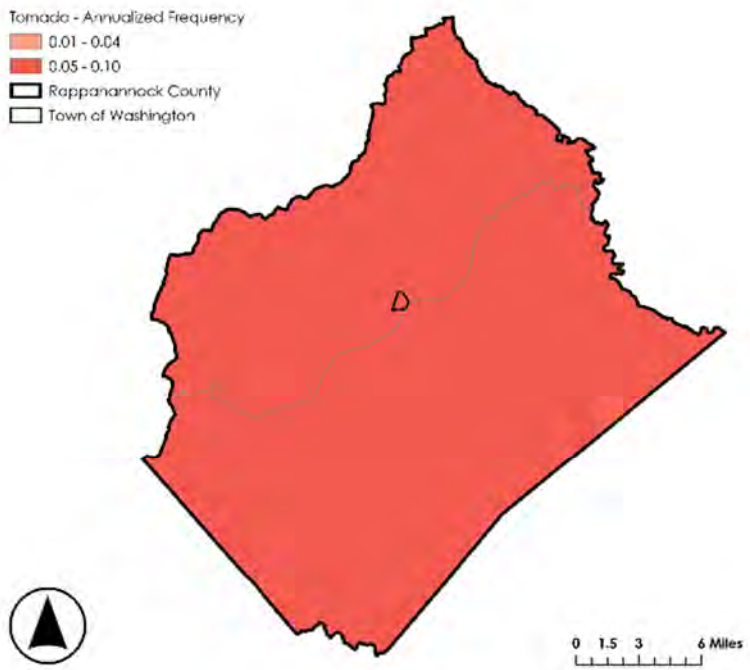


Figure 5.9.6.b - Rappahannock County – Tornado Vulnerability – Expected Annual Loss – Agriculture Value

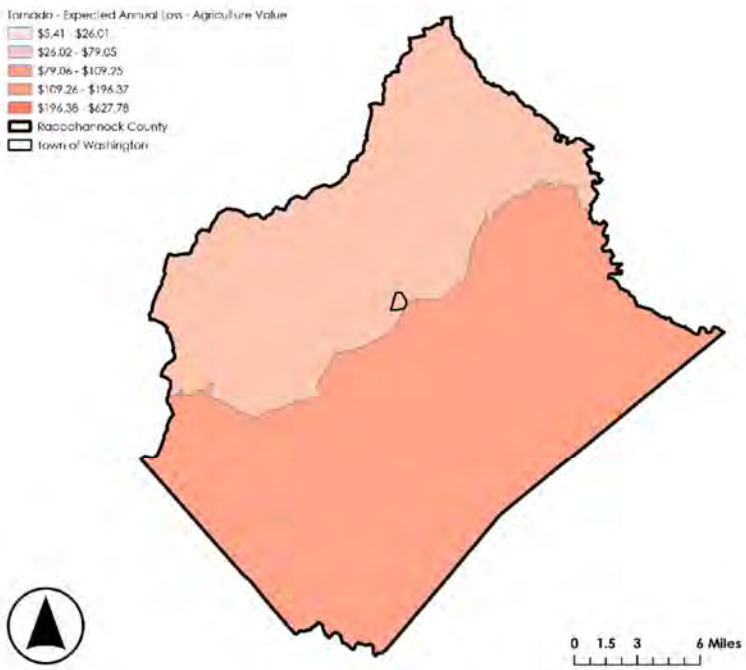


Figure 5.9.6.c - Rappahannock County – Tornado Vulnerability – Expected Annual Loss – Population Equivalence

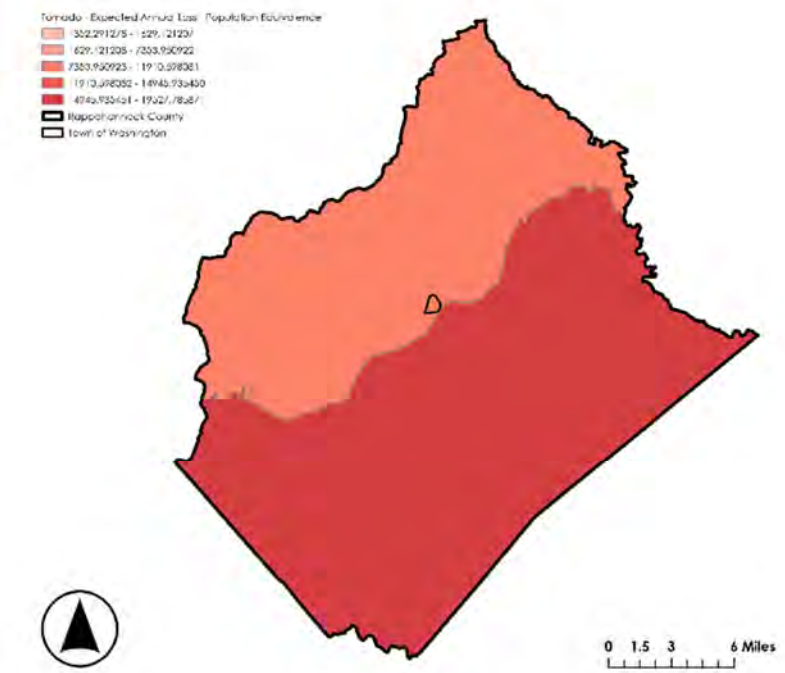


Figure 5.9.6.d - Rappahannock County – Tornado Vulnerability – Expected Annual Loss – Building Value

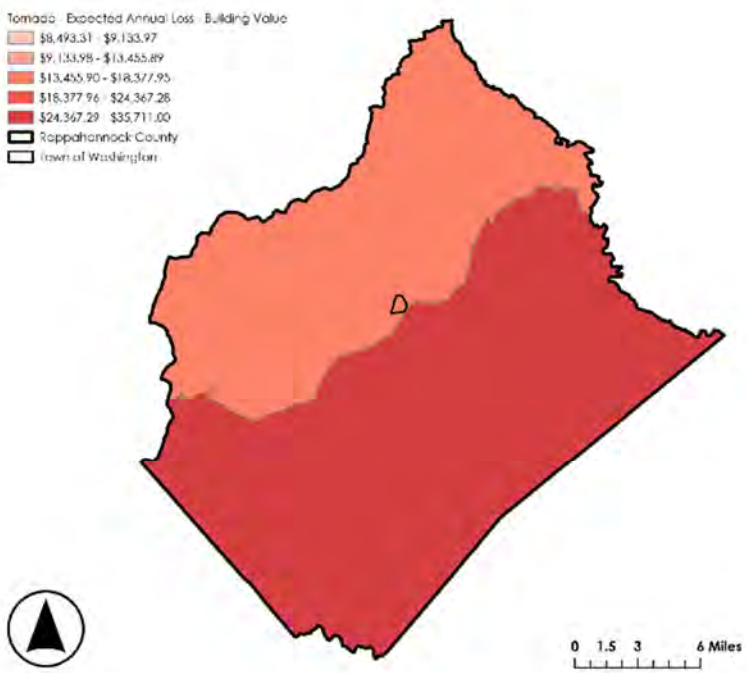


Figure 5.9.6.e - Rappahannock County – Tornado Vulnerability – Expected Annual Loss – Total

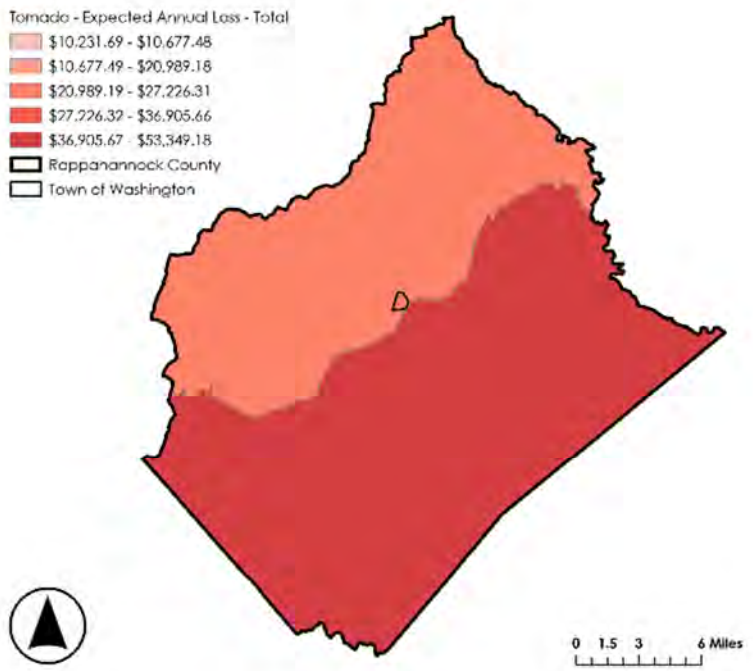
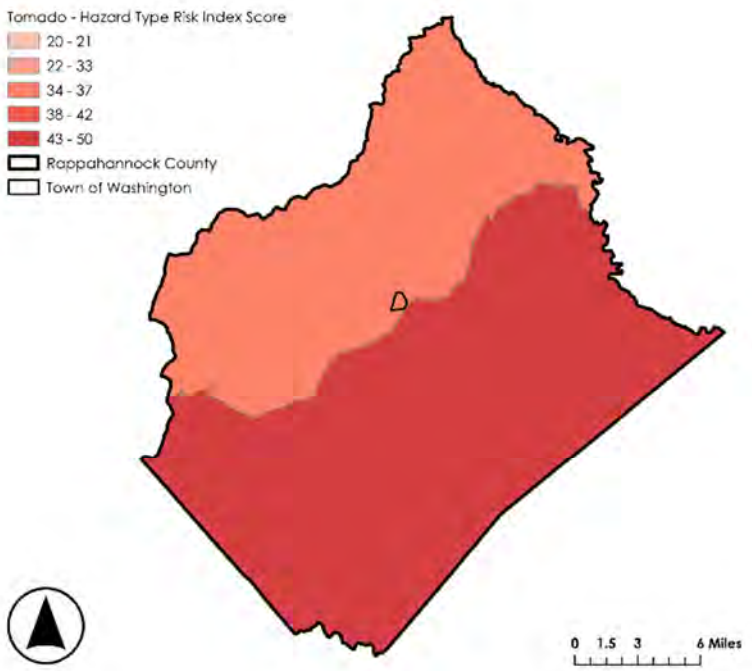


Figure 5.9.6.f - Rappahannock County – Tornado Vulnerability – Hazard Type Risk Index Score



5.1.9 THUNDERSTORMS (STRONG WIND AND LIGHTNING) VULNERABILITY ASSESSMENT

Historical evidence shows that most of the state is vulnerable to severe thunderstorms. However, it cannot be predicted where thunderstorms may occur.

Estimates of annualized losses for strong wind and lightning stand as dimensions to analyzing the overall risk of severe thunderstorm in the region. Based on the information obtained from the FEMA NRI Data, the table and maps below show losses and overall risk by county.

The southern portion of Rappahannock County has a Very High Strong Wind risk, therefore putting some critical structures at risk for Thunderstorm impacts (two fire stations, nursing home, places of worship, and a school). According to the National Risk Index, buildings and people are more at risk for losses due to Thunderstorms (Lighting, and Strong winds) but agriculture losses could still take place. All critical facilities are listed and shown in the Appendix.

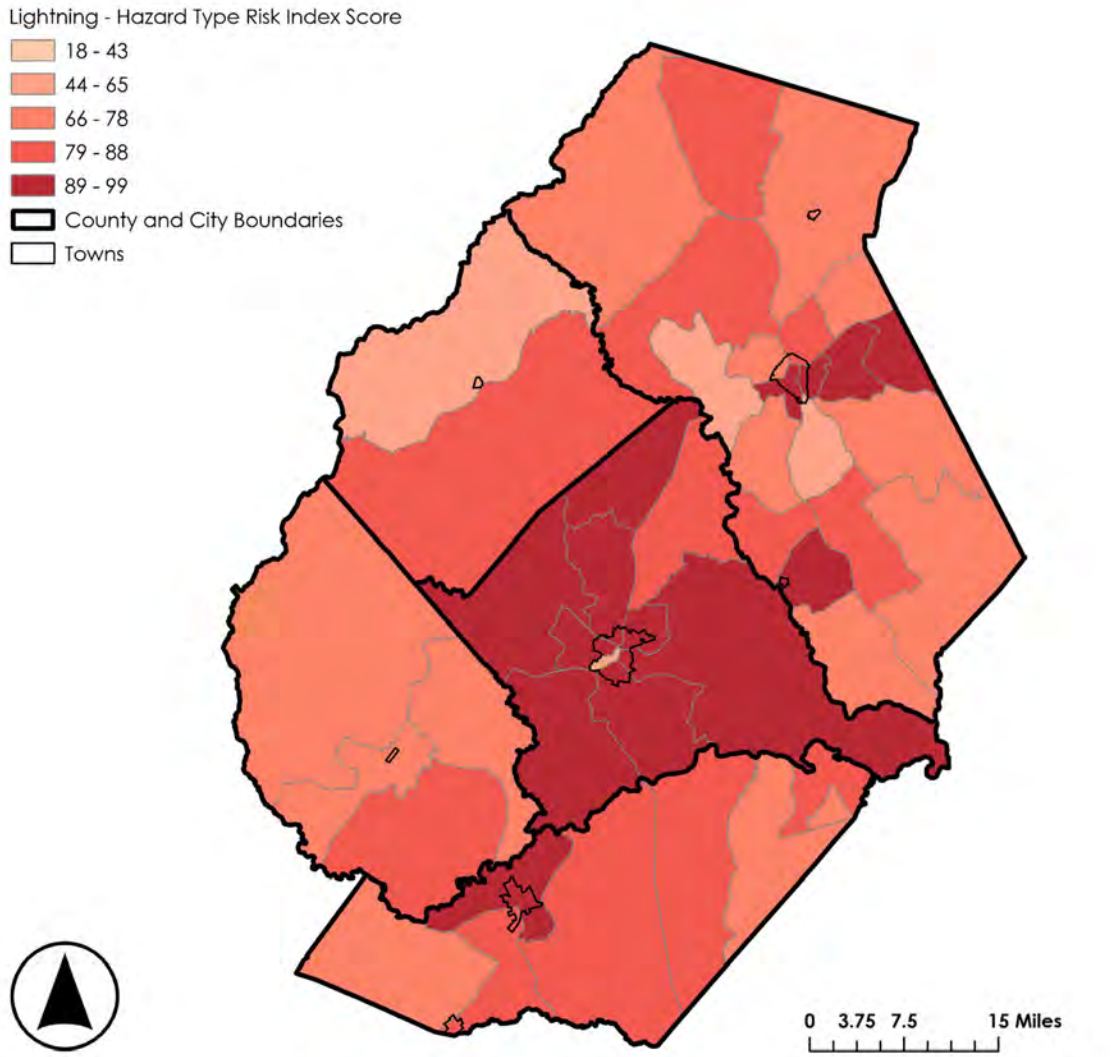
Table 5.10.1 - Lightning and Thunderstorms Expected Annual Loss (in Dollars) by Locality (FEMA National Risk Index 2020)

County	Culpeper	Fauquier	Madison	Orange	Rappahannock	Region
Buildings	$3,924	$6,997	$1,180	$58	$1,094	$13,253.00
Population Eq.	$360,999	$499,274	$58,234	$136,317	$ 27,278	$1,082,102.00
Agriculture	-	-	-	-	-	-
Total Annual Loss	$364,923	$506,271	$59,415	$136,375	$28,372	$1,095,356.00

Table 5.10.2 - Strong Winds Expected Annual Loss (in Dollars) by Locality (FEMA National Risk Index 2020)

County	Culpeper	Fauquier	Madison	Orange	Rappahannock	Region
Buildings	$274,529	$373,314	$67,996	$210,465	$106,536	$1,032,840.00
Population Eq.	$225,763	$730,654	$96,110	$169,347	$72,219	$1,294,093.00
Agriculture	$52,052	$47,122	$30,213	$88,175	$42,237	$259,799.00
Total Annual Loss	$552,343	$1,151,090	$194,319	$467,987	$220,992	$2,586,731.00

Figure 5.10.1: Lightning Overall Risk Score



Source: FEMA National Risk Index, 2020

Figure 5.10.2.a - Culpeper County – Lightning and Thunderstorm Vulnerability - Annualized Frequency

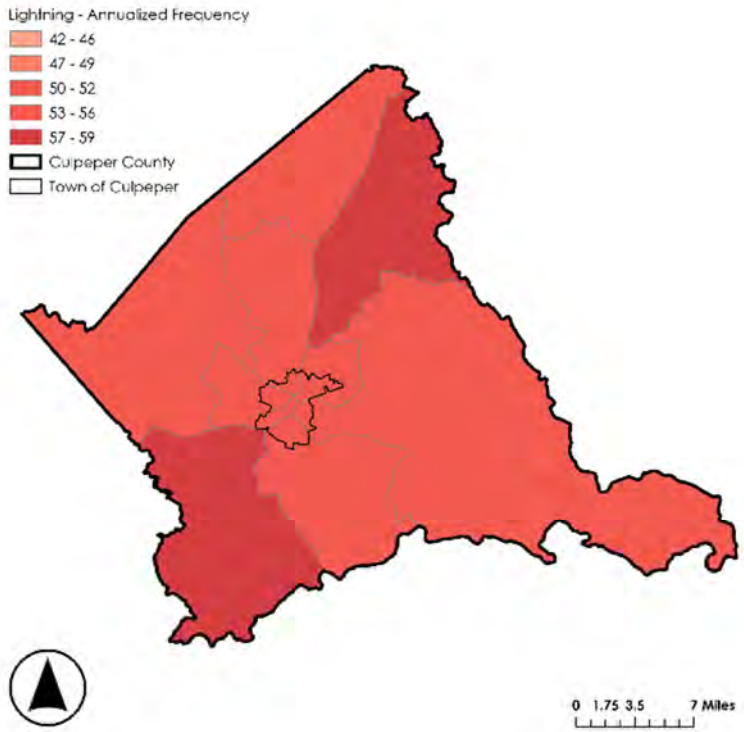


Figure 5.10.2.b - Culpeper County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Population Equivalence

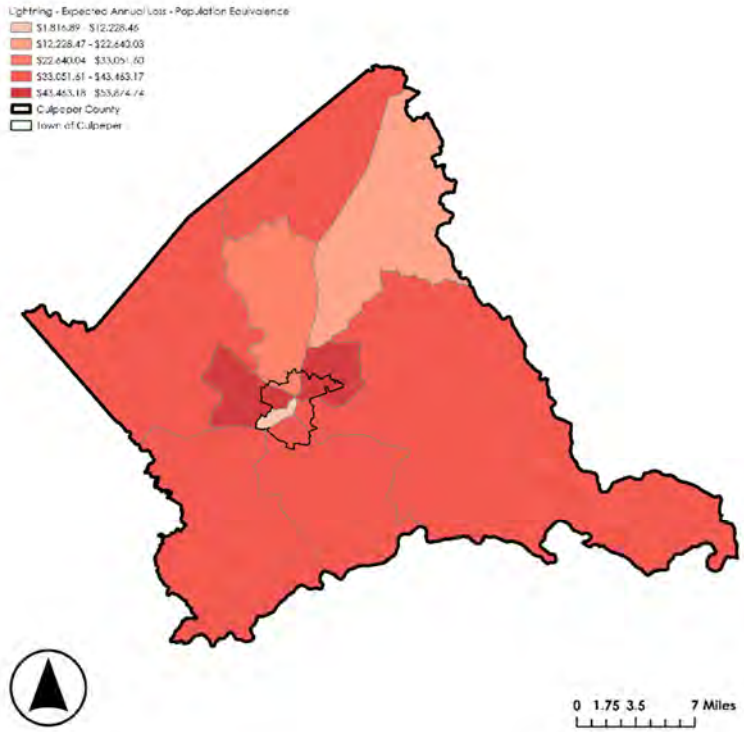


Figure 5.10.2.c - Culpeper County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Building Value

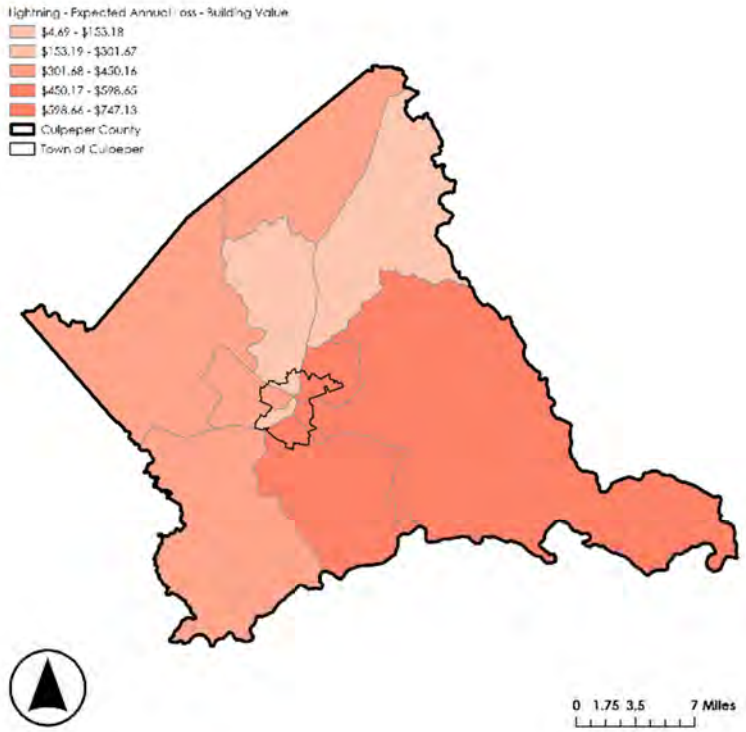


Figure 5.10.2.d - Culpeper County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Total

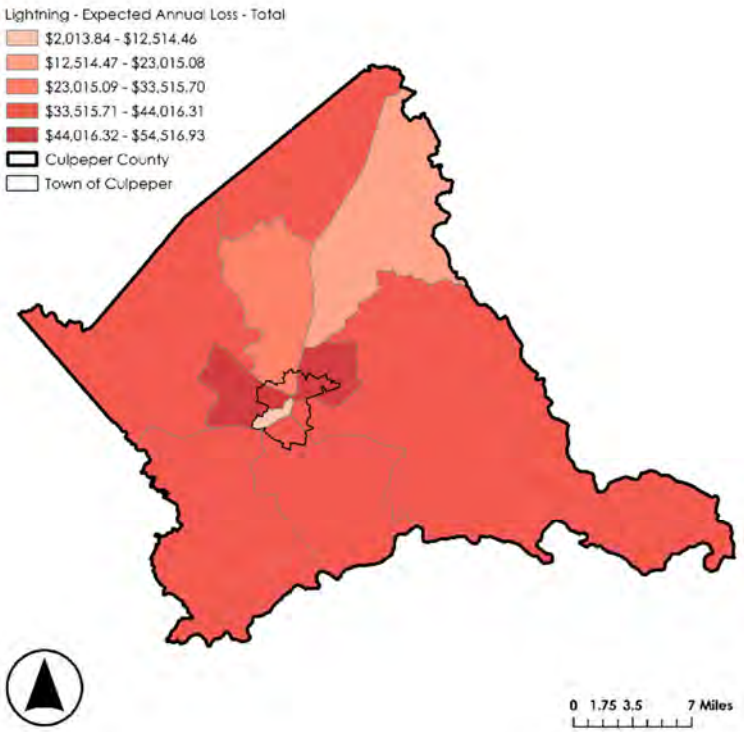


Figure 5.10.2.e - Culpeper County – Lightning and Thunderstorm Vulnerability – Hazard Type Risk Index Score

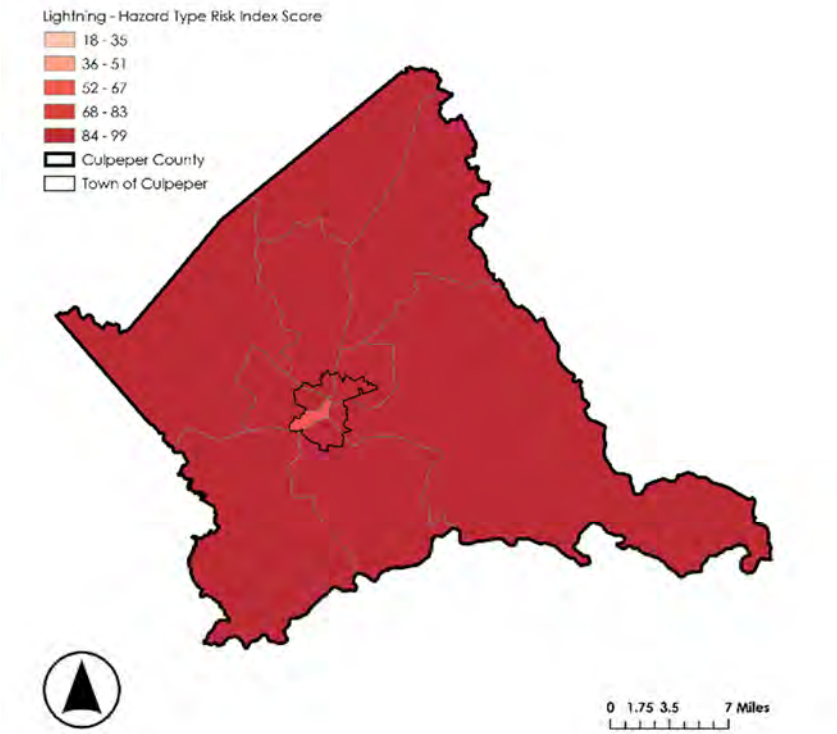


Figure 5.10.3.a - Fauquier County – Lightning and Thunderstorm Vulnerability - Annualized Frequency

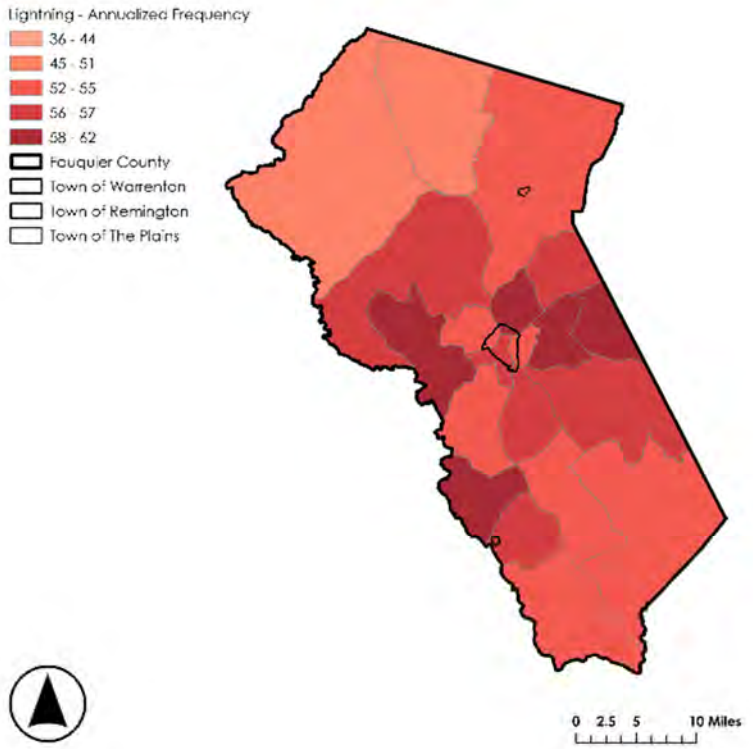


Figure 5.10.3.b - Fauquier County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Population Equivalence

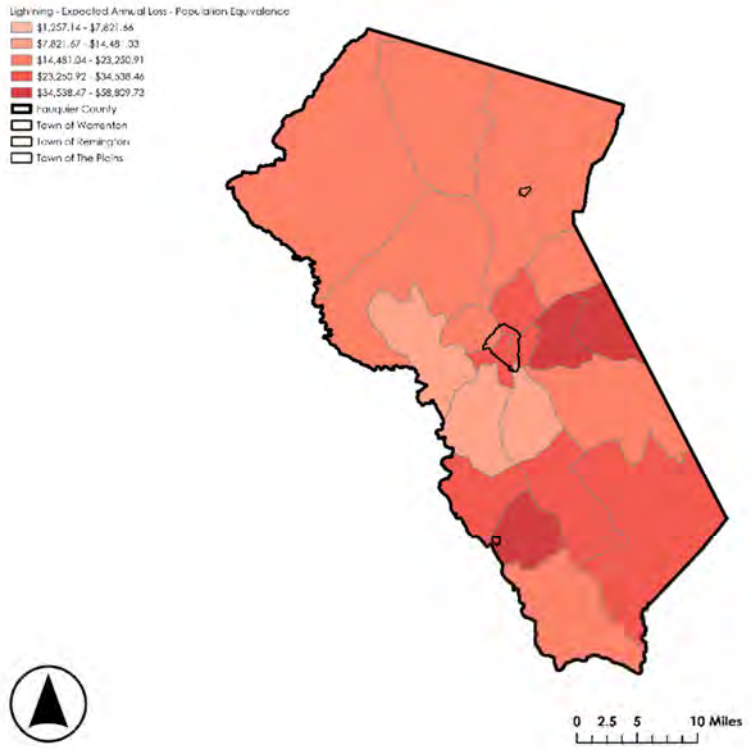


Figure 5.10.3.c - Fauquier County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Building Value

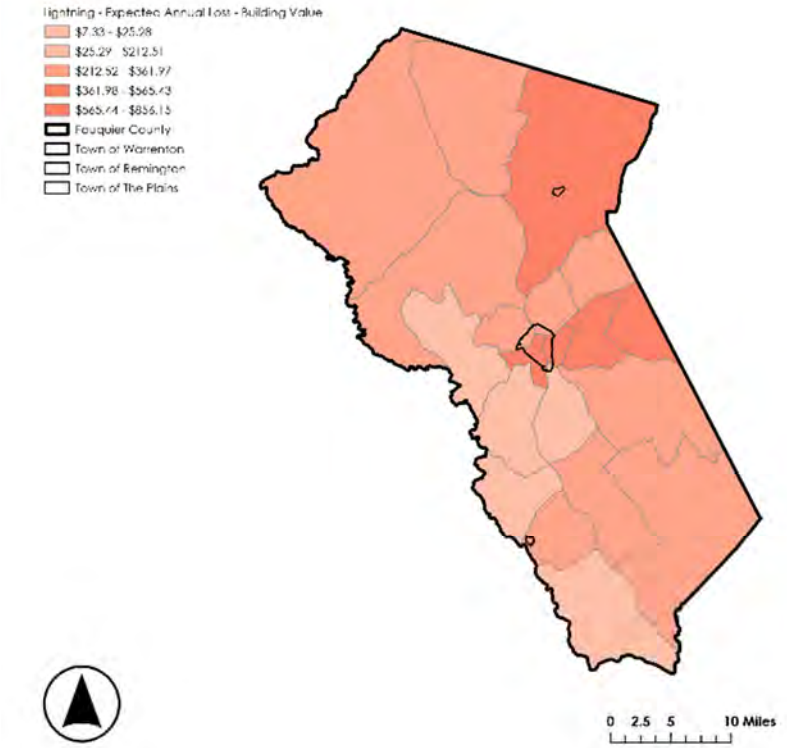


Figure 5.10.3.d - Fauquier County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Total

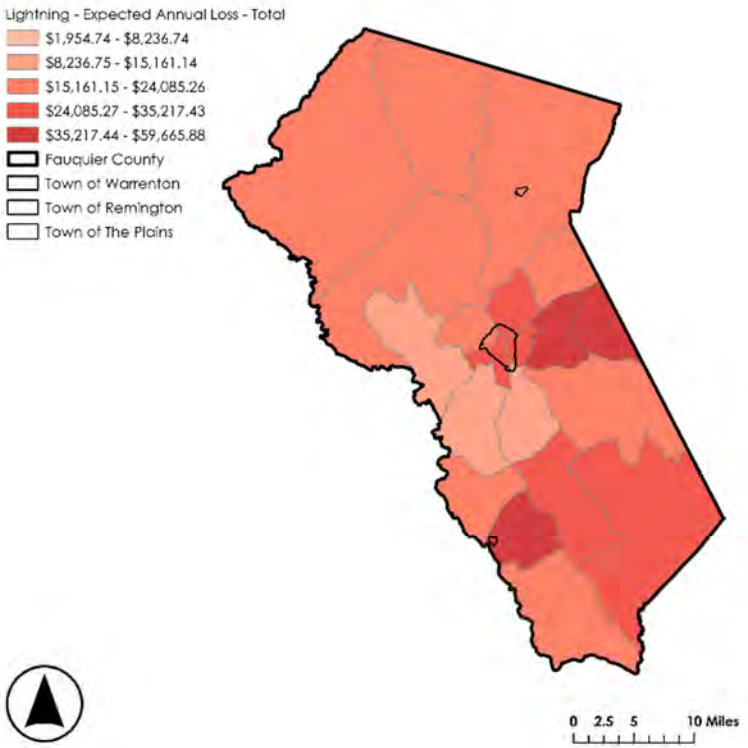


Figure 5.10.3.e - Fauquier County – Lightning and Thunderstorm Vulnerability – Hazard Type Risk Index Score

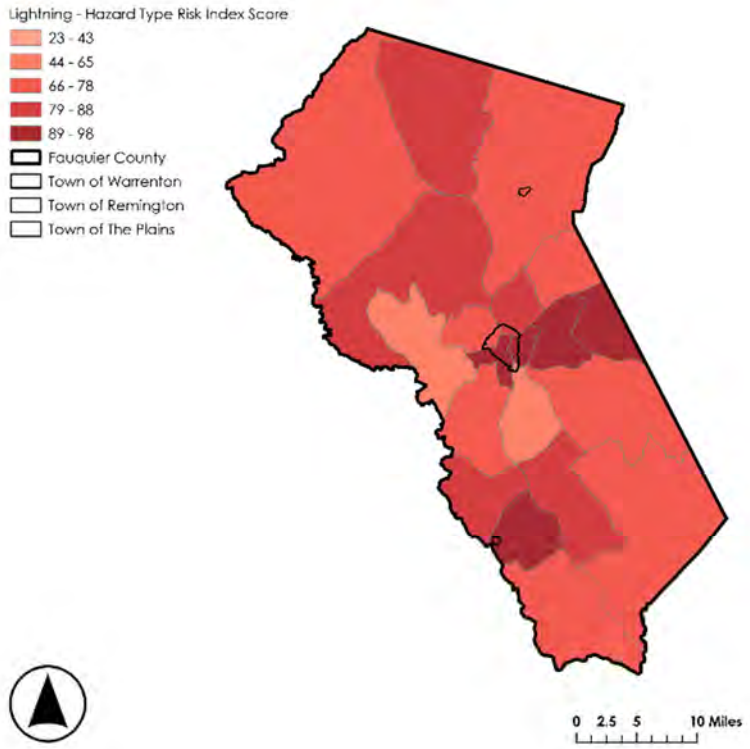


Figure 5.10.4.a - Madison County – Lightning and Thunderstorm Vulnerability - Annualized Frequency

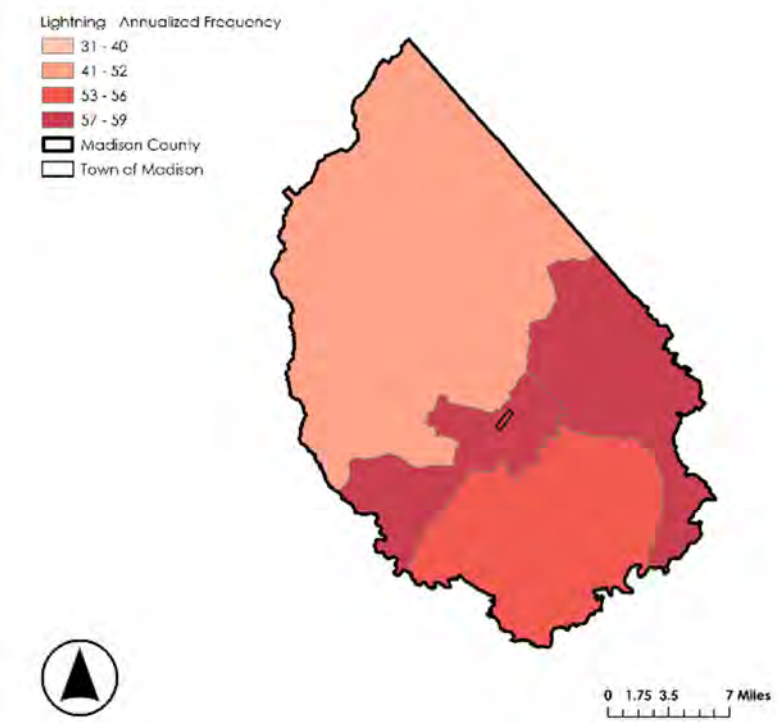


Figure 5.10.4.b - Madison County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Population Equivalence

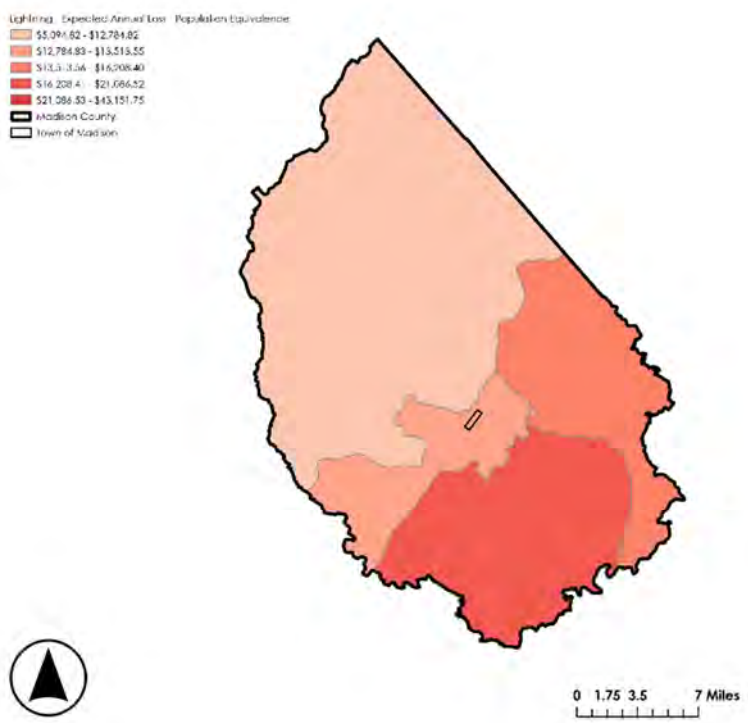


Figure 5.10.4.c - Madison County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Building Value

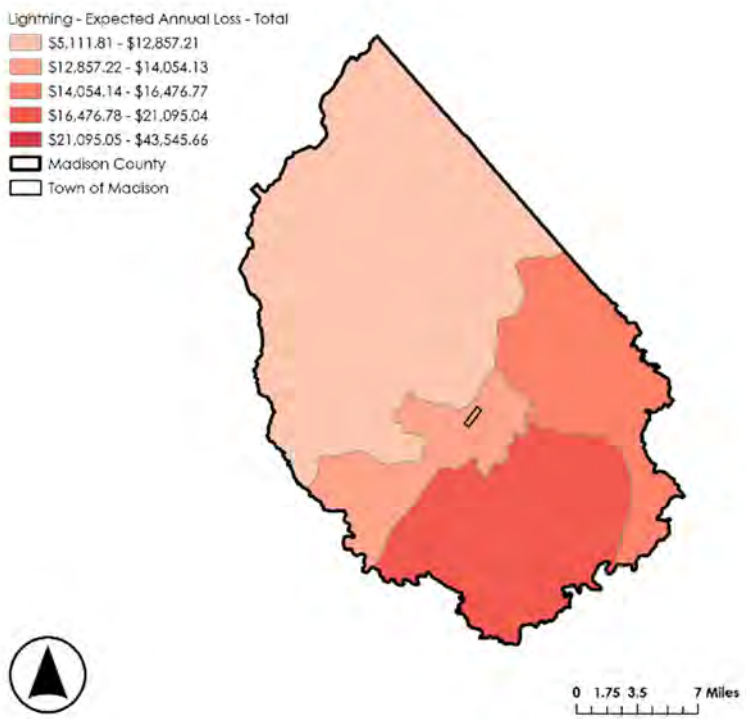


Figure 5.10.4.d - Madson County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Total

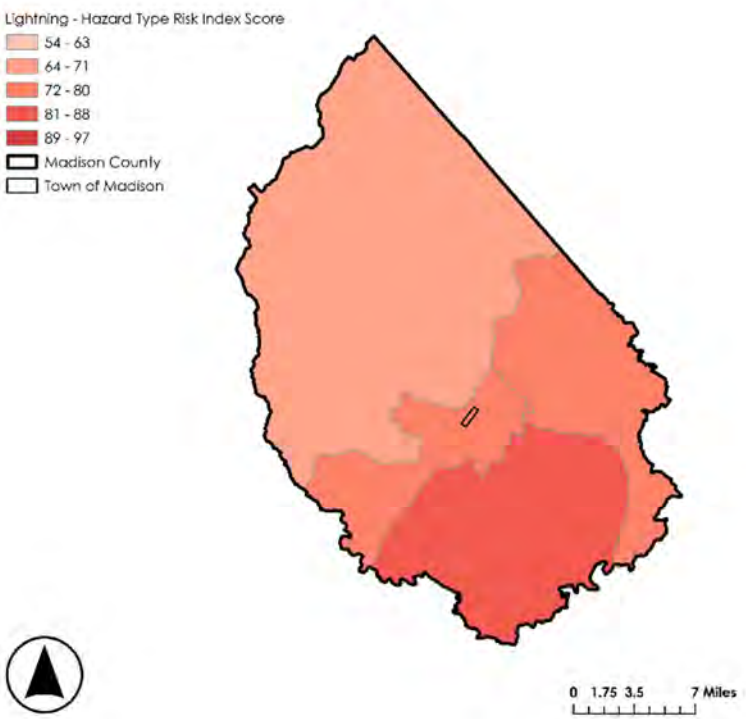


Figure 5.10.4.e - Madison County – Lightning and Thunderstorm Vulnerability – Hazard Type Risk Index Score

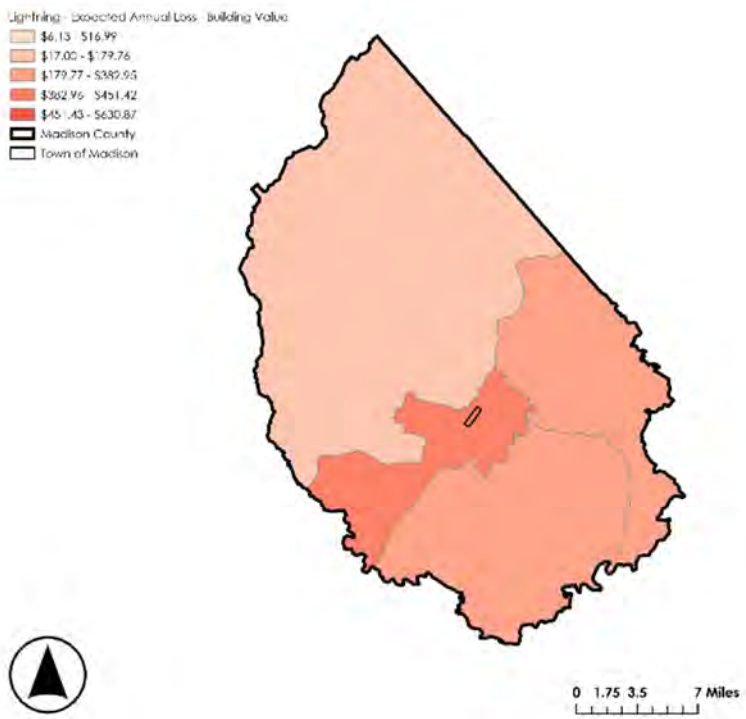


Figure 5.10.5.a - Orange County – Lightning and Thunderstorm Vulnerability - Annualized Frequency

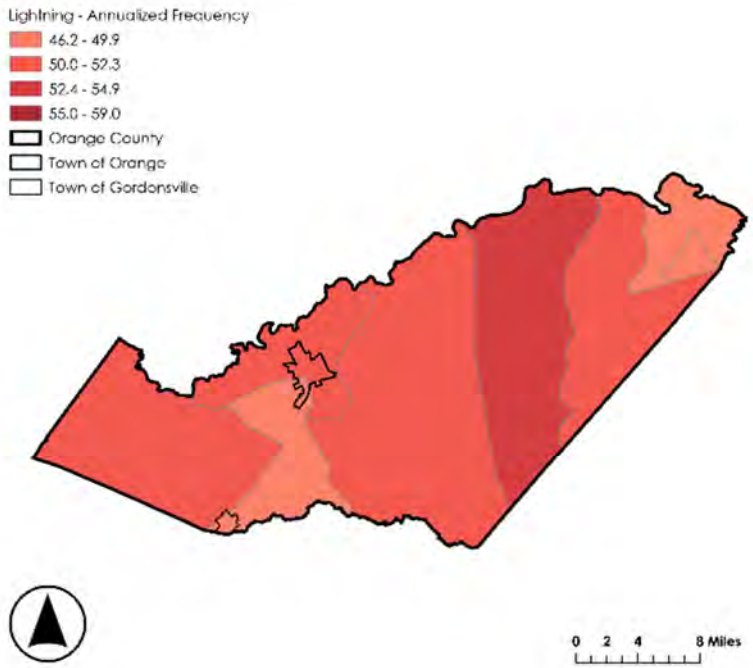


Figure 5.10.5.b - Orange County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Population Equivalence

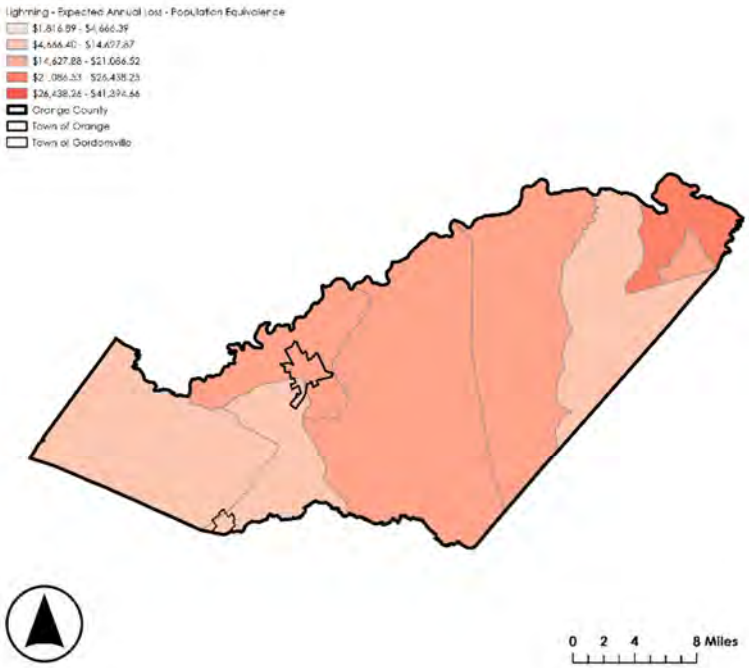


Figure 5.10.5.c - Orange County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Building Value

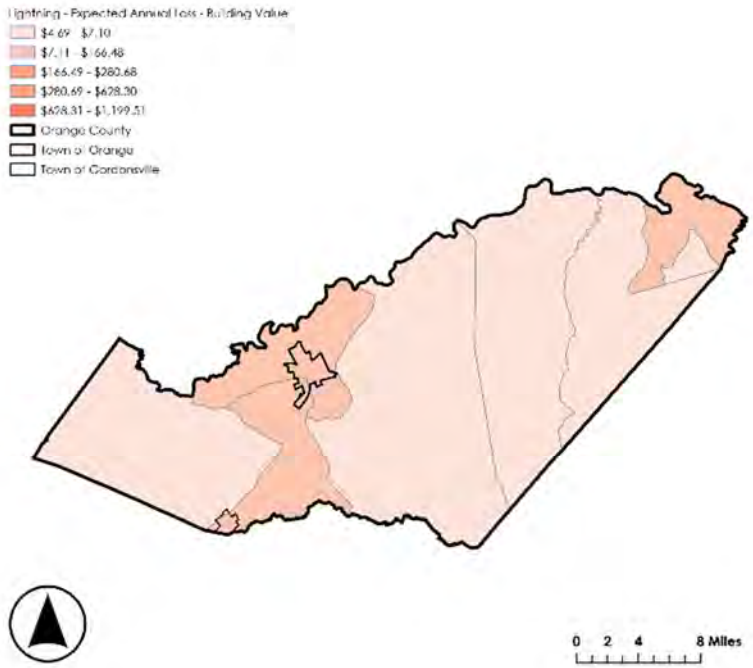


Figure 5.10.5.d - Orange County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Total

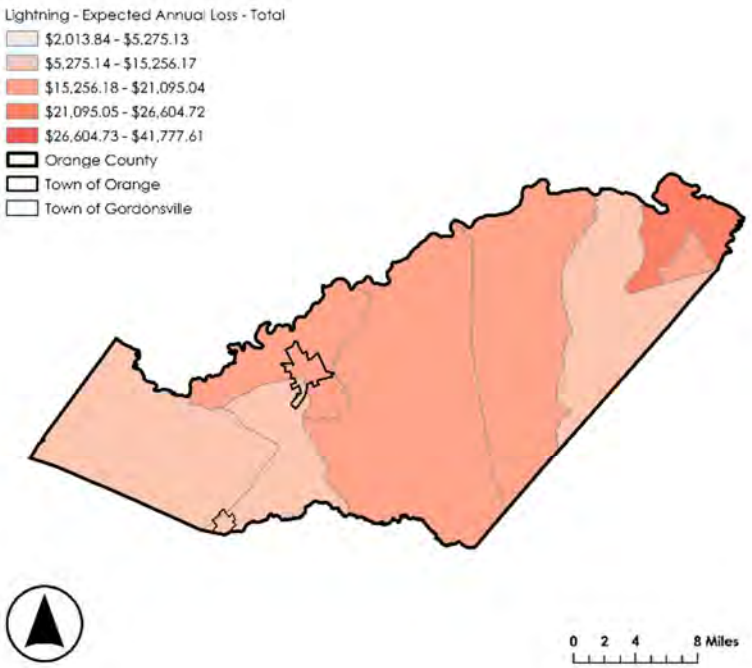


Figure 5.10.5.e – Orange County – Lightning and Thunderstorm Vulnerability – Hazard Type Risk Index Score

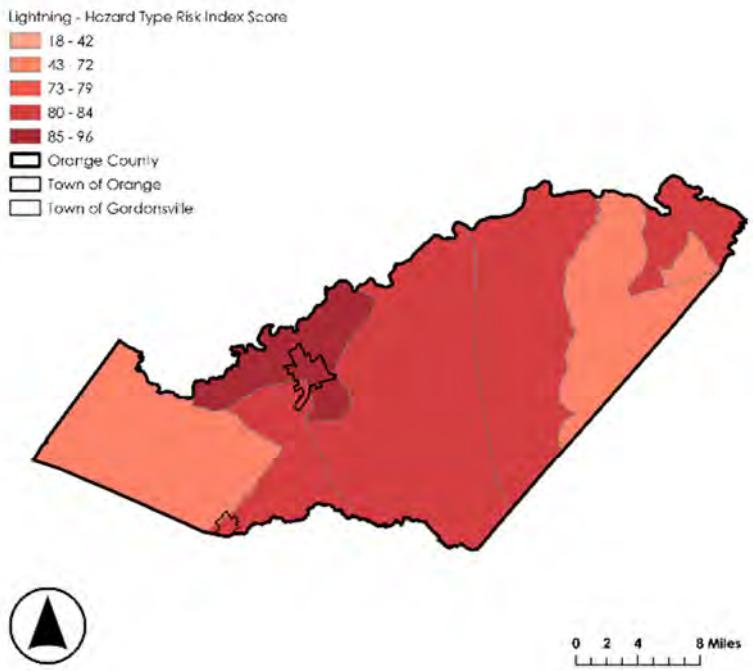


Figure 5.10.6.a - Rappahannock County – Lightning and Thunderstorm Vulnerability - Annualized Frequency

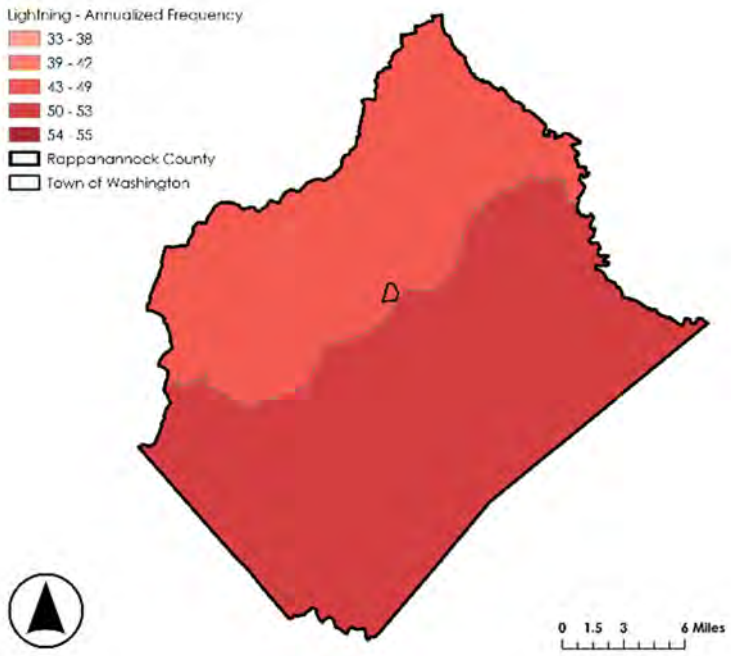


Figure 5.10.6.b - Rappahannock County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Population Equivalence

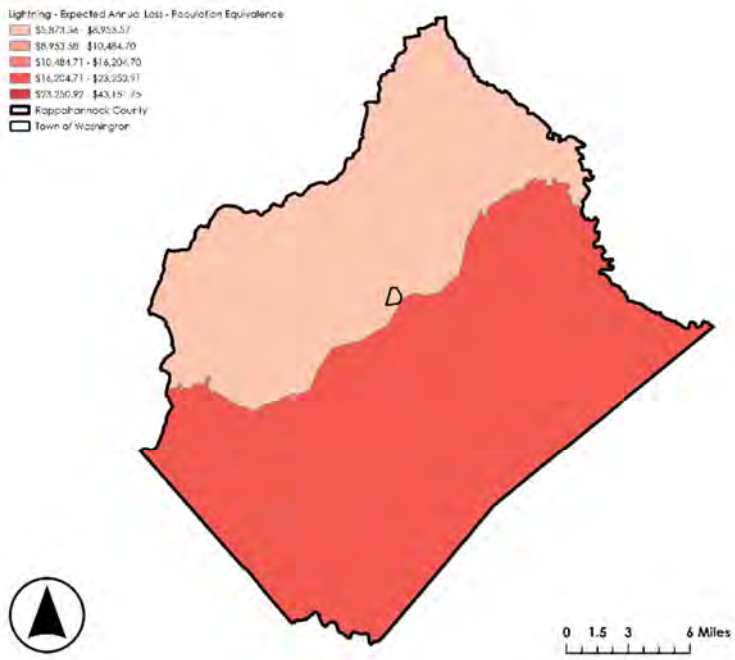


Figure 5.10.6.c - Rappahannock County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Building Value

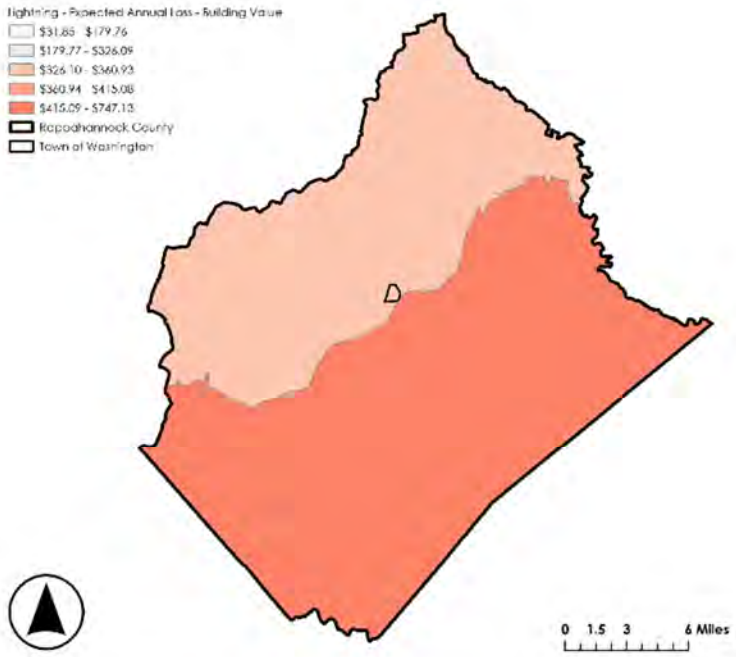


Figure 5.10.6.d - Rappahannock County – Lightning and Thunderstorm Vulnerability – Expected Annual Loss – Total

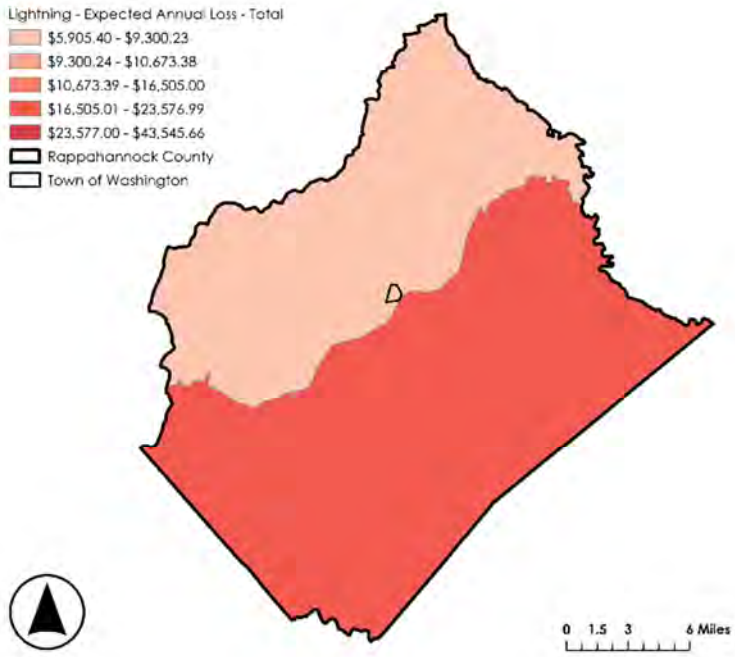
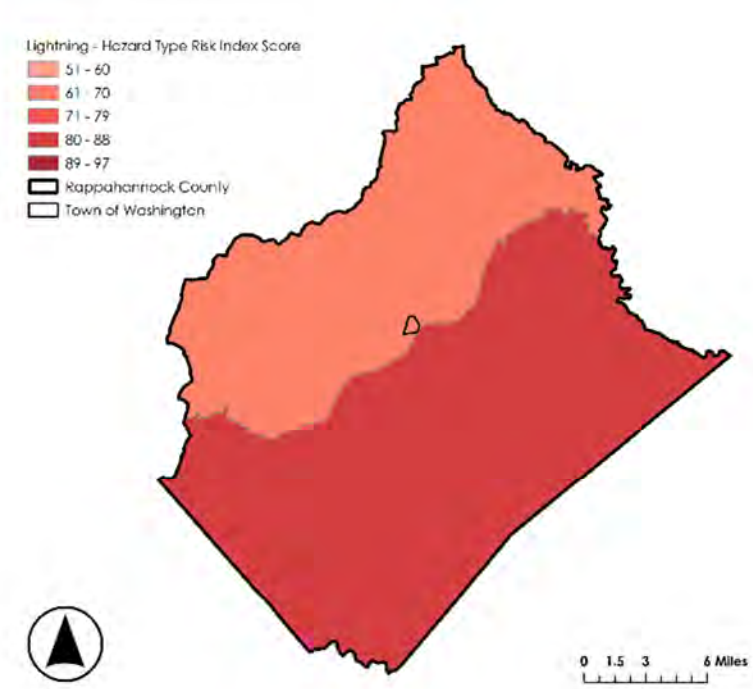


Figure 5.10.6.e – Rappahannock County – Lightning and Thunderstorm Vulnerability – Hazard Type Risk Index Score



5.1.10 – WINTER WEATHER VULNERABILITY ASSESSMENT

Winter storms can be very disruptive, particularly in areas such as the Rappahannock-Rapidan Region where they do not occur frequently. Strong winds can damage trees, utility poles, and power lines. Accumulations of ice can also bring down trees, electrical wires, telephone poles and lines, and communication towers. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians. Heavy snow can immobilize a region, stranding commuters, closing schools, stopping the flow of supplies, and disrupting emergency and medical services. Heavy accumulations of snow have the potential to collapse buildings and knock down trees and power lines. In rural areas, homes and farms may be isolated for days, and unprotected livestock may be lost. The cost of snow removal, repairing damages, and loss of business can also have a significant economic impact on communities. The potential impacts on vulnerable populations such as those with special needs, the elderly and people requiring access to medical needs outside of the home, stranding people without resources for days at a time.

Since 2000, there have been four federally declared disasters related to winter storm events that impacted the region. The total of funds distributed in the form of public assistance grants was $106,269,763 for the entire state of Virginia (FEMA, 2017).

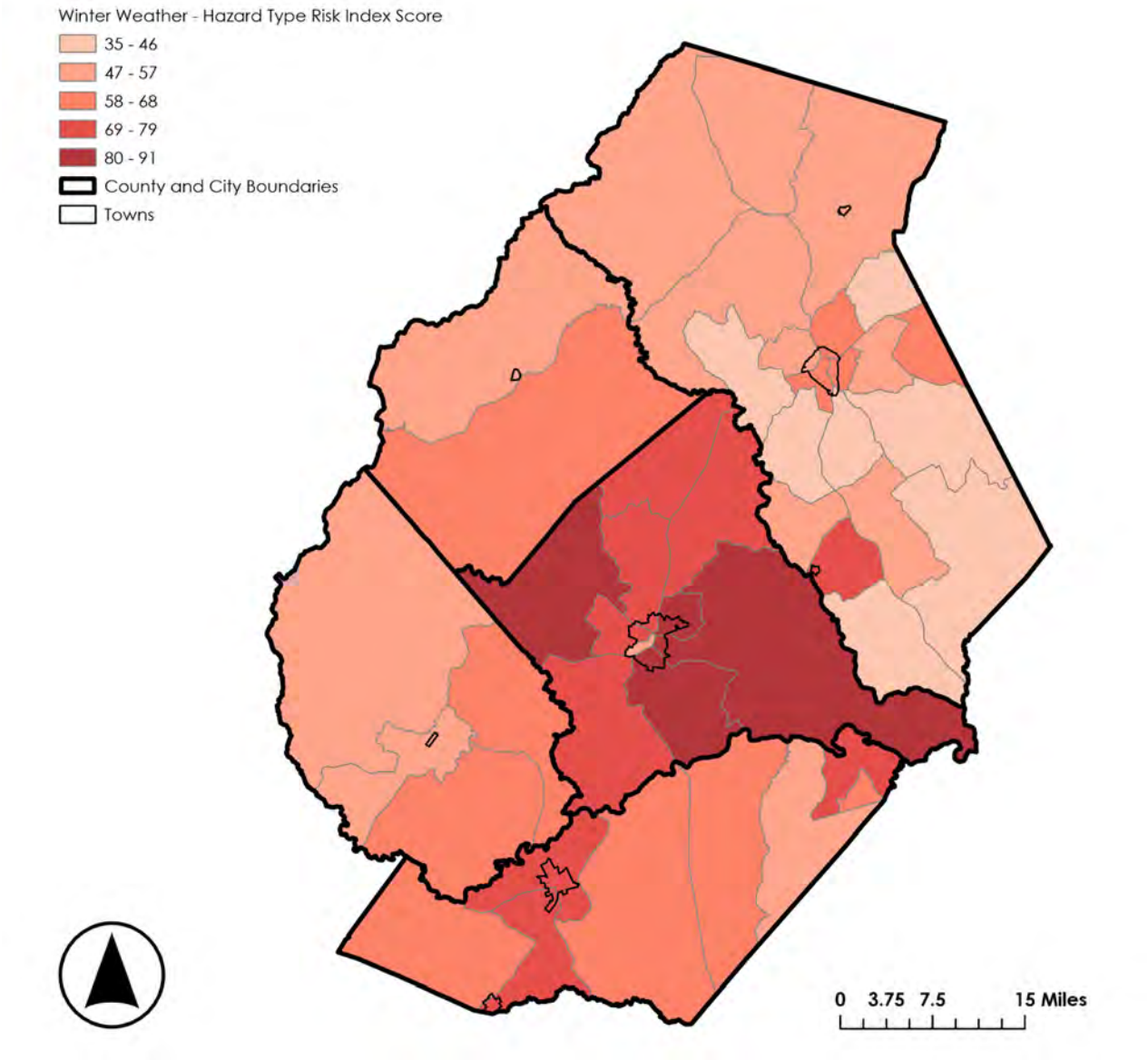
A qualitative factor in the Rappahannock-Rapidan Region's vulnerability to winter storms is the higher frequency of severe storms compared to other areas in the state. Consequently, residents are highly aware and prepared to respond to winter storm conditions, aiming to minimize risks to themselves and others. However, prolonged periods of cold and winter weather conditions can disproportionately affect vulnerable populations such as those without heat, vehicle access, and rural populations that get stranded due to road closures.

There are portions of Culpeper County that have a higher vulnerability due to Winter Weather, affecting the population of the area over expected losses ensued by Buildings or Agriculture Losses. According to the National Risk Index, people are more at risk for losses due to Winter Weather but building and agriculture losses could still take place. All critical facilities are listed and shown in the Appendix that could be a risk.

Table 5.11 - Winter Weather Expected Annual Loss (in Dollars) by Locality (FEMA National Risk Index 2020)

County	Culpeper	Fauquier	Madison	Orange	Rappahannock	Region
Buildings	$33,224	$612	$373	$6,496	$646	$41,351.00
Population Eq.	$25,675	$38,776	$ 8,191	$18,550	$4,416	$95,608.00
Agriculture	$9	$11	$6	$22	$2	$50.00
Total Annual Loss	$58,907	$39,399	$8,571	$25,068	$5,064	$137,009.00

Figure 5.11.1: Winter Weather Vulnerability – RRRC Region



Source: FEMA National Risk Index, 2020

Figure 5.11.2.a – Culpeper County – Winter Weather Vulnerability – Annualized Frequency

Figure 5.11.2.b – Culpeper County – Winter Weather Vulnerability – Expected Annual Loss – Population Equivalence

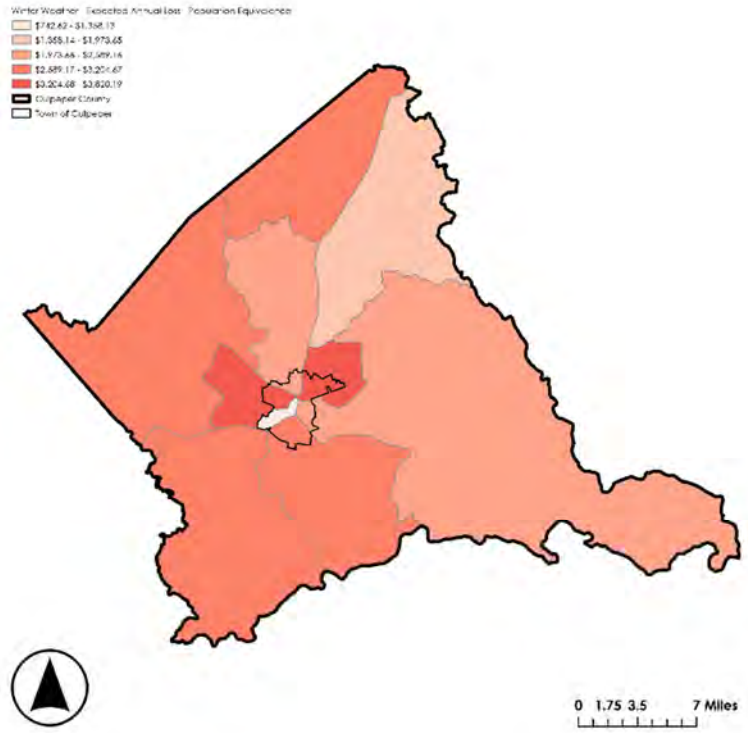


Figure 5.11.2.c – Culpeper County – Winter Weather Vulnerability – Expected Annual Loss – Building Value

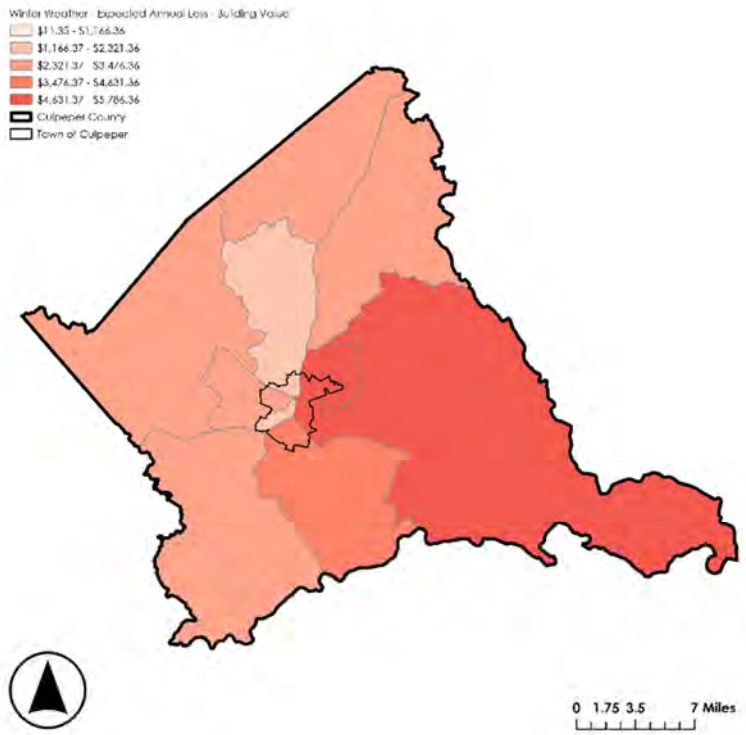


Figure 5.11.2.d – Culpeper County – Winter Weather Vulnerability – Expected Annual Loss – Total

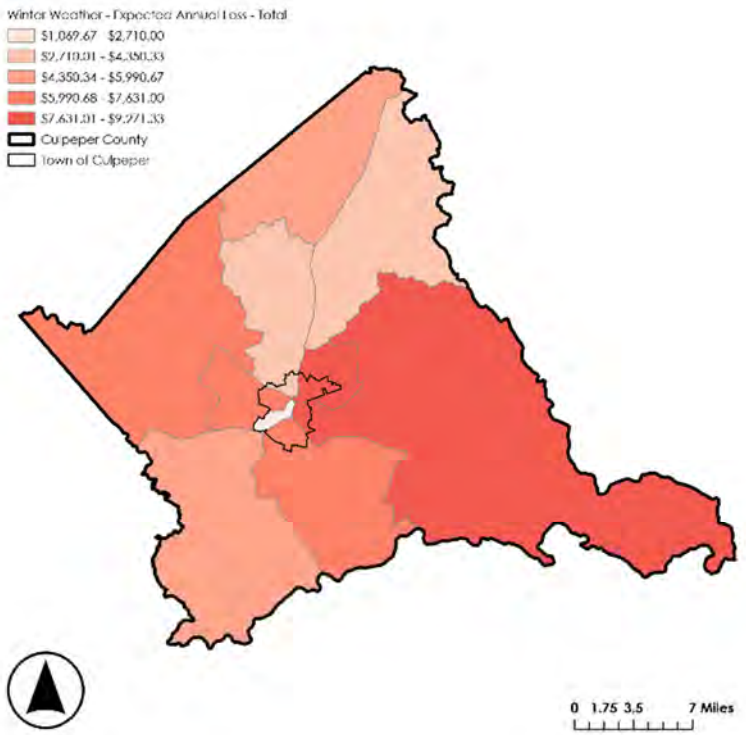


Figure 5.11.2.e – Culpeper County – Winter Weather Vulnerability – Hazard Type Risk Index Score

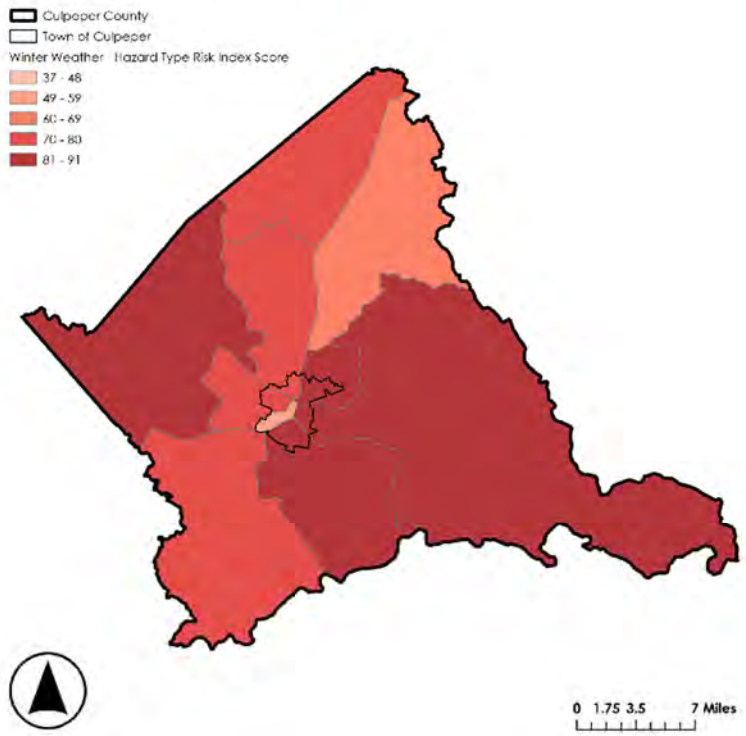


Figure 5.11.3.a – Fauquier County – Winter Weather Vulnerability – Annualized Frequency

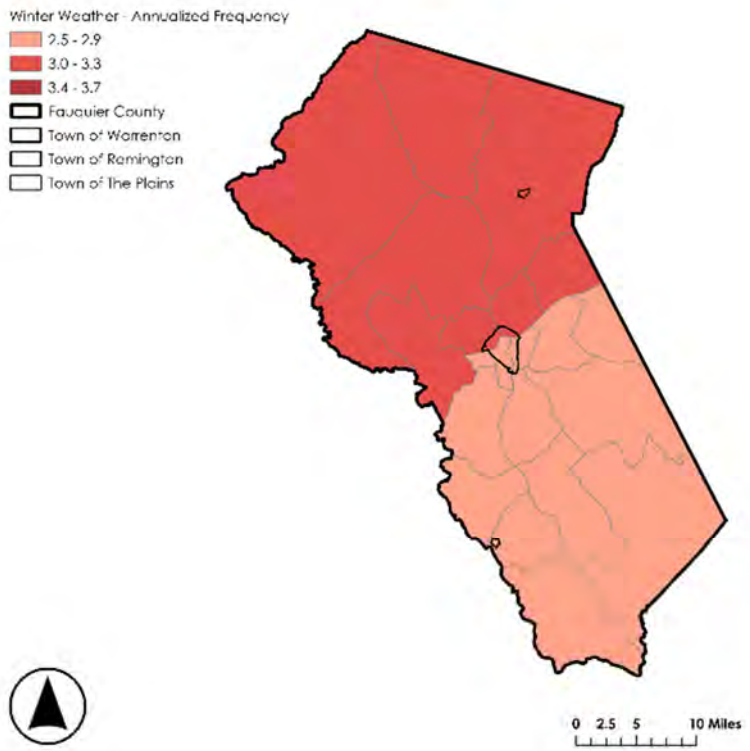


Figure 5.11.3.b – Fauquier County – Winter Weather Vulnerability – Expected Annual Loss – Population Equivalence

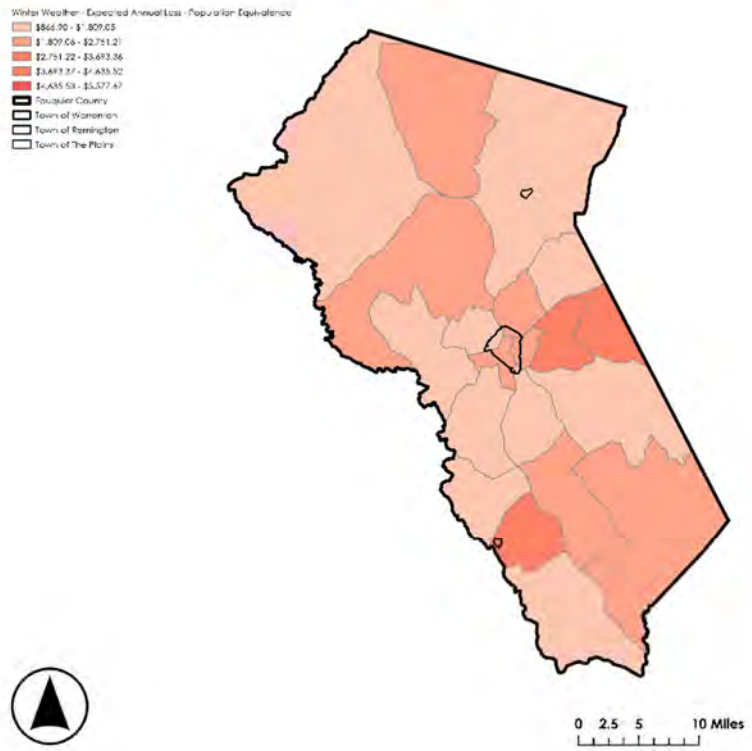


Figure 5.11.3.c – Fauquier County – Winter Weather Vulnerability – Expected Annual Loss – Building Value

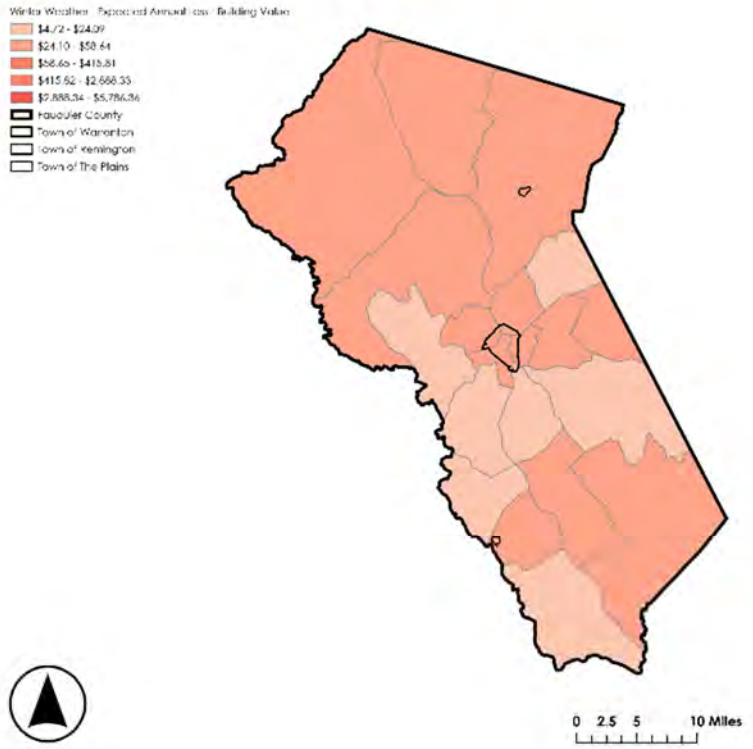


Figure 5.11.3.d – Fauquier County – Winter Weather Vulnerability – Expected Annual Loss – Total

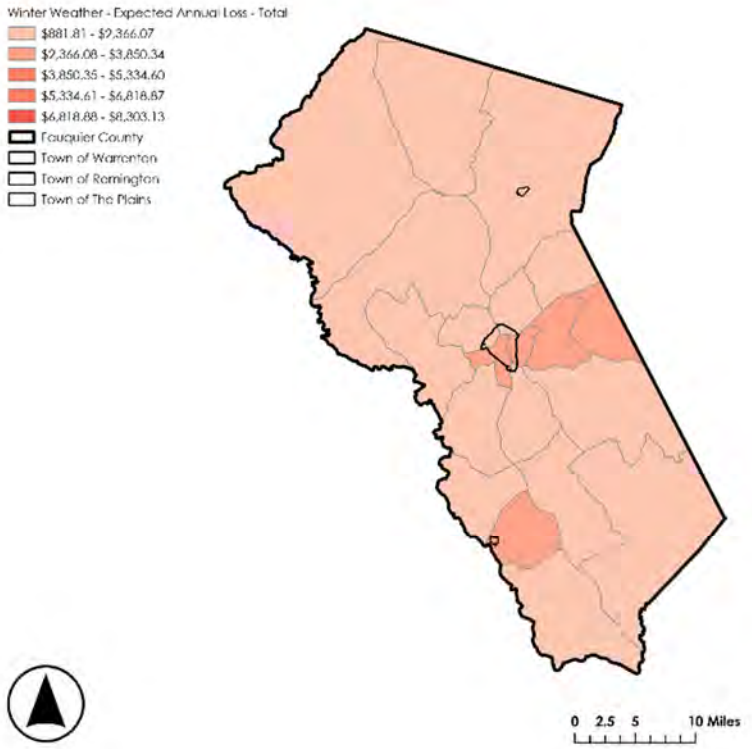


Figure 5.11.3.e – Fauquier County – Winter Weather Vulnerability – Hazard Type Risk Index Score

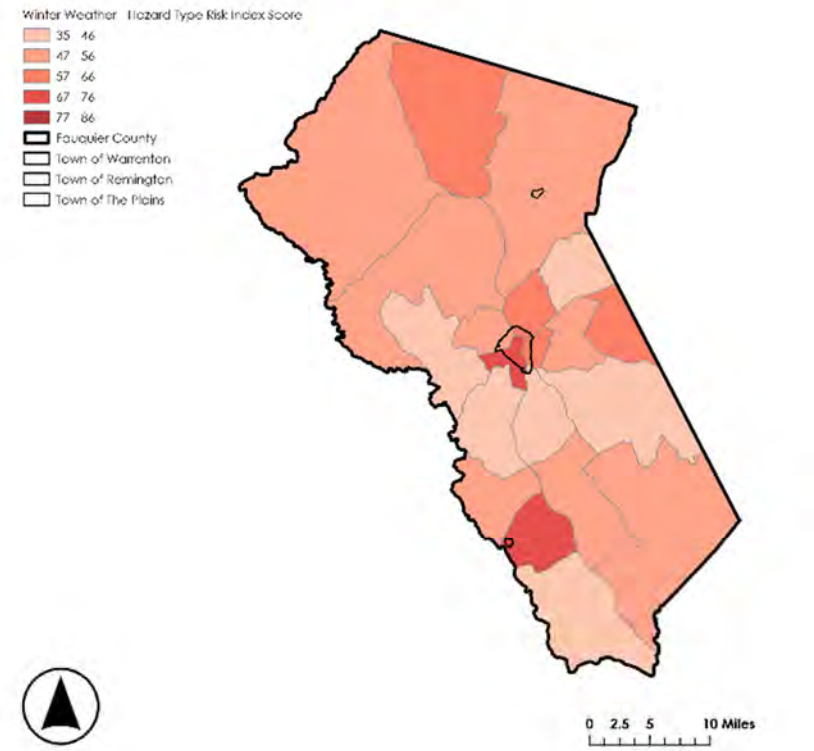


Figure 5.11.4.a – Madison County – Winter Weather Vulnerability – Annualized Frequency

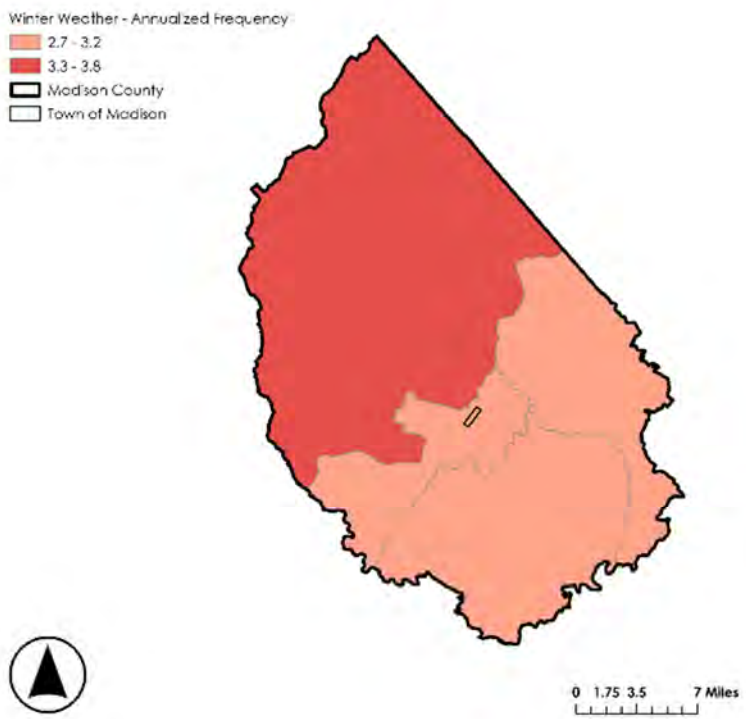


Figure 5.11.4.b – Madison County – Winter Weather Vulnerability – Expected Annual Loss – Population Equivalence

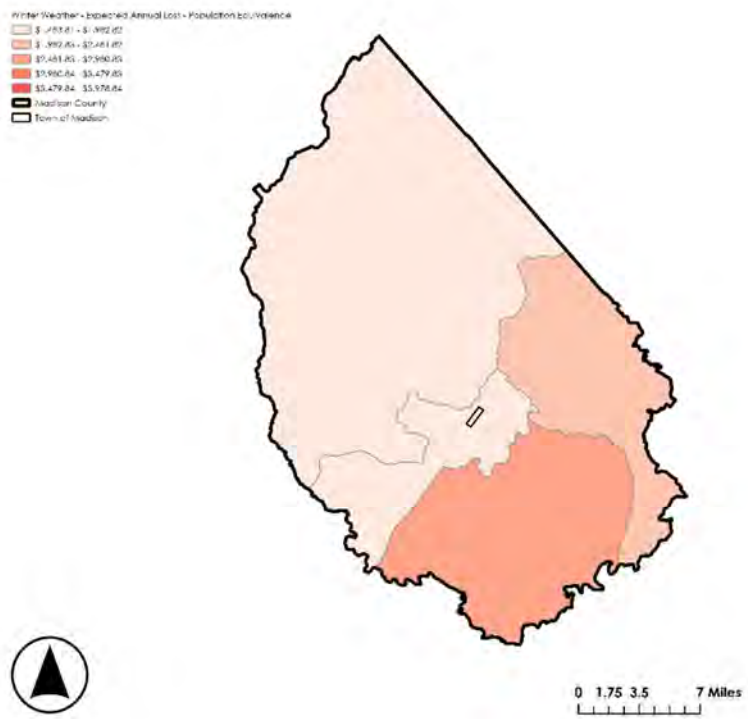


Figure 5.11.4.c – Madison County – Winter Weather Vulnerability – Expected Annual Loss – Building Value

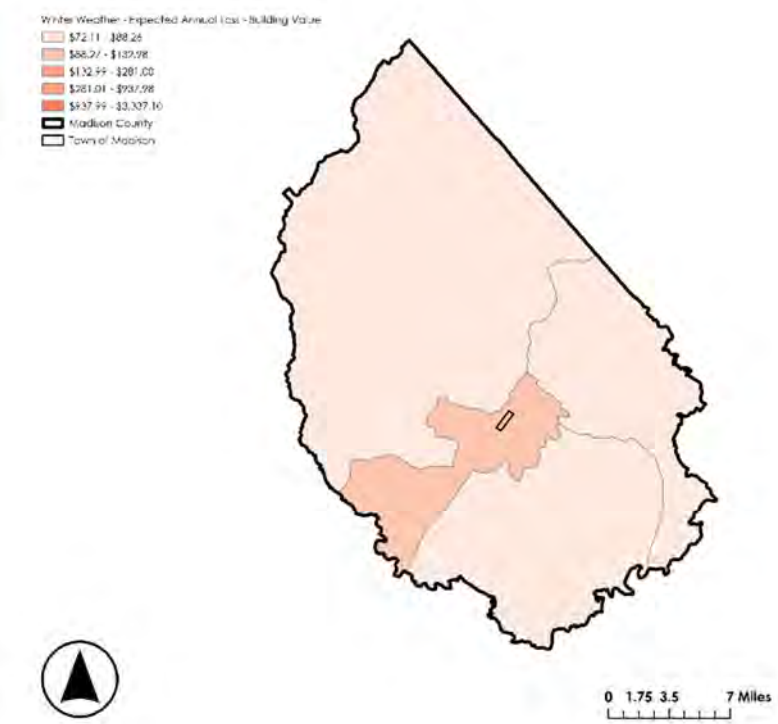


Figure 5.11.4.d – Madison County – Winter Weather Vulnerability – Expected Annual Loss – Total

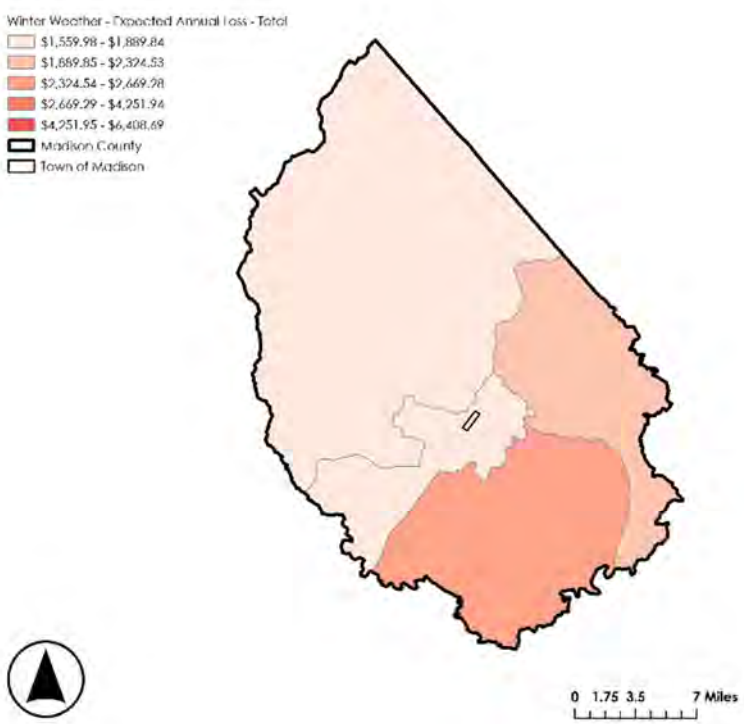


Figure 5.11.4.e – Madison County – Winter Weather Vulnerability – Hazard Type Risk Index Score

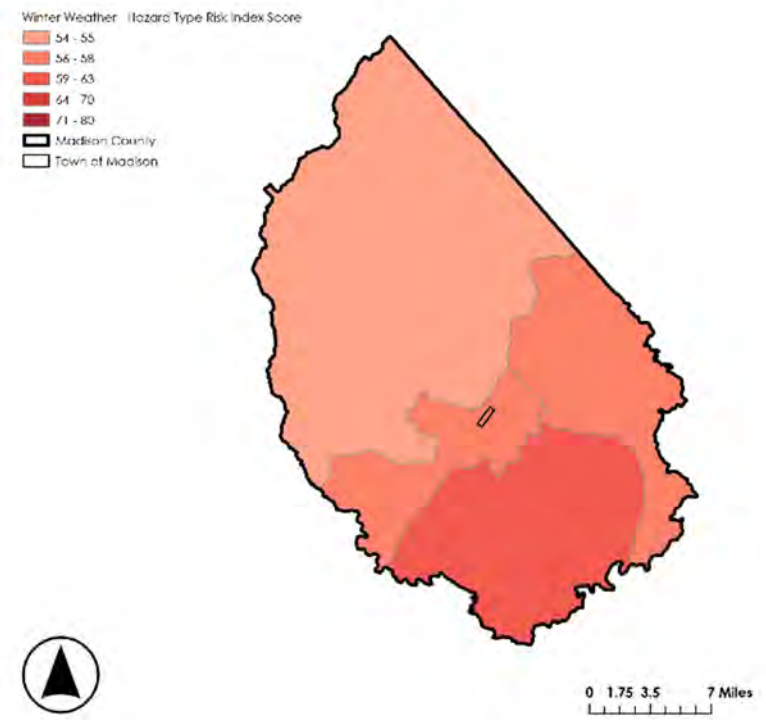


Figure 5.11.5.a – Orange County – Winter Weather Vulnerability – Annualized Frequency

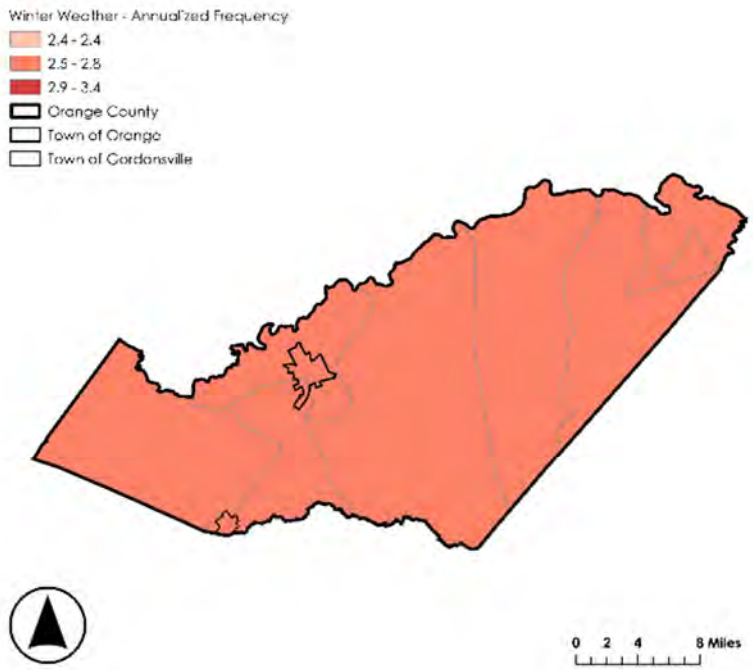


Figure 5.11.5.b – Orange County – Winter Weather Vulnerability – Expected Annual Loss – Population Equivalence

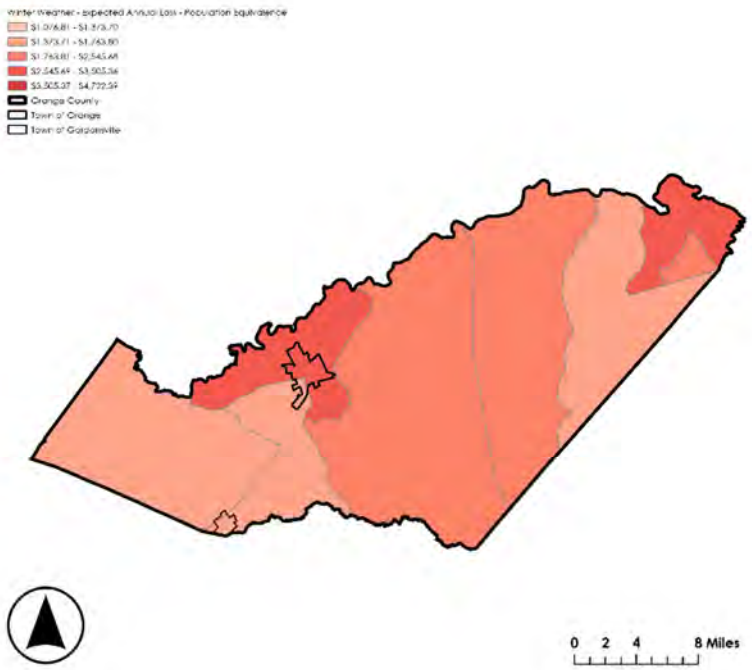


Figure 5.11.5.c – Orange County – Winter Weather Vulnerability – Expected Annual Loss – Building Value

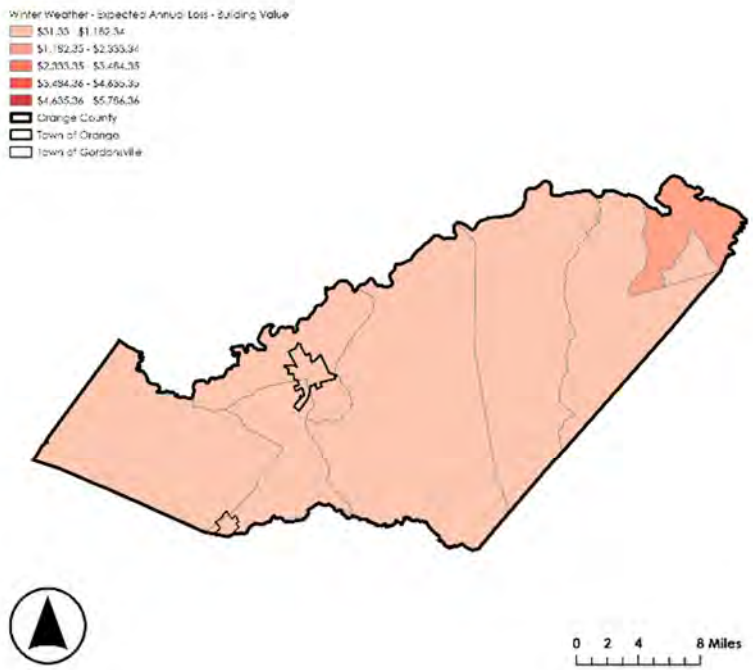


Figure 5.11.5.d – Orange County – Winter Weather Vulnerability – Expected Annual Loss – Total

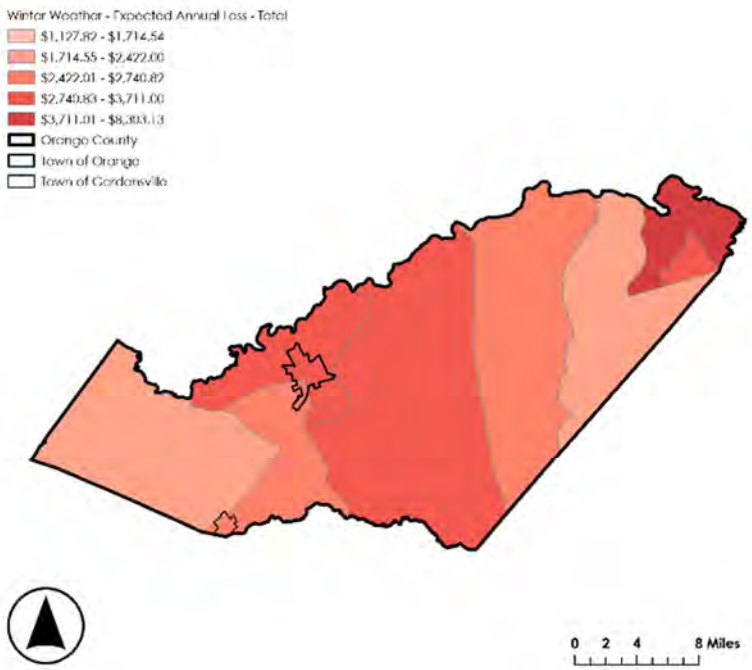


Figure 5.11.5.e – Orange County – Winter Weather Vulnerability –
Hazard Type Risk Index Score

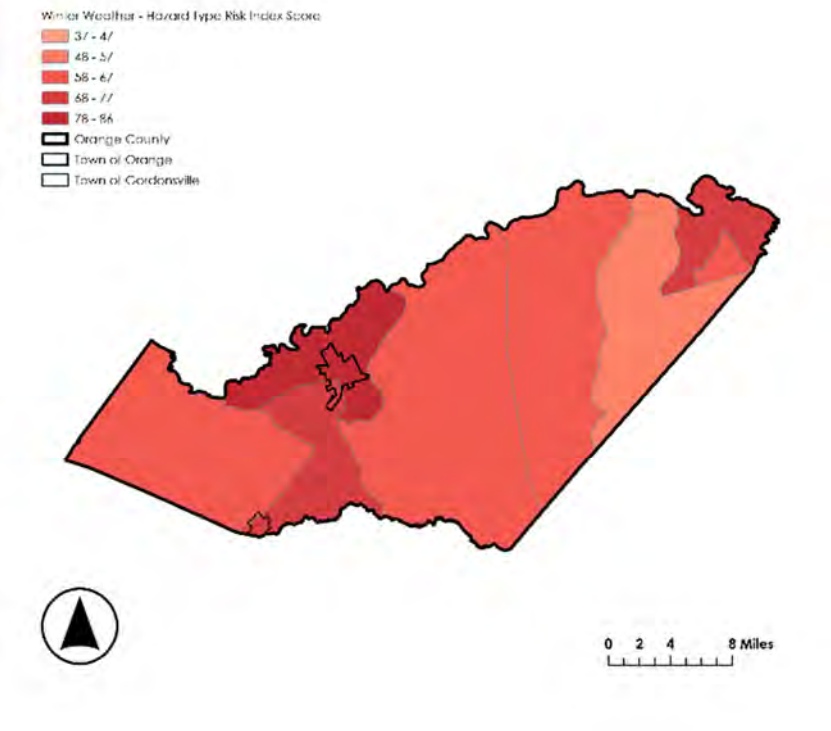


Figure 5.11.6.a – Rappahannock County – Winter Weather Vulnerability – Annualized Frequency

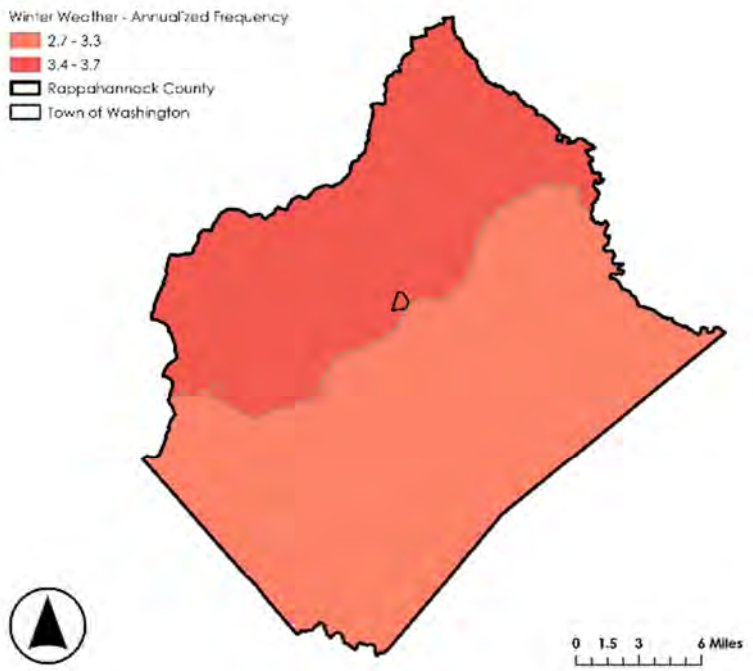


Figure 5.11.6.b – Rappahannock County – Winter Weather Vulnerability – Expected Annual Loss – Population Equivalence

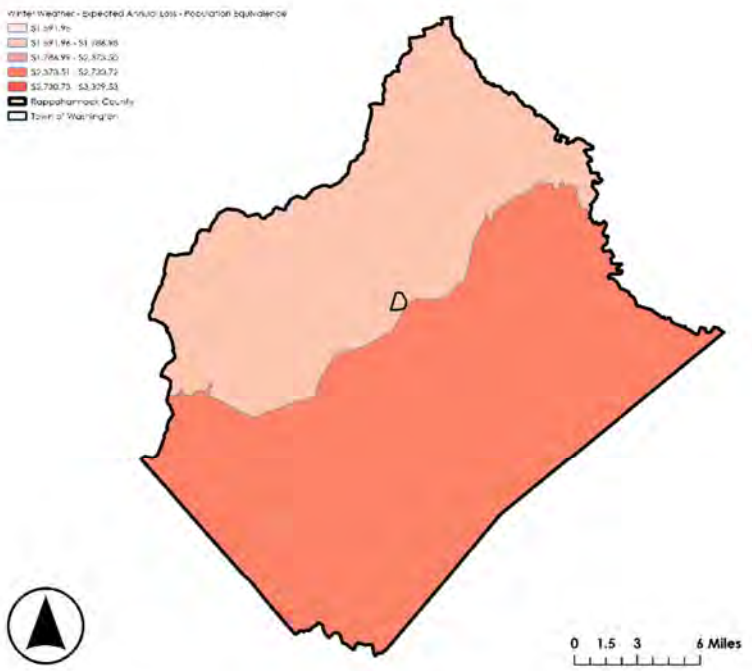


Figure 5.11.6.c – Rappahannock County – Winter Weather Vulnerability – Expected Annual Loss – Building Value

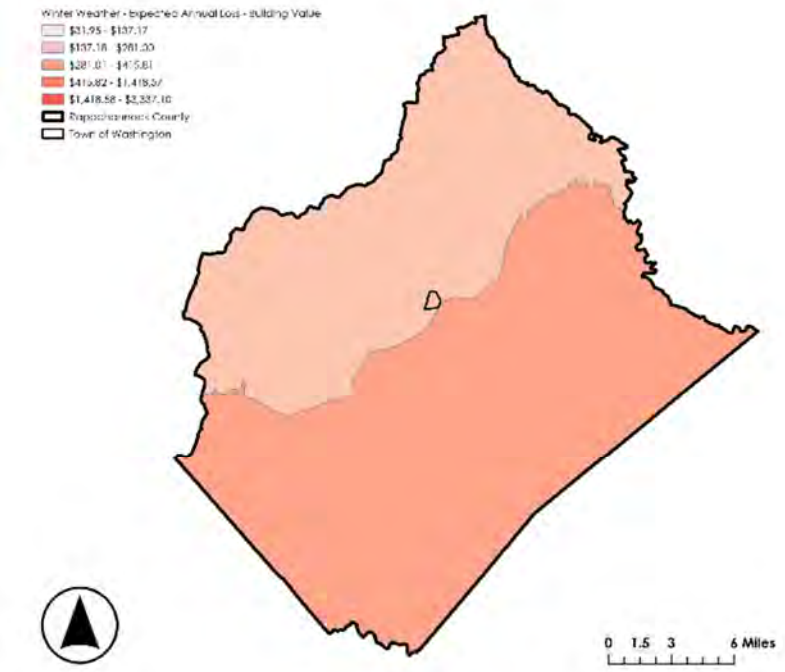


Figure 5.11.6.d – Rappahannock County – Winter Weather Vulnerability – Expected Annual Loss – Total

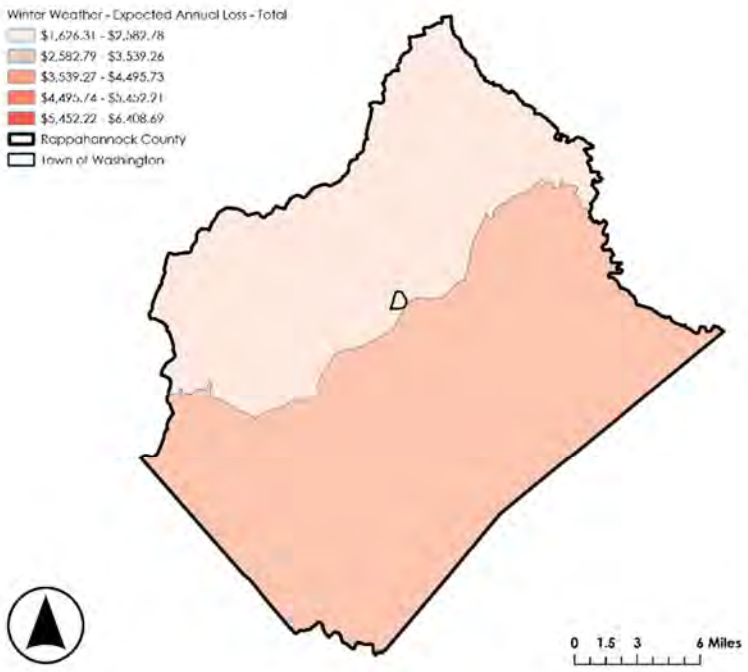
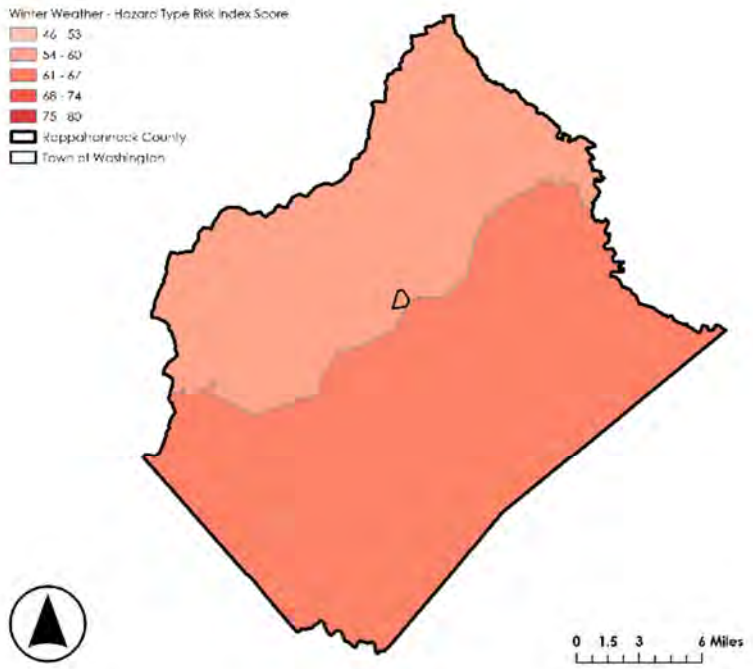


Figure 5.11.6.e – Rappahannock County – Winter Weather Vulnerability – Hazard Type Risk Index Score



5.1.11 PANDEMIC VULNERABILITY ASSESSMENT

The COVID-19 pandemic has brought to the forefront a challenging and multi-faceted hazard. The CDC has guidelines on how to approach influenza outbreaks, but otherwise there is sparse information for how to respond to any individual infectious agent. The response to the novel coronavirus in Virginia was largely driven by federal recommendations but implemented locally through Virginia Department of Health district offices, which led to different responses across the Commonwealth. Because pandemics of this nature evolve as new information emerges, the recommendations for this Plan are more general in nature.

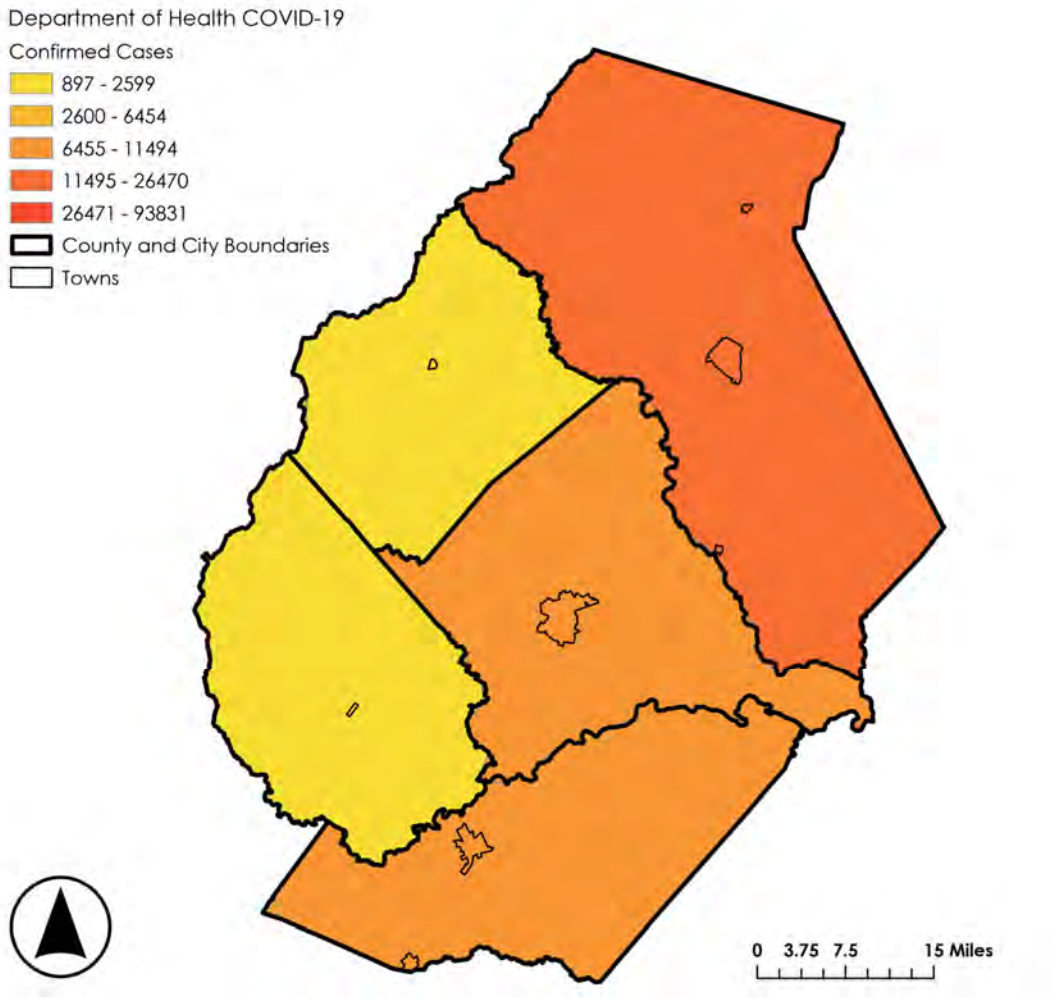
Because pandemic events may be localized and are difficult to predict, a quantitative assessment of the risk is difficult. The map below provides information from the COVID-19 pandemic on factors that may influence losses to human life, including confirmed cases and access to clinics.

There are a number of health organizations and coalitions that work in the region that would be affected if a pandemic or health care emergency were to occur. The Central Virginia Healthcare Coalition (CVHC) is one of four healthcare coalitions (HCCs) in the Commonwealth of Virginia. It is through regional structure of these coalitions, that the Virginia Department of Health (VDH) and the Virginia Hospital & Healthcare Association (VHHA) work with hospitals and healthcare facilities to enhance their capabilities to prepare for, respond to, and recover from a wide range of public health and healthcare emergencies. These organizations in coordination with the regional healthcare centers are on the front line of all public health emergencies.

The Virginia Department of Health has a Rappahannock-Rapidan Health District with Environmental health locations in the towns of Culpeper, Warrenton, Madison, Orange, and Washington and offer emergency preparedness services for infectious disease outbreaks, bioterrorism, and public health emergencies coordinating with hospitals, and local governments during response efforts.

The regional hospitals include Culpeper Regional Hospital, an acute care facility serving Culpeper, Madison, Orange, Rappahannock, and southern Fauquier county and Fauquier Hospital (Warrenton) an acute care hospital offering surgical services, a 24-hour emergency department, ICU, birthing center, and advanced imaging which serves Fauquier and portions of Rappahannock-Rapidan counties. All critical facilities are listed and shown in the Appendix.

Figure 5.12 - Confirmed Cases of COVID-19



Source: Virginia Department of Health, 2020

5.2 COMMUNITY SPECIFIC FLOOD VULNERABILITY

This section provides additional, focused insights into the specific flood vulnerabilities for each community within the Rappahannock-Rapidan Region. These profiles build upon the broader flood hazard assessments presented earlier, offering a more granular look at flood-related vulnerabilities, assets, and considerations for potential mitigation strategies unique to each locality.

By examining factors such as low-to-moderate income areas, social vulnerability indices, conservation lands, and known flooding hotspots, these profiles aim to provide a comprehensive understanding of each community's flood resilience challenges and opportunities. This information is particularly valuable for targeted mitigation efforts and for communities seeking to leverage funding opportunities such as the Community Flood Preparedness Fund (CFPF).

It is particularly important to investigate census tracts within the region that qualify as a low-income geographic area. As defined in the 2024 Community Flood Preparedness Fund (CFPF) manual, "Low-income geographic area" means any locality, or community within a locality, that has a median household income that is not greater than 80 percent of the local median household income or any area in the Commonwealth designated as a qualified opportunity zone by the U.S. Secretary of the Treasury via his delegation of authority to the Internal Revenue Service." These areas are eligible to apply for CFPF flood mitigation project funding with as little as 10% matching funds.

The data presented in these profiles has been compiled from various sources, including local government records, state and federal databases, and community and locality staff interviews, who have in-person anecdotal knowledge of flood events and issues. The combination of quantitative data with qualitative insights from local stakeholders aims to create a detailed picture of each locality's flood-related challenges and strengths.

Each profile begins with an assessment of economic and social vulnerability, by illustrating the percentage of population that is Low to Moderate Income[7] (LMI) in each census tract. As mentioned above, the CFPF reduces required grant match to 10% if an area contains an LMI designation not greater than 80% when compared to the Area Median Income (AMI)[8]. Social vulnerability is analyzed through the CDC's Social Vulnerability Index (SVI), which indicates the relative vulnerability at the census tract level according to 15 factors such as unemployment, minority status, and disability and across 4 corresponding "themes". Maps for each locality show the weighted aggregate of all 15 factors.[9] Projects and studies in areas with a higher SVI will receive prioritized rankings for CFPF funding. Another measure of vulnerability – which is especially important in rural areas in the event of a flood hazard – is access to a vehicle (or lack thereof), which impacts access to resources and hinders evacuation from

[7] https://www.hud.gov/sites/documents/DOC_16470.PDF
[8] https://www.hud.loans/
[9] https://www.atsdr.cdc.gov/placeandhealth/svi/index.html

flooded areas. Finally, the density of each census block group (a smaller subdivision of a census tract) in each locality is mapped to show dense areas where flooding may have higher impacts, rural communities that may have unique outreach and communications issues in event of a flood, and potential prioritization for flood mitigation projects.

Conservation lands and ecological cores are examined for each locality using data from the Virginia Department of Conservation and Recreation (DCR) and the Virginia Natural Landscape Assessment (VaNLA). Conservation easements, particularly riparian, floodplain, forested, and wetland easements, are highlighted as practical tools for directing development away from flood-prone areas and creating refuge for both humans and wildlife. They are also typically indicative of public or nonprofit-held land that allows for easier procurement for large-scale flood mitigation projects. Ecological cores, defined as patches of natural land with at least 100 acres of interior cover, are mapped and rated based on the ecosystem services they provide which directly contribute to mitigating flood impacts and enhancing overall community resilience to flooding events. These cores generally provide natural water volume storage and absorption, as well as helping manage erosion, water quality, groundwater recharge, and local temperature regulation. Showing existing conservation lands and ecological cores overlaid on the floodplain can help illustrate which flood-prone areas are already protected and those unprotected areas which could benefit from conservation efforts.

Next, critical facilities and infrastructure, National Flood Insurance Policy (NFIP) repetitive loss properties, vulnerable bridges and culverts, and dam inundation zones are referenced and examined. The critical facility analysis is integrated into the hazard mitigation plan in Section 5.1 via the Hazus analysis and the national risk index analysis. These assets are also analyzed as part of the flood resilience plan via community feedback and public data sets. Critical facilities, such as hospitals, fire stations, water treatment plants, and others, are specifically evaluated here for their susceptibility to floods, by locating those in a SFHA. The analysis ensures that these essential services remain operational during and after flooding events. It also informs potential mitigation strategies, such as relocating facilities from flood prone areas or implementing structural reinforcements, could be included in the plan. See Appendices for critical facility maps and FEMA SFHAs and an updated list of critical facilities for each locality.
It should be noted that – due to safeguarding of personally identifiable information – the location of repetitive loss properties is not mapped.

Additionally, a map of major bridges and culverts in "poor" condition according to VDOT metrics are overlaid on the floodplain, showing areas where transportation and water conveyance may be threatened by flooding. Dams, while not an everyday flooding concern, present the risk of serious and less predictable flood events that threaten human lives, property, and crucial flood resilience and drinking water infrastructure. Maps are provided for known high hazard dams and any mapped inundation zones.

Finally, the known areas of flooding for each community are analyzed based on publicly available data and conversations with stakeholders. VDOT produces maps that show historic vehicle crashes, which can be filtered to show those that have occurred

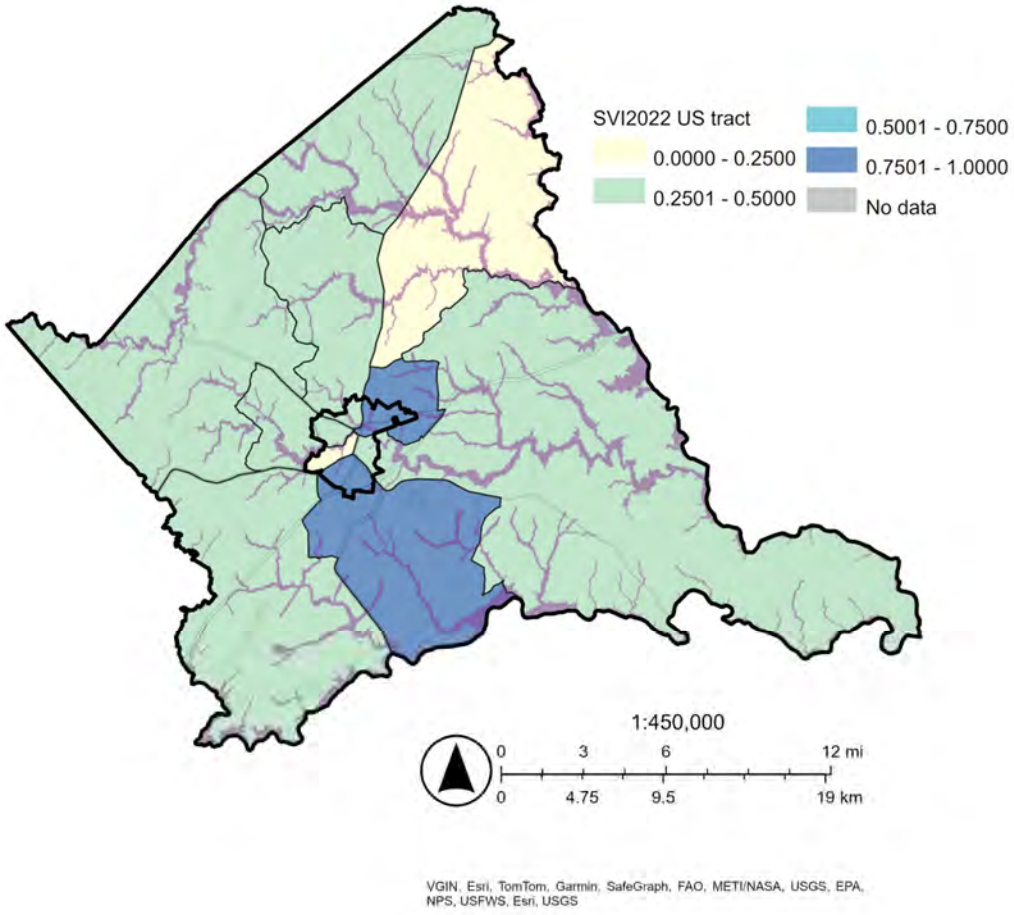
due to standing or moving water, overlaid on the regulatory floodplains as well as a layer showing the relative income of each census tract in each locality. This analysis explores the intersection between flooding, vulnerability, and safety, and may identify areas for flood mitigation projects or studies.

Each locality's floodplain management ordinances are linked in the Appendix for reference.

5.2.1 CULPEPER COUNTY AND THE TOWN OF CULPEPER

There are no LMI census tracts within Culpeper County. However, there may still be areas that qualify as vulnerable based on characteristics other than income.
The map below is the overall SVI ranking for each census tract. Projects and studies in areas with a higher SVI will receive prioritized rankings for CFPF funding.

Figure 5.13.1 - Social Vulnerability Ranking by Census Tract in Culpeper County

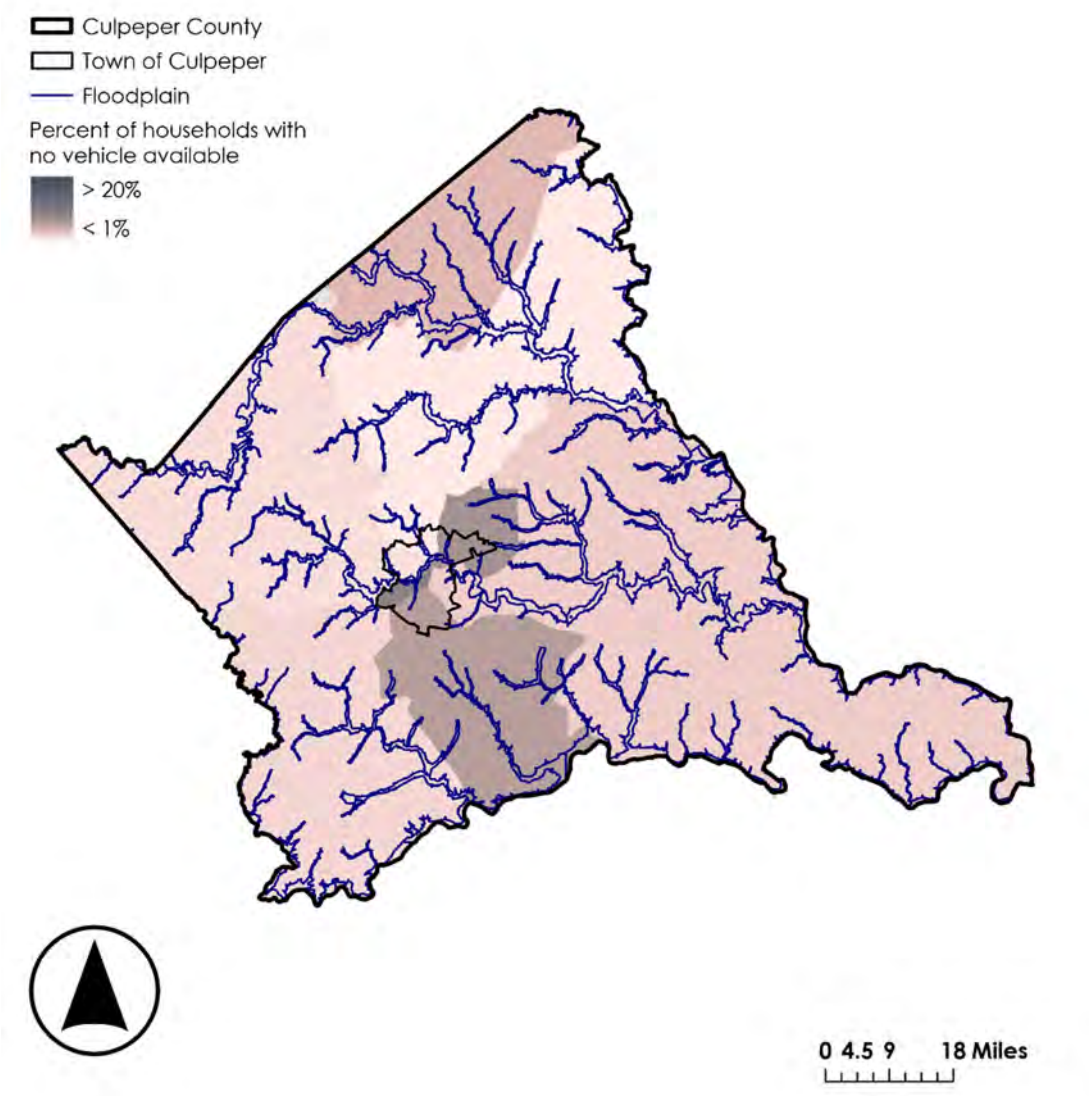


The DCR: VFRIS – Virginia Flood Risk Information System has added a Social Vulnerability Block Groups 2020 layer that contains two attributes required for CFPF Round 5 grant applications: SVI Class and SVI Index CFPF. If a project is located in a block group that

has a ranking of SVI Class of High or Very High Social Vulnerability, the project may be subject to a decreased funding match.[10]

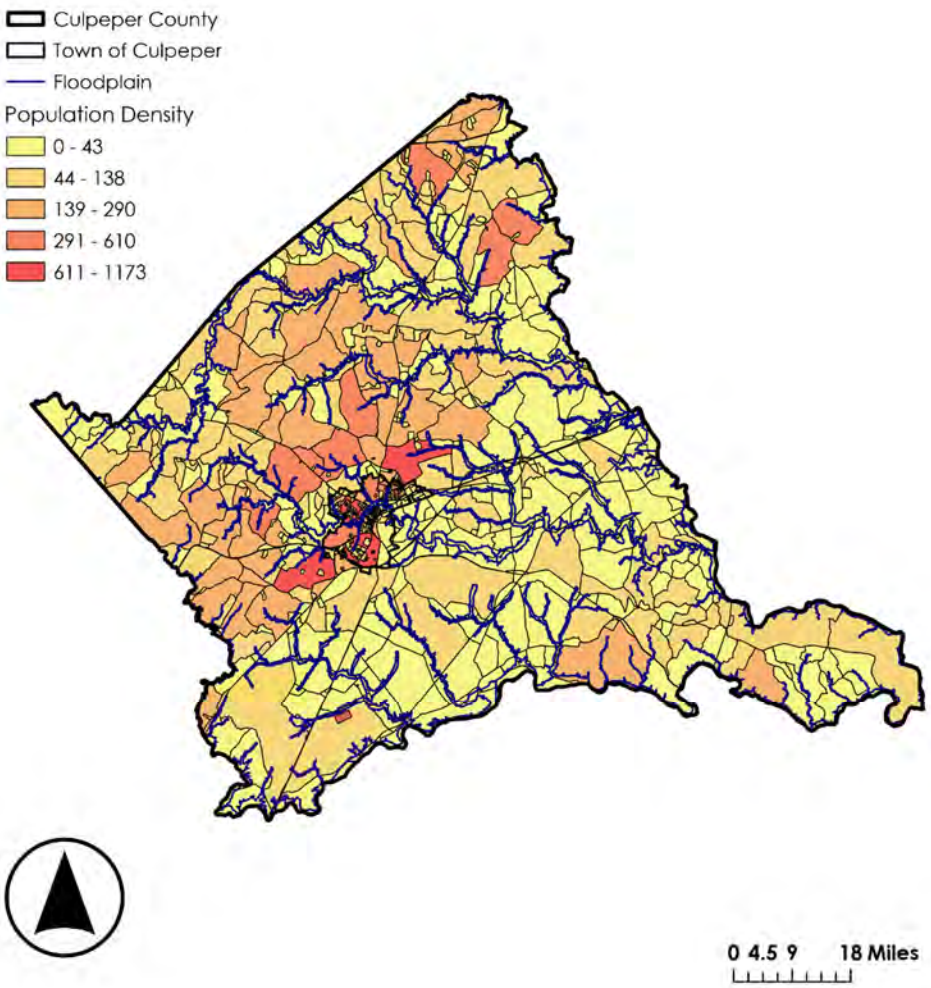
The Western edge of the County has a higher percentage of residents without vehicle access, which can be concerning for any flood evacuation. See Figure 5.13.2 below for areas in the County with no vehicle access and as well as designated flood plain areas.

Figure 5.13.2 - Flood Vulnerability and Vehicle Access (Virginia Department of Conservation and Recreation and US Census (2020)



[10] DCR FRIS https://casdsis.dcr.virginia.gov/VFRIS/?page=Map&views=Layers

Figure 5.13.3 - Flood Vulnerability and Population Density (Virginia Department of Conservation and Recreation and US Census (2020)



Culpeper County, Virginia, is a predominantly rural area. The population density in Culpeper County is relatively low compared to urban areas, with most of the population centered around the Town of Culpeper and areas to the North and West. The county has a mix of residential, agricultural, and commercial land use, with most of the population living in single-family homes spread across larger lots. This type of development contributes to the low-density nature of the area.

Conservation Lands

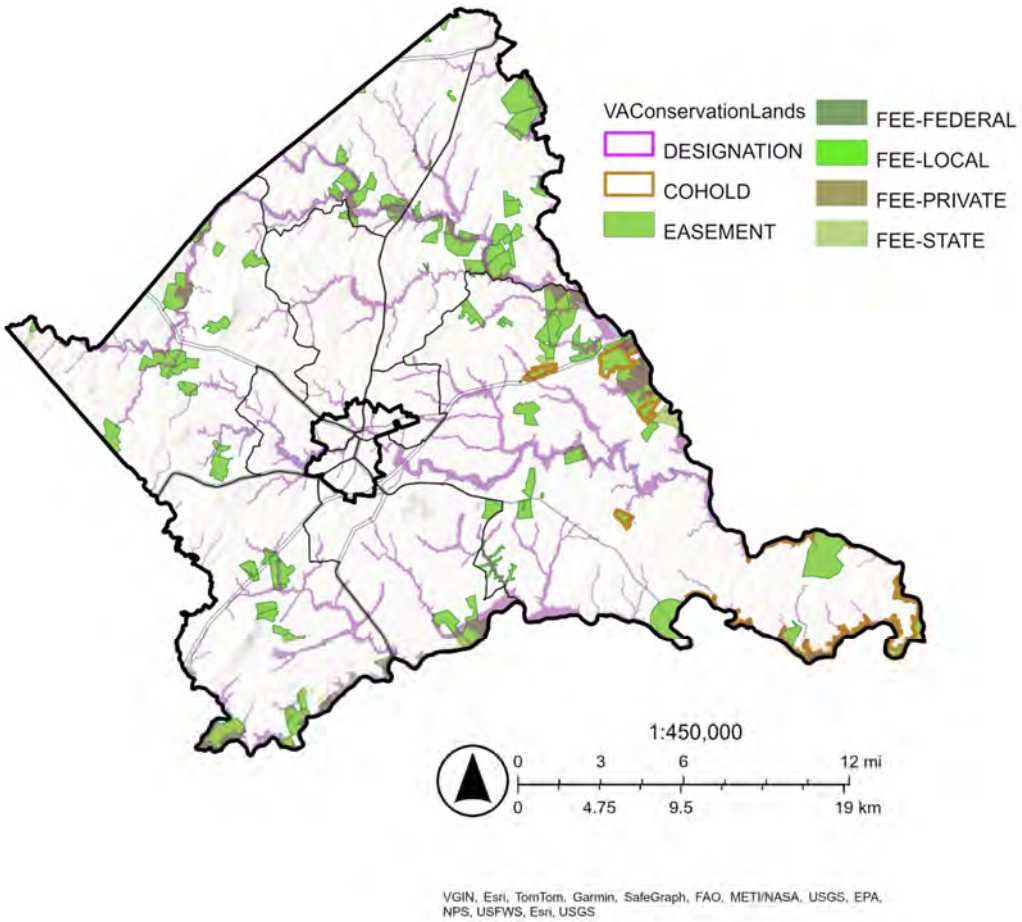
Culpeper County contains numerous notable geographic features, including the Rapidan River, which forms the southern border of the County, and the Rappahannock River, which forms part of the northern border. The County's landscape is characterized by rolling hills and fertile plains typical of Virginia's Piedmont region. In the western portion of the County, Shenandoah National Park extends slightly into Culpeper,

offering access to the scenic Skyline Drive and numerous hiking trails. The 4,500-acre Germanna-Wilderness Area, located in the eastern part of the County, preserves historical sites and natural areas, including portions of the Rapidan River. Additionally, the County features several parks and recreational areas.

The County is home to several significant water bodies, including Mountain Run Lake and Lake Culpeper (formerly Pelham), both of which offer recreational opportunities. The Culpeper Barnett Shoals Dam Area, situated on the Rappahannock River, is a popular spot for fishing and wildlife viewing.

Various other state forest and natural areas exist in the County along with public and private conservation easements. Some of these easements are riparian easements, which are a practical tool to direct development away from flood prone areas. The map below shows these conservation areas according to DCR, overlaid on the 100-year floodplain.

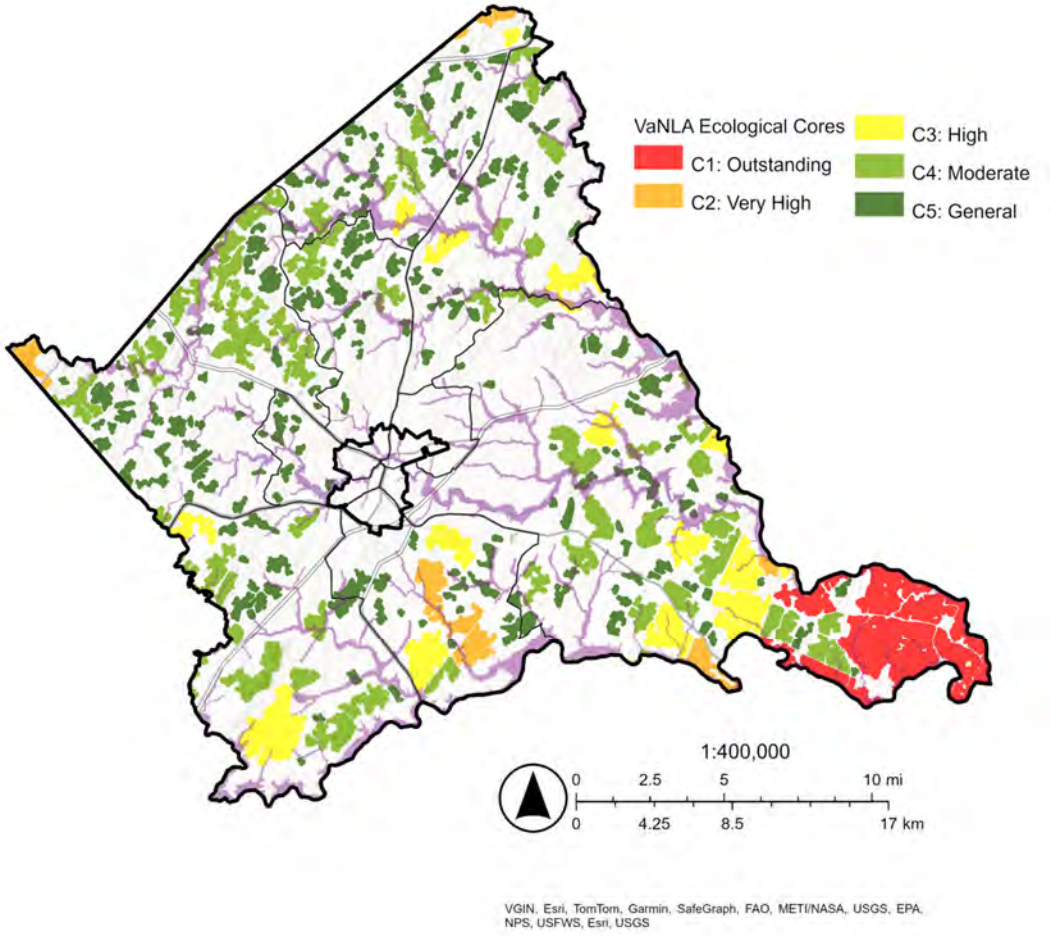
Figure 5.13.4 - Culpeper County Conservation Easements



Ecological Cores

The following map shows which areas of the County and town within Culpeper County contain ecological cores.

Figure 5.13.5 - Culpeper County Ecological Cores



Flooding and Built Assets - Critical Facilities and Infrastructure

Section 4.1.8 Flood contains maps of the FEMA floodplains for each locality in the Rappahannock-Rapidan Region as well as a list of major flooding events.

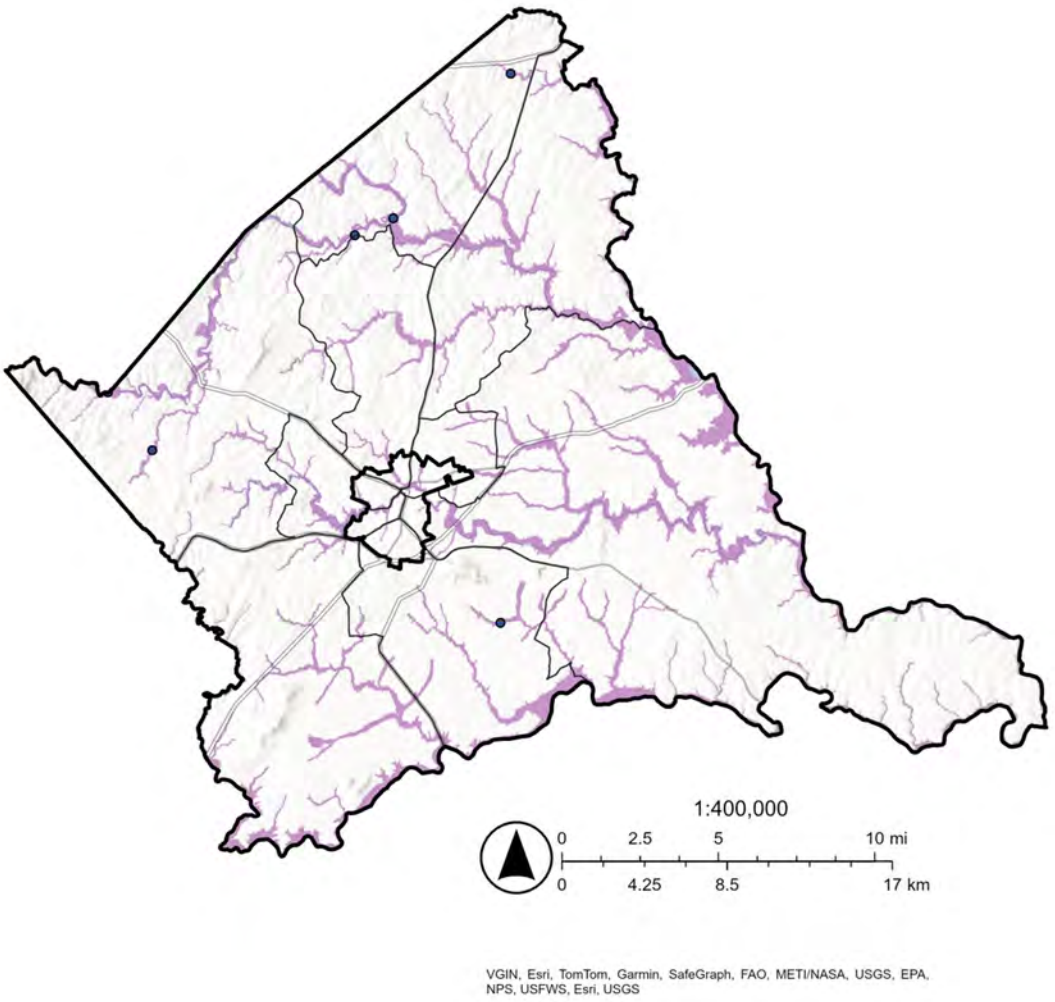
Culpeper County currently has 4 repetitive loss properties and 51 NFIP policies. The Town of Culpeper does not contain any repetitive loss properties. In addition to Hazard Mitigation Plan requirements, the Community Flood Preparedness Fund also requests that this analysis be considered in the overall flood resilience plan.

See Appendices for critical facility maps and FEMA SFHAs and an updated list of critical facilities for each locality.

Stormwater infrastructure maintenance and repair should be a priority for these roads and can be prioritized for future funding and coordination with the Virginia Department of Transportation. The map below illustrates the most recent data from VDOT on the

condition of bridges and culverts, which may be more susceptible to the impacts of severe flooding and to strand motorists or cut off primary modes of ingress and egress for certain communities.

Figure 5.13.6 –Bridges and Culverts Classified as "Poor" Rating, VDOT, 2024 Overlaid on Floodplains



Dam Inundation

The largest concern with the dams in Culpeper County's jurisdiction (31 total, with four classified as high or high-special hazard potential and 21 unknown) are the homes, businesses, important thoroughfares and other transportation assets, and critical infrastructure assets in the Dam Break Inundation Zone (DBIZ).

Figure 5.13.7 – Culpeper County Dams and Mapped Dam Inundation Zones – see inset for detailed zoom area.

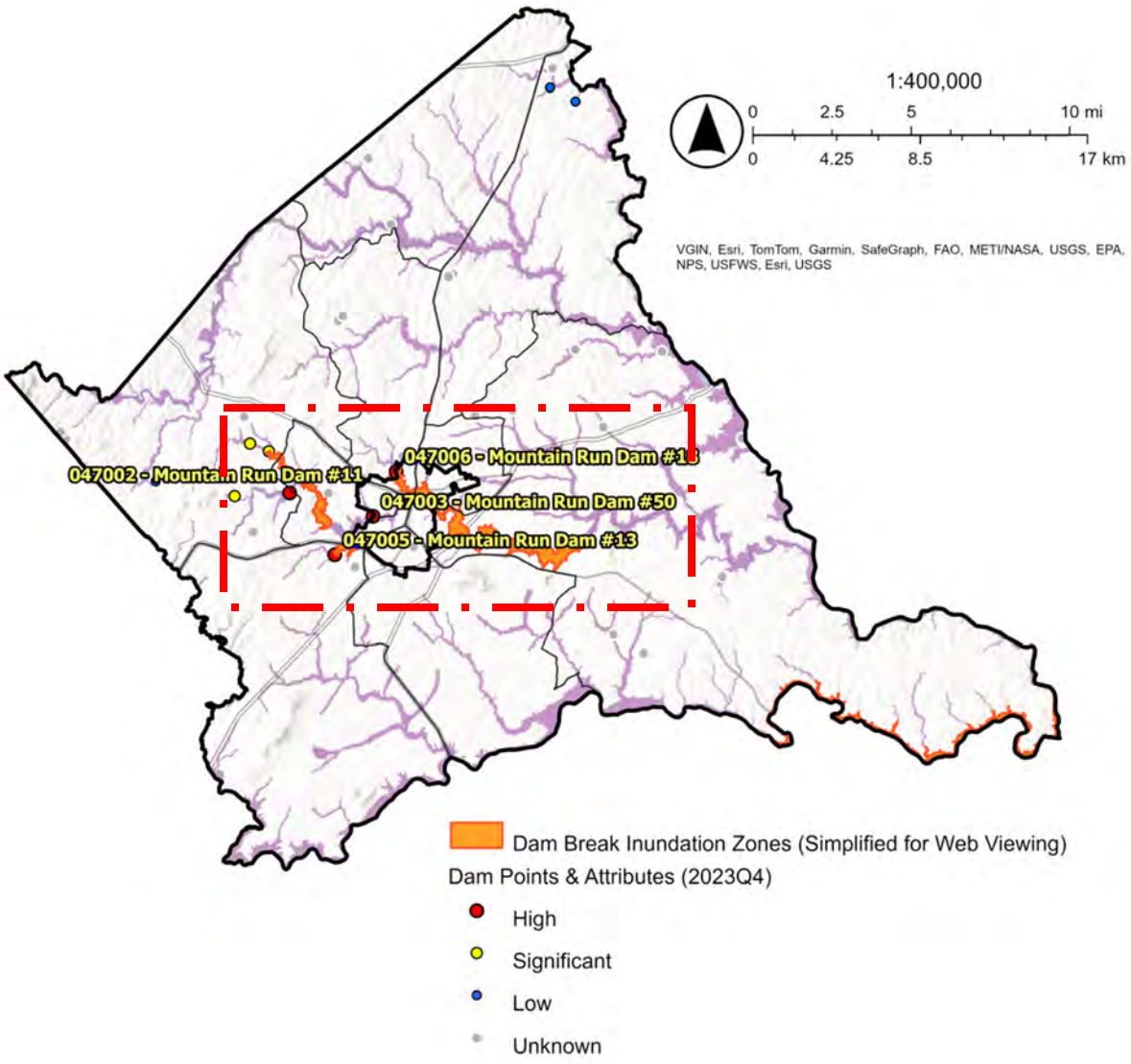
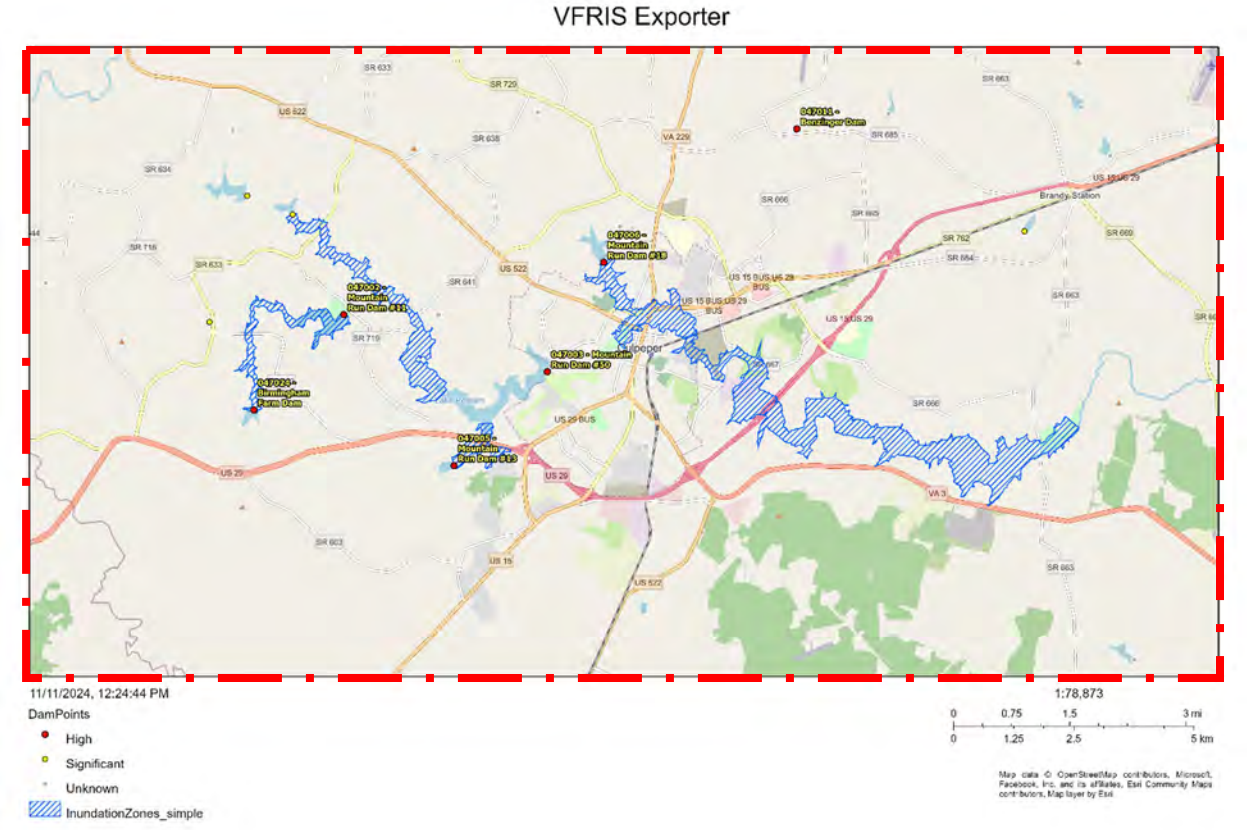


Figure 5.13.8 - Dam Break Inundation Zone Zoom in Culpeper Count, VA



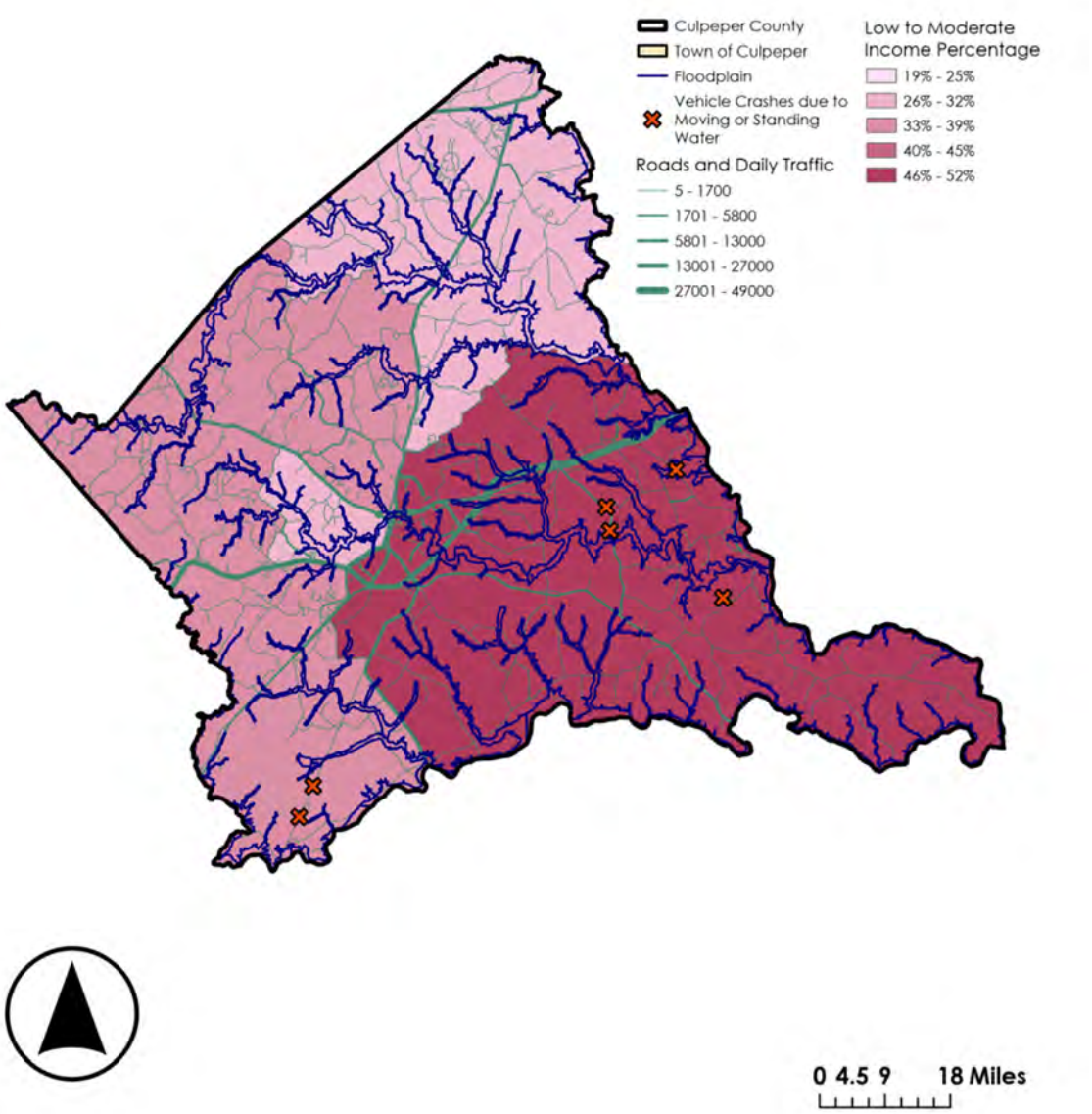
The main potential impacts are those to bridges, culverts, and other transportation infrastructure. It is unknown whether significant vulnerable and minority populations would be affected by dam spillovers in Culpeper County, but many critical roads would need to be closed or might be washed away entirely, impeding travel and egress. The map of dams of known and unknown hazard potential are shown in the map below.

Areas of Known Flooding
Through stakeholder interviews with staff, as well as a local community group, it was communicated that increases in floods have been occurring in areas near watercourses, and near areas that are seeing increases in impervious surfaces for developments such as data centers near Brandy Station, VA.

Additionally, road outages due to flooding occur between Mountain Run and Jonas Run on Stevenburg Road. The underlying soils can also contribute to inability to drain efficiently. “Blackjack soils” or black clay with a layer of shale below prevents water from infiltrating.

Culpeper County contains several roads known to have flooding and standing water issues. The county can collaborate closely with the Virginia Department of Transportation to identify these areas and work to ameliorate chronic flood issues.

Figure 5.13.9 - Culpeper County Crashes Due to Standing or Moving Water overlaid on Low to Moderate Income Population by Tract. 2024.



Known Areas of Road Flooding
Route 3/Germanna Highway
2261 Germanna Highway
Carrico Mills Road
Kellys Ford Road
Route 620
Route 669
Rapidan Road

5.2.2 FAUQUIER COUNTY AND THE TOWN OF THE PLAINS, REMINGTON, AND WARRENTON

Fauquier County does not contain LMI geographic area census tracts as per the CFPF definitions. The map below is the overall SVI ranking for each census tract. Projects and studies in areas with a higher SVI will receive prioritized rankings for CFPF funding.

Figure 5.14.1 - Fauquier County Social Vulnerability Index Ratings by Census Tract

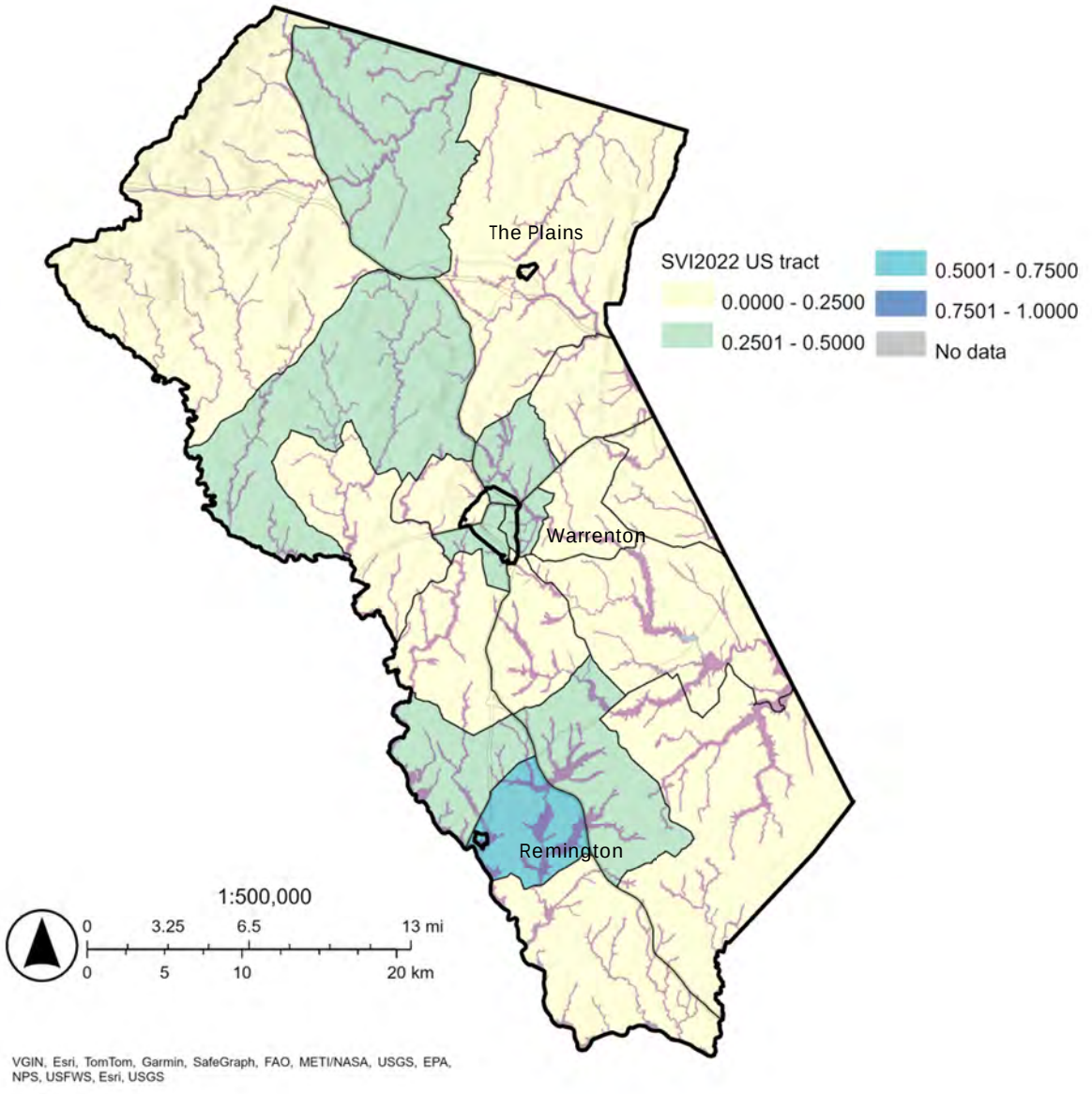
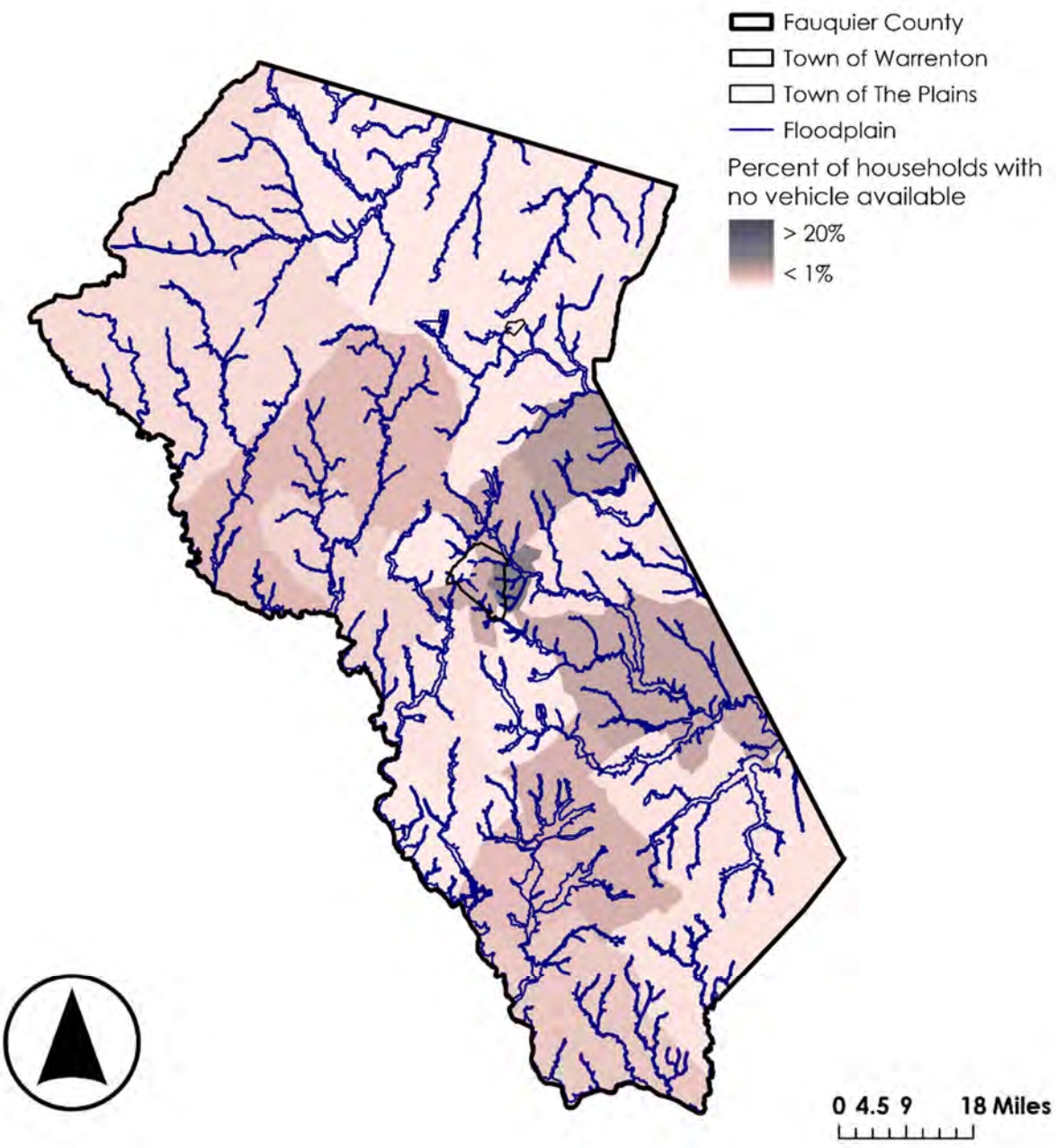


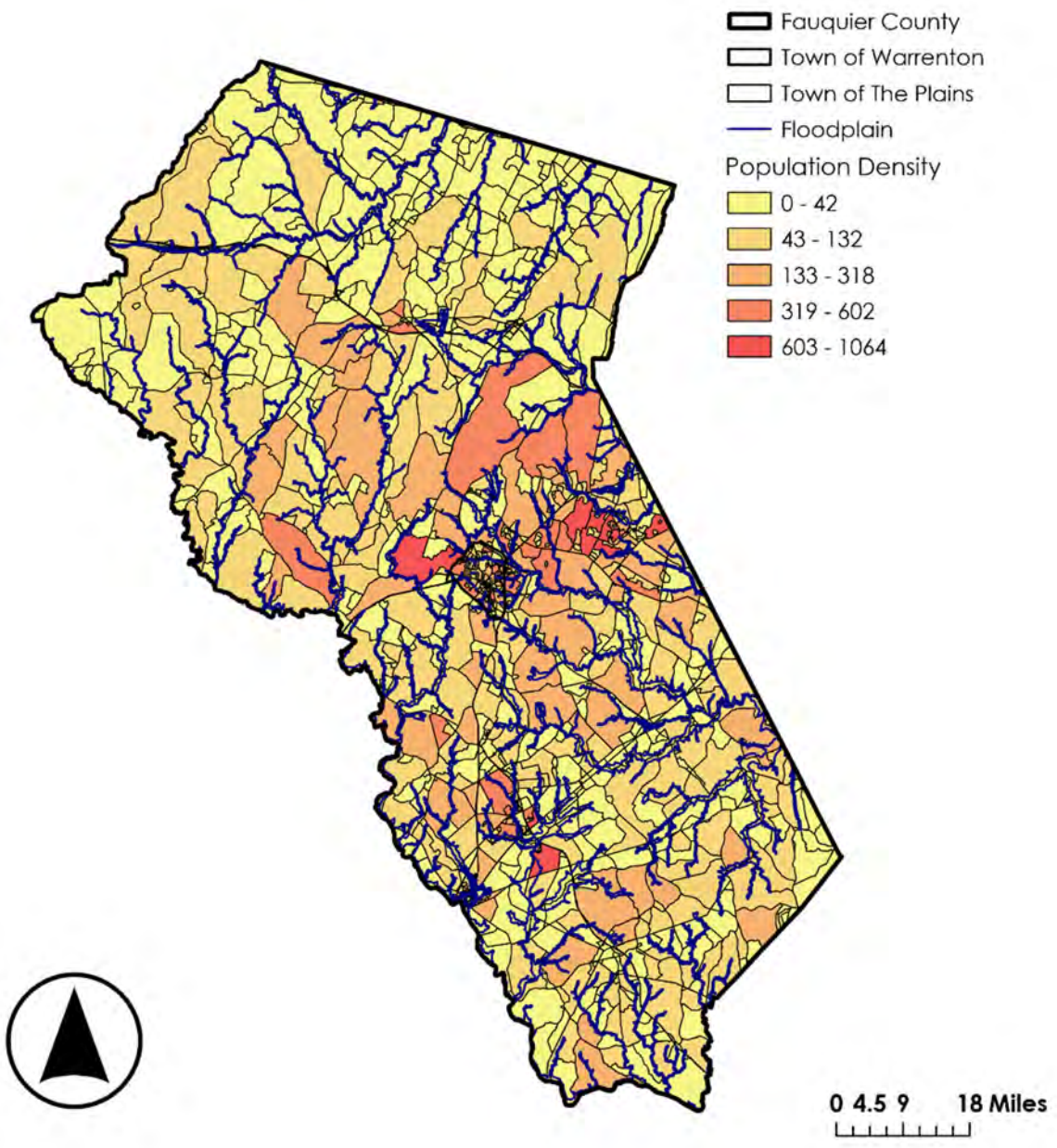
Figure 5.14.2 - Flood Vulnerability and Vehicle Access (Virginia Department of Conservation and Recreation and US Census (2020)



Fauquier County, Virginia, has a low population density of around 113 people per square mile, reflecting its predominantly rural landscape with extensive farmland and open spaces. The county's low density and rural character can contribute to

challenges in managing flood-related hazards. While the area is not highly urbanized, it is still susceptible to flooding, especially in low-lying regions and near water bodies. Flood risks can be exacerbated by heavy rainfall, inadequate drainage systems, and changes in land use. Proper planning and infrastructure improvements are essential to mitigate these hazards and protect both property and residents, as this area is rapidly developing as a single-family suburban community within a drive of the Washington DC metro area.

Figure 5.14.3 - Flood Vulnerability and Population Density (Virginia Department of Conservation and Recreation and US Census (2020)



Conservation Lands

Fauquier County contains numerous notable geographic features, including the Rappahannock River, which forms the southern border of the county, and the Bull Run Mountains, which form part of the northern border. The county's landscape is characterized by rolling hills, fertile valleys, and scenic vistas typical of Virginia's Piedmont region.

In the western portion of the county, the G. Richard Thompson Wildlife Management Area offers over 4,000 acres of protected land, providing opportunities for hiking, wildlife viewing, and hunting. The Sky Meadows State Park, located in the northwest corner of the county, features over 1,800 acres of scenic parkland with hiking trails and historic farm buildings.

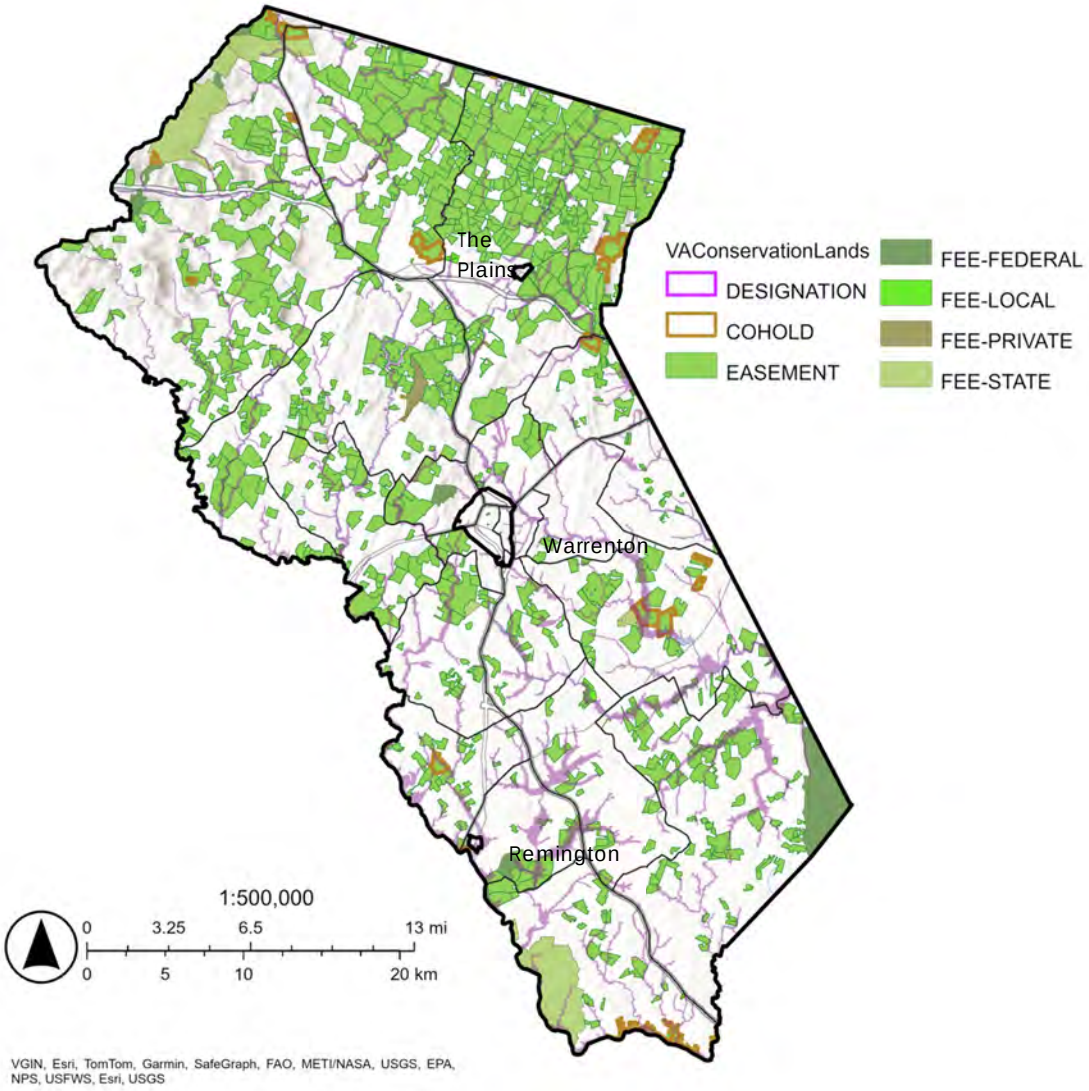
The county is home to several significant water bodies, including Lake Brittle and Germantown Lake, both of which offer recreational opportunities. The Rappahannock River, along the county's southern border, is a popular spot for fishing, kayaking, and canoeing.

The Manassas National Battlefield Park, partially located in Fauquier County, serves as both a historical landmark and a place of remembrance for the Civil War battles fought there. The John Marshall Birthplace Park in Midland commemorates the birthplace of the fourth Chief Justice of the United States.

Additionally, the county features several parks and recreational areas, including the Warrenton Branch Greenway, a 1.5-mile paved trail, and the Vint Hill Farms Station Park, which provides various amenities such as walking trails, sports fields, and picnic areas. The county is also known for its numerous equestrian facilities and events, reflecting its strong horse culture.

The map below shows these conservation areas according to DCR.

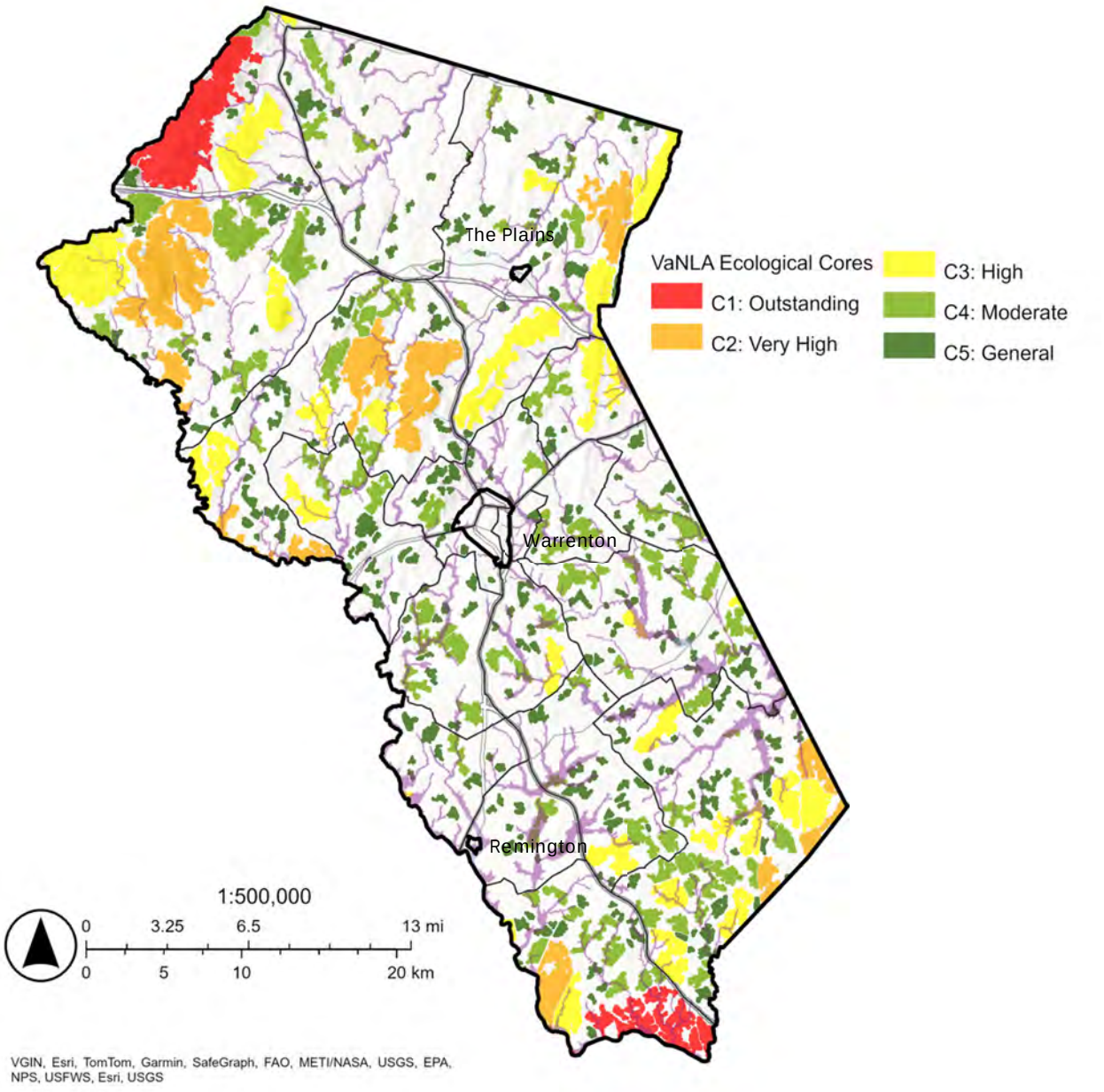
Figure 5.14.4 - Fauquier County Conservation Easements. 2024



Ecological Cores

The following map shows which areas of the counties and towns within Fauquier County contain ecological cores.

Figure 5.14.5. Fauquier County Ecological Cores, VA Heritage Explorer, 2024



Flooding and Built Assets - Critical Facilities and Infrastructure
Section 4.1.8 Flood contains maps of the FEMA floodplains for each locality in the Rappahannock-Rapidan Region as well as a list of major flooding events.

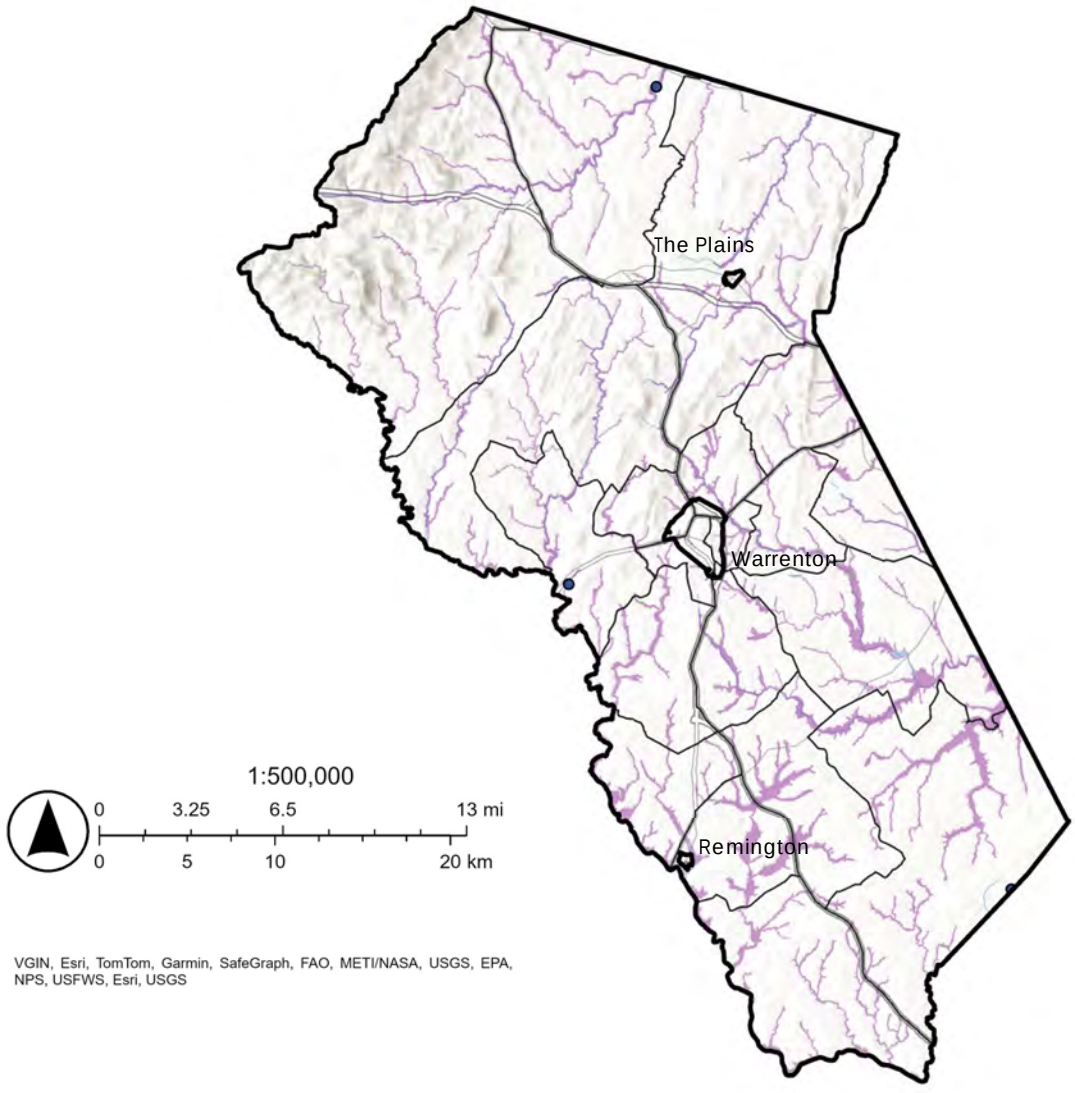
Fauquier County currently has 1 repetitive loss property and 127 NFIP policies. The Towns of Remington, Warrenton and The Plains do not contain any repetitive loss properties. In addition to Hazard Mitigation Plan requirements, the Community Flood Preparedness Fund also requests that this analysis be considered in the overall flood resilience plan.

See Appendices for critical facility maps and FEMA SFHAs and an updated list of critical facilities for each locality.

Stormwater infrastructure maintenance and repair should be a priority for these roads and can be prioritized for future funding and coordination with the Virginia Department of Transportation.

The map on the following page illustrates the most recent data from VDOT on the condition of bridges and culverts, which may be more susceptible to the impacts of severe flooding and to strand motorists or cut off primary modes of ingress and egress for certain communities.

Figure 5.14.6 – Fauquier County Poor Condition Bridges and Culverts, VDOT 2024



Dam Inundation

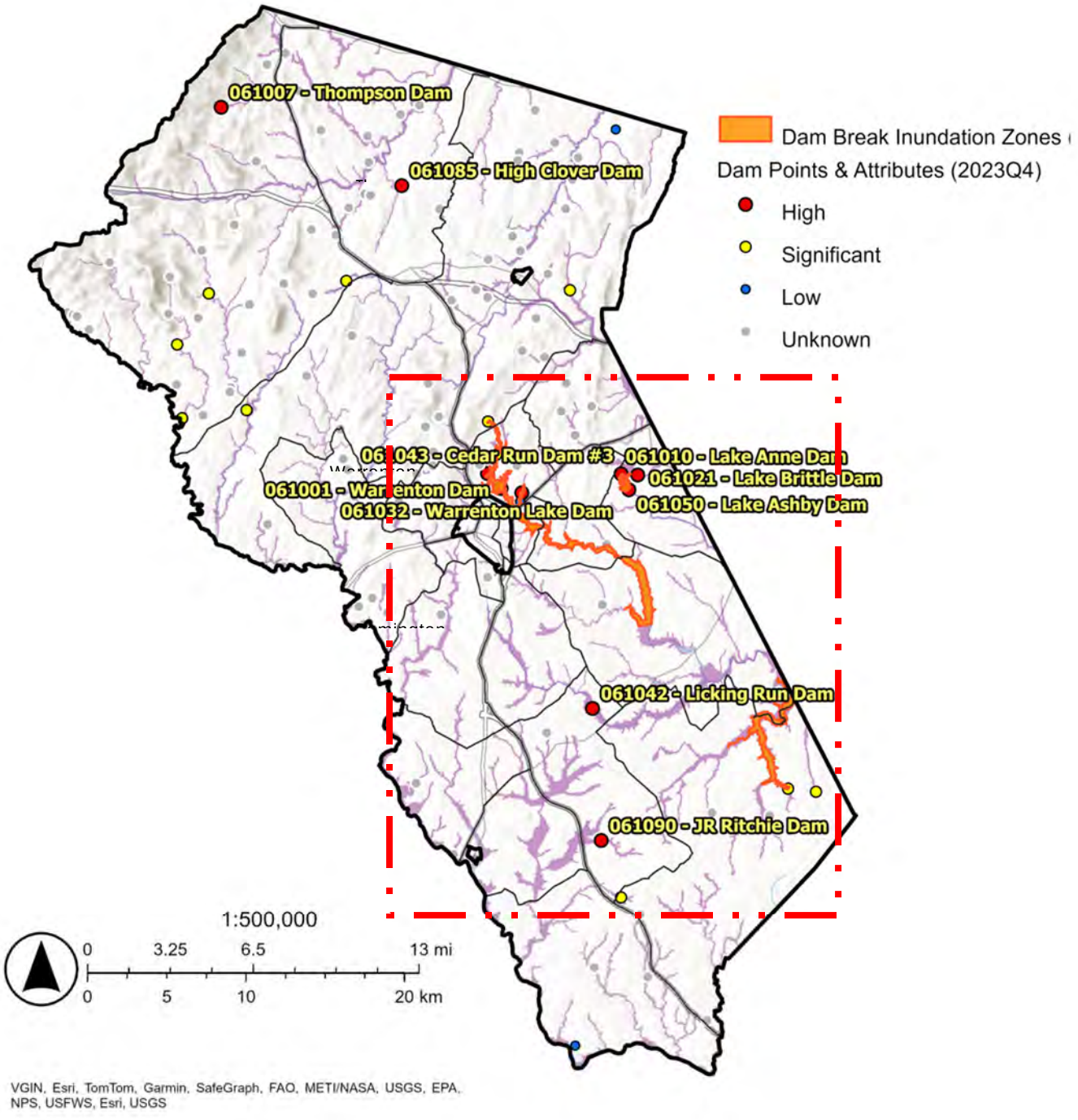
The largest concern with the few dams in Fauquier County's jurisdiction (29 total, with eight classified as high or high-special hazard potential and 8 unknown) are the homes, businesses, important thoroughfares and other transportation assets, and critical infrastructure assets in the Dam Break Inundation Zone (DBIZ).

The main potential impacts are those to bridges, culverts, and other transportation infrastructure.

It is unknown whether significant vulnerable and minority populations would be affected by dam spillovers in Fauquier County, but many critical roads would need to be closed or might be washed away entirely, impeding travel and egress.

The map of dams of known and unknown hazard potential are shown in the map below.

Figure 5.14.7 - Fauquier County Dams and Mapped Dam Inundation Zones



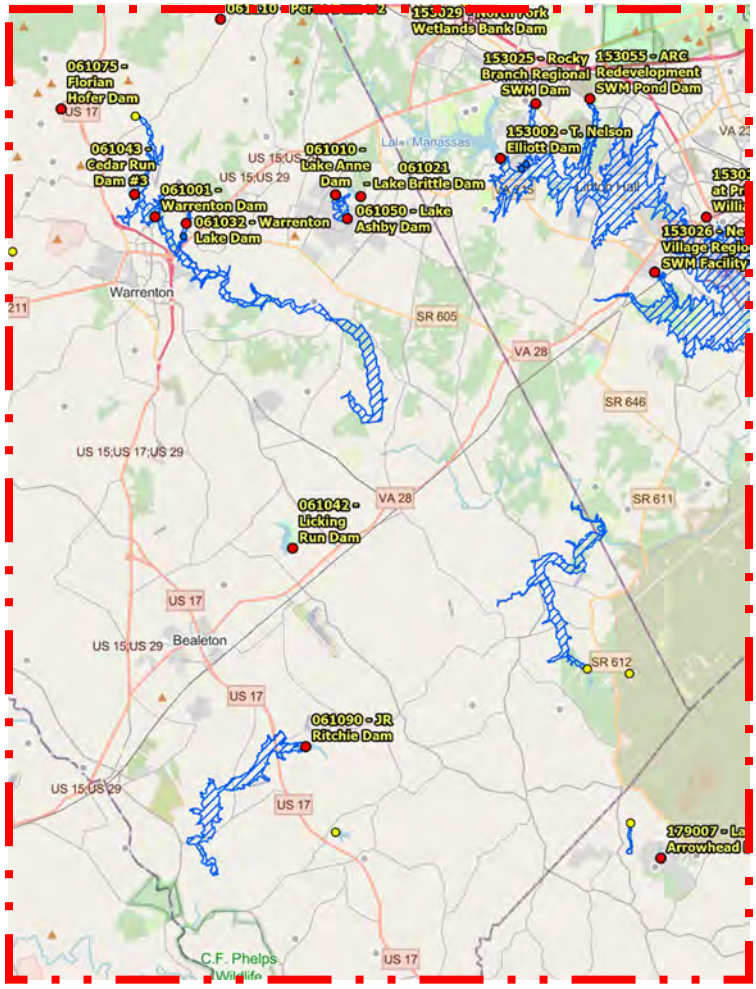


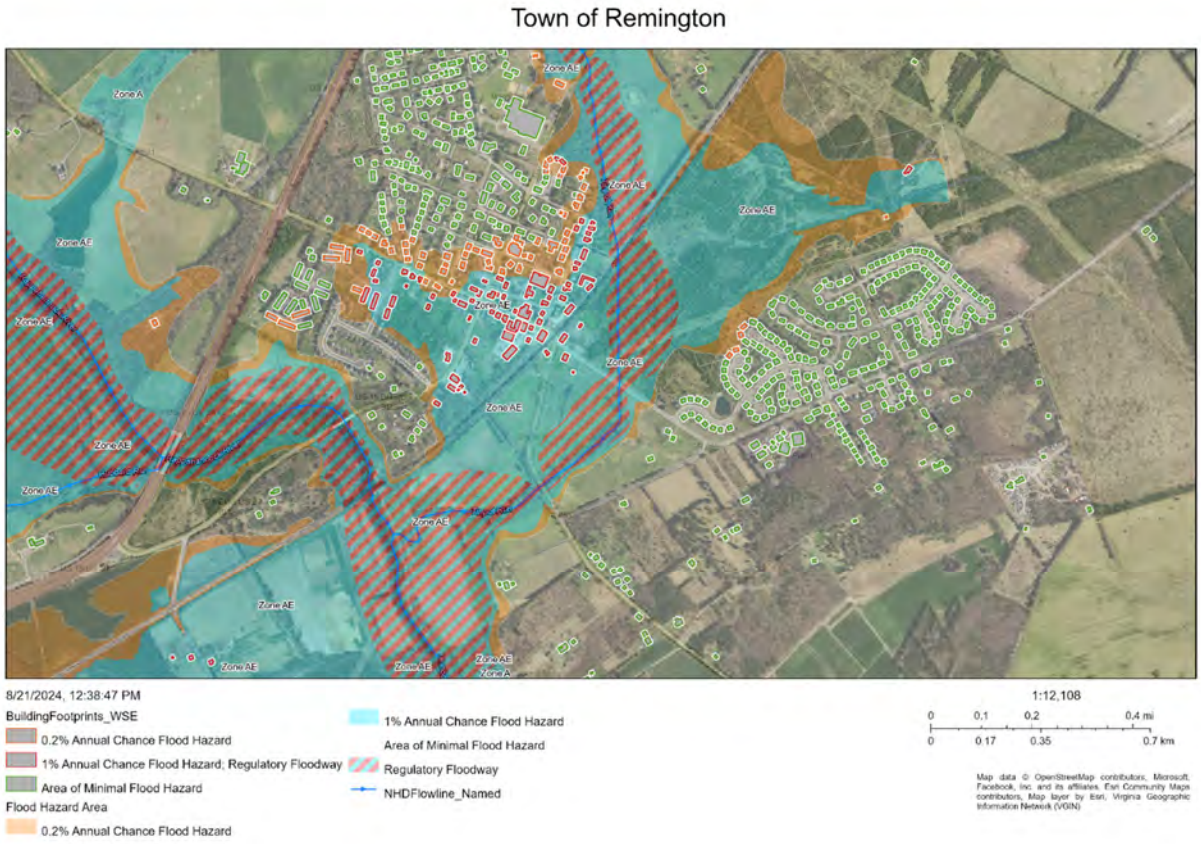
Figure 5.14.8 - Dam Break Inundation Zone Fauquier County Zoom
The Area just to the Northeast of Warrenton town limits has significant area in the Dam Break Inundation Zone.

As learned through stakeholder interviews, the Town of Remington has multiple areas of chronic flooding that occur in the downtown and surrounding low lying areas along the Rappahannock River. Figure 5-X illustrates the regulatory floodway, floodplain and building footprints. Numerous structures and roads are located in the floodplain. These areas should be prioritized for funding further studies and/or on the ground stormwater and flood mitigation improvements.

Facing a flood without a vehicle can be especially difficult. Without transportation, evacuating to safer ground is challenging, making people more vulnerable to rising waters. It also hinders access to essential supplies or emergency services. In such circumstances, individuals might depend on public transport, which is not readily available in the region, or wait for rescue teams that may be delayed due to the conditions. The Western edge of the County has a higher percentage of residents without vehicle access, which can be concerning for any flood evacuation. See Figure

X below for areas in the County with no vehicle access and as well as designated flood plain areas.

Figure 5.14.9 - Dam Break Inundation Zone in the Town of Remington



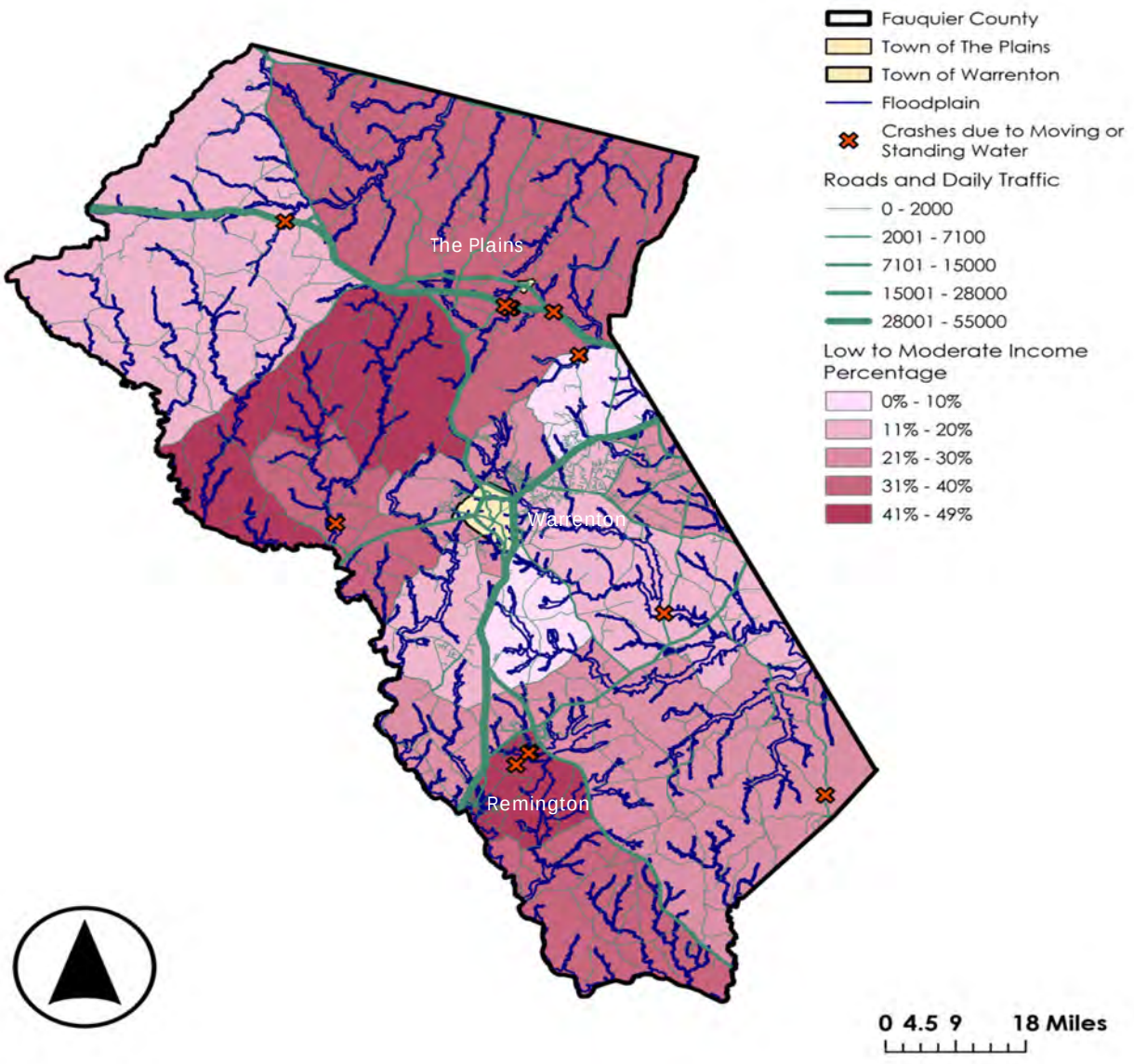
Known Areas of Flooding

Fauquier County contains several roads that are known to have flooding and standing water issues. The County can work with VDOT to fund further studies that can be initiated in the area to understand the underlying hydrology and identify potential solutions to recurrent flooding.

Table 5.14.1, VDOT Roads

Known Areas of Road Flooding
Route 681 - 9450 Block, Cliff Mills
Route 674/Blantyre Road
Interstate 66
Interstate 66 – East
Remington Road
Brent Town Road – 11900 Block
Remington Road – 11540 Block
9594 Bastable Mill Road

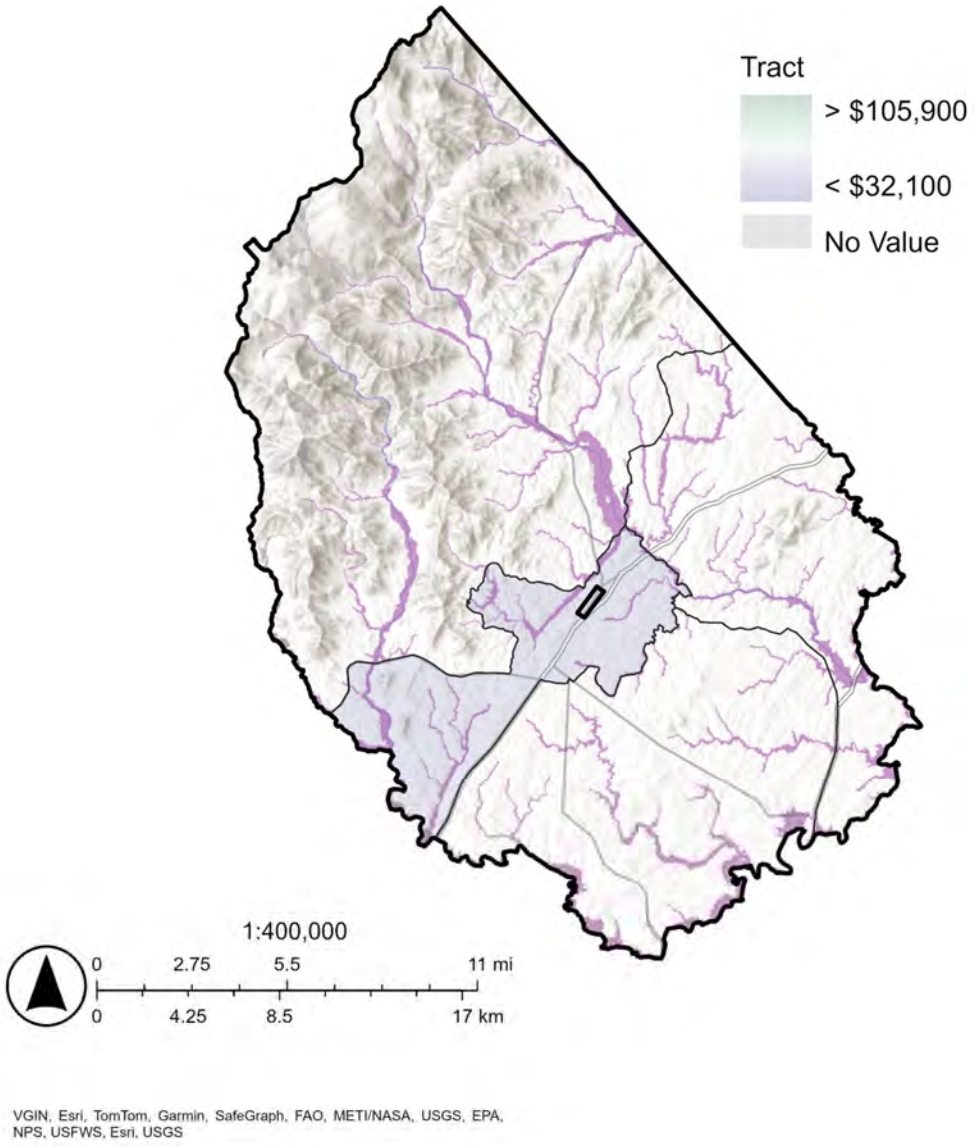
Figure 5.14.10 - Fauquier County Crashes Due to Standing or Moving Water and LMI Census Tracts



5.2.3 MADISON COUNTY AND THE TOWN OF MADISON

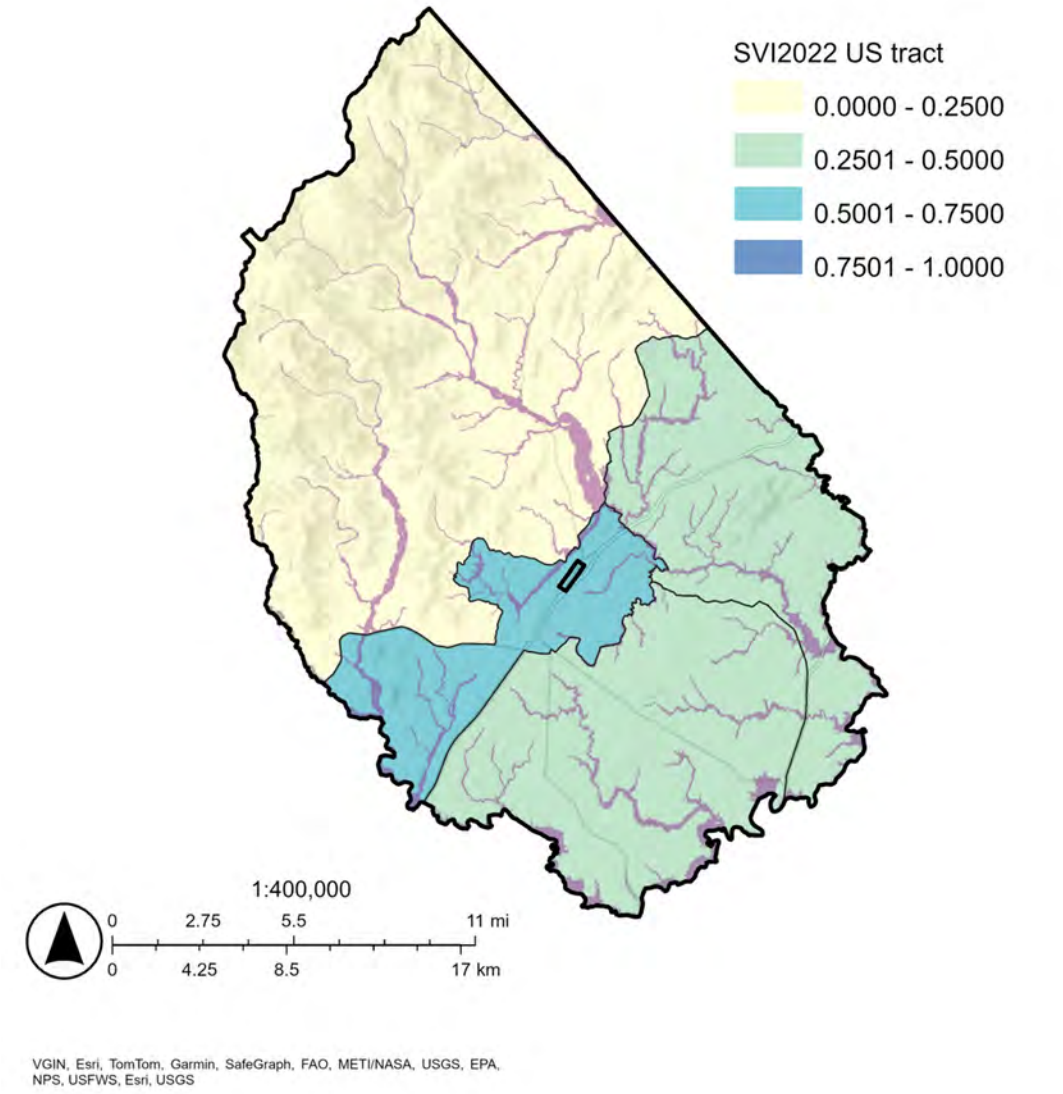
The map below shows one census tract within Madison County that is less than 80% of the local median household income (according to the CFPF definition).

Figure 5.15.1 – Madison County Income by Census Tract



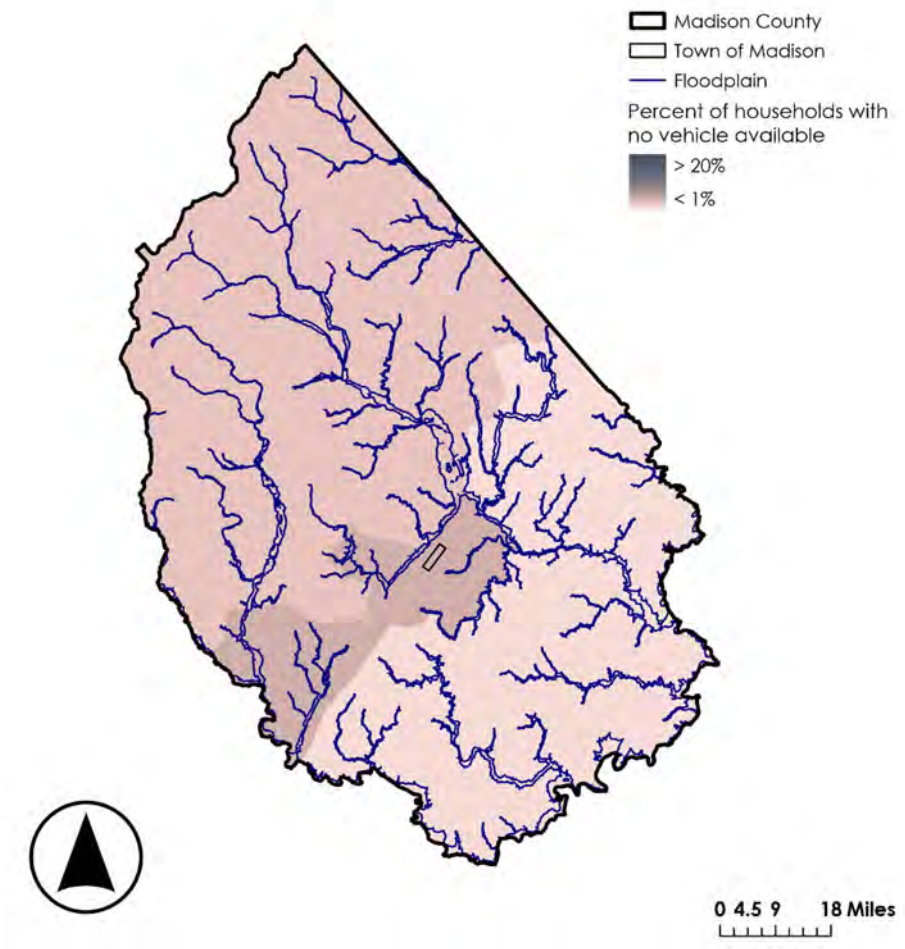
The map below is the overall SVI ranking for each census tract.

Figure 5.15.2 – Madison County Social Vulnerability Index



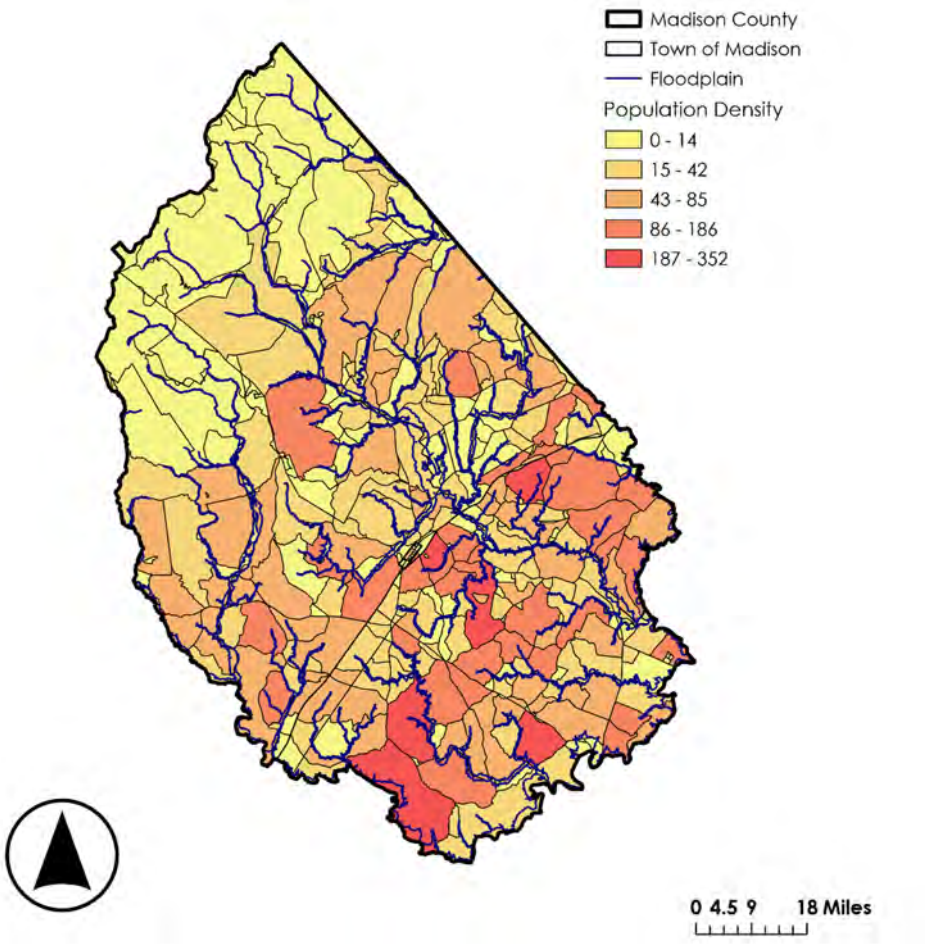
Facing a flood without a vehicle can be especially difficult. Without transportation, evacuating to safer ground is challenging, making people more vulnerable to rising waters. It also hinders access to essential supplies or emergency services. In such circumstances, individuals might depend on public transport, which is not readily available in the region, or wait for rescue teams that may be delayed due to the conditions. The Western edge of the County has a higher percentage of residents without vehicle access, which can be concerning for any flood evacuation. See Figure 5.15.3 below for areas in the County with no vehicle access and as well as designated flood plain areas.

Figure 5.15.3 - Flood Vulnerability and Vehicle Access (Virginia Department of Conservation and Recreation and US Census (2020).



The population densities in Madison County are generally low. However, the close proximity of people to the floodplain generally increases the likelihood of extensive damage, injuries, and loss of life. The southern portion of the County tends to have more population. Evacuation in these areas may need to be prioritized if flooding occurs to avoid leaving people vulnerable to rising waters. Additionally, assistance during a flood may also be prioritized in the areas with the most people. See Figure X below for population density and floodplain areas.

Figure 5.15.4 - Flood Vulnerability and Population Density (Virginia Department of Conservation and Recreation and US Census (2020)



Conservation Lands

Madison County contains numerous notable geographic features, including the Rapidan River, which forms the southern border of the County, and the Blue Ridge Mountains, which form the western border. The County's landscape is characterized by rolling hills, fertile valleys, and scenic vistas transitioning from Virginia's Piedmont region to the Blue Ridge.

In the western portion of the County, Shenandoah National Park covers a significant area, offering access to the scenic Skyline Drive and numerous hiking trails, including

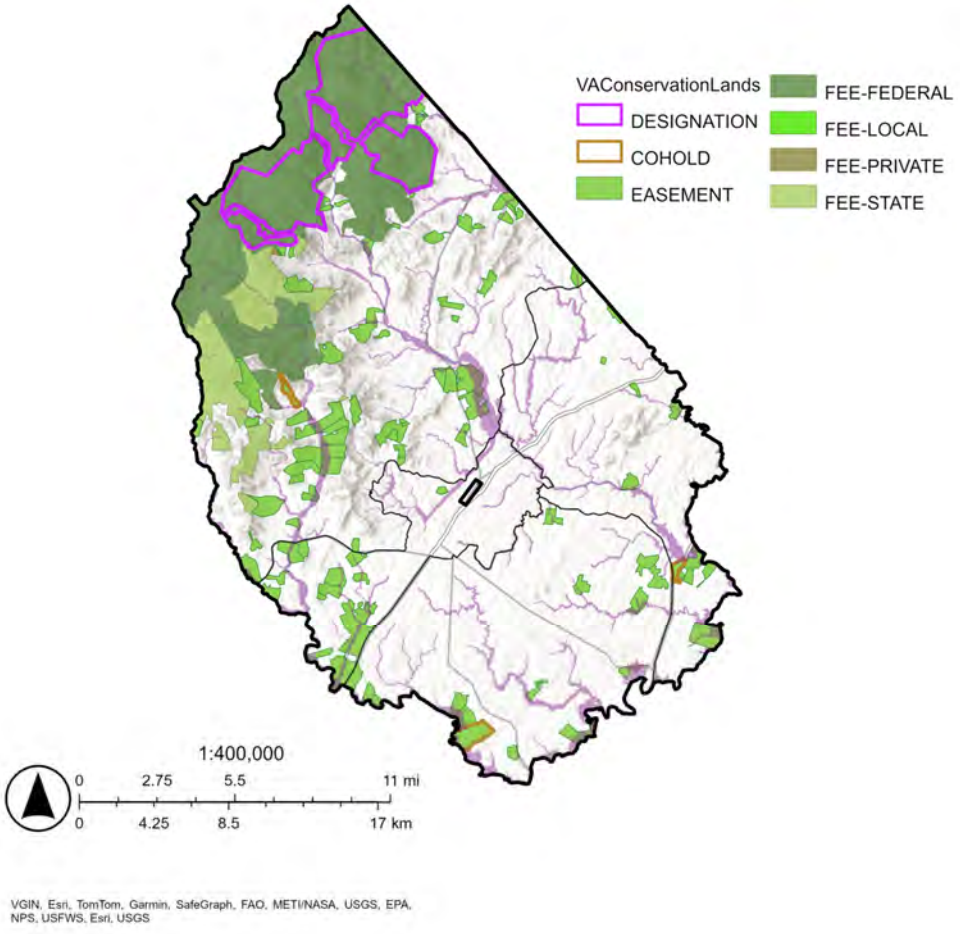
portions of the Appalachian Trail. The park provides opportunities for hiking, wildlife viewing, and camping.

The County is home to several significant water bodies, including the Robinson River and the Rapidan River, both of which offer recreational opportunities such as fishing and kayaking. White Oak Canyon, located in the Shenandoah National Park portion of Madison County, features a series of beautiful waterfalls and is a popular hiking destination.

Additionally, the County features several parks and recreational areas, including Hoover Ridge Park, which provides various amenities such as walking trails, sports fields, and picnic areas. The County is also known for its scenic byways, including the Journey Through Hallowed Ground National Scenic Byway, which runs through the eastern part of the County.

The County's commitment to land preservation and agriculture is evident in its strong farming tradition and the presence of numerous orchards, particularly apple orchards, which are an important part of the local economy and culture.
The map below shows these conservation areas according to DCR.

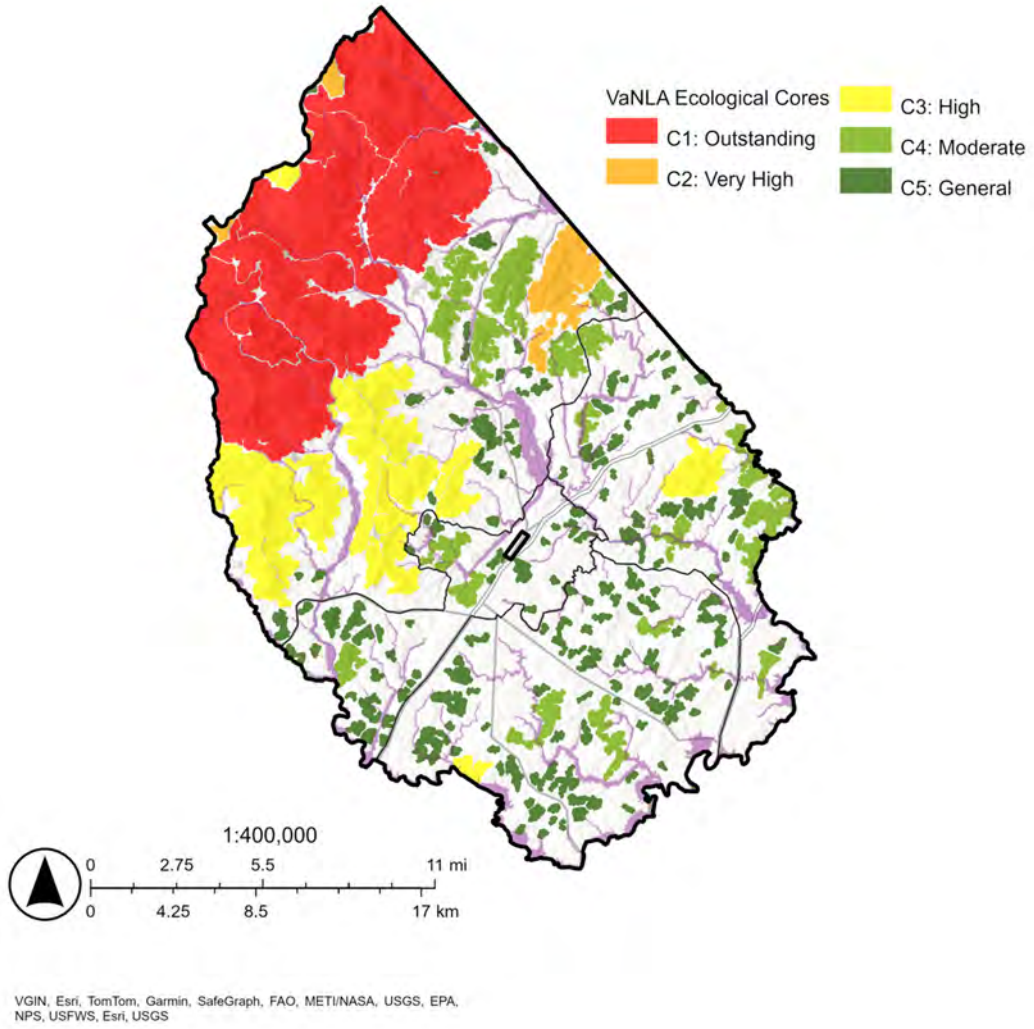
Figure 5.15.5 - Madison County DCR Conservation Easements



Ecological Cores

The following map shows which areas of the counties and towns within Madison County contain ecological cores.

Figure 5.15.6 – Madison County Ecological Cores



Flooding and Built Assets - Critical Facilities and Infrastructure

Section 4.1.8 Flood contains maps of the FEMA floodplains for each locality in the Rappahannock-Rapidan Region as well as a list of major flooding events.

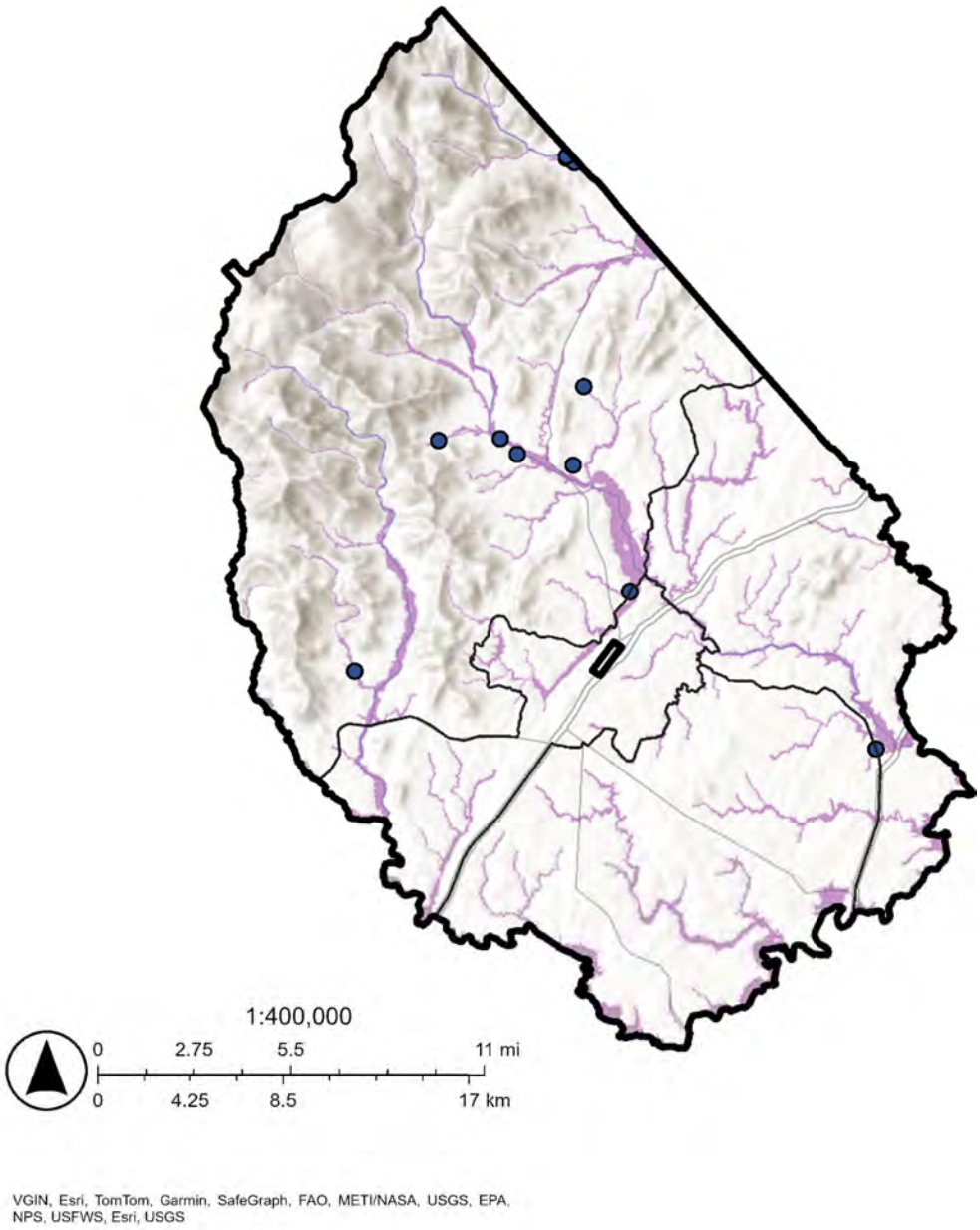
Madison County currently has 2 repetitive loss property, both off Route 670 and 26 active NFIP policies. In addition to Hazard Mitigation Plan requirements, the Community Flood Preparedness Fund also requests that this analysis be considered in the overall flood resilience plan.

See Appendices for critical facility maps and FEMA SFHAs and an updated list of critical facilities for each locality.

Stormwater infrastructure maintenance and repair should be a priority for these roads and can be prioritized for future funding and coordination with the Virginia Department of Transportation.

The map below illustrates the most recent data from VDOT on the condition of bridges and culverts, which may be more susceptible to the impacts of severe flooding and to strand motorists or cut off primary modes of ingress and egress for certain communities.

Figure 5.15.7 - Poor Rated Culverts and Bridges. VDOT, 2024



Dam Inundation

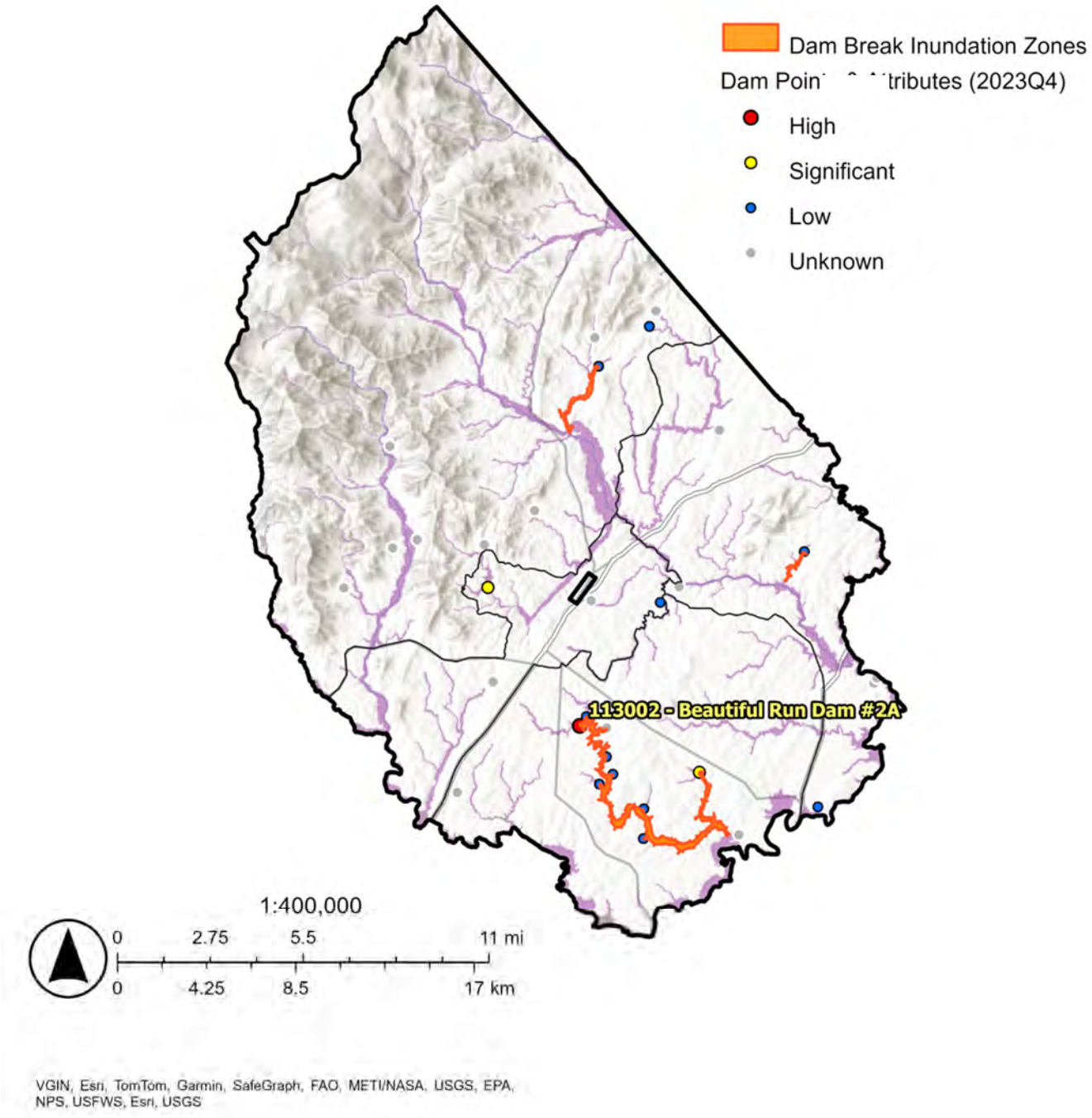
The largest concern with the dams in Madison County's jurisdiction (20 total, with one classified as high or high-special hazard potential and 6 unknown) are the homes, businesses, important thoroughfares and other transportation assets, and critical infrastructure assets in the Dam Break Inundation Zone (DBIZ).

The main potential impacts are those to bridges, culverts, and other transportation infrastructure.

It is unknown whether significant vulnerable and minority populations would be affected by dam spillovers in Madison County, but many critical roads would need to be closed or might be washed away entirely, impeding travel and egress.

The map of dams of known and unknown hazard potential are shown in the map below.

Figure 5.15.7 – Madison County Dams and Mapped Dam Inundation Zones



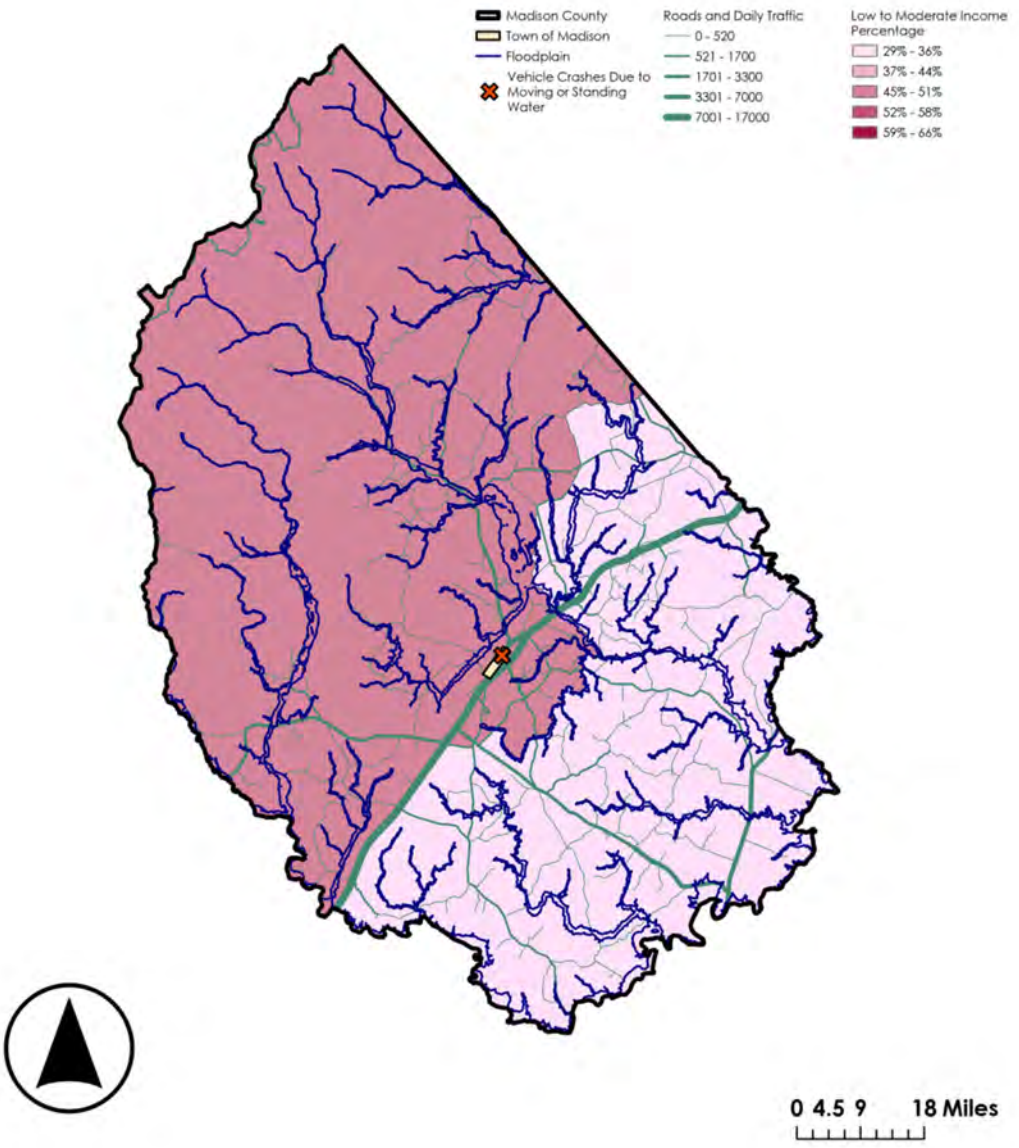
Areas of Known Flooding

Madison County contains several roads that are known to have flooding and standing water issues. The County can work with VDOT to fund further studies that can be initiated in the area to understand the underlying hydrology and identify potential solutions to recurrent flooding.

Table 5.15.1 - VDOT 2024

Areas of Known Road Flooding
Route 29, Business

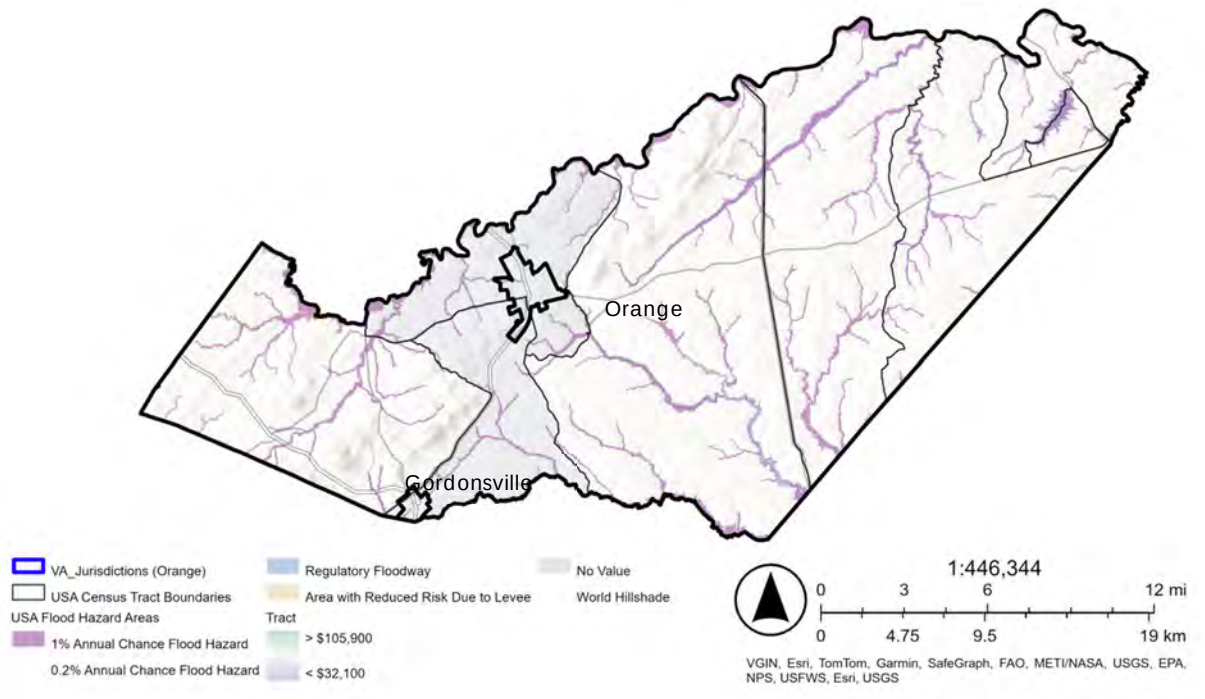
Figure 5.15.8 - Madison County Crashes Due to Standing or Moving Water and LMI Census Tracts



5.2.4 ORANGE COUNTY AND THE TOWNS OF ORANGE AND GORDONSVILLE

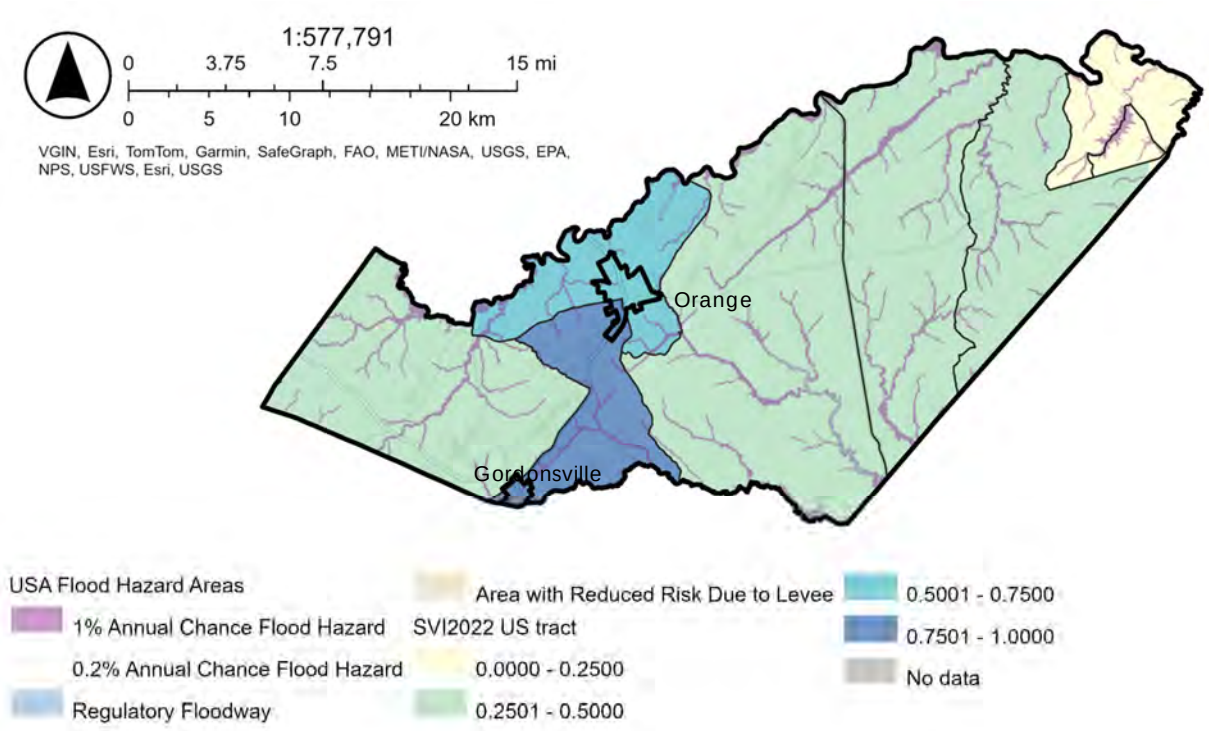
The map below shows the census tracts within Orange County that are less than 80% of the local median household income (according to the CFPF definition).

Figure 5.16.1 Orange County Census Tracts and Income



The map on the next page is the overall SVI ranking for each census tract.

Figure 5.16.2 – SVI Census Tracts



Facing a flood without a vehicle can be especially difficult. Without transportation, evacuating to safer ground is challenging, making people more vulnerable to rising waters. It also hinders access to essential supplies or emergency services. In such circumstances, individuals might depend on public transport, which is not readily available in the region, or wait for rescue teams that may be delayed due to the conditions. The Western edge of the County has a higher percentage of residents without vehicle access, which can be concerning for any flood evacuation. See Figure X below for areas in the County with no vehicle access and as well as designated flood plain areas.

The population densities in Orange County are generally low and are concentrated near the Towns of Orange and Gordonsville. In these areas, the close proximity of people to the floodplain generally increases the likelihood of extensive damage, injuries, and loss of life. Evacuation in these areas may need to be prioritized if flooding occurs to avoid leaving people vulnerable to rising waters. Additionally, assistance during a flood may also be prioritized in the areas with the most people. See Figure 5.16.3 below for population density and floodplain areas.

Figure 5.16.3 - Flood Vulnerability and Vehicle Access (Virginia Department of Conservation and Recreation and US Census (2020).

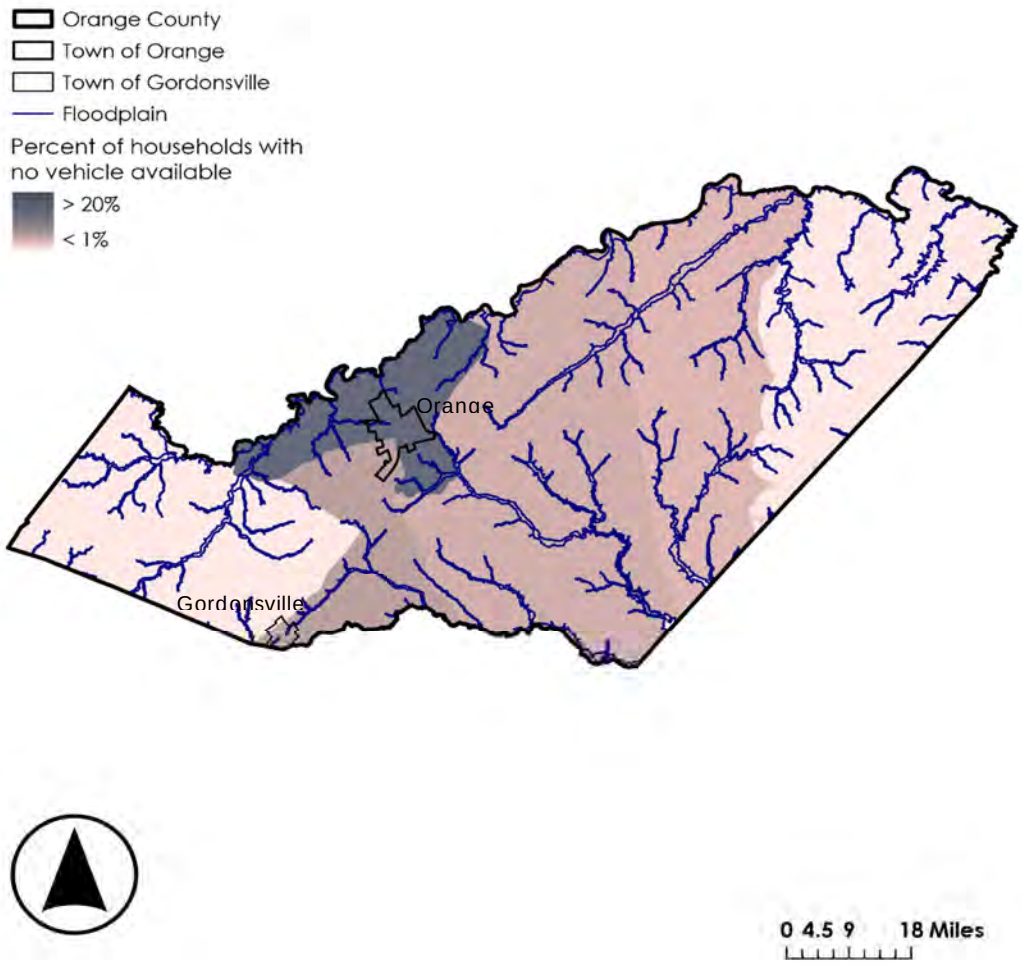
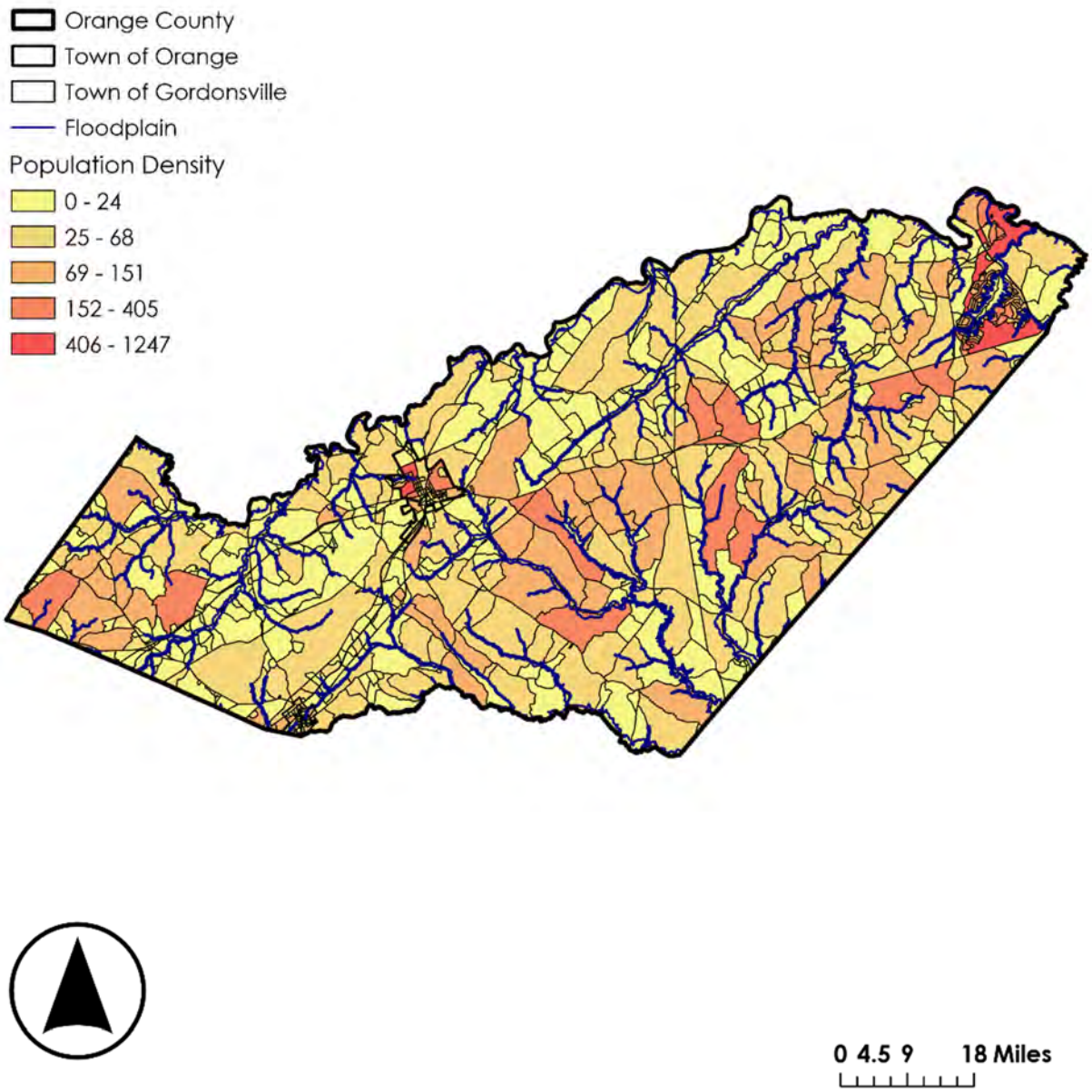


Figure 5.16.4 - Flood Vulnerability and Population Density (Virginia Department of Conservation and Recreation and US Census (2020).



Conservation Lands

Orange County contains numerous notable geographic features, including the Rapidan River, which forms the northern border of the County, and the Southwest Mountains, which run through the western part of the County. The County's landscape is characterized by rolling hills, fertile plains, and scenic vistas typical of Virginia's Piedmont region.

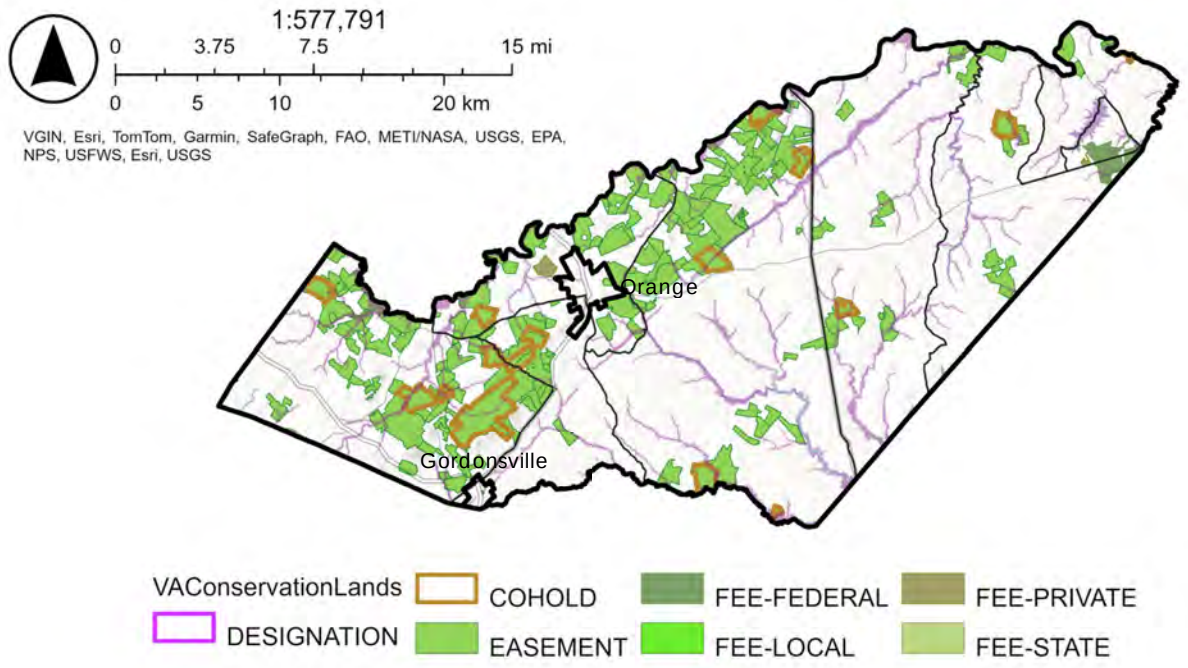
The County is home to several significant water bodies, including Lake Orange and the Rapidan River, both of which offer recreational opportunities such as fishing and boating. The scenic Lake of the Woods, a private gated community, is also located within Orange County and features a 500-acre lake.

Additionally, the County features several parks and recreational areas, including Booster Park in Orange and Dix Memorial Pool in Gordonsville.

The County's rural character is evident in its numerous farms, orchards, and vineyards, which contribute significantly to the local economy and culture.

Various other state forest and natural areas exist in the County along with public and private conservation easements. The map below shows these conservation areas according to DCR, overlaid on the 100-year floodplain.

Figure 5.16.5 - Orange County DCR Conservation Easements



Ecological Cores

The following map shows which areas of the counties and towns within Orange County contain ecological cores.

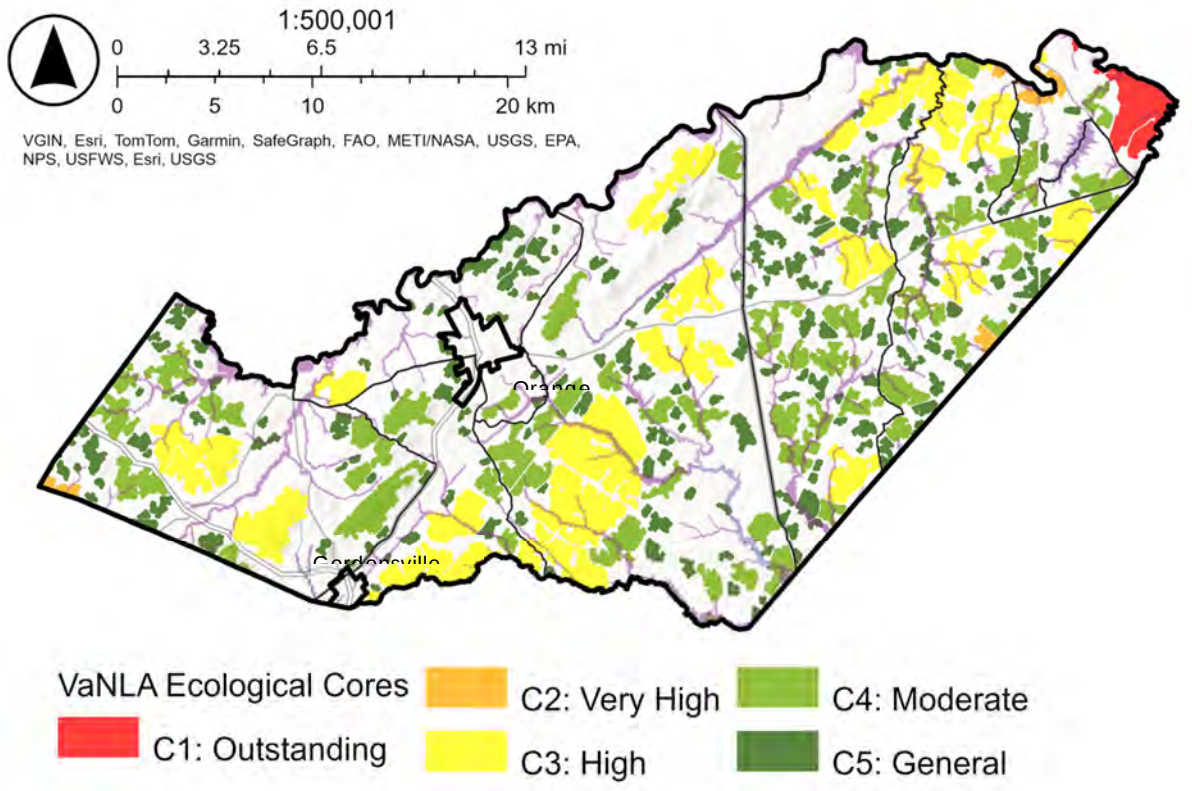


Figure 5.16.6 - Orange County Ecological Cores

Flooding and Built Assets - Critical Facilities and Infrastructure

Section 4.1.8 Flood contains maps of the FEMA floodplains for each locality in the Rappahannock-Rapidan Region as well as a list of major flooding events.

Orange County has only 1 repetitive loss property and 36 NFIP policies. The Town of Gordonsville and the Town of Orange do not contain any repetitive loss properties. In addition to Hazard Mitigation Plan requirements, the Community Flood Preparedness Fund also requests that this analysis be considered in the overall flood resilience plan.

See Appendices for critical facility maps and FEMA SFHAs and an updated list of critical facilities for each locality.

Stormwater infrastructure maintenance and repair should be a priority for these roads and can be prioritized for future funding and coordination with the Virginia Department of Transportation.

The map below illustrates the most recent data from VDOT on the condition of bridges and culverts, which may be more susceptible to the impacts of severe flooding and to strand motorists or cut off primary modes of ingress and egress for certain communities.

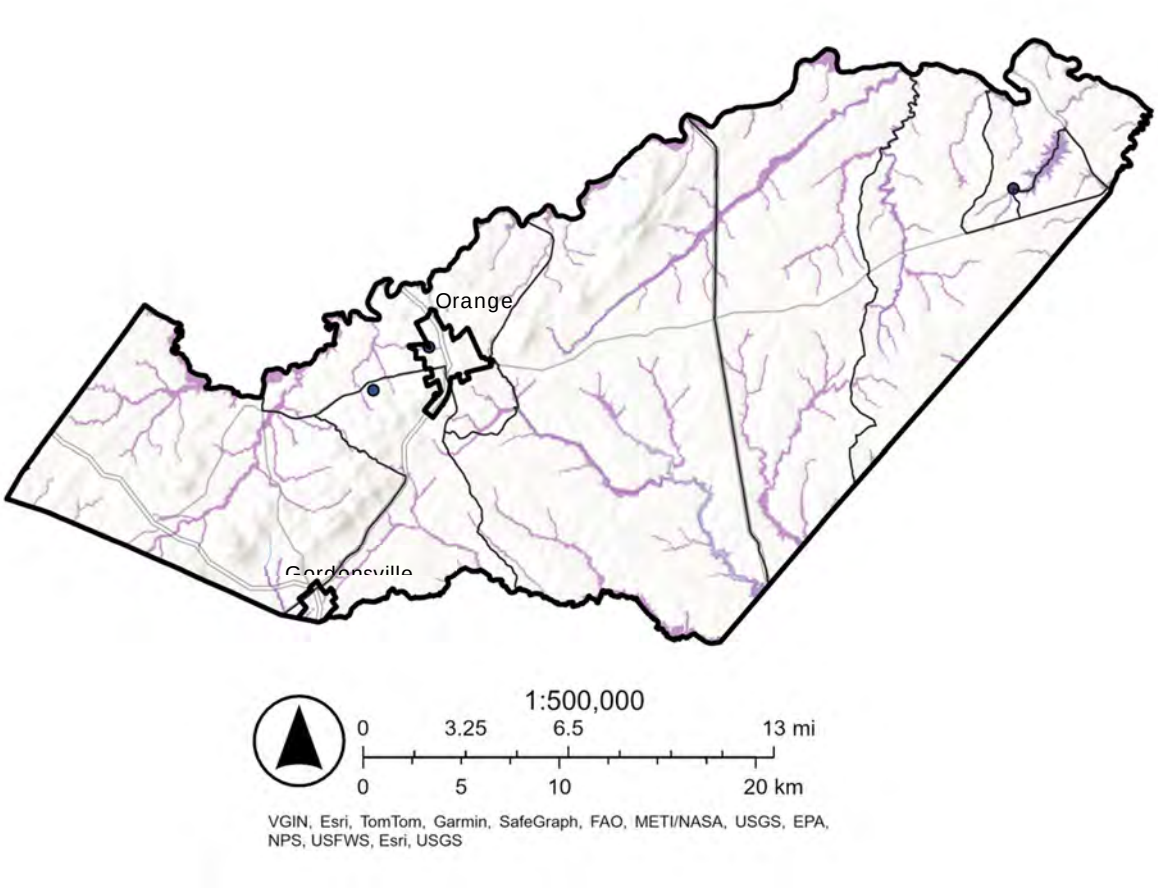


Figure 5.16.7 - Orange County Poor Condition Bridges and Culverts

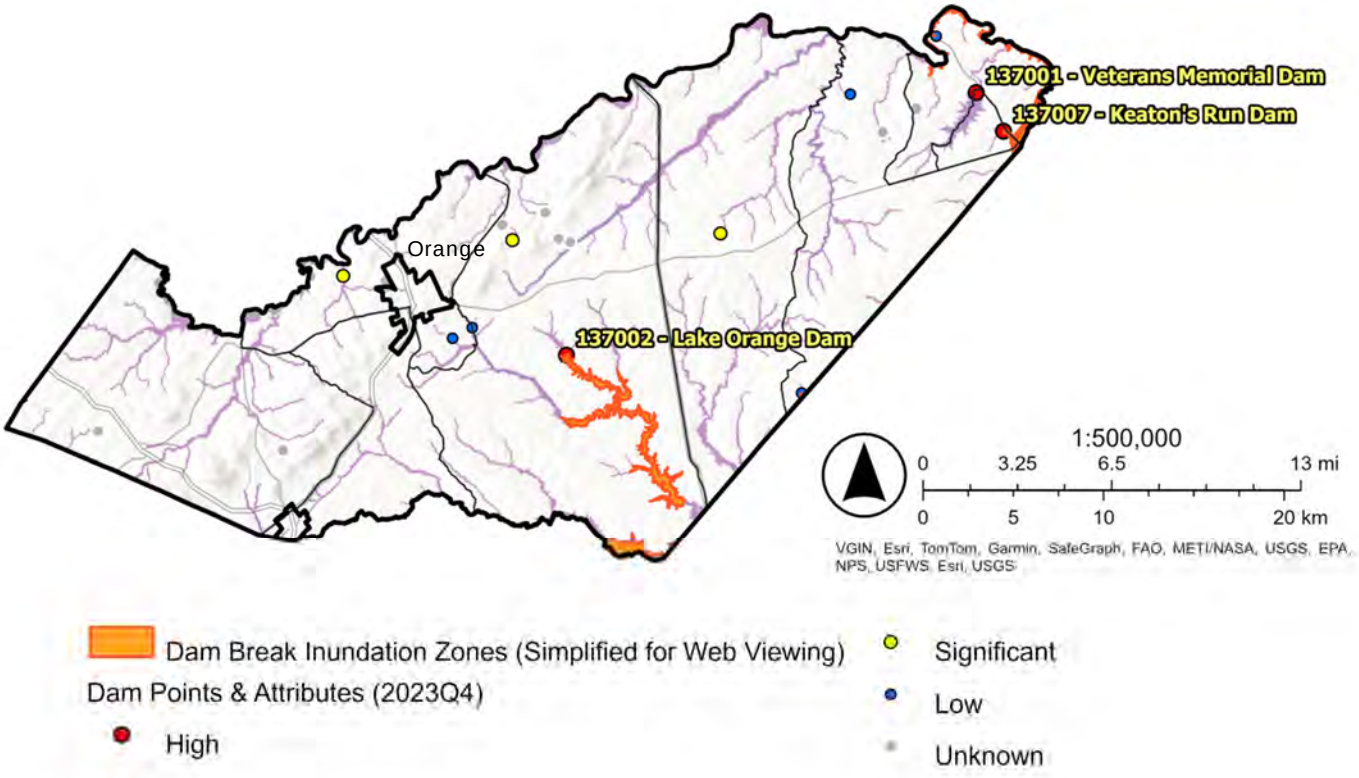
Dam Inundation

The largest concern with the few dams in Orange County's jurisdiction (18 total, with three classified as high or high-special hazard potential and 8 unknown) are the homes, businesses, important thoroughfares and other transportation assets, and critical infrastructure assets in the Dam Break Inundation Zone (DBIZ).

The main potential impacts are those to bridges, culverts, and other transportation infrastructure.

It is unknown whether significant vulnerable and minority populations would be affected by dam spillovers in Orange County, but many critical roads would need to be closed or might be washed away entirely, impeding travel and egress.
The map of dams of known and unknown hazard potential are shown in the map below.

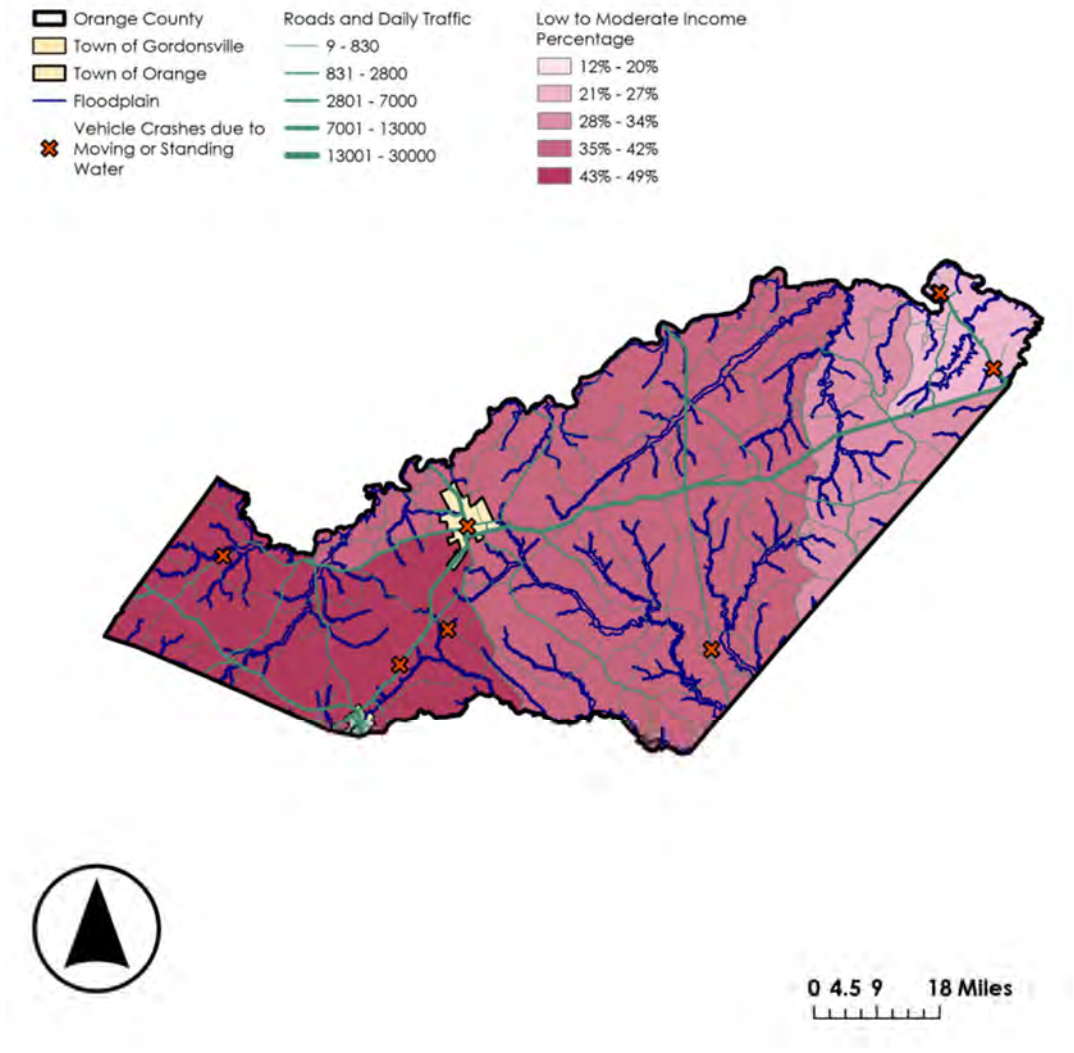
Figure 5.16.8 - Orange County Dams and Mapped Dam Inundation Zones



Areas of Known Flooding

Orange County contains several roads that are known to have flooding and standing water issues. The County can work with VDOT to fund further studies that can be initiated in the area to understand the underlying hydrology and identify potential solutions to recurrent flooding.

Figure 5.16.8 – Orange Crashes Due to Standing or Moving Water and LMI Census Tracts



Orange County contains several roads that are known to have flooding and standing water issues. Most of these roads are managed by VDOT, necessitating the need for the County to work with VDOT to prioritize flood studies and on the ground improvements in stormwater infrastructure.

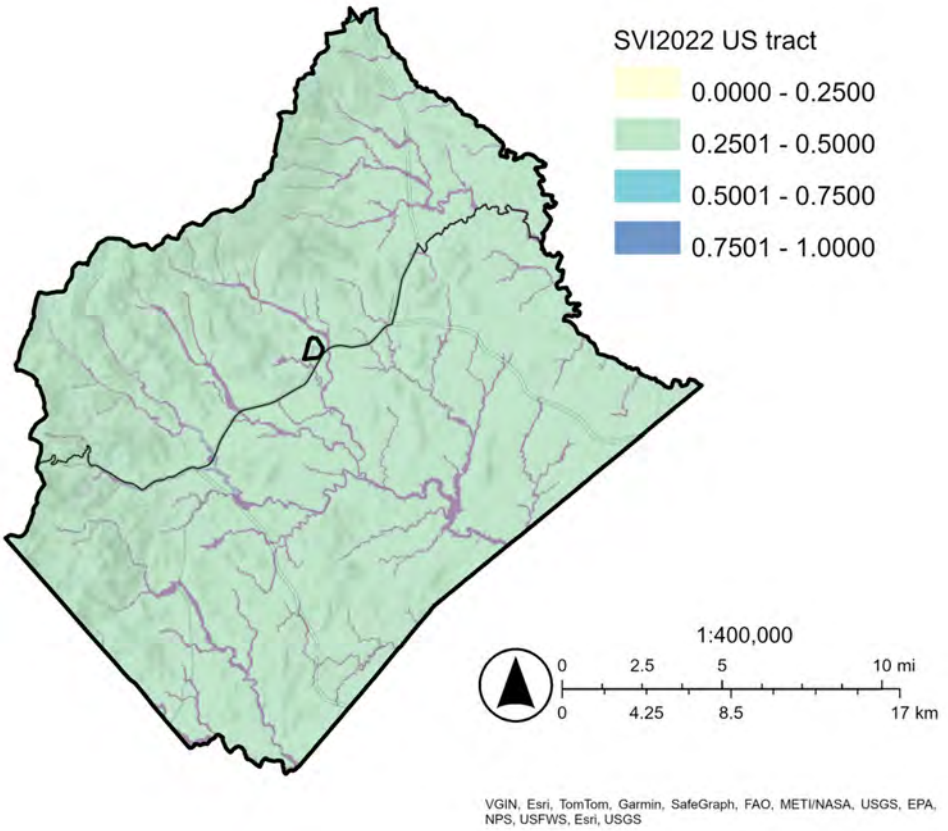
Table 5.16.1, VDOT 2024

Known Areas of Flooding
Route 15
Madison Run Road
Route 3
Ridge Road
100 North Madison Road
Zachary Taylor Highway

5.2.5 RAPPAHANNOCK COUNTY AND THE TOWN OF WASHINGTON

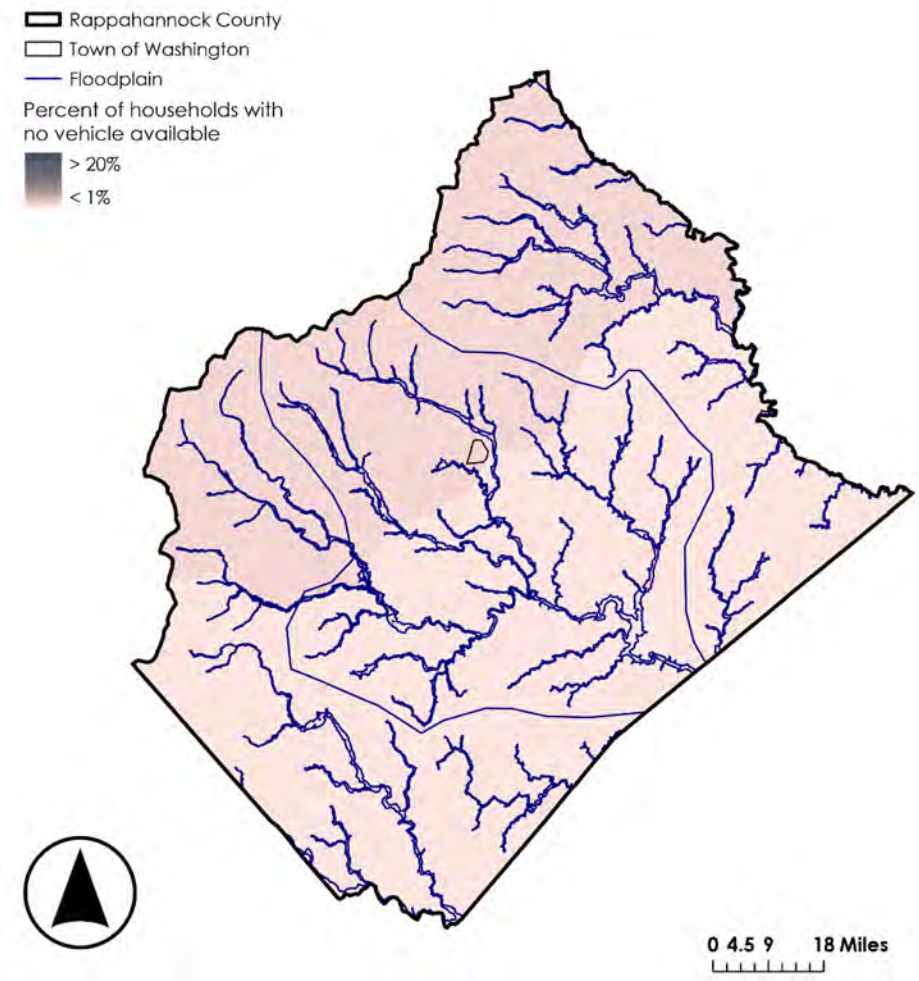
Rappahannock County does not have any census tracts that align with the definition of "low income geographic area" as defined by the CFPF program. However, there may be areas of the County that are still considered vulnerable due to other factors other than income. The map below is the overall SVI ranking for each census tract.

Figure 5.17.1 - Rappahannock County SVI Census Tracts



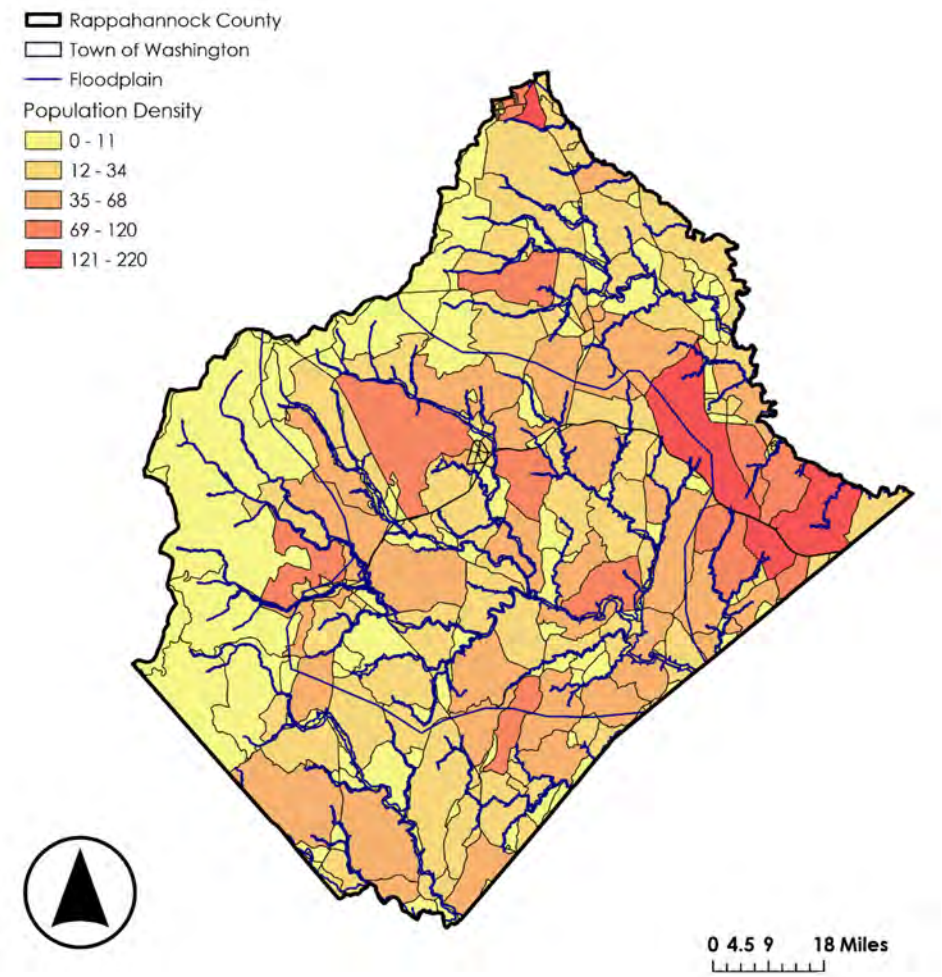
During an interview with a stakeholder group in Rappahannock County, it was mentioned that the majority of the residents in the area are older and live in rural communities which can make communication and transportation difficult in the event of a flood. Many of the County residents do not have a smartphone or internet access, which can also result in a lack of emergency notification in dire situations. Residents generally tend to have a vehicle, but many do not use it, or are unable to use it due to health concerns. See Figure 5.17.2 below which illustrates vehicle access in the County.

Figure 5.17.2 - Flood Vulnerability and Vehicle Access (Virginia Department of Conservation and Recreation and US Census (2020)



Population density in the County is low, with the majority of residents living in the Northeastern section. In these areas, the close proximity of people to the floodplain generally increases the likelihood of extensive damage, injuries, and loss of life. Evacuation in these areas may need to be prioritized if flooding occurs to avoid leaving people vulnerable to rising waters. See Figure 5.17.3 below for population density and floodplain areas.

Figure 5.17.3 - Flood Vulnerability and Population Density (Virginia Department of Conservation and Recreation and US Census (2020).



Conservation Lands

Rappahannock County contains numerous notable geographic features, including the Rappahannock River, which forms the northern border of the County, and the Blue Ridge Mountains, which form the western border. The County's landscape is characterized by rolling hills, fertile valleys, and dramatic mountain vistas, transitioning from Virginia's Piedmont region to the Blue Ridge.

The County is home to several significant water bodies, including the Rappahannock River and its tributaries, which offer recreational opportunities such as fishing, kayaking, and canoeing. The Shenandoah National Park covers a significant portion of the western part of the County, providing access to the scenic Skyline Drive and numerous hiking trails, including sections of the Appalachian Trail.

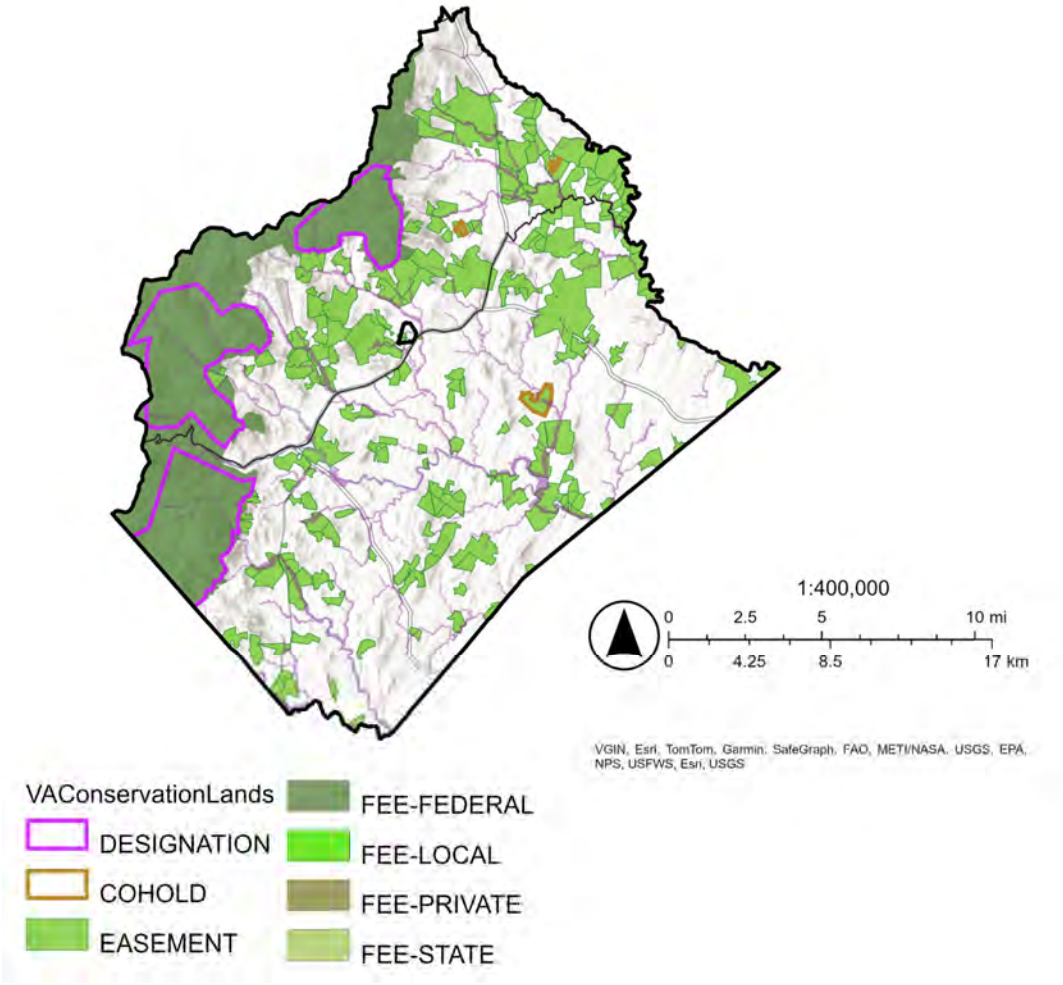
One of the most notable features of Rappahannock County is its preserved rural character. This commitment to preservation has made Rappahannock a haven for those seeking to escape urban sprawl and experience a more traditional, rural way of life.

Additionally, the County features several parks and recreational areas, including the Rappahannock County Park, which provides various amenities such as walking trails and picnic areas. The County is also known for its scenic byways, including Route 211, which offers breathtaking views of the Blue Ridge Mountains.

Rappahannock County is part of Virginia's wine country, with several vineyards and wineries contributing to the local economy and helping to preserve the County's rural character and scenic beauty. The County's commitment to land preservation and agriculture is evident in its strong farming tradition, with numerous small farms, orchards, and artisanal food producers.

Various other state forest and natural areas exist in the County along with public and private conservation easements. The map below shows these conservation areas according to DCR, overlaid on the 100-year floodplain.

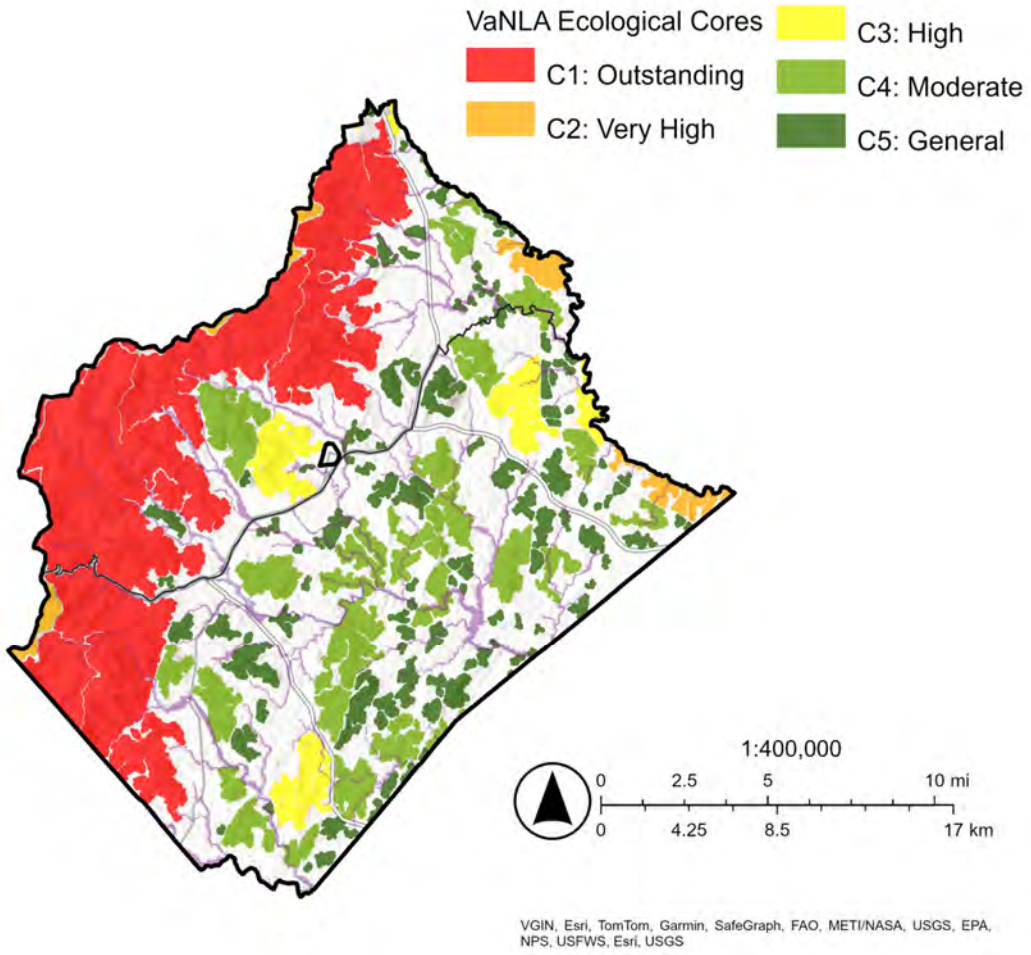
Figure 5.17.4 – Rappahannock County DCR Conservation Easements, 2024.



Ecological Cores

The following map shows which areas of the county and town within Rappahannock County contain ecological cores.

Figure 5.17.5 Rappahannock County Ecological Cores, 2024.



Flooding and Built Assets - Critical Facilities and Infrastructure

Section 4.1.8 Flood contains maps of the FEMA floodplains for each locality in the Region as well as a list of major flooding events.

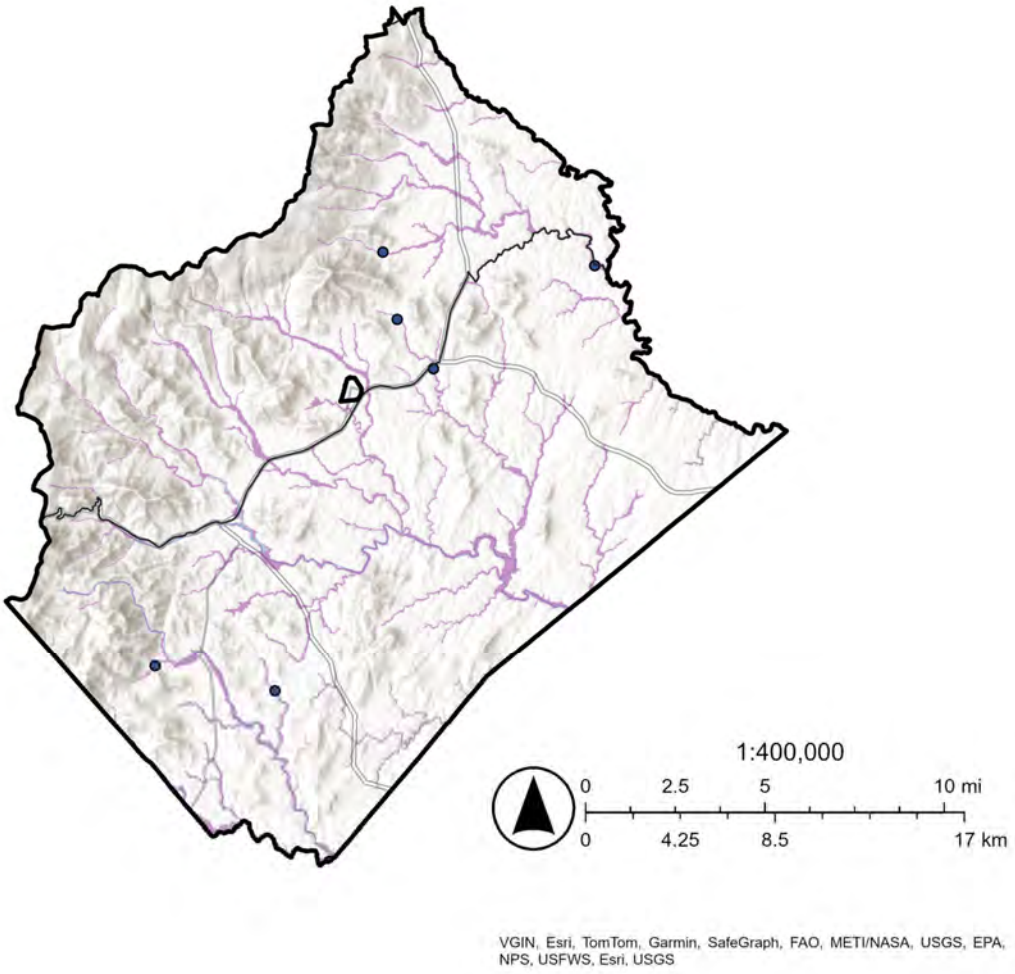
Rappahannock County does not have any repetitive loss properties and contains 28 active NFIP policies. In addition to Hazard Mitigation Plan requirements, the Community Flood Preparedness Fund also requests that this analysis be considered in the overall flood resilience plan.

See Appendices for critical facility maps and FEMA SFHAs and an updated list of critical facilities for each locality.

Stormwater infrastructure maintenance and repair should be a priority for these roads and can be prioritized for future funding and coordination with the Virginia Department of Transportation.

The map below illustrates the most recent data from VDOT on the condition of bridges and culverts, which may be more susceptible to the impacts of severe flooding and to strand motorists or cut off primary modes of ingress and egress for certain communities.

Figure 5.17.6 – Poor Condition Bridges and Culverts, 2024.

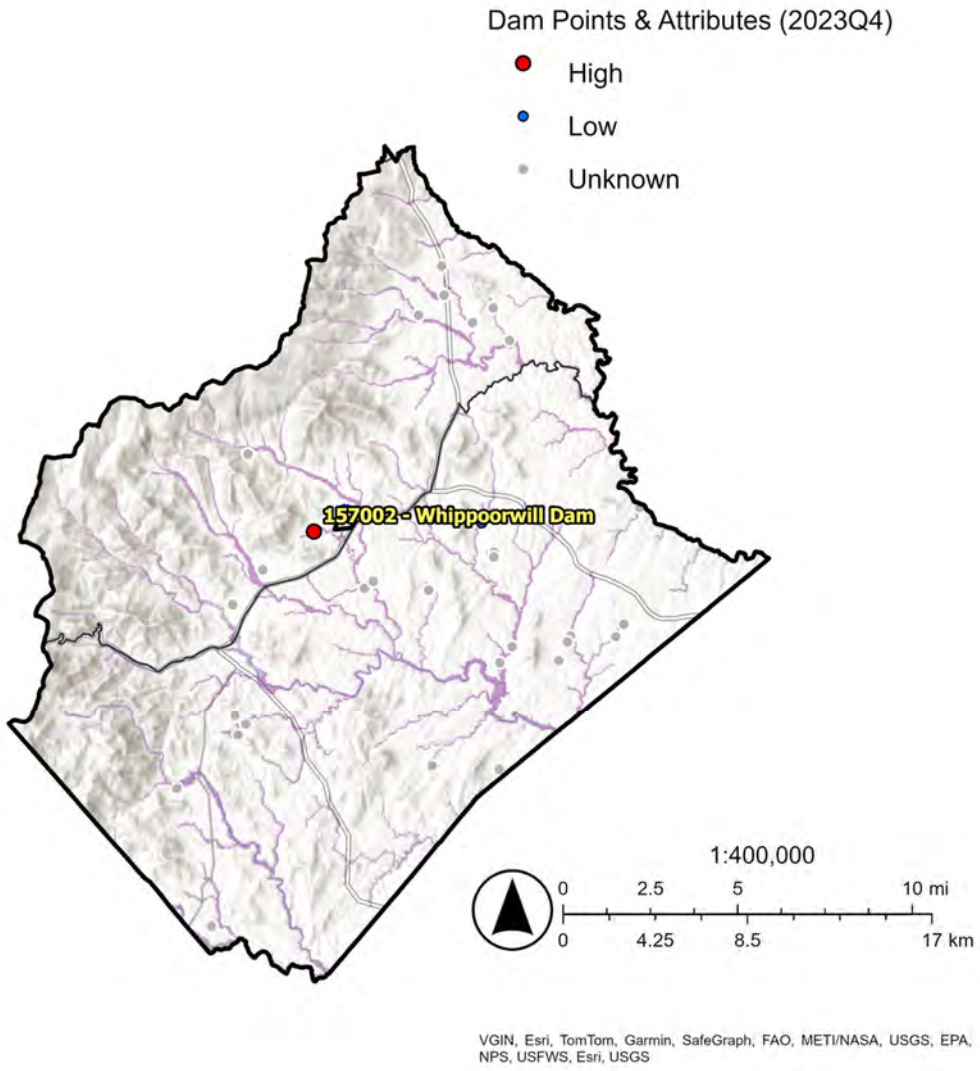


Dam Inundation

The largest concern with the dams in Rappahannock County's jurisdiction (23 total, with one classified as high or high-special hazard potential and 22 unknown) are the homes, businesses, important thoroughfares and other transportation assets, and critical infrastructure assets in the Dam Break Inundation Zone (DBIZ).

The main potential impacts are those to bridges, culverts, and other transportation infrastructure.
It is unknown whether significant vulnerable and minority populations would be affected by dam spillovers in Rappahannock County, but many critical roads would need to be closed or might be washed away entirely, impeding travel and egress.
The map of dams of known and unknown hazard potential are shown in the map below.

Figure 5.17.7 - Rappahannock County Dams and Mapped Dam Inundation Zones



Areas of Known Flooding

During stakeholder interviews with County staff, as well as an organization in greater Rappahannock County, it was conveyed that most of the flooding occurs on roadways and bridges near watercourses, or those with inadequate drainage.

Rappahannock County contains several roads known to have standing water issues. The County can work with VDOT to prioritize these areas and implement studies and on the ground infrastructure improvements.

Figure 5.17.8 - Rappahannock Crashes Due to Standing or Moving Water and LMI Census Tracts

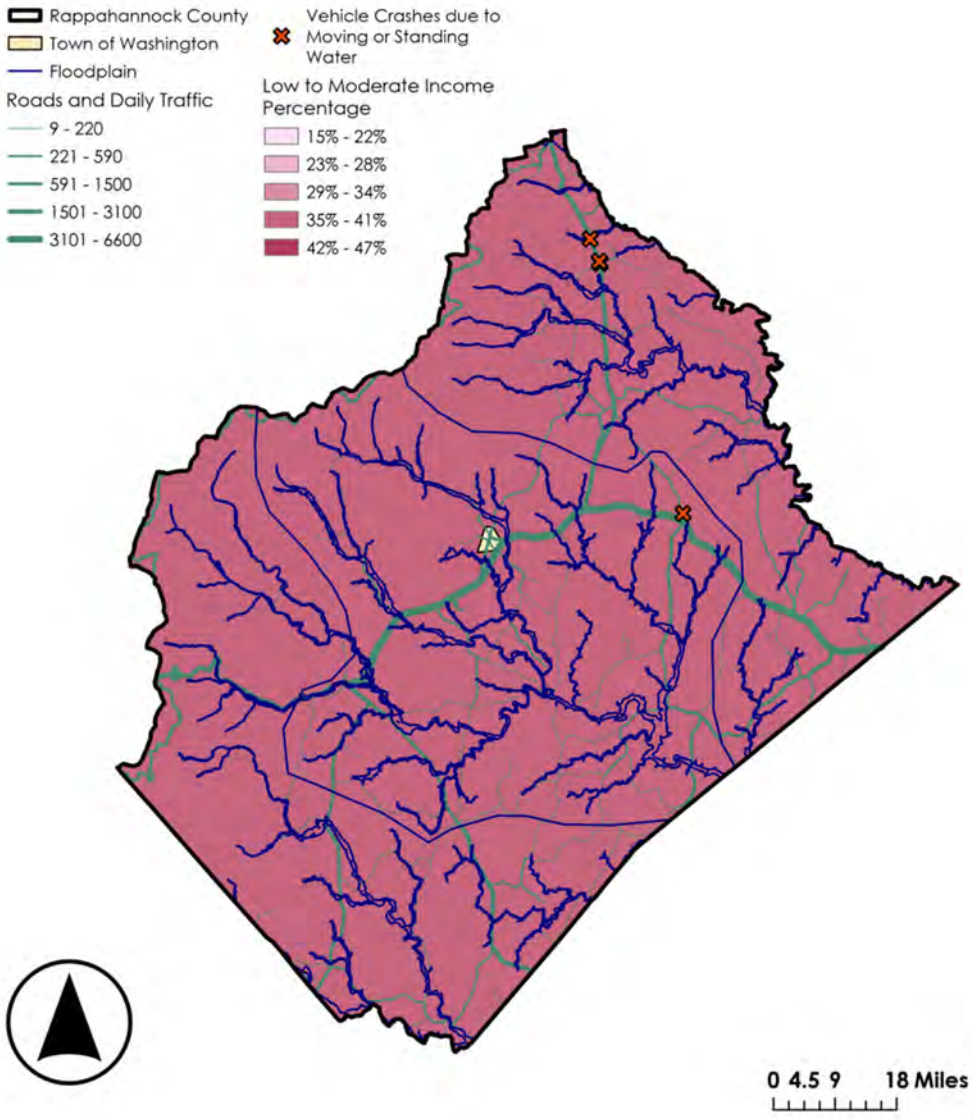


Table 15.17.1 - VDOT, 2024

Known Areas of Flooding
Route 729
Route 522/Zachary Taylor Highway
Interstate 66

Flood Resilience - Mitigation Action Plan - Rappahannock-Rapidan Regional Commission

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Education and Outreach								
RRRC-1	Identify the four missing addresses for repetitive loss properties in the region.	< 1 Year	Staff time	None needed		Local Jurisdictions, RRRC	Not started	Within one year
2	Develop an education and outreach plan for the upcoming changes in FEMA Flood Insurance Rate Maps (FIRM) for property owners and general public	3+ Years	Dependent on scope of distribution	Local funds, FEMA HMGP, PDM	Yes	RRRC, Local jurisdictions	Completed	Local governments took the lead to engage impacted property owners
Nature Based Solutions								
3	Consider acquisition, elevation, demolition, naturalization of repetitive loss properties	1- 3 Years	Dependent on property	FEMA PDM, HMGP	Yes	Local jurisdictions	As funding al< 1 Years	New strategy for 2018 HMP
Study/Plan/Strategy								
4	Work with localities to develop stormwater BMP projects	1- 3 Years	Dependent on project	SLAF, VCAP, NFWF, VA CFPF, local funds	Yes	RRRC, Local jurisdictions	As funding al< 1 Years	New strategy for 2025
5	Conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources	1- 3 Years	>$10,000	Discretionary Funds	Yes	RRRC	As staff capacity al< 1 Years	New strategy for 2025
6	Work with interested jurisdictions to develop flood resiliency projects that potentially include nature-based solutions	1- 3 Years	Dependent on project	SLAF, VCAP, NFWF, VA CFPF, local funds	Yes	Local jurisdictions, RRRC	As funding al< 1 Years	New strategy for 2025
Infrastructure								
7	Improve water monitoring capabilities along major rivers in the region (including additional monitor stations and improved data tracking capabilities)	1- 3 Years	Unknown	FEMA: HMGP	Yes	Local Jurisdictions, RRRC	As funding al< 1 Years	First monitors were installed by VDEM and contractors in 2022-2023 fol< 1 Yearing input and guidance on location selections by RRRC, Rappahannock River Basin Commission and local governments; future installations and expansion is unknown at this time.

Flood Resilience - Mitigation Action Plan – Culpeper County

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Education and Outreach								
CC-1	Develop Public Awareness campaign for flooding, hurricanes, and tropical storms	1- 3 Years	$1,000 annually	FEMA, local funds	Yes	Culpeper County Emergency Services	Ongoing	Ongoing task
2	Join the Community Rating System program to reduce the flood insurance premiums of citizens in Culpeper County and to foster better floodplain management practices	1- 3 Years	Staff time	Local Funds	Yes	Culpeper County Emergency Services	Not started	CRS What-If Scenarios received in 2017 from Department of Conservation & Recreation
3	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM) for property owners and general public	3+ Years	Staff time	Local funds, FEMA PDM, HMGP	Yes	Culpeper County Emergency Services, Planning	Not Started	New strategy for 2018
Nature Based Solutions / Projects								
4	Consider acquisition, elevation, demolition, naturalization of repetitive loss properties	1- 3 Years	Dependent on property in question	Local funds, FEMA PDM, HMGP	Yes	Culpeper County Emergency Services, Administration	Not Started	Strategy returned to Plan for 2018
5	Stormwater Mitigation and Habitat Creation - Engineering design and construction of stormwater infrastructure in the Brandy Station area, including Route 663, and implement 500 linear feet of stream restoration and bank stabilization along the Jonas Run and Mountain Run Creeks.	1- 3 Years	$1,000,000	VA VA CFPF, FEMA HMGP and/or appropriate alternative, FEMA FMA, FWS Coastal Program, NFWF, EPA 319,	Yes	Culpeper County Public Works	Not Started	New Strategy
6	Permeable Pavers to Increase Stormwater Infiltration at Mountain Run Lake Park. Engineering design and construction of permeable pavers with bio retention facility (ies) in the parking areas at Mountain Run Lake Park, to reduce stormwater runoff, minimize localized flooding, and enhance groundwater recharge. The upper parking area is estimated to be 500 square feet, the < 1 Yearer parking area is estimated to be 8,000 square feet.	< 1 Year	$800,000	VA VA CFPF, FEMA HMGP and/or appropriate alternative, FEMA FMA, NFWF, EPA 319,	Yes	Culpeper County Parks	Not Started	New Strategy
Study/Plan/Strategy								

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
5	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources	< 1 Year	Multiple	1- 3	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC
6	Implement a Community or Regional Debris Management Strategy	< 1 Year	Multiple	1- 3	>$10,000	VA CFPF, Local funds	Yes	Local jurisdiction, RRRC, DCR
7	Work with RRRC to develop flood resiliency projects that potentially include nature-based solutions	1- 3 Years	Dependent on project	SLAF, VCAP, NFWF, VA VA CFPF, local funds	Yes	Local jurisdictions, RRRC	As funding al< 1 Years	New strategy for 2025

Flood Resilience - Mitigation Action Plan – Town of Culpeper

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Education and Outreach								
TC-1	Develop Public Awareness campaign for flooding, hurricanes, and tropical storms	1- 3 Years	$1,000 annually	FEMA, local funds	Yes	Culpeper County Emergency Services	Ongoing	Ongoing task
2	Join the Community Rating System program to reduce the flood insurance premiums of citizens in Culpeper County and to foster better floodplain management practices	1- 3 Years	Staff time	Local Funds	Yes	Culpeper County Emergency Services	Not started	CRS What-If Scenarios received in 2017 from Department of Conservation & Recreation
3	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM) for property owners and general public	3+ Years	Staff time	Local funds, FEMA PDM, HMGP	Yes	Culpeper County Emergency Services, Planning	Not Started	Ongoing
Nature Based Solutions / Projects								
4	Tree planting and Stream Restoration in Yowell Meadow Park – along Mountain Run, plant native trees and other native vegetation to stabilize the stream bank, improve water quality and increase stormwater uptake for approximately 1,000 linear feet of streambank, on both sides.	1- 3 Years	$500,000	VA VA CFPF, FEMA HMGP and/or appropriate alternative, FEMA FMA, NFWF, EPA 319	Yes	Town of Culpeper Departments of Planning and Community Development, Public Works	Ongoing	New Strategy for 2025
5	Purchase a conservation easement on recently acquired 20 acres of land along a tributary of Mountain Run to achieve lasting conservation and flood mitigation benefits in an area that that is receiving residential development pressure.	1- 3 Years	$200,000	VA VA CFPF, LWCF, VLCF, LPTC	Yes	Town of Culpeper Departments of Planning and Community Development	Ongoing	New Strategy for 2025
Study/Plan/Strategy								
6	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources	1- 3 Years	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC	As staff capacity al< 1 Years	New strategy for 2025

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
7	Implement a Community or Regional Debris Management Strategy	1- 3 Years	>$10,000	VA CFPF, Local funds	Yes	Local jurisdiction, RRRC, DCR	As staff capacity al< 1 Years	New strategy for 2025
8	Complete and implement mitigation planning policies for dams at Lake Pelham and Mountain Run Lake	1- 3 Years	Dependent on project	SLAF, VCAP, NFWF, VA CFPF, local funds	Yes	Local jurisdictions, RRRC	As funding al< 1 Years	New strategy for 2025
9	Participate in ICS scenario exercises in conjunction with other local jurisdictions	1- 3 Years	Staff time	None other than staff time		Town of Culpeper Departments of Public Works, Planning and Community Development	Ongoing	Completed with several ICS scenarios and tabletop exercises at County E911 Center
Infrastructure								
10	Consider acquisition, elevation, or flood-proofing of structures with repetitive loss claims to the National Flood Insurance Program	< 1 Year	Dependent on property in question	Local funds, FEMA PDM, HMGP	Yes	Culpeper County Emergency Services, Administration	Not Started	New strategy for 2025

Flood Resilience - Mitigation Action Plan – Fauquier County (Including the Town of Plains)

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Education and Outreach								
FC-1	Join the Community Rating System program to reduce the flood insurance premium of citizens in Fauquier County and to foster better floodplain management practices	1- 3 Years	Undetermined	Grants/Local Funds	Yes	Fauquier County Community Development/	Ongoing	Program in review at County/ 2025: Review CRS and NFIP criteria and determine County status. Work to meet standards and apply for CRS.
2	Encourage residents to keep storm drains clear of debris during storms	1- 3 Years	Staff time	Grants/Local Funds	Yes	Fauquier County Community Development	As necessary	This is primarily a town function
3	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM) for property owners and general public	3+ Years	Staff time	Local funds, FEMA PDM, HMGP	Yes	Fauquier County Community Development	Not Started	New strategy for 2018
Nature Based Solutions / Projects								
4	Riparian Restoration for Flood Prevention –Revegetate a 500 foot length of Cedar Run Creek to mitigate against flood events, s< 1 Year down floodwaters, stabilize soil, and reduce erosion.	< 1 Year	$200,000	VA VA CFPF, FEMA HMGP and/or appropriate alternative, FEMA FMA, EPA 319	Yes	Fauquier County Community Development/ Office of Emergency Management/GIS	Not Started	Retain strategy as refined in 2012, given pending stormwater and Chesapeake Bay regulations at state level. 2025: Determine the status and identify any changes to the "2012 Strategy"
5	Stormwater Mitigation and Habitat Creation- Engineering design and installation/replacement of three stormwater roadside ditches into bioswales through the planting of herbaceous native plants to create habitat, increase stormwater uptake and water quality.	< 1 Year		VA VA CFPF, FEMA HMGP and/or appropriate alternative, FEMA FMA, NFWF, EPA 319	Yes	Fauquier County Public Works/ Fauquier County Community Development		
6	Retain thick vegetative cover on public lands flanking river to reduce the potential of erosion	1- 3 Years	Undetermined	Grants/Local funds	Yes	Fauquier County Community Development/Office of Emergency Management/GIS/Parks and Recreation	Not started	Department of Community Development encourages on private lands. Department of Parks & Recreation implements, as able, on public lands. 2025: Work with internal and external stake holders to identify County parcels/tracts/right-of-way along rivers and streams
7	Limit the percentage of impervious surface within developed parcels	< 1 Year	Staff time	None needed		Fauquier County Community Development	Ongoing	Monitor pending regulations at state and federal level for changes to impervious surface reductions.

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
8	Substitute porous surfaces/pavement for impervious pavement when appropriate to reduce flooding caused by runoff	< 1 Year	Staff time	None needed	Yes	Fauquier County Community Development	As necessary	Ongoing, as, and where appropriate
Study/Plan/Strategy								
9	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources	1- 3 Years	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC	As staff capacity al< 1 Years	New strategy for 2025
10	Implement a Community or Regional Debris Management Strategy	1- 3 Years	>$10,000	VA CFPF, Local funds	Yes	Local jurisdiction, RRRC, DCR	As staff capacity al< 1 Years	New strategy for 2025
11	Complete and implement mitigation planning policies for dams at Lake Pelham and Mountain Run Lake	1- 3 Years	Dependent on project	SLAF, VCAP, VA VA CFPF, local funds	Yes	Local jurisdictions, RRRC	As funding al< 1 Years	New strategy for 2025
12	Incorporate into emergency response plans the procedure for tracking 3+ Years water marks fol< 1 Yearing a flood	1- 3 Years	Undetermined	Grants/Local Funding	Yes	Office of Emergency Management/GIS	Not started	Investigate historical data. Work with internal and external stakeholders to determine locations of existing markers and identify locations for new markers.
13	Develop an open space acquisition, reuse, and preservation plan targeting flood hazard areas.	< 1 Year	$50,000 to develop plan, additional unknown	FEMA HMGP	Yes	Fauquier County Community Development	Ongoing	No formal plan in place. Department of Community Development reviews locations of open space during review of proposed subdivisions
Infrastructure								
14	Consider acquisition, elevation, or flood-proofing of structures with repetitive loss claims to the National Flood Insurance Program	< 1 Year	Dependent on property in question	Local funds, FEMA PDM, HMGP	Yes	Fauquier County Community Development/GIS/Office of Emergency Management	Not Started	2025: Work with internal stakeholders to identify and prioritize structures.
15	Relocation of structures out of the floodplain	< 1 Year	Dependent upon number structures identified	FEMA HMGP, FMA	Yes	Fauquier County Community Development/GIS/Office of Emergency Management	Not started	Requires study of non-conforming homes in updated FIRM maps; Retain strategy as refined in 2012.
Staffing								
16	Designate a local floodplain manager/CRS coordinator that achieves Certified Floodplain Manager certification	1- 3 Years	Staff time	None needed	Yes	Fauquier County Community Development	Ongoing	Certification not yet sought for incumbent in position currently

Flood Resilience - Mitigation Action Plan – Town of Remington

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Education and Outreach								
R-1	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM) for property owners and general public	1- 3 Years	Staff time	Local funds, FEMA HMGP, PDC	Yes	Town of Remington Administration	Not started	2018 Strategy
Ordinances								
2	Develop Stormwater Best Management Practices and/ or Local Regulations	1- 3 Years	Staff time	None other than staff time	Yes	Town of Remington Departments Administration and Public Works	Not started	New Strategy for 2025
3	Limit or Restrict Development in Floodplain Areas through Regulatory or Incentive Based Measures	1- 3 Years	Staff time	None other than staff time	Yes	Town of Remington Departments of Planning and Administration	Not started	New Strategy for 2025
Nature Based Solution/Project								
4	Engineering design to restore/reroute Tinpot Run creek into the Rappahannock River. The design would take into consideration reducing sedimentation and improving water quality into the River system.	< 1 Year	$150,000	VA VA CFPF, FEMA HMGP and/or appropriate alternative, EPA Section 319 Grants,	Yes	Town Staff	Not started	New Strategy for 2025
5	Permeable Pavers and Street Trees with Stormwater Retention Chambers - Engineering design and construction to retrofit E Main St, between James Madison St and N Franklin St (~700 linear ft)to reduce runoff and stormwater ponding. The retrofits include converting the asphalt street and concrete sidewalk to pervious pavers, adding street tree plantings with underground stormwater chambers.	1- 3 Years	$2,500,000	VA VA CFPF, FEMA HMGP and/or appropriate alternative, EPA Section 319 Grants,	Yes	Town Staff	Not started	New Strategy for 2025
Study/Plan/Strategy								
6	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may	1- 3 Years	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC	As staff capacity al< 1 Years	New strategy for 2025

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
	be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources							
7	Complete a stormwater infrastructure inventory and hydrological assessment (in coordination with VDOT if appropriate) and prioritization of potential projects to alleviate flood issues	3+ Years	Dependent on project	HMGP and/or appropriate alternative, ARPA, VA VA CFPF	Yes	Local jurisdictions, RRRC	As funding al< 1 Years	New strategy for 2025
8	Implement a Community or Regional Debris Management Strategy	1- 3 Years	>$10,000	VA CFPF, Local funds	Yes	Local jurisdiction, RRRC, DCR	As staff capacity al< 1 Years	New strategy for 2025
Infrastructure								
9	Elevate buildings/buy-out land in floodplain.	1- 3 Years	Unknown	FEMA, Local Funds	Yes	Town of Remington Administration	Not started	Cost is prohibitive for Town to proceed and dependent on identified structures

Flood Resilience - Mitigation Action Plan – Town of Warrenton

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Education and Outreach								
W-1	Join the Community Rating System program to reduce the flood insurance premiums of citizens in the Town of Warrenton and to foster better floodplain management.	1- 3 Years	Staff time	None needed		Town of Warrenton Departments of Public Works and Utilities & Planning and Community Development	Ongoing	Some elements of the CRS program are incorporated into the Planning & Permitting processes. Town has a Certified Floodplain manager to assist with identifying and managing flood risk. The < 1 Year number of flood insurance policies and at-risk structures in the Town reveals that the identified risk for flood damage is < 1 Year. No repetitive-loss structures. Town is focusing on Erosion and Sediment control & Stormwater management to address localized flooding issues.
2	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM) for property owners and community at large.	3+ Years	Staff time	Local Funds, FEMA HMGP or PDM	Yes	Town of Warrenton Department of Planning and Community Development	Ongoing	Staff is working with Fauquier County to review and comment on FIRMs as they are delivered and will assist with implementation and public education throughout this process.
Ordinance								
3	Improve enforcement of erosion and sediment control measures to reduce erosion and flooding problems caused by sedimentation.	< 1 Year	Staff time	None needed	Yes	Town of Warrenton Department of Planning and Community Development	Ongoing	Inspections and Enforcement current. Training ongoing. Improved permitting and tracking processes.
Nature Based Solutions/Projects								
4	Reducing Riverine Flooding through Stream Restoration - Engineering design and construction for streambank restoration along Rady Park Creek – Cattail Branch. ~250 linear ft	1- 3 Years	$750,000	VA VA CFPF,	Yes	Town of Warrenton Departments of Public Works and Utilities	Not Started	New strategy for 2025
5	Stormwater Mitigation and Habitat Creation- Engineering design and installation/replacement of three stormwater roadside ditches into bioswales through the planting of herbaceous native plants to create habitat, increase stormwater uptake and water quality.	< 1 Year	$600,000	VA VA CFPF, FEMA HMGP and/or appropriate alternative, FEMA FMA, NFWF, EPA 319	Yes	Town of Warrenton Departments of Public Works and Utilities	Not Started	New strategy for 2025
Study/Plan/Strategy								
6	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or	1- 3 Years	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC	As staff capacity al< 1 Years	New strategy for 2025

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
	implementation projects that may be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources							
7	Complete a stormwater infrastructure inventory and hydrological assessment (in coordination with VDOT if appropriate) and prioritization of potential projects to alleviate flood issues	3+ Years	Dependent on project	HMGP and/or appropriate alternative, ARPA, VA CFPF	Yes	Local jurisdictions, RRRC	As funding al< 1 Years	New strategy for 2025
8	Implement a Community or Regional Debris Management Strategy	1- 3 Years	>$10,000	VA CFPF, Local funds	Yes	Local jurisdiction, RRRC, DCR	As staff capacity al< 1 Years	New strategy for 2025

Flood Resilience - Mitigation Action Plan – Madison County

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Education and Outreach								
MC-1	Identify the two repetitive loss properties in the county.	1- 3 Years	Staff time	None needed		Madison County Emergency Management	Not started	Limited number of repetitive loss properties in the County, and < 1 Year cost-benefit of potential projects as discussed with VDEM in the past
2	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM) for property owners and community at large.	< 1 Year	Staff time	Local Funds, FEMA HMGP or PDM	Yes	Madison County Departments of Emergency Management and Planning and Community Development	Not started	New strategy for 2025
Nature Based Solutions / Projects								
3	Reducing Riverine Flooding through Stream Restoration - Engineering design to accommodate Stream Widening and Stream Restoration of 150 linear feet along VA-670 (Old Blue Ridge Turnpike).	1- 3 Years	$1,000,000	VA VA CFPF, FEMA HMGP and/or appropriate alternative, EPA Section 319 Grants,	Yes	VDOT	Not Started	New strategy for 2025
4	Private Property Flood Mitigation – Funding to relocate the two repetitive loss properties near the intersection of State Route 670 and State Route 642.	3+ Years	$850,000	FEMA HMGP and/or appropriate alternative, FEMA HMA, VA VA CFPF	Yes	Madison County Departments of Emergency Management and Planning and Community Development	Not Started	New strategy for 2025
Study/Plan/Strategy								
5	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources	1- 3 Years	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC	As staff capacity al< 1 Years	New strategy for 2025
6	Implement a Community or Regional Debris Management Strategy	1- 3 Years	>$10,000	VA VA CFPF, Local funds	Yes	Local jurisdiction, RRRC, DCR	As staff capacity al< 1 Years	New strategy for 2025
Infrastructure								
7	Elevate buildings/buy-out land in floodplain.	1- 3 Years	Unknown	FEMA, Local Funds	Yes	Town of Remington Administration	Not started	Cost is prohibitive for Town to proceed and dependent on identified structures

Flood Resilience - Mitigation Action Plan – Town of Madison

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Education and Outreach								
Nature Based Solutions / Ordinance								
M-1	Improve stormwater runoff with the implementation of stormwater management techniques	3+ Years	Town staff has estimates	FEMA HMGP and/or appropriate alternative, USDA, Soil and Water Conservation	Yes	Town of Madison Administration	As funding al< 1 Years	Work with Rapidan Service Authority to complete
Study/Plan/Strategy								
2	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources	1- 3 Years	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC	As staff capacity al< 1 Years	New strategy for 2025
3	Implement a Community or Regional Debris Management Strategy	1- 3 Years	>$10,000	VA VA CFPF, Local funds	Yes	Local jurisdiction, RRRC, DCR	As staff capacity al< 1 Years	New strategy for 2025
Nature Based Solution/Project								
4	Stormwater Mitigation and Habitat Creation - Engineering design and installation/replacement of three stormwater roadside ditches into bioswales through the planting of herbaceous native plants to create habitat, increase stormwater uptake and water quality.	1- 3 Years	$300,000	VA VA CFPF, FEMA HMGP and/or appropriate alternative, USDA, Soil and Water Conservation	Yes	Town of Madison Administration	Not Started	New strategy for 2025

Flood Resilience - Mitigation Action Plan – Orange County

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Education and Outreach								
OC-1	Develop and implement a multi-hazard public awareness program	1- 3 Years	Staff time	General Fund		Orange County Department of Emergency Management and Emergency Communication	Ongoing	County has active communication via social media, training workshops for public
Nature Based Solutions / Ordinance								
2	Reduce development impacts between Lake of the Woods Dam and the Rapidan River.	1- 3 Years	Staff time	General fund		Orange County Planning and Zoning	Ongoing	Addressed through Dam Inundation statute; Not expressly prohibited at this time
Study/Plan/Strategy								
3	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources	1- 3 Years	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC	As staff capacity al< 1 Years	New strategy for 2025
4	Implement a Community or Regional Debris Management Strategy	1- 3 Years	>$10,000	VA VA CFPF	Yes	Local jurisdiction, RRRC, DCR	As staff capacity al< 1 Years	New strategy for 2025
5	Complete a stormwater drainage study/plan for known problem areas	1- 3 Years	Staff time	VA VA CFPF	Yes	Orange County Department of Planning and Zoning	As funding al< 1 Years	Addressed through other means

Nature Based Solution/Project								
6	Land Protection for Flood Reduction – Acquire conservation easements along the Rappahannock River located in the privately held tract #5288-906 acres, located between the Veterans Memorial Dam and the Rappahannock River to project water quality and mitigate flood impacts	1- 3 Years	$200,000	VA VA CFPF, LWCF, VLCF, LPTC	Yes	Orange County Department of Planning and Zoning	Not Started	New strategy for 2025
7	Land Protection for Flood Reduction – Acquire conservation easements along Flat Run Creek in the Dam inundation zone are of the Veterans Memorial Dam.	1- 3 Years	$150,000	VA VA CFPF, LWCF, VLCF, LPTC	Yes	Orange County Department of Planning and Zoning	Not Started	New strategy for 2025
8	Implement a community or regional debris management strategy.	1- 3 Years	>$10,000	VA VA CFPF, Local funds	Yes	Local jurisdiction, RRRC, DCR	As staff capacity al< 1 Years	New strategy for 2025
9	Complete a stormwater drainage study/plan for known problem areas.	1- 3 Years	$150,000	VA VA CFPF, FEMA Grants	Yes	Orange County Department of Planning and Zoning	Not Started	New Strategy for 2025

Flood Resilience - Mitigation Action Plan – Town of Gordonsville

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Education and Outreach								
Nature Based Solutions / Ordinance								
Study/Plan/Strategy								
G-1	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources	1- 3 Years	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC	As staff capacity al< 1 Years	New strategy for 2025
2	Implement a Community or Regional Debris Management Strategy	1- 3 Years	>$10,000	VA VA CFPF, Local funds	Yes	Local jurisdiction, RRRC, DCR	As staff capacity al< 1 Years	New strategy for 2025
3	Complete a stormwater drainage study/plan for known problem areas	1- 3 Years	Staff time	General Fund, grants	Yes	Town of Gordonsville Manager's Office/RRRC	As funding al< 1 Years	Addressed through other means
Nature Based Solution/ Project								
4	Land Protection for Flood Reduction – Engage with landowners and offer conservation easements along Mountain Run Tributary 4 .	1- 3 Years	>$100,000	VA VA CFPF,	Yes	Town of Gordonsville	As staff capacity al< 1 Years	New strategy for 2025

Flood Resilience - Mitigation Action Plan – Town of Orange

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Nature Based Solutions / Ordinance								
O-1	Implement preferred recommendation of the 2006 Baylor Creek Stream Restoration Study	1- 3 Years	Dependent upon recommendations implemented	VA VA CFPF	Yes	Town of Orange Department of Community Development	Not started	This strategy may also fall under infrastructure dependent on the recommendations
Study/Plan/Strategy								
2	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources	1- 3 Years	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC	As staff capacity al< 1 Years	New strategy for 2025
3	Implement a Community or Regional Debris Management Strategy	1- 3 Years	>$10,000	VA CFPF, Local funds	Yes	Local jurisdiction, RRRC, DCR	As staff capacity al< 1 Years	New strategy for 2025
Nature Based Solutions/Projects								
4	Stormwater Mitigation and Stream Restoration -Spicer's Mill Road Culvert and Bridge Replacement and Stream Restoration along the unnamed tributary of Baylor Creek, approximately 500 feet adjacent to Spacers Mill Rd.	3+ Years	$3,000,000	FEMA HMGP and/or appropriate alternative, FEMA HMA, VA VA CFPF,	Yes	Town of Orange	Not started	New strategy for 2025
5	Madison Road Stormwater Drainage Rehabilitation and Reconstruction Project – Main Street to Newton Street, supplement CIP project/ funding to include street trees with bioretention cells underneath for this section of the project.	1- 3 Years	$1,500,000	FEMA HMGP and/or appropriate alternative, FEMA HMA, VA VA CFPF,	Yes	Town of Orange	Not Started	New strategy for 2025

Flood Resilience - Mitigation Action Plan – Rappahannock County (Including the Town of Washington)

Project #	Strategy	Timeline	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Education and Outreach								
RC-1	Improve GIS data within the county in order to perform more accurate risk assessments.	< 1 Year	Dependent on scope of project	Local Funds, Grants	Yes	Rappahannock County E-911 Coordination	Ongoing	NG911 transition completed. Current project underway to develop a GIS system for staff with limited public facing features.
2	Counsel commercial uses in floodplain	< 1 Year	$1 to 1.5M	FEMA HMP Grants	Yes	Rappahannock County Building Official	Ongoing	FIRM was updated in 2021 using Lidar, substantially improving floodplain limits. When commercial uses consider a building permit, counseling is provided with regard to elevation, floodproofing, and relocation.
Nature Based Solutions /Projects								
3	Stormwater Mitigation and Water Quality Improvements- During the planned Retrofit of the Sperryville Wastewater Treatment Plant which includes floodproofing the main system and upgrading the collection system, include segments of Stream Restoration along the Thornton River to improve water quality, and reduce riverine flooding near the plant.	1- 3 Years	$500,000 t0 $1,000,000 for restoration component	VA CFPF	Yes	Rappahannock Water and Sewer Authority	Not Started	New strategy for 2025
Study/Plan/Strategy								
4	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible for HMGP and/or appropriate alternative, HMP, VA CFPF or other funding sources	1- 3 Years	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC	As staff capacity al< 1 Years	New strategy for 2025
5	Implement a Community or Regional Debris Management Strategy	1- 3 Years	>$10,000	VA CFPF, Local funds	Yes	Local jurisdiction, RRRC, DCR	As staff capacity al< 1 Years	New strategy for 2025
Infrastructure								
6	Coordinate with NOAA or other agency to install flood gauges in flooding locations and along rivers to increase data in region	< 1 Year	<$10,000	NOAA, VDOT,	Yes	Local jurisdictions, RRRC	As funding al< 1 Years	New strategy for 2025

Regional Hazard Mitigation Plan (2025 Update) and Resilience Plan

Chapter 6
Capability Assessment

Rappahannock-Rapidan
REGIONAL COMMISSION

CHAPTER 6 - CAPABILITY ASSESSMENT

Purpose

The Rappahannock-Rapidan Regional Commission's capability assessment is used to determine the ability of participating localities to develop and implement mitigation strategies and to identify opportunities, or needs, to establish or enhance specific policies, programs, or projects. The assessment was used to determine the feasibility of achieving proposed goals and objectives based on an understanding of the organizational capacity of those agencies or departments tasked with their implementation.

By assessing each jurisdiction's relevant ordinances, programs, and policies, it was possible to determine local capabilities and identify gaps and barriers that might compromise effective hazard mitigation. In addition, proven programs of verifiable benefit were identified and targeted for continued support and possible enhancement. The assessment helped determine the practicality of specific mitigation strategies and the likelihood of their implementation in consideration of a local government's planning and regulatory framework, level of administrative and technical support, and fiscal resources available for these strategies.

Coupled with the Risk Assessment, the Capability Assessment helped identify and refine appropriate mitigation strategies for incorporation into Chapter 7 - Mitigation Strategy of the Hazard Mitigation Plan update and ensured that specific goals and objectives are realistically achievable.

Procedure

For the 2025 plan update, RRRC staff worked with local jurisdictions points of contact to complete two tasks related to the capability assessment. A review of Table 6.1 Relevant Plans, Ordinances, and Programs from the 2018 Hazard Mitigation Plan was completed by each locality to document any changes to the local plans currently in place. Table 6.1 documents several common planning documents, ordinances, codes, and policies in place and documents whether each participating locality utilizes each.

Participating jurisdictions were also asked to provide additional information for the capability assessment through a set of worksheets developed by FEMA to document and assess local capabilities. These worksheets requested information on each locality's planning and regulatory capabilities, administrative and technical resources, financial tools and resources, and education and outreach capacity. A review of the jurisdiction mitigation strategy tables was also conducted in order for localities to precisely categorize strategies as unnecessary, complete, or in progress, and address the updates and/or barriers to their completion.
Some jurisdictions met directly with the project consultant to discuss their mitigation strategy tables and to brainstorm new strategies that could help address community concerns and how to best overcome implementation barriers.

Findings

Information and resources are provided for the Federal, State, and regional levels, along with a self-assessment for each of the local jurisdictions covered by the *Regional Hazard Mitigation Plan*. The capability assessment contains information on existing policies, regulations, and plans, and it is the goal that this assessment will assist the RRRC communities in focusing on the goals, objectives, and proposed actions of this Plan more accurately.

6.1 - FEDERAL, STATE, AND REGIONAL CAPABILITY ASSESSMENT

Federal, State and Regional mitigation capabilities that are common to all communities within the region are presented below. The mitigation capabilities specific to each community are individually identified and presented in Section 6.2, Community Specific Capability Assessment.

6.1.1 - FEDERAL CAPABILITIES

Federal Emergency Management Agency (FEMA); The Rappahannock Act

This Act constitutes the statutory authority for most Federal disaster response activities especially as they pertain to FEMA and FEMA programs. Federal assistance for the repair of public roads damaged by a natural disaster not covered by the FHWA's ER program is available through the disaster relief program administered by the Federal Emergency Management Agency under the Rappahannock Act.

The National Flood Insurance Program (NFIP)

Established in 1968, the NFIP provides federally backed flood insurance in over 22,000 communities in 56 states and jurisdictions across the United States and its territories. Participating communities must agree to regulate new development in identified Special Flood Hazard Areas through the adoption and enforcement of a minimum Flood Damage Prevention Ordinance.[1] In Virginia, there are currently 292 communities enrolled in the NFIP.[2] The program also requires, as a condition of every federally-backed mortgage within an identified Special Flood Hazard Area, the purchase and maintenance of a flood insurance policy for the life of the loan.

Community participation in the NFIP is voluntary. Flood insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Flood damage is reduced by

[1] Congressional Research Service, *A Brief Introduction to the National Flood Insurance Program* (Updated December 9, 2021); https://sgp.fas.org/crs/homesec/IF10988.pdf

[2] Report of the Secretary of Natural and Historic Resources, *The Status of Flood Resilience in the Commonwealth* (Published December, 2023); https://www.dcr.virginia.gov/dam-safety-and-floodplains/document/2024-Status-of-Flood-Resilience-in-the-Commonwealth%E2%80%93December-2023.pdf

nearly $1 billion a year through communities implementing sound floodplain management requirements and property owners purchasing flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer approximately eighty percent (80%) less damage annually than those not built-in compliance.

In addition to providing flood insurance and reducing flood damages through floodplain management regulations, the NFIP identifies and maps the Nation's floodplains. Mapping flood hazards creates broad-based awareness of the flood hazards and provides the data needed for floodplain management programs and to actuarially rate new construction for flood insurance.

Federal Highway Administration (FHWA); Emergency Transportation Operations (ETO)

The FHWA, through the ETO programs, provides tools, guidance, capacity building, and best practices that aid local and state departments of transportation and their partners in their efforts to improve transportation network efficiency and public/responder safety when a non-recurring event either interrupts or overwhelms transportation operations. Non-recurring events may range from traffic incidents to traffic Planning for Special Event (PSE) to disaster or emergency transportation operations (Disaster ETO). Work in ETO program areas focus on using highway operational tools to enhance mobility and motorist and responder safety. Partnerships in ETO program areas involve non-traditional transportation stakeholders since ETO programs involve transportation, public safety (fire, rescue, emergency medical service, law enforcement) and emergency management communities. ETO, as a discipline, spans a full range of activities: from transportation-centric (fender benders) to those where transportation is a critical response component (e.g., hurricane evacuations).

Federal Highway Administration (FHWA); Federal-aid Highway Emergency Relief Program

The Emergency Relief (ER) program - administered by the Federal Highway Administration (FHWA) - is intended to supplement the commitment of resources by states, counties, and municipalities (or other Federal agencies when appropriate) to help pay for unusually heavy expenses resulting from extraordinary conditions. The United States Congress has authorized ER funding as part of the FHWA's Federal-aid highway program. ER funds are available for the repair of Federal-aid highways or roads on Federal lands that have been seriously damaged by natural disasters over a wide area or by catastrophic failures from an external cause. Examples of natural disasters include floods, hurricanes, earthquakes, tornadoes, tidal waves, severe storms, or landslides. A bridge collapsing after being struck by a barge is an example of a catastrophic failure.

State highway agencies, working with local officials, have established the functional classification of all public roads, ranging from high service level arterials to lower service local streets. Federal-aid highways are all the public roads not functionally classified as either local or rural minor collectors. As a result, Federal-aid highways include the more

important state, county, and city roads. Based on the functional classifications, about one-quarter of the overall public road mileage has been designated as Federal-aid highways. The FHWA's ER program is limited to the repair of Federal-aid highways (as previously defined) or roads on Federal lands. See the Federal Emergency Management Agency's disaster relief program under the Rappahannock Act for the repair of public roads not covered by the FHWA's ER program.

U.S. Department of Energy (DOE); Building Technologies Program
The U.S. Department of Energy (DOE) is working to encourage cost-effective, durable, and energy-efficient building reconstruction in areas struck by natural disasters. The Building Technologies Program offers information and resources for state and local officials, builders, and consumers, as well as training opportunities on building technologies and designs that can make a long-term difference in areas vulnerable to natural disasters. When applied, these technologies can result in safer, healthier, more economically viable communities that are less susceptible to disaster.

Environmental Protection Agency (EPA); Viriginia TMDLs
During an assessment period, if the water body surpasses the water quality criteria, Section 303(d) of the Clean Water Act (CWA) and the United States Environmental Protection Agency's (USEPA) Water Quality Management and Planning Regulation (40 CFR Part 130) both require states to develop a Total Maximum Daily Load (TMDL) for each pollutant. A TMDL Implementation Plan is developed to reduce bacteria levels to attain water quality standards allowing delisting of impaired waters from the Section 303(d) List. See State Capabilities - Viginia DEQ for more information.

6.1.2 - STATE CAPABILITIES

Virginia Department of Emergency Management
The Virginia Department of Emergency Management (VDEM) identifies its mission as leading "Virginia's prevention, protection, mitigation, response, and recovery efforts to save lives and protect all Virginians, prioritizing under-resourced communities and embracing equity. It is a call we fulfill to ensure the security and resilience of every community in the state, and to drive equitable mitigation and recovery outcomes." VDEM responsibilities are categorized into five (5) mission areas, as follows: Prevention, Protection, Mitigation, Response, and Recovery. The following are VDEM plans and resources relevant to hazard mitigation within the region:

Commonwealth of Virginia Hazard Mitigation Plan
The current Commonwealth of Virginia Hazard Mitigation Plan (CoVaHMP) was adopted in 2023.[3] Consistent with FEMA regulations, the CoVaHMP provides guidance on hazard mitigation activities within the Commonwealth. The State originally established a hazard mitigation plan in 2004, updating the plan in 2007, 2010, 2013, 2018, and then most recently in 2023.

Commonwealth of Virginia Emergency Operations Plan
An update to the *Commonwealth of Virginia Emergency Operation Plan* was last adopted in July 2019, with "major revision-changes" in October 2021.[4] The Plan provides the framework for how the State will support impacted local governments, individuals, and businesses in the event of disasters, and outlines how Virginia will work with the federal government to deliver federal disaster assistance. The plan consists of a Basic Plan as well as sub-plans covering Emergency Support Functions, other Support Functions, and seven hazard-specific volumes.

Virginia Emergency Alert Systems (EAS) Stations
Virginia is divided into 14 Local Areas (formerly "operational areas") which coordinate EAS activities under the direction of the Local Emergency Communications Committee (LECC). The LECC Chair and Vice-Chair are appointed by the FCC and the State Chair; they are also members of the State Emergency Communications Committee (SECC). The Rappahannock-Rapidan region is within Local Area 2 with its office in Culpeper.

Specific AM/FM radio stations provide updated disaster and directional information to listeners in the Commonwealth. Thirty-seven radio stations cover fourteen regions in Virginia.

Virginia Statewide Communication Interoperability Plan (SCIP)
Interoperability is the ability of public safety agencies to talk across disciplines and jurisdictions via radio communications systems, exchanging voice and/or data with one another on demand in real time, when needed, and as authorized. The lack of interoperable communications is not a new public safety problem, but new events continue to remind us of the pressing problem it poses to public safety departments and emergency response agencies. Major disaster events have demonstrated the need for improved communications systems and collaboration and planning among various jurisdictions.

The Virginia SCIP serves as the backbone for regional and local interoperable communications planning. It establishes a future vision for communications interoperability and aligns the Commonwealth's emergency response agencies with

[3] https://www.vaemergency.gov/wp-content/uploads/2023/03/cova-hazard-mitigation-plan.pdf

[4] https://www.vaemergency.gov/wp-content/uploads/2021/07/2021-COVEOP-Final-APPROVED-102021-1.pdf

that vision and the goals, objectives, and initiatives for achieving that vision. The first Virginia SCIP was released in 2005, and it defined statewide initiatives designed to improve interoperable communications. The current version of the SCIP was adopted in 2013.[5]

Virginia Department of Conservation and Recreation

The Virginia Department of Conservation and Recreation (DCR) is the state's leading natural resource conservation agency. DCR's stated mission "is to conserve Virginia's natural and recreational resources." DCR supports a variety of environmental programs organized within six areas (Administration, Natural Heritage, Planning and Recreation Resources, Soil and Water, State Parks, and Dam Safety and Floodplain Management) and numerous policy and/or advisory boards including the Board of Conservation and Recreation, Virginia Cave Board, Board on Conservation and Development of Public Beaches, and the Virginia Soil and Water Conservation Board).

Virginia Flood Damage Reduction Act

Virginia's General Assembly enacted the Virginia Flood Damage Reduction Act of 1989, the result of several disastrous floods or coastal storms that hit the State between 1969 and 1985. To improve Virginia's flood protection programs and place related programs in one agency, responsibility for coordination of all state floodplain programs was transferred in 1987 from the Water Control Board to DCR. DCR was named manager of the State's floodplain program and designated coordinating agency of the National Flood Insurance Program under the Act, §10.1-602, and a Governor's memorandum released in July 1997.

Floodplain Management Program staff works with localities to establish and enforce floodplain management zoning. Localities use the program's State model ordinances, in which minimum standards for local regulations are set, to write their own local ordinances. Local governments can set more restrictive standards to ensure higher levels of protection for residents in flood hazard areas. Also, the State has used the Virginia Uniform Statewide Building Code to set construction standards for structures built in Federal Emergency Management Agency designated flood hazard areas. Floodplain zoning regulates how development is allowed within floodplains. The Floodplain Management Program's main goal is to protect people and their property from unwise floodplain development. It also protects society from costs associated with developed floodplains.

Virginia Dam Safety Act

The Virginia Soil and Water Conservation Board (VSWCB) established the State's dam safety regulations as a result of the passage of the Virginia Dam Safety Act. The Dam Safety Program's purpose is to provide for safe design, construction, operation, and

[5] https://www.pshs.virginia.gov/media/governorvirginiagov/secretary-of-public-safety-and-homeland-security/pdf/2013scip.pdf

maintenance of dams to protect public safety. The program enforces permit requirements related to the construction and alteration of impounding structures. All dams in Virginia are subject to the Dam Safety Act unless specifically excluded. Inundation mapping is required for all Class I and Class II dams in the Commonwealth. Dam Safety Program officials recommend mapping for all classified dams (VSWCB, 2005).

The Virginia Dam Safety Act, Article 2, Chapter 6, Title 10.1 (10.1-604 et seq) of the Code of Virginia and Dam Safety Impounding Structure Regulations (Dam Safety Regulations), established and published by the VSWCB. New regulations were put into effect Sept. 26, 2008, which regulations require dam break inundation zone mapping in order to identify areas that will be subject to flooding during a dam failure.

Community Flood Preparedness Fund

Virginia's General Assembly established the Community Flood Preparedness Fund (CFPF) to provide grant and loan financing for resilience planning efforts to local and regional government bodies across the Commonwealth. To date, DCR and the Virginia Resources Authority have administered three rounds of grant offerings, from which awards have totaled $97.74 million in funding provided by the Commonwealth. Of this amount, $65.9 million, or 67.5%, has gone to communities meeting the fund's definition of low-income communities.

Resilient Virginia Revolving Fund

The Resilient Virginia Revolving Fund (RVRF) is a second state fund for flood resilience, which was established in the Code of Virginia (Title 10.1, Chapter 6, Article 1.4) in 2022. The fund was established to hold sums from a variety of sources and distribute these sums as loans and grants to local governments for flood resilience projects such as residential structural and non-structural flood mitigation.

DCR's intention is to focus the CFPF on large, community-scale projects while leveraging the RVRF primarily for property-scale mitigation efforts. Following a public comment period, DCR issued grant manuals for Round 4 of the CFPF and Round 1 of the RVRF in September 2023. Applicants had until November 2023 and December 2023 to apply for CFPF and RVRF, respectively.

Virginia Department of Environmental Quality

The Virginia Department of Environmental Quality (DEQ) is the Commonwealth's environmental agency, responsible for administering laws and regulations related to air quality, water quality, water supply, renewable energy, and land protection. DEQ's mission "is to protect and enhance the environment of Virginia in order to promote the health and well-being of the Commonwealth's citizens, residents, and visitors in accordance with applicable laws and regulations."

The *Virginia Total Maximum Daily Load (TMDL) program* is a process to improve water quality and restore impaired waters in Virginia. Specifically, TMDL is the maximum amount of pollutant that a waterbody can assimilate without surpassing the state water quality standards for

protection of the five beneficial uses: drinking water, recreational (i.e., primary contact/swimming), fishing, shell fishing, and aquatic life.[6]

Virginia Stormwater Management Act and Regulations

The Virginia Stormwater Management Act and Virginia Stormwater Management Permit regulations provide the ability to manage the quantity and quality of stormwater runoff on a construction site, as well as on a regional or watershed basis. Compared with impervious surfaces (such as pavement or rooftops), pervious surfaces (such as meadows and woodlands) absorb and filter rainfall and reduce runoff. When meadows and woodlands are developed, the increase in impervious surfaces increases the amount of runoff that occurs when it rains. This increase in runoff can overwhelm waterways, causing erosion, localized flooding, and property damage.

Virginia DEQ is also a member agency in the Virginia Emergency Support Team (VEST), a group of more than 300 state, federal, private, and nonprofit representatives that work together to respond to calls for assistance from local governments throughout the Commonwealth. In response to natural and human-caused disasters, the Virginia Department of Emergency Management (VDEM) expands its capability through the VEST. The VEST is organized by Emergency Support Functions (ESFs), and DEQ has leading and support roles and responsibilities under several support functions including Oil and Hazardous Materials Response, Public Works and Engineering, Public Health and Medical Services, and Agriculture and Natural Resources.

Virginia Department of Forestry

The Virginia Department of Forestry (VDOF) is responsible for the protection of 15.8 million acres of forest land from fire, insects, and disease. The principal goals of the Forest Protection Program are to prevent injury or loss of human life, minimize property damage and protect resources. VDOF has a well-defined and organized forest protection team, with every member of the Department having fire responsibilities. The ability to adapt to emergencies enables a small formal fire suppression force to limit annual fire losses to an average of less than 8,200 acres (10-year average). This low average is accomplished through coordination with local fire departments, forest industry, federal agencies, other state agencies and VDOF organized volunteer fire crews.

Department of Housing and Community Development

The Commonwealth of Virginia is responsible for enacting the Virginia Uniform Statewide Building Code (VUSBC), and each county or city is responsible for enforcing the code locally. The code contains the building regulations that must be complied with when constructing a new building or structure or an addition to an existing building, maintaining, or repairing an existing building, or renovating or changing the use of a building or structure.

[6] https://www.deq.virginia.gov/our-programs/water/water-quality/implementation

Enforcement of the VUSBC is the responsibility of the local government's building inspections department. The VUSBC contains enforcement procedures that must be used by the enforcing agency.

As provided in the Uniform Statewide Building Code Law, Chapter 6 (36-97 et seq.) of Title 36 of the Code of Virginia, the USBC supersedes the building codes and regulations of the counties, municipalities and other political subdivisions and state agencies related to any construction, reconstruction, alterations, conversion, repair or use of buildings and installation of equipment therein. The USBC does not supersede zoning ordinances or other land use controls that do not affect the manner of construction or materials to be used in the construction, alteration, or repair.

Department of Rail and Public Transportation
The Virginia Department of Rail and Public Transportation (DRPT) has a mission to facilitate and improve mobility of the citizens of Virginia and promote the efficient transport of goods and people in a safe, reliable, and cost-effective manner. The agency's focus is the movement of people and goods throughout the Commonwealth, and the primary areas of activity are rail, public transportation, and commuter services. DRPT works with local, regional, state, and federal governments, as well as private entities to provide support for projects and programs.

Transit Ridership Incentive Program
DRPT administers the Transit Ridership Incentive Program (TRIP), which provides funding to transit agencies and governing bodies for the purpose of creating more accessible, safe, and regionally significant transit networks. TRIP provides funding to transit agencies for the purpose of supporting the deployment of zero fare and/or reduced fare pilot programs designed to support low-income communities.
The safety of transit riders, operators, and employees is a priority of the state of Virginia. To improve safety on and accessing transit for riders, and to improve safety for the transit workforce in delivering transit service, TRIP funds public safety equipment, infrastructure, as well as public safety initiatives/planning.[7]

Human Services Grant Program
DRPT awards Federal Transit Administration Section 5310 funding for the enhanced mobility of seniors (ages 65 and older) and individuals with disabilities. These awards fund capital projects to replace or expand vehicle fleets, mobility management projects to coordinate transportation, operating projects to provide transportation, and other capital projects to support programs serving the eligible populations.[8]

6.1.3 - REGIONAL CAPABILITIES

Rappahannock-Rapidan Regional Commission (RRRC)

[7] Virginia Department of Rail and Public Transportation, *Transit Ridership Incentive Program (TRIP)*; https://drpt.virginia.gov/our-grant-programs/transit-ridership-incentive-program-trip/

[8] Virginia Department of Rail and Public Transportation, Human Services Grant Program, https://drpt.virginia.gov/our-grant-programs/human-services-grant-program/

One of 21 Planning District Commissions in the Commonwealth of Virginia, the RRRC serves the counties of Culpeper, Fauquier, Madison, Orange and Rappahannock, and the towns of Culpeper, Gordonsville, Madison, Orange, Remington, The Plains, Warrenton, and Washington. Planning District Commissions are voluntary associations created pursuant to the Virginia Area Development Act adopted in 1969. The purpose of planning district commissions, as set out in the Code of Virginia, Section 15.2-4207 is "...to encourage and facilitate local government cooperation and state-local cooperation in addressing on a regional basis problems of greater than local significance." RRRC serves as a resource of technical expertise to its member local governments. Specific programs affiliated with RRRC include community development, hazard mitigation, transportation, housing, and environmental planning.

The Rappahannock River Basin Commission
The Rappahannock River Basin Commission's (RRBC) mission and purpose as stated in Section 62.1-69.27 of the Code of Virginia is: "(T)to provide guidance for the stewardship and enhancement of the water quality and natural resources of the Rappahannock River Basin. The Commission shall be a forum in which local governments and citizens can discuss issues affecting the Basin's water quality and quantity and other natural resources."

6.2 - COMMUNITY SPECIFIC CAPABILITY ASSESSMENT

To evaluate the ability of RRRC member communities to plan, develop, and implement hazard mitigation strategies, the following section presents local capability assessments for each jurisdiction. This assessment is designed to highlight both the regulatory tools available to the community to assist with natural hazard mitigation and the other community assets that may help facilitate the planning and implementation of natural hazard mitigation over time. This information outlines the current and planned programming that will impact the ability of these areas to plan for and mitigate natural hazards.

Capability Matrices Index on page 6-13

TABLE 6.1 CAPABILITY ASSESSMENT SUMMARY MATRIX

Jurisdiction	National Flood Insurance Program	NFIP Community Rating System	Comprehensive Land Use Plan	Hazard Mitigation Plan	Disaster Recovery Plan	Floodplain Management Plan	Stormwater Management Plan	Emergency Operations Plan	Continuity of Operations Plan	Radiological Emergency Plan	SARA Title III Plan	Evacuation Plan	Transportation Plan	Capital Improvements Plan	Historic Preservation Plan	Zoning Ordinance	Subdivision Ordinance	Flood Damage Prevention	Building Code	Fire Code	Riparian Buffer/ Wetland	Non-Governmental Organization	Open Space Preservation	Public/Private Partnerships
Culpeper County	x		x	x	S		S	x	x	x	x	x	x	x	x	x	x	x	S	S		X		X
Town of Culpeper	x		x	x	S	x	S	o	o	o		o	x	x	x	x	x	x	S	S	x	X		
Fauquier County	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	S	S	x	X	x	x
Town of Warrenton	x		x	x		x	x	X	X	X	x		x	x	x	x	x		S	S	x	X		X
Town of Remington	x		x	x	x	x	S	o	o	o	o	o	o			X	X	X	S	S		X		x
Madison County	x		x	x	X	x	S	x		S	x	x	x	x	x	x	x	X	S	S		X		
Town of Madison			x	x		o	S	o			o	o			x	x	x		S	S		X		
Orange County	x		x	x	S	x	S	x	x	x	x	x	x	x	x	x	x	x	S	S		X		
Town of Gordonsville	x		x	x			S	o	o	o	o	o							S	S		X		
Town of Orange	x		x	x			S	o	o	o	o	x	x	x		x	x		S	S		X		
Rappahannock County	x		x	x	x	x	S	x		x	x	x			x	x	x	x	S	S	x	X		x

X – Local Plan Adopted or in Development o Uses County Plan S - Uses State Plan + In progress
blank – no response All responses are provided by the community.

TABLE 6.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY ASSESSMENT

	Administrative			Technical Staff								Financial		Education and Outreach			
Jurisdiction	Planning Commission	Zoning Administrator	Mitigation Planning Committee	Engineering Staff	Code Enforcement Staff	Building Official	Certified Floodplain Manager / Floodplain Administrator	Stormwater Management Staff	Civil Engineer - Construction Project	Grant Administrator / Writer	GIS Technician	Capital Improvements Plan	Utility or Stormwater Fees	Storm Ready Certification	Emergency Management and Mitigation Outreach	Streambank Buffer Protection Program	Hazard Specific Plan or Ordinance (Wildfire, Stormwater, slope, etc.)
Culpeper County	X	X	X			X			x		X	x	x	+	x		X
Town of Culpeper	X	X		X	X	o			o			x	X				
Fauquier County	X	X		X	X	X		x	x			x	x	x	x		
Town of Warrenton	X	X		X	X	X		x	X	X	X	x	X	+	X	+	X
Town of Remington	X	X			o	o											
Madison County	X	X		X	X	X	x					x				S	
Town of Madison	X	X															
Orange County	X	X			X	X				X					X		
Town of Gordonsville	X	X															
Town of Orange	X	X															
Rappahannock County	X	X				X			X	X					X		

X – Local Plan Adopted or in Development o Uses County Plan S - Uses State Plan + In progress
blank – no response All responses are provided by the community.

CAPABILITY MATRICES INDEX

Jurisdiction	Table	Page Reference
Culpeper County	6.3	6-16
Town of Culpeper	6.4	6-17
Fauquier County	6.5	6-21
Town of Remington	6.6	6-22
Town of Warrenton	6.7	6-23
Madison County	6.8	6-26
Town of Madison	6.9	6-27
Orange County	6.10	6-31
Town of Orange	6.11	6-32
Town of Gordonsville	6.12	6-33
Rappahannock County	6.13	6-37
Town of Washington	6.14	6-38

6.2.1 - CULPEPER COUNTY CAPABILITY ASSESSMENT

Form of Governance

Culpeper County is governed by an elected Board of Supervisors with seven (7) members with daily administration handled on the Board's behalf by a County Administrator and associated County staff. Culpeper County contains the town of Culpeper which is governed by an elected Town Council (8 members) and Mayor and administered on a day-to-day basis by an appointed Town Manager, Town Clerk, and Town Attorney.

Guiding Community Documents

Culpeper County has a range of guidance documents and plans for each of their departments. These include a comprehensive plan, utility plans, "Reimagining Recreation" plan, capital improvement plans, and emergency operations plans. The County uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One essential planning document to the County is its Comprehensive Plan, 2023, which lays out the following goals:

- Presents policies and strategies for growth management plan and recognizes the value in preserving the desired rural characteristics of the County while supporting the agricultural sector.
- Promote tourism in Culpeper County through the support of existing destination businesses and utilizing existing environmental and historic resources through stewardship of the wetlands, future state parks, and other environmental assets.
- Further growth will necessitate the County to utilize additional full-time fire/EMS staff to ensure that there is still adequate coverage.

Some aspects of the Comprehensive Plan, specifically projects regarding facilities, transportation systems, and other significant infrastructure, are addressed in the Capital Improvements Plan, 2022.

Zoning & Subdivision Ordinance

The zoning regulations and subdivision ordinance was created with consideration for the existing use of property, the suitability of properties for various uses, the trends of growth or change, the current and future requirements of the community as to land for various purposes as determined by population and economic studies, the transportation requirements of the community, and the requirements for schools, parks, playgrounds, and other public services; and for the conservation of properties and their values and the encouragement of the most appropriate use of land throughout the County, in accordance with Code of Virginia (1950), § 15.2-2284, as amended. Appendix A and B of the Culpepper County Code.

Building Codes

The Commonwealth of Virginia is responsible for enacting the Virginia Uniform Statewide Building Code, which the County is responsible for enforcing locally. The Uniform Statewide Building Code was based on the IBC, IRC, and IFPC.

The Building Code Effectiveness Grading Schedule (BCEGS) assesses the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards; this is addressed in subsection 6.2.7. BCEGS Program.

Flood Management

Culpeper County is a participant in the National Flood Insurance Program (NFIP). The County's floodplains are mapped by Flood Insurance Rate Maps (FIRM), which are available to the public and updated with current information as needed. The County has also adopted a Floodplain Overlay District meeting federal requirements, and which is regularly enforced. Further information about the County's floodplain management efforts can be found in the NFIP survey included in the Appendix of this Plan. Improvements defined in the 2018 Hazard Mitigation Plan were made in the areas of: creating an education and outreach plan with the updates to the Flood Insurance Rate Maps (FIRM) that occurred since the last update.

Public Education

Among the public outreach mechanisms available in Culpeper County, the County's website provides County residents with pertinent information, an on-line complaint form, and answers to several Frequently Asked Questions (FAQs). The County also posts its guiding documents, including the Comprehensive Plan, on its website. The Town of Culpeper also provides public outreach through its website, offering residents and visitors timely information and guidance.

Emergency Preparedness

Culpeper County utilizes Rave alert system and the County's website to notify residents of emergency and non-emergency information. The Town of Culpeper upgraded its radio system that may include emergency preparedness responses. Improvements defined in the 2018 Hazard Mitigation Plan were made in the areas of: enhancing the Alert system to allow for county wide warnings, participating in ICS scenarios and tabletop exercises at the county E911 Center, and the completion of the Emergency Operations Center (EOC).

Tables 6.3, and 6.4 below represent the identified capabilities of the County and Town, respectively; all data was provided by representatives of those jurisdictions.

Table 6.3: Capability Matrix - Culpeper County (updated with 2023 data)

Capability	Culpeper County
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	Yes
- Effective FIRM Date	02/25/2021
- Substantial Damage Language	Yes
- Certified Floodplain Manager	No
- # of Flood Prone Parcels	2
- # of NFIP Policies	20
- Maintain Elevation Certificates	Yes
- # of Repetitive Losses	3
CRS Rating	N/A
Stormwater Program	Yes
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating (Evaluated 2006)	Residential - 4; Commercial - 4
Local Emergency Operations Plan	Yes
Hazard Mitigation Plan	Yes
Warning Systems in Place	Poor
- Storm Ready Certified	No
- Weather Radio Reception	Fair
- Outdoor Warning Sirens	No
- Emergency Notification (SMS Text)	Yes
- Other? (e.g., cable over-ride)	No
GIS system	Yes
- Hazard Data	Yes
- Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	No
Property Owner Protection Projects	Yes-Acquisition/Elevation
Critical Facilities Protected	No
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	Yes

Data provided by the Community

Table 6.4: Capability Matrix - Town of Culpeper (updated with 2023 data)

Capability	Town of Culpeper
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	Yes
- Effective FIRM Date	02/25/2021
- Substantial Damage Language	Yes
- Certified Floodplain Manager	No
- # of Flood Prone Buildings (claims)	26
- # of NFIP Policies	32
- Maintain Elevation Certificates	Yes
- # of Repetitive Losses	1
CRS Rating	N/A
Stormwater Program	Yes
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating (Evaluated under Culpeper County)	Residential - 3; Commercial - 3
Local Emergency Operations Plan	Yes
Hazard Mitigation Plan	Yes
Warning Systems in Place	Yes
- Storm Ready Certified	In Progress
- Weather Radio Reception	Yes
- Outdoor Warning Sirens	No
- Emergency Notification (R-911)	Yes
- Other (e.g., cable over-ride)	Yes-Rave Alert System
GIS system	Yes
- Hazard Data	Yes
- Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	No
Property Owner Protection Projects	No
Critical Facilities Protected	No
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	No

Data provided by the Community

6.2.2 - FAUQUIER COUNTY CAPABILITY ASSESSMENT

Form of Governance

A five-member Board of Supervisors governs Fauquier County. The Board sets goals and objectives; establishes priorities for County programs and services; establishes County legislative and administrative policies through the adoption of ordinances and resolutions; appoints the County Administrator, County Attorney, and members of various boards and commissions. Fauquier County contains three incorporated towns: Remington, The Plains, and Warrenton, which have Council-Manager forms of government.

Guiding Community Documents

The Fauquier County has a range of guidance documents and plans for each of their departments. These include a comprehensive plan, capital improvement plans, and emergency management plans. The County uses building codes, zoning ordinances, subdivision ordinances, stormwater management ordinance, and various planning strategies to address how and where development occurs. Generally, the County ensures that planning documents and development regulations are responsive to hazard mitigation goals and objectives. One essential way the jurisdiction guides its future is through policies laid out in the Comprehensive Plan; while this Plan has not been updated since the adoption of the 2018 Hazard Mitigation Plan, it does include several policies that relate to hazard mitigation.

Comprehensive Plan, 2015

Guiding Principle A: The County's natural and cultural heritage are intrinsic to the County's character.

Policies:

- Preserve the County's cultural, ecological, and environmental resources to ensure the continued quality of life within the County for its residents and visitors.
- Identify and protect productive agricultural and silvicultural lands.
- Use conservation easements, Purchase of Development Rights, and the Land Use Taxation programs to protect these resources.
- Safeguard the environment with water and air quality and natural resource management.

Guiding Principle D: Effective public facilities and infrastructure are important components of a thriving community.

Policies:

- Encourage collaboration with the private sector to provide integrated infrastructure in the most efficient way possible.

Zoning & Development Standards

The Zoning Ordinance of Fauquier County, Virginia, is intended to promote the health, safety, and general welfare of the public; and to implement the adopted Comprehensive Plan for the orderly and controlled development of the County. Zoning Ordinance is Appendix D of the Code of County of Fauquier, Virginia. The Subdivision Ordinance is adopted to guide and facilitate the orderly, beneficial growth of the community by assuring the orderly subdivision of land and its development, and to promote the public health, safety, convenience, comfort, prosperity, and general welfare.

Building Codes

The Commonwealth of Virginia is responsible for enacting the Virginia Uniform Statewide Building Code, which the County is responsible for enforcing locally. The Uniform Statewide Building Code is based on the IBC, IRC, and IFPC.
The Building Code Effectiveness Grading Schedule (BCEGS) assesses the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards; this is addressed in subsection 6.2.7. BCEGS Program.

Flood Management

Fauquier County is a participant in the National Flood Insurance Program (NFIP) and makes efforts through the County's website to educate citizens on flood insurance topics and policy changes. The County's floodplains are mapped by Flood Insurance Rate Maps (FIRM), which are available to the public and updated with current information as needed. The County first adopted floodplain regulations as part of its Zoning Ordinance in 1979. Section 4-400 of the current Zoning Ordinance establishes a Floodplain Overlay District that encompasses all the lands within the 100-year floodplain. The district prohibits new residential development that can occur within the floodplain and requires permitting for all uses and activities within the floodplain except for a small set of allowances that include agricultural uses, recreational uses, accessory uses (not for human habitation). Improvements to the Floodplain District (FP) include the creation of a Regulatory Base Flood Elevation (RBFE) of 2 feet above the Base Flood Elevation that is mandated by FEMA for residential structures, and 18 inches for non-residential development.

The Town of Warrenton received updated FIRMS in October 2023 and is working in partnership with the county to comment and implement public education regarding the changes to the FIRMs. The town has no repetitive loss properties currently and has worked to incorporate Community Rating System (CRS) program elements into their administrative processes for permits and planning review. The Town also hired a Certified Floodplain Manger to work on identifying and managing flood risk within the community.

Public Education

Among the readily available public outreach mechanisms available in Fauquier County, the County's website provides county residents with pertinent information, including local events and information on the County's rich cultural history, and answers

several Frequently Asked Questions (FAQs). Additionally, most of the County's guiding community documents are posted on the website, including the Comprehensive Plan.

Emergency Preparedness

Fauquier County utilizes an eNotification system, *Alert Fauquier,* to notify residents of information that may include emergency preparedness. The county also publishes press releases for local preparedness responses and suggests visiting the Ready Virginia website to stay informed about different types of emergencies. One area of improvement defined in the 2018 Hazard Mitigation Plan was defining a location for a new Emergency Operations Center (EOC) to be constructed.

Tables 6.5, 6.6 and 6.7 below represent the identified capabilities of the County and Towns, respectively; all data was provided by representatives of those jurisdictions and updated with information from FEMA.

Table 6.5: Capability Matrix - Fauquier County (updated with 2023 data)

Capability	Fauquier County
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	Yes
- Effective FIRM Date	04/25/2024
- Substantial Damage Language	Yes
- Certified Floodplain Manager	No
- # of Flood Prone Buildings (claims)	7
- # of NFIP Policies	32
- Maintain Elevation Certificates	Yes
- # of Repetitive Losses	0
CRS Rating	N/A
Stormwater Program	Yes
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating	Residential - 3; Commercial - 2
Local Emergency Operations Plan	Yes
Hazard Mitigation Plan	Yes
Warning Systems in Place	Yes
- Storm Ready Certified	Yes
- Weather Radio Reception	Yes
- Outdoor Warning Sirens	No
- Emergency Notification (R-911, Fauquier County Alert)	Yes
- Other? (e.g., cable over-ride)	Yes - Emergency Alert System, Everbridge
GIS system	Yes
- Digital Hazard Data	Yes
- Digital Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	Yes
Property Owner Protection Projects	No
Critical Facilities Protected	No
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	Yes

Data provided by the community

Table 6.6: Capability Matrix – Town of Remington

Capability	Town of Remington
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	Yes
- Effective FIRM Date	04/25/2024
- Substantial Damage Language	Yes
- Certified Floodplain Manager	No
- # of Flood Prone Buildings (claims)	2
- # of NFIP Policies	31
- Maintain Elevation Certificates	Yes
- # of Repetitive Losses	0
CRS Rating	N/A
Stormwater Program	Yes
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating (Evaluated under Culpeper County)	Residential - 3; Commercial - 3
Local Emergency Operations Plan	Yes – County
Hazard Mitigation Plan	Yes
Warning Systems in Place	Yes
- Storm Ready Certified	Yes – County
- Weather Radio Reception	Yes
- Outdoor Warning Sirens	No
- Emergency Notification (R-911)	Yes
- Other (e.g., cable over-ride)	Yes-Rave Alert System
GIS system	Yes
- Hazard Data	Yes
- Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	No
Property Owner Protection Projects	No
Critical Facilities Protected	No
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	No

Data provided by the Community

Table 6.7: Capability Matrix – Town of Warrenton

Capability	Town of Warrenton
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	Yes
- Effective FIRM Date	04/25/2024
- Substantial Damage Language	Yes
- Certified Floodplain Manager	No
- # of Flood Prone Buildings (claims)	13
- # of NFIP Policies	60
- Maintain Elevation Certificates	Yes
- # of Repetitive Losses	1
CRS Rating	N/A
Stormwater Program	Yes
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating (Evaluated under Culpeper County)	Residential - 3; Commercial - 3
Local Emergency Operations Plan	Yes
Hazard Mitigation Plan	Yes
Warning Systems in Place	Yes
- Storm Ready Certified	In Progress
- Weather Radio Reception	Yes
- Outdoor Warning Sirens	No
- Emergency Notification (R-911)	Yes
- Other (e.g., cable over-ride)	Yes-
GIS system	Yes
- Hazard Data	Yes
- Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	No
Property Owner Protection Projects	No
Critical Facilities Protected	No
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	No

Data provided by the Community

6.2.3 - MADISON COUNTY CAPABILITY ASSESSMENT

Form of Governance

The County is governed by an elected five-member Board of Supervisors and administered on a day-to-day basis by a County Administrator and departmental staff. Madison County contains the town of Madison which is governed by an elected four person Town Council and Mayor and administered on a day-to-day basis by appointed staff.

Guiding Community Documents

Madison County has a range of guidance documents and plans for each of their departments. These include a comprehensive plan, subdivision ordinance, zoning ordinance, capital improvement plans, and emergency operation plan. The County uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One essential way the jurisdiction guides its future is through policies laid out in the Comprehensive Plan.

Comprehensive Plan, 2018

The County's current Comprehensive Plan is scheduled for an update in 2024, and the following outlines the County's future planning goals, and implementation strategies that align with Hazard Mitigation:

Goal 1

Preserve, protect, and enhance the natural beauty, rural character, and air and water quality of Madison County, and sustain agriculture/forestry as the County's primary land use.

- Continue to utilize Conservation Zones to protect steep slopes, erosive soils, and mountaintops from environmentally damaging development.
- Continue the current policy of authorizing the Planning Commission and/or the Board of Supervisors to require developers to finance and assist in the preparation of studies on the impact of proposed developments on the County, its residents, and its environment.
- Support the donation of permanent conservation easements in rural areas of the County where such easements are appropriate.
- Identify and use best management practices to promote the protection of air and water quality, improve tree and vegetative cover, and reduce emissions.

Zoning & Development Standards

County of Madison, Virginia has adopted a Zoning Ordinance for the purpose of promoting the health, safety, and general welfare of the public and of further accomplishing the objectives of Code of Virginia, § 15.1-427. The Zoning Ordinance is found in Appendix 1 of the Madison County Code.

Subdivision Ordinance

The purpose of this Ordinance is to establish standards for the subdivision of land and development procedures for Madison County. Some revisions to the land use policies in

relation to the subdivision ordinance are expressed in the Comprehensive plan. The Subdivision Ordinance is found in Appendix 2 of the Madison County Code.

Building Codes

The Commonwealth of Virginia is responsible for enacting the Virginia Uniform Statewide Building Code, which the County is responsible for enforcing locally. The Uniform Statewide Building Code is based on the IBC, IRC, and IFPC and went effective in Madison County January 18th, 2024.

The Building Code Effectiveness Grading Schedule (BCEGS) assesses the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards; this is addressed in subsection 6.2.7. BCEGS Program.

Flood Management

Madison County is a participant in the National Flood Insurance Program (NFIP) and makes efforts through its website and individual letter to property owners to educate citizens on flood insurance topics and policy changes. The County's floodplains are mapped by Flood Insurance Rate Maps (FIRM), which are available to the public and updated with current information as needed. The County has also adopted a flood protection ordinance meeting federal requirements, and which is regularly enforced. The purpose of the Flood Protection Ordinance is to prevent: the loss of life and property, the creation of health and safety hazards, the disruption of commerce and governmental services, the extraordinary and unnecessary expenditure of public funds for flood protection and relief, and the impairment of the tax base through regulation of the floodplain.

Public Education

Among the readily available public outreach mechanisms available in Madison County, the County's website provides County residents with pertinent information, provides an on-line complaint form, and answers several Frequently Asked Questions (FAQs). The County posts most of its guiding documents, including the Comprehensive Plan on this site.

Emergency Preparedness

The County's Emergency Management program is overseen by the County's Emergency Management Division. Emergency notifications are provided to citizens and businesses through community alerts through email or cell phone communication. An upgrade to the county-wide public safety radio system to a regional P25 public safety system is scheduled to be completed in the end of 2024.

Tables 6.8, and 6.9 below represent the identified capabilities of the County and Town, respectively; all data was provided by representatives of those jurisdictions.

Table 6.8: Capability Matrix - Madison County

Capability	Madison County
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	Yes
- Effective FIRM Date	09/17/2020
- Substantial Damage Language	Yes
- Certified Floodplain Manager	No
- # of Flood Prone Buildings	9
- # of NFIP Policies	13
- Maintain Elevation Certificates	Yes
- # of Repetitive Losses	1
CRS Rating	N/A
Stormwater Program	No
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating	Residential – 3; Commercial - 3
Local Emergency Operations Plan	Yes
Hazard Mitigation Plan	Yes
Warning Systems in Place	Yes
- Storm Ready Certified	No
- Weather Radio Reception	
-Emergency Notification (R-911)	Yes
- Other? (e.g., cable over-ride)	
GIS system	Yes
- Hazard Data	Yes
- Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	Yes
Property Owner Protection Projects	No
Critical Facilities Protected	Minimal
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	Yes

Data provided by the Community

Table 6.9: Capability Matrix – Town of Madison (Updated with 2023 information)

Capability	Town of Madison
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	
- Effective FIRM Date	09/18/2020
- Substantial Damage Language	
- Certified Floodplain Manager	No
- # of Flood Prone Buildings	6
- # of NFIP Policies	13
- Maintain Elevation Certificates	
- # of Repetitive Losses	0
CRS Rating	N/A
Stormwater Program	No
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating	Residential – 3; Commercial - 3
Local Emergency Operations Plan	Yes
Hazard Mitigation Plan	Yes
Warning Systems in Place	Yes
- Storm Ready Certified	No
- Weather Radio Reception	
-Emergency Notification (R-911)	Yes
- Other? (e.g., cable over-ride)	
GIS system	Yes
- Hazard Data	Yes
- Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	Yes
Property Owner Protection Projects	No
Critical Facilities Protected	Minimal
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	Yes

Data provided by the Community

6.2.4 - ORANGE COUNTY CAPABILITY ASSESSMENT

Form of Governance

The County is governed by a five-member, elected Board of Supervisors and administered on a day-to-day basis by a County Administrator and subsequent departmental staff. Orange County contains two incorporated towns. The Town of Orange is governed by an elected four member Town Council and Mayor and administered on a day-to-day basis by appointed staff. The Town of Gordonsville is governed by a five-member Town Council and an elected Mayor.

Guiding Community Documents

Orange County has a range of guidance documents and plans for each of their departments. These include a comprehensive plan, public works, and public utilities plans, capital improvement plans, and emergency operations plan effective 1/23/2024. The County uses building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One essential way the jurisdiction guides its future is through policies laid out in the Comprehensive Plan. Since the 2018 Hazard Mitigation Plan, the County has adopted an updated Comprehensive Plan; the following outlines the purposes and value of the Comprehensive Plan, including how aspects of the 2018 Hazard Mitigation Plan were integrated:

Comprehensive Plan, 2023
Goal 1: Promote and preserve our unique historic and environmental resources.

Objective A: Promote preservation of significant historical areas, sites, and buildings.
Strategies for Implementation:

- Consider the potential impact of land use decisions on significant historic resources, particularly those listed on the National Register, or that are of regional significance.
- Consider transfer of development rights and conservation easements where appropriate.

Objective C: Develop plans to protect the quality and supply of surface water and groundwater and other valuable environmental resources.
Strategies for Implementation:

- Promote the use of low impact design techniques in new development.
- Promote Best Management Practices in all land uses to minimize surface and groundwater pollution.
- Promote groundwater protection measures (e.g., Everona Limestone Spur) through educational partnerships with regional and state agencies and commissions, such as the Culpeper Soil and Water Conservation District, the Rappahannock-Rapidan Regional Commission, and the Department of Conservation and Recreation.

- Work with Rappahannock Rapidan Regional Commission and other agencies to implement Total Maximum Daily Load (TMDL) plans for improving water quality within the County.
- Engage in regional water supply planning to ensure short-, medium-, and long-term potable water needs are met.
- Require both above-and below-ground storage tanks to have containment measures that prevent contamination of surface and groundwater due to leaks and spills.
- Consider developing and implementing resource protection overlays as and where needed.

Goal 3: Provide adequate public services and facilities to serve the needs of County citizens.

Objective A: Promote effective and efficient government.
Strategies for Implementation:

- Evaluate public facility and space needs of all County agencies through implementation and routine updates of the Capital Improvements Plan.
- Develop and fund an operations and maintenance plan for each County facility.
- Communicate with citizens about services and opportunities available to them through their County government.

Objective E: Provide for public safety through adequate emergency services and law enforcement.

Strategies for Implementation:

- Identify long-range fire and rescue needs for the County in a 20-year window.
- Implement the Hazard Mitigation Plan.
- Strive to maintain a maximum fifteen-minute emergency response time 80% of the time to all parts of the County.
- Identify the need for and locate public safety station locations to better serve the population centers of the County.
- Implement a County-wide GIS system capable of coordinating a wide range of users, from emergency management, law enforcement, E-911, planning and zoning, legal, building, health, and other County agencies providing public safety services.

Zoning & Development Standards
The zoning regulations and subdivision ordinance was created with consideration for the existing use of property, the suitability of properties for various uses, the trends of growth or change, the current and future requirements of the community as to land for various purposes as determined by population and economic studies, the transportation requirements of the community, and the requirements for schools, parks, playgrounds, and other public services; and for the conservation of properties and their values and the encouragement of the most appropriate use of land throughout the County, in accordance with Code of Virginia (1950), § 15.2-2284, as amended. Chapter 70 of the Orange County Code.

Building Codes

The Commonwealth of Virginia is responsible for enacting the Virginia Uniform Statewide Building Code, which the County is responsible for enforcing locally. The Uniform Statewide Building Code is based on the IBC, IRC, and IFPC.

The Building Code Effectiveness Grading Schedule (BCEGS) assesses the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards; this is addressed in subsection 6.2.7. BCEGS Program.

Flood Management

Orange County is a participant in the National Flood Insurance Program (NFIP) and makes efforts to educate its citizens on flood insurance topics and policy changes. The County's floodplains are mapped by Flood Insurance Rate Maps (FIRM), which are available to the public through the County's GIS system, and which are updated with current information as needed. The County has also adopted a floodplain management ordinance meeting federal requirements, which is regularly enforced. The County also includes a floodplain overlay district in its Zoning Ordinance and received new FIRMs in 2022. Further information about the County's floodplain management efforts can be found in the NFIP survey included in the appendix of this Plan.

Public Education

Among the readily available public outreach mechanisms available in Orange County, the County's website provides County residents with pertinent information, provides updates on County programming and events, and answers several Frequently Asked Questions (FAQs). The County also posts most of its guiding documents, including the Comprehensive Plan, on this site. The County's cable station airs information and updates 24 hours a day and includes links to information sources.

Emergency Preparedness

Orange County's Emergency Management program is overseen by the Emergency Management Division. Emergency notifications are provided to citizens and businesses through community alerts through an upgrade to the county-wide Rave Alert system and IPAWS since the 2018 HMP update. The county has also installed three generators at Fire and Rescue stations (one in Gordonsville), and Emergency Operations Center has been completed and equipped for emergency response and uses Reverse911. An internal GIS platform was also created to aid emergency response and identify flood inundation zones.

Tables 6.10, 6.11 and 6.12 below represent the identified capabilities of the County and Towns, respectively; all data was provided by representatives of those jurisdictions.

Table 6.10: Capability Matrix - Orange County

Capability	Orange County
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	Yes
- Effective FIRM Date	03/03/2023
- Substantial Damage Language	Yes
- Certified Floodplain Manager	No
- # of Flood Prone Buildings (claims)	16
- # of NFIP Policies	36
- Maintain Elevation Certificates	Yes
- # of Repetitive Losses	1
CRS Rating	N/A
Stormwater Program	Yes
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating	Residential - 4; Commercial - 4
Local Emergency Operations Plan	Yes
Hazard Mitigation Plan	Yes
Warning Systems in Place	Yes
- Storm Ready Certified	No
- Weather Radio Reception	Yes
- Outdoor Warning Sirens	Yes; 10-mile radius around the North Anna Power Station
- Emergency Notification (R-911)	Yes
- Other (e.g., cable over-ride)	Yes
GIS system	Yes
- Hazard Data	Yes
- Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	No
Property Owner Protection Projects	No
Critical Facilities Protected	No
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	Yes

Data provided by the Community

Table 6.11: Capability Matrix – Town of Orange

Capability	Town of Orange
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	Yes
- Effective FIRM Date	05/17/2022
- Substantial Damage Language	Yes
- Certified Floodplain Manager	No
- # of Flood Prone Buildings (claims)	3
- # of NFIP Policies	3
- Maintain Elevation Certificates	Yes
- # of Repetitive Losses	1
CRS Rating	N/A
Stormwater Program	Yes
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating	Residential - 4; Commercial - 4
Local Emergency Operations Plan	Yes
Hazard Mitigation Plan	Yes
Warning Systems in Place	Yes
- Storm Ready Certified	No
- Weather Radio Reception	Yes
- Outdoor Warning Sirens	Yes
- Emergency Notification (R-911)	Yes
- Other (e.g., cable over-ride)	Yes
GIS system	Yes
- Hazard Data	Yes
- Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	No
Property Owner Protection Projects	No
Critical Facilities Protected	No
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	Yes

Data provided by the Community and FEMA

Table 6.12: Capability Matrix – Town of Gordonsville (Updated with 2023 Information)

Capability	Orange County
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	Yes
- Effective FIRM Date	05/17/2022
- Substantial Damage Language	Yes
- Certified Floodplain Manager	No
- # of Flood Prone Buildings (claims)	1
- # of NFIP Policies	3
- Maintain Elevation Certificates	Yes
- # of Repetitive Losses	0
CRS Rating	N/A
Stormwater Program	Yes
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating	Residential - 4; Commercial - 4
Local Emergency Operations Plan	Yes
Hazard Mitigation Plan	Yes
Warning Systems in Place	Yes
- Storm Ready Certified	No
- Weather Radio Reception	Yes
- Outdoor Warning Sirens	Yes
- Emergency Notification (R-911)	Yes
- Other (e.g., cable over-ride)	Yes
GIS system	Yes
- Hazard Data	Yes
- Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	No
Property Owner Protection Projects	No
Critical Facilities Protected	No
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	Yes

Data provided by the Community and FEMA

6.2.5 - RAPPAHANNOCK COUNTY CAPABILITY ASSESSMENT

Form of Governance

The County is governed by a five-member, elected Board of Supervisors, and administered on a day-to-day basis by a County Administrator and subsequent departmental staff. Rappahannock County contains the town of Washington which is governed by an elected six person Town Council and Mayor and administered on a day-to-day basis by appointed staff.

Guiding Community Documents

Rappahannock County has a range of guidance documents and plans for each of their departments. These include a comprehensive plan, public works, and public utilities plans, capital improvement plans, and emergency management plans. The Hazard Mitigation Plan provides information relevant to all planning efforts through the identification of hazards, risks, vulnerabilities, and capabilities. Mitigation strategies influence the County's use of building codes, zoning ordinances, subdivision ordinances, and various planning strategies to address how and where development occurs. One essential way the region guides its future is through policies laid out in the Comprehensive Plan.

Comprehensive Plan, 2020

Encourage and facilitate the donations of open-space easements on land that is identified as having important scenic, historic, open-space, conservation, agricultural, woodland, and wildlife-habitat qualities.

Upon requests for rezoning land for more intensive use, encourage the placement of open-space easements on important scenic, recreational, historic, open-space, conservation, wooded, water resource, agricultural, and wildlife-habitat lands as a reciprocal benefit.

- Promote multiple uses of forested land and land not in productive agricultural use, including outdoor recreation, wildlife habitat, educational uses, watershed protection, and timber harvesting.
- Ensure that development on forested land, in resource preservation districts, and on county ridges and crests is compatible with the environmental features of that land and does not diminish natural and scenic values.
- Ensure that timber harvesting and road construction is conducted such that sedimentation of streams and other environmental effects, including invasion of non-native plant species, are minimized.
- Promote the placement of conservation easements on land adjoining or visible from Shenandoah National Park, the Rappahannock River and 86 other designated scenic rivers and roads and seek to protect the scenic value of those lands when land use decisions and plans are made.
- Encourage natural and non-motorized activities such as hiking, biking, and horseback riding trails on public property.

- Enable the quiet and peaceful enjoyment of nature and our natural landscape.
- Ensure timely removal and/or clean-up of obsolete or unused facilities and infrastructure.

Minimize the environmental effects of activities directly or indirectly related to new construction, including removal of vegetation, cutting of trees, altering of water sources and courses for existing users, drainageways, grading, and filling.

- Prohibit land uses if they have significant adverse environmental impacts that cannot be eliminated or minimized.
- Limit the creation of new impervious surfaces, recognizing their negative effect on stormwater runoff, flooding, water quality, and destruction of wildlife habitat.
- Continue to implement the county's Erosion and Sedimentation Control Ordinance including Responsible Land Disturber certification requirements. The county should consider allowing Low Impact Development or other alternate erosion and sediment control measures, where appropriate.
- Ensure the best management and prevention measures for potential groundwater pollution sources, including but not limited to septic tanks; wells; underground petroleum or other storage tanks; mining; drilling; waste disposal; and unregulated dumping of trash, debris, construction material, and contaminated soil.
- Participate in and cooperate with federal and state groundwater protection programs.
- In flood hazard areas without public sewage disposal systems, encourage low-density growth to minimize loss of life and property damage.
- Enforce floodplain management regulations so that property owners continue to be eligible for inexpensive flood insurance under the National Flood Insurance Program.
- Support systematic identification of environmentally significant lands and viewsheds, and the establishment of a county-wide groundwater monitoring network including, but not limited to, availability and quality.
- Recognize the county's rivers as one of the most significant environmental resources and provide for their protection by:

    - Encouraging greenbelts along the rivers.
    - Informing the public of the benefits and values of preserving river corridors.
    - Controlling development in areas adjacent to the rivers that might include development restrictions such as setbacks, buffers, or other means, or limitations on water withdrawals and/or effluent discharges.
    - Managing stormwater flows to protect public health and safety, preserve existing stream channels, and prevent erosion.

Zoning & Development Standards

The Zoning regulations are promulgated for the specific and implied purposes as set forth in Title 15.2, Chapter 22, Article 7, of the Code of Virginia, as amended, including

the implementation of the adopted Comprehensive Plan and goals contained therein. The zoning ordinance is found in Chapter 170 of the Rappahannock County Code.

Building Codes
The Commonwealth of Virginia is responsible for enacting the Virginia Uniform Statewide Building Code, which the County is responsible for enforcing locally. The Uniform Statewide Building Code is based on the IBC, IRC, and IFPC.

The Building Code Effectiveness Grading Schedule (BCEGS) assesses the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards; this is addressed in subsection 6.2.7. BCEGS Program.

Flood Management
Rappahannock County is a participant in the National Flood Insurance Program (NFIP). The County's floodplains are mapped by Flood Insurance Rate Maps (FIRM), which are available to the public and updated with current information as needed. The County has also adopted a floodplain overlay district meeting federal requirements, which is regularly enforced.

Public Education
Among the readily available public outreach mechanisms available in Rappahannock County, the County's website provides County residents with pertinent information, provides updates on County programming and events, and answers several Frequently Asked Questions (FAQs). The County also uses social media, community program partnerships, and outreach events to expand its public outreach initiatives.

Emergency Preparedness
Rappahannock County utilizes a Mass Notification System - Rappahannock County, VA Alert – Rave Alert System to notify residents and staff of important information by text, email, and phone, including server weather alert notifications, road closures, etc.

Tables 6.5, 6.6 and 6.7 below represent the identified capabilities of the County and Towns, respectively; all data was provided by representatives of those jurisdictions.

Table 6.13: Capabilities Matrix - Rappahannock County(Updated with 2023 information)

Capability	Rappahannock County
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	Yes
- Effective FIRM Date	02/25/2021
- Substantial Damage Language	Yes
- Certified Floodplain Manager	Yes
- # of Flood Prone Buildings (claims)	2
- # of NFIP Policies	23
- Maintain Elevation Certificates	Yes
- # of Repetitive Losses	0
CRS Rating	N/A
Stormwater Program	Yes
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating	Residential - 3; Commercial - 3
Local Emergency Operations Plan	Yes
Hazard Mitigation Plan	Yes
Warning Systems in Place	Yes
- Storm Ready Certified	No
- Weather Radio Reception	Yes
- Outdoor Warning Sirens	No
- Emergency Notification (R-911)	Yes
- Other? (e.g., cable over-ride)	Yes-Emergency Broadcast System
GIS system	Yes
- Hazard Data	Yes
- Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	No
Property Owner Protection Projects	No
Critical Facilities Protected	No
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	Yes

Data provided by the Community and FEMA

Table 6.14: Capabilities Matrix – Town of Washington (Updated with 2023 Information)

Capability	Town of Washington
Comprehensive Plan	Yes
Land Use Plan	Yes
Subdivision Ordinance	Yes
Zoning Ordinance	Yes
NFIP/FPM Ordinance	Yes
- Effective FIRM Date	02/25/2021
- Substantial Damage Language	Yes
- Certified Floodplain Manager	Yes
- # of Flood Prone Buildings (claims)	3
- # of NFIP Policies	6
- Maintain Elevation Certificates	Yes
- # of Repetitive Losses	0
CRS Rating	N/A
Stormwater Program	Yes
Building Code Version	VA USBC 2018
Full-time Building Official	Yes
- Conduct "As-built" Inspections	Yes
BCEGS Rating	Residential - 3; Commercial - 3
Local Emergency Operations Plan	Yes
Hazard Mitigation Plan	Yes
Warning Systems in Place	Yes
- Storm Ready Certified	No
- Weather Radio Reception	Yes
- Outdoor Warning Sirens	No
- Emergency Notification (R-911)	Yes
- Other? (e.g., cable over-ride)	Yes-Emergency Broadcast System
GIS system	Yes
- Hazard Data	Yes
- Building footprints	Yes
- Tied to Assessor data	Yes
- Land Use designations	Yes
Structural Protection Projects	No
Property Owner Protection Projects	
Critical Facilities Protected	No
Natural Resource Inventory	Yes
Cultural Resources Inventory	Yes
Erosion Control Procedures	Yes
Sediment Control Procedures	Yes
Public Information Program/Outlet	Yes
Environmental Education Program	Yes

Data provided by the Community and FEMA

6.2.6 – RAPPAHANNOCK-RAPIDAN REGIONAL COMMISSION CAPABILITY ASSESSMENT

Regional Commission

The Rappahannock-Rapidan Regional Commission exists to serve five counties and associated jurisdictions by providing professional planning and technical resources. The Commission serves as an interaction of appointed and elected local government officials and citizen members from all jurisdictions within the region.

This is accomplished by providing technical assistance in development of local policy and ordinances, coordination of regional efforts, training and outreach, and grant writing and management. The RRRC has coordinated the Regional Hazard Mitigation Plan since 2005.

Among the readily available public information and outreach mechanisms available through RRRC include the Commission's website and social media platforms, and the RRRC regularly utilizes press releases and leverages the localities' websites and social media to reach the public and stakeholders.

Funding Sources

The Rappahannock-Rapidan Regional Commission (RRRC) has received funding from the Federal Emergency Management Agency (FEMA) to update the Regional Hazard Mitigation Plan (HMP). As part of this process, RRRC will incorporate a Regional Resilience Plan into the HMP, allowing member localities to apply for flood mitigation project funding from Virginia Department of Conservation and Recreation's (DCR) Community Flood Preparedness Fund (CFPF). The Resilience Plan component is being funded by a planning and capacity grant award from the CFPF.

6.3 CAPABILITY NEEDS/CHALLENGES – SUMMARY

Findings are summarized as follows based on the set of worksheets completed by each jurisdiction. Information is presented based on five categories capability identified below:

Planning and Regulatory Capability

This assessment provides an overview of the key planning tools and programs currently implemented or in progress in the Rappahannock-Rapidan region. By identifying potential impacts on risk reduction, this evaluation helps pinpoint areas for enhancement, address any weaknesses or conflicts in existing strategies, and streamline the integration of this plan with other current and future planning endeavors.
The Rappahannock-Rapidan region has demonstrated planning and regulatory capability through the creation and execution of plans, ordinances, programs, and policies that demonstrate a dedication to sustainable growth and land management,

with a focus on community safety and resilience. Through the enforcement of zoning regulations, subdivision ordinances, building codes, and emergency response plans these communities have improved their land use and transportation planning while prioritizing the preservation of environmental, historical, and cultural resources that make the Rappahannock-Rapidan region different. Table 6.1 identifies the Planning and Regulatory capabilities currently in force within each jurisdiction.

Administrative and Technical Capability

The ability of a community to execute mitigation projects, policies, and programs depends on its capacity to allocate staff time and resources. Administrative capability is evidenced by having enough qualified personnel, efficient task delegation, and comprehensive program supervision. Effective communication and collaboration between departments and governments also indicate administrative capability. Technical capacity is assessed by evaluating specific knowledge, skills, certifications, and licensing requirements.

Table 6.2 identifies the Administrative and Technical capabilities currently in force. Overall, the counties in the region demonstrate a high level of administrative and technical proficiency, with staff in areas like administration, emergency management, construction, and planning/zoning. Larger towns such as Culpeper, Warrenton, Orange, and Gordonsville independently provide administrative and technical oversight through their staff, while smaller towns like Madison and Remington have limited staff and often rely on county staff, RRRC or private firms for technical support.

Grant writing and administration play a crucial role in implementing local and regional mitigation plans. Typically, jurisdictions in the Rappahannock-Rapidan region task their staff with identifying, developing, and managing grants for local projects, alongside their primary job duties. The Rappahannock-Rapidan Regional Commission aids member jurisdictions with grant writing and administration and supports collaborative grant efforts among jurisdictions when feasible.

Fiscal Capability

The funding sources available determine a locality's ability to develop and implement policies and projects in all areas of interest and responsibility. Costs associated with hazard mitigation planning and program development vary widely from funds needed to meet staffing requirements to those for the acquisition of costly equipment and, sometimes, flood-prone homes. Often, substantial commitments are needed from local, state, and federal sources to supplement and or expedite the processes that lead to mitigation strategies. Table 6.2 identifies the Fiscal capabilities currently in force within each jurisdiction.

Education and Outreach

Education and outreach initiatives aim to educate a wide range of stakeholders, including residents, businesses, government agencies, visitors, and property owners, about hazards, potential impacts, and ways to mitigate these impacts. Raising public awareness of natural hazards plays a crucial role in mitigation planning, working towards the shared objectives of reducing loss of life and minimizing economic consequences. Various forms of education and outreach methods are utilized, such as

public speaking, informative materials like brochures and posters, hazard mapping, tailored educational sessions for specific audience groups, and collaborative outreach efforts involving public, non-profit, and private organizations. Table 6.2 identifies the Education and outreach programs currently in force within each jurisdiction.

Emergency Management

Hazard mitigation is acknowledged as one of the four primary components of emergency management, alongside preparedness, response, and recovery. These aspects are interconnected and reliant on each other. Planning for each element is crucial for a comprehensive emergency management program and the effective execution of hazard mitigation strategies.

Counties and towns in the Rappahannock-Rapidan region have actively implemented Emergency Management and Emergency Services initiatives to improve local and regional readiness, response, and recovery. These endeavors often involve education, outreach, administrative, technical, and fiscal capabilities within each jurisdiction.

Incorporation of Mitigation into Existing Plans and Local Processes

In Table 6.1, you can find an overview of the tools already in use or under development by the participating local governments in the Rappahannock-Rapidan region. This information is based on earlier editions of the Rappahannock-Rapidan Hazard Mitigation plan and feedback provided by jurisdictions during the 2023 review. Below, there is a brief discussion outlining the plans, regulations, and programs.

Hazard Mitigation Plan – A community's blueprint for reducing the impact of natural and manmade hazards on people and the built environment. The essential elements of a hazard mitigation plan include a risk assessment, capability assessment and mitigation strategy. The Rappahannock-Rapidan region's first Hazard Mitigation Plan was adopted in 2005 with subsequent reviews and revisions completed in 2012 and 2018. The hazard mitigation plan has been maintained and implemented by RRRC and each of the participating localities.

Disaster Recovery Plan - Guides the physical, social, environmental, and economic recovery and reconstruction process following a disaster. Often, hazard mitigation principles and practices are incorporated into local disaster recovery plans to capitalize on opportunities to break the cycle of repetitive disaster losses.

- Survey results indicate that only three of the jurisdictions have their own disaster recovery plan, three reference the state plan, and the remaining jurisdictions do not have a disaster recovery plan. All localities may consider whether to develop their own disaster recovery plan that would incorporate mitigation opportunities into the disaster recovery process.

Emergency Operations Plan – Includes detailed responsibilities and procedures to be followed to deploy resources in response to an emergency or disaster. Periodic review and update of emergency operations plans assures improved readiness. Focusing on preparedness and response, rather than hazard mitigation, emergency operations planning has been determined to have a moderate effect on loss reduction.

- Each of the five counties in the Rappahannock-Rapidan Region Emergency Management maintains its own emergency operations plan that also covers their respective towns.

Debris Management Plan - establishes procedures and guidelines for managing disaster debris in a coordinated, environmentally responsible, and cost-effective manner.

- All localities may consider whether to develop their own debris management plan that would incorporate specific strategies for their jurisdiction in addition to the regional planning efforts.

Continuity of Operation Plan - Establishes a chain of command, line of succession, and plans for backup or alternate emergency response resources in case of an extreme emergency. Developing a continuity of operation plan is an example of hazard mitigation.

- With the development of a continuity of operations plan by Culpeper County since the original plan was written, the region now has three jurisdictions with such a plan in place. Each of the other jurisdictions is encouraged to consider preparing their own continuity of operations plans as a possible mitigation action for inclusion this Plan.

Radiological Emergency Plan - Delineates roles and responsibilities for assigned personnel and the means to deploy resources in the event of a radiological accident.

- Four of the five counties in the Rappahannock-Rapidan Region have a radiological emergency plan. Three towns rely on their respective county plans. One county and two towns do not have a plan.

Sara Title III Emergency Response Plan - Outlines the procedures to be followed in the event of a chemical emergency such as the accidental release of toxic substances. These plans are required by federal law under Title III of the Superfund Amendments and Re-authorization Act (SARA), also known as the Emergency Planning and Community Right-to-Know Act (EPCRA).

- Culpeper County is now included in the number of jurisdictions within the region that have a SARA Title III Emergency Response Plan, bringing the total to all five. One town has its own plan, one relies on the county, and three do not have a plan.

Comprehensive Land Use Plan - Establishes the overall vision for a community and serves as a guide for future decision making. Typically, a comprehensive plan includes a summary of current and expected demographic conditions, land use patterns, transportation networks and facilities and community resources. The integration of hazard mitigation measures into the comprehensive plan can greatly enhance the likelihood of achieving risk reduction goals, objectives, and actions.

- As required by the Commonwealth, all jurisdictions within the region have a comprehensive land use plan.

Capital Improvements Plan - Guides the scheduling of spending for public improvement projects. A capital improvements plan can serve as an important mechanism to guide future development away from identified hazard areas. Limiting public spending in hazardous areas is one of the most effective long-term mitigation actions available to local governments.

- Four of the five counties, with the exception of Rappahannock County, maintain Capital Improvement Plans. Of the participating towns, the towns of Culpeper, Orange, and Warrenton also have adopted Capital Improvements Plans.

Historic Preservation Plan - Guides the impact of community decisions on historic structures or districts within a community. An often-overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards to identify the most effective way to reduce future damage. Effective strategies may involve relocation or retrofits to protect buildings that do not meet current standards buildings and/or are within a historic district and cannot be moved.

- All five counties reference preservation in local ordinances, and Fauquier County has a Preservation Planner on staff in its Department of Community Development. Three of the five participating towns also have similar ordinances in place.

Zoning Ordinance - Protects public health, safety, and welfare by regulating the location, type and density of development occurring within a jurisdiction. A powerful planning tool, a zoning ordinance can effectively eliminate development in identified hazard areas.

- All participating jurisdictions have a zoning ordinance.

Subdivision Ordinance - Regulates residential, commercial, and industrial development along with associated infrastructure. Subdivision design that accounts for natural hazards can dramatically reduce impacts to development.

- All participating jurisdictions have a subdivision ordinance.

Building Codes, Permitting and Inspections - The Commonwealth of Virginia adopted the 2018 Virginia Uniform Statewide Building Code (USBC), which went into effect in 2021. The USBC references and amends the International Code Counsel (ICC) family of codes to include the International Building Code, International Rehabilitation Code, and the International Residential Code.

The purpose of USBC is to protect the health, safety and welfare of the residents of the Commonwealth of Virginia, provided that buildings and structures should be permitted to be constructed at the least possible cost consistent with recognized standards of health, safety, energy conservation and water conservation, including provisions

necessary to prevent overcrowding, rodent or insect infestation, and garbage accumulation; and barrier-free provisions for the physically handicapped and aged.

- All jurisdictions adhere to the Commonwealth of Virginia 2018 Uniform Statewide Building Code that went into effect on July 1, 2021, with some having more recent adoptions of the 2021 VUSBC (Effective January 18, 2024).

The adoption and enforcement of building codes by local jurisdictions are routinely assessed through the Building Code Effectiveness Grading Schedule (BCEGS) program developed by the Insurance Services Office, Inc. (ISO) Assessment results are provided to ISO's member private insurance companies, which in turn, may offer ratings credits for new buildings constructed in communities with strong BCEGS classifications.

Communities with well-enforced, up-to-date codes typically have fewer losses, reflected in lower insurance rates. Personnel qualifications, continuing education opportunities and the number of inspections conducted daily are included in the assessment which determines a jurisdiction's grade. Grades range from 1 to 10, with the lower grade preferred. A BCEGS grade of 1 represents exemplary commitment to building code enforcement, and a grade of 10 indicates less than minimum recognized protection. Table 6.15 lists the BCEGS ratings for the jurisdictions in the region.

Table 6.15 BCEGS Ratings in the Region

Jurisdiction	BCEGS Residential Rating	BCEGS Commercial Rating	Year of Evaluation
Culpeper County	3	3	?
Culpeper	Covered by Culpeper County		
Fauquier County	3	2	2021
Remington	Covered by Fauquier County		
Warrenton	4.4	4.4	2006
Orange County	4	4	2019
Gordonsville	Covered by Orange County		
Orange	Covered by Orange County		
Madison County	4	4	2008
Madison	Covered by Madison County		
Rappahannock County	3	3	2021
Washington	Covered by Rappahannock County		

The BCEGS assess the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards. Municipalities with well-enforced, up-to-date codes should demonstrate better loss experience, and insurance rates can reflect that. The BCEGS program assigns each municipality a BCEGS grade of 1 (exemplary commitment to building code enforcement) to 10.

Floodplain Management

Flooding is the most significant of all natural hazards facing the nation. Tools available to reduce associated impacts are among the most developed and comprehensive when compared with other hazard-specific mitigation techniques. In addition to education, outreach, and specific training strategies, the National Flood Insurance Program (NFIP) enables local governments to determine where and how development occurs relative to identified flood hazards. Although voluntary, participation in the program is strongly encouraged by FEMA. The NFIP maps flood hazard areas and develops Flood Insurance Rate Maps (FIRMs) which are used to assess flood hazard risk, regulate construction practices, and set flood insurance rates. Recognized as a key element in the development, implementation and sustainability of an effective hazard mitigation program, affiliation with the NFIP is a measure of local capability.

Participation in the NFIP requires the adoption of a local ordinance establishing minimum standards to prevent impacts to structures from the 100-year flood. Requirements for improvements to existing buildings, special standards for new construction and assurance that new development will not exacerbate existing flood potential must be included.

An additional indicator of floodplain management capability is active participation in the Community Rating System (CRS). The CRS is an incentive-based program that encourages counties and municipalities to undertake defined flood mitigation activities that exceed the minimum requirements of the NFIP. Each of eighteen specific CRS mitigation activities are assigned a range of point values. As points are accumulated and identified thresholds reached, communities may apply for an improved CRS class the designation of which will result in flood insurance premium reductions as shown in Table 6.16. There are currently no CRS communities in the Rappahannock- Rapidan Region.

Table 6.16 CRS Premium Discounts, by class

CRS Class	Premium Reduction
1	45%
2	40%
3	35%
4	30%
5	25%
6	20%
7	15%
8	10%
9	5%
10	0

Participation in the CRS is voluntary. Any community that is in full compliance with the rules and regulations of the NFIP may apply to FEMA for a CRS classification better than class 10. As part of the 2018 update to the Rappahannock-Rapidan Regional Hazard Mitigation plan, CRS What-If Scenarios were produced for each jurisdiction in the region and were provided in the appendix of the 2018 plan.

Floodplain Management Plan - Provides a framework for the development and implementation of corrective and preventative measures to reduce flood-related impacts.

Several of the participating jurisdictions have Floodplain Overlay Districts in place, while others have specific references to floodplains within their respective local ordinances.

Stormwater Management Plan: Addresses flooding associated with stormwater runoff and is focused on the design and implementation of construction practices to reduce the impact of urban flooding.

Changes to the Virginia Stormwater Management Program in 2014 resulted in portions of Fauquier County and the Town of Warrenton being designated as local authorities with MS-4 permits. The other four counties, and their respective towns, are classified as "opt-out" localities with VSMP permitting managed by the Virginia Department of Environmental Quality.

Regional Hazard Mitigation Plan (2025 Update) and Resilience Plan

Chapter 7
Mitigation Strategy

Rappahannock-Rapidan
REGIONAL COMMISSION

CHAPTER 7 – MITIGATION STRATEGY

7.1 - INTRODUCTION

This Chapter of the Hazard Mitigation Plan will outline the comprehensive mitigation strategy based on the findings of the Risk Assessment and the Capability Assessment within the lens of the mission statement, goals and strategies updated by the Project Management Team (PMT). The mitigation strategy is meant to serve as a guide to staff to achieve long term goals in the reduction of impacts caused by natural and manmade hazards. The process of creating the mitigation strategy was:

1. Setting mitigation goals;
2. Reevaluating existing strategies that were completed, in process, or consider alternatives;
3. Identifying strategies in line with updated goals; and
4. Developing a mitigation plan for the Planning Commission, Counties, and Towns

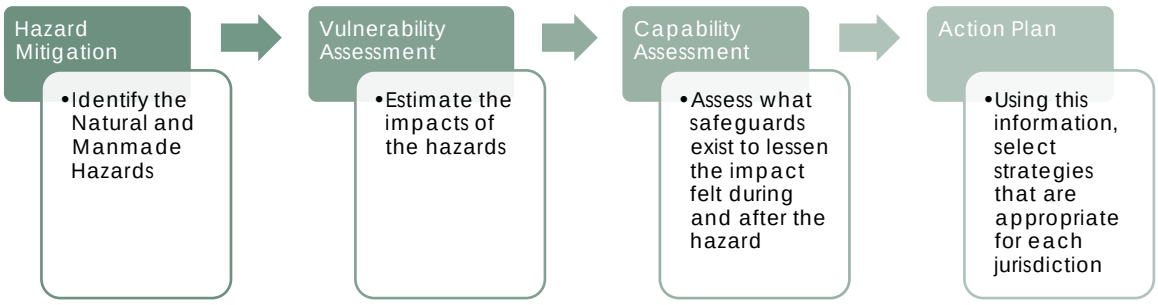
The RRRC and its jurisdictions have taken the opportunity to assess the previously identified goals and progress in implementing the 2018 mitigation actions. Generally, regional, and local priorities with respect to natural hazard mitigation actions have not changed from the 2018 Plan, and the processes described in this Chapter that were employed in 2018 Plan update remain relevant to the mitigation strategy plan. Through this update, barriers to the implementation of action items that have been in the action plan for more than one update were discussed and the action items were updated to reflect these barriers.

In addition, the localities determined that it was necessary to add non-natural hazards to the Plan, which have been previously discussed in this plan, to ensure that the region and communities are proactively addressing all anticipated potential hazards. Further, since this Plan serves as the Virginia DCR CFPF Program resilience plan for the region and localities, additional flood mitigation actions were added to target the flooding hazards impacting the region and localities.

As part of this update, each jurisdiction compiled a new set of mitigation strategies that were determined to be the most effective use of their resources; as noted above, these strategies are included in the action plans at the end of this Chapter. When possible, funding sources are identified that can be used to assist in action implementation.

7.2 - PLANNING PROCESS

The Plan follows a traditional planning approach, beginning with a mission statement that provides the overall guiding principle, goals designed to align with the mission statement, and mitigation strategies which include policies or projects designed to reduce the impacts of future hazard events. The methodology of the planning framework is as follows:



MISSION STATEMENT: Provides the guiding principle of the Hazard Mitigation Plan.

MITIGATION GOALS: Provide the framework for achieving the intent of the mission statement.

MITIGATION ACTIONS: Specific Projects and activities broken into categories that include policies, regulation amendments, and projects agreed to by members of the Project Management Team specific to the RRRC or jurisdiction.

MITIGATION ACTION PLAN: Prioritized list of compiled strategies, including mitigation techniques, hazards addressed, individual or organization responsible for implementation, estimated completion date, and potential funding source(s).

MISSION STATEMENT
Reduce the physical and economic impacts of natural and manmade hazards on the jurisdictions within the Rappahannock-Rapidan Region and build resiliency through effective hazard mitigation and resiliency strategies.

7.3 - MITIGATION GOALS

The goals listed below are the result of the participating communities reevaluating the past mitigation Goals from the 2018 update to the 2025 Mission Statement. These goal statements are:

Goal 1	Improve and update data needed for hazard mitigation purposes within the Rappahannock- Rapidan Regional Commission and local jurisdiction offices.
Goal 2	Implement policies that incorporate mitigation planning into the framework of local government in the Rappahannock-Rapidan region.
Goal 3	Implement sound planning techniques throughout the region that complement the benefits of hazard mitigation.
Goal 4	Implement cost effective structural projects throughout the region to reduce the impact of future disaster events.
Goal 5	Conduct training throughout the region for employees to improve response capabilities of local emergency management officials and to educate local officials of benefits of hazard mitigation techniques.
Goal 6	Implement meaningful education and outreach projects throughout the region to educate the public about the dangers of natural hazards and how they can protect their families and their property.
Goal 7	Improve regional evacuation and sheltering capabilities for response to all identified hazards, including the potential impacts of an evacuation of the Washington D.C. area.

7.4 - MITIGATION ACTIONS

In formulating the list of potential mitigation actions, a wide range of activities were considered to help achieve the general regional goals in addition to the specific hazard concerns of each participating jurisdiction. All strategies chosen by the RRRC, county and town government officials fell into one of the broad categories of mitigation techniques listed below:

- Local and Regional Planning Efforts and Regulations
- Education and Awareness Programs
- Natural System Processes
- Structural and Infrastructure Projects

Examples of Local and Regional Planning Efforts and Regulations include:

1. The use of applicable building construction standards increase resiliency within the community.
    a. Extend freeboard requirements to equivalent elevations outside of the Special Flood Hazard Area.
2. Hazard avoidance through appropriate land-use practices including increased regulatory standards in the jurisdiction to improve floodplain management and stormwater management, and open space preservation.
    a. Restrict development to higher elevations.
    b. Zoning Districts with parcels in floodplain could have less allowable lot coverage to reduce runoff, protect floodplains, and maintain natural areas.

Figure 7.1 Graphic showing increased building standards and floodplain management, **FEMA's NBS Guide.**

Examples of Education and Awareness Programs include:

1. Insurance workshops and information sessions to coordinate with partner agencies, sharing data, findings, and other resources to support hazard adaptation work within these systems and collaboratively build a more resilient region.
2. Real estate disclosures that would require that sellers and landlords provide written disclosure if the property they are selling or leasing is in the flood plain or has been previously impacted by another hazard.

3. Outreach projects related to hazards within the region that aim to educate the public by sharing data, findings, and other resources that are relevant to the community.
4. Establishment of hazard warning and communication procedures for the wide range of hazards including flooding, drought, manmade hazards.

Examples of Natural System Processes include:

1. Floodplain Protection through natural measures including Habitat Restoration and Creation, and Land Conservation

2. Watershed management through the use of buffers for new or substantial redevelopment can be used to both conserve land and move development out of high-risk zones.

3. Erosion and sediment control by conserving open space along the river and planting out the preserved areas can effectively slow precipitation.

4. Slope stabilization by managing grading and vegetation selections. Target key areas that can be stabilized to lessen the impact of hazards.

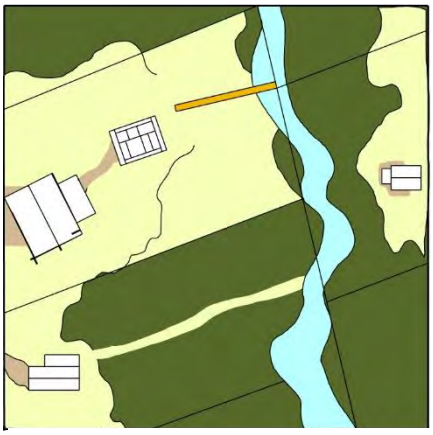


Figure 7.2 Graphic showing open space preservation and forest/vegetation management, FEMA NBS Guide.

5. Forest and vegetation management through initiatives like the Riparian Forests for Landowners (RFFL) program from Virginia Department of Forestry (DOF) that provides landowners free, flexible riparian forest buffer installation plus one year of maintenance in partnership with the Alliance for the Chesapeake Bay, Friends of the Rappahannock, etc.

Examples of Structural and Infrastructure Projects include:

1. Retrofitting (e.g., wind proofing, floodproofing, seismic design techniques, ignition resistant construction materials, etc.)

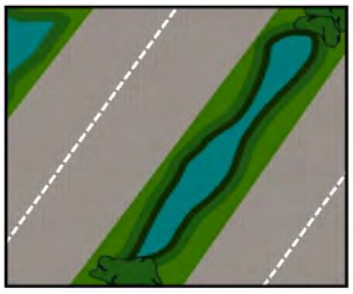


Figure 7.3 Graphic showing roadside drainage improvements using a vegetative conveyance

2. Resilient Critical Facilities and infrastructure protection through retrofits, initial design work and siting analysis, building capacity through generators and/or other facility improvements.

3. Drainage Improvements including Low-Impact Development (LID) practices, upgrading outfalls or sections of stormwater networks, and creating resilient roadways.

7.5 ANALYSIS OF CURRENT MITIGATION STRATEGIES

In formulating the list of potential mitigation strategies, a wide range of activities were considered to help achieve the general regional goals in addition to the specific hazard concerns of each participating jurisdiction.

The mitigation strategies developed and adopted by participating jurisdictions are listed in the Appendix of this plan. Each jurisdiction's mitigation strategies form the basis of their Mitigation Action Plan. By identifying specific projects and policies, the Mitigation Action Plans provide the framework for participating localities to engage in distinct actions that will reduce the impacts of future hazard events and disasters.

Each jurisdiction was asked to review their current mitigation strategy table and provide comments. The comments included:

1. Has there been progress on completing the strategy, and to what degree?

    - Completed
    - Progress
    - Planned
    - Not started

2. Does this strategy need to be reworded to allow for progress in the next five years?

3. What new strategies need to be added to achieve the newly defined goals and identified hazards?

7.6 IDENTIFICATION OF NEW MITIGATION STRATEGIES

County and town officials reviewed the findings of the Capability Assessment and Risk Assessment to determine feasible and effective mitigation strategies. The Disaster Mitigation Act of 2000 specifies that state and local governments should prioritize actions based on the level of risk a hazard poses to the lives and property of a given jurisdiction. The Mitigation Matrix (Table 7.1) served as a general guide; assisting local governments to make sure that they addressed, at a minimum, those hazards posing the greatest threat.

Mitigation strategies, including Local and Regional Planning Efforts and Regulations, Education and Awareness Programs, Natural System Processes, and Structural and Infrastructure Projects were noted in the matrix if adopted by a participating jurisdiction. It is important to note that local and regional Mitigation Action Plans in the RRRC planning area included an array of actions, not just those addressing high and moderate risk hazards but also building capacity for increased resilience related to these identified hazards.

Table 7.1 Mitigation Matrix

	Local and Regional Planning Efforts and Regulations	Natural System Processes	Structural and Infrastructure Projects	Education and Awareness Programs
Drought	X	X	X	X
Dam/Levee Failure	X			X
Extreme Heat	X	X	X	X
Wildfire	X	X	X	X
Earthquake			X	X
Sinkhole			X	X
Landslide			X	X
Flood	X	X	X	X
Hurricanes & Tropical Storms	X	X	X	X
Tornados	X	X	X	X
Thunderstorms	X	X	X	X
Winter Weather	X	X	X	X
Pandemic/Infectious Agent	X			X
Cybersecurity Risk	X			X
Hazardous Materials	X			X

While resiliency considerations and priorities for every locality within the region will slightly differ, as will the capacity to address them, planning for regional resiliency can help reduce future disaster related response and recovery cost. This Plan will equip the RRRC and jurisdictions in the Region with a deeper understanding of priority actions that can be implemented to improve the region's resilience to hazards.

This Plan reviewed RRRC's resiliency needs and found that the natural hazards identified to be the highest priority for the region include Flooding, Drought, and Extreme Weather

events such as Hurricanes, Extreme Heat, and Winter storms all of which are addressed in Chapter 5 Hazard Analysis.

There are also mitigation strategies to address each of the other high and moderate risk hazards identified in the Risk Assessment, as well as other lower risk hazards. Each jurisdiction reviewed the current strategies and added new strategies, as applicable. Strategies to ensure participation and compliance with the National Flood Insurance Program are included and there are additional strategies related to public education and outreach for FIRM updates that are presently underway in both the Potomac and Rappahannock River watersheds.

The strategies found in the action plans below represent individual regional or local actions that can be taken over the next five-year period to begin to fulfill the mitigation goals for the RRRC region. Each has been selected and prioritized based upon the criteria included above and is shown along with departmental responsibility and potential funding sources. These strategies should be continually reviewed and updated to best serve local and regional constituents and should be further reviewed and updated within the five-year review cycle as outlined in this Plan and according to state and local regulations.

Strategies were ranked by each community with a priority ranking of High, Medium, or Low, with the following meanings:

High (H)	Initiate or implement in the short-term, 1-2 years following Plan adoption
Medium (M)	Initiate or implement in the long-term, 2-4 years following Plan adoption
Low (L)	Initiate or implement only as funding becomes available, 4 or more years following Plan adoption

In addition, the anticipated level of cost effectiveness of each measure was a primary consideration when developing mitigation actions. Because mitigation is an investment to reduce future damages, it is important to select measures for which the reduced damages over the life of the measure are likely to be greater than the project cost.

As noted in the introduction to this Chapter, in developing these action plans for this update of the Plan, the RRRC and localities have taken the opportunity to assess previously identified goals and action plans and evaluate progress in implementing mitigation actions, adding new actions when warranted by priorities, and where applicable, identifying those actions that have been completed since the 2018 update of the Plan, replaced by other actions and thereby deleted, or deleted due to lack of applicability.

In general, most localities have made progress on their identified mitigation strategies, through enhanced public outreach activities, structural and safety improvements of critical infrastructure, ordinance reviews, floodplain reviews and management, and GIS implementation and development.

Highlights of activities underway or completed between 2018 through the 2025 update include:

- The Rappahannock-Rapidan Regional Commission completed strategy 10: GIS data analysis of Virginia Department of Forestry's Wildlife Urban Interface zones with recent imagery and projected growth areas in region. Installation of a stream gauge was also a significant achievement for the region.

- The Town of Culpeper is continuously working on updating their Comprehensive Plan, Capital Improvement Plan, and Zoning Ordinance to include the identified strategies from the 2018 Hazard Mitigation Plan update.

- Fauquier County is actively working to meet the NFIP and higher standards of CRS to join the program and reduce flood insurance premiums.

- The Town of Remington has completed strategy 5: Work with FEMA, VDEM, and Fauquier County to update floodplain mapping for the Town of Remington.

- The Town of Warrenton completed strategy 4: floodplain mapping and received the updated FIRMs in October 2023. The Town of Warrenton hired a GIS technician within the newly created stormwater division and an Emergency Manager. The town also adopted an Emergency Management Ordinance and is also working towards cooperation with citizens and business owners to support the adopted Drought Management plan.

- Madison County addressed mitigation strategies for Emergency Management Response by implementing upgrades to the county-wide radio system and evaluating the emergency shelter capabilities and the evacuation routes.

- While the Town of Madison was unable to complete any strategies since the 2018 update, barriers to implementation have been considered.

- Orange County was able to complete the following strategies:

    - Strategy 2: Expand and fully equip Emergency Operations Center
    - Strategy 3: Expand and fully equip E-911 Center
    - Strategy 4: Upgrade Reverse 911 system with a modern multi notification system
    - Strategy 11-13: Retrofit three facilities as emergency shelters with the addition of generators.
    - Strategy 19: Develop an internal GIS that may be used for analysis in times of emergency.
    - Strategy 20: Identify flood inundation zones for all dams regulated through the Viriginia Department of Conservation and Recreation Dam Safety Program
    - Strategy 22: Prepare for the loss of electricity at vulnerable facilities.
    - Strategy 25: Develop a terrorism response plan.

  - Strategy 26: Design an early warning system for hazard events.
  - Strategy 27: Update Floodplain ordinance to address "flooding due to manmade structure."

- The Town of Gordonsville completed strategy 3: Install and replace generators in County Fire and Rescue station #24, in coordination with Orange County.

- The Town of Orange is ongoing with its efforts to perform floodplain mapping in the Town to determine the base flood elevations.

- Rappahannock County has completed strategy 19: Install emergency generator at alternate primary county emergency shelter (Rappahannock County High School), strategy has been revised to include other locations and identified a grant opportunity.

Since the 2018 update Jurisdictions have been focused on updating floodplain mapping, creating plans that address their identified hazards, evaluated their emergency response systems, and upgraded their shelters to be resilient during natural and manmade hazard events.

Mitigation Action Plan - Rappahannock-Rapidan Regional Commission

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
RRRC-1	Coordinate inter-regional meetings (with surrounding PDCs) to ensure linkage with evacuation and other emergency planning of adjoining jurisdictions	2005	Wildfire, Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	High	None other than staff time	None needed		Rappahannock-Rapidan Regional Commission	Ongoing	RRRC has participated, with member jurisdictions, in meetings with surrounding localities. RRRC staff also regular participates with regional emergency coordinator meetings convened by VDEM Region II staff and will continue to do so in the future.
2	Update floodplain maps across the region as means of improving floodplain management and ensure each jurisdiction maintains ordinances in compliance with NFIP requirements.	2005	Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	Moderate	Dependent on extent of changes needed	VA CFPF, FEMA PDM, HMGP	Yes	Local Jurisdictions, Rappahannock-Rapidan Regional Commission	Ongoing	All local jurisdictions and RRRC participate in FIRM mapping updates between 2019 and 2021 and those updates are incorporated into this updated HMP
3	Conduct NFIP, CRS and Flood Prevention information sessions around the region to improve awareness of flood insurance and how communities can reduce the effects of the flood hazard.	2005	Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	Moderate	Dependent on number of workshops and attendees	VA CFPF, FEMA PDM, HMGP	Yes	Rappahannock-Rapidan Regional Commission	Ongoing	RRRC continues to engage and share information from relevant state and federal oversight agencies related to NFIP, CRS and Flood Prevention
4	Broaden Hazard Mitigation Committee to include review and representation from public, non-profit, and private sector	2005/ 2018	All Hazards	Moderate	None other than staff time	None needed		Rappahannock-Rapidan Regional Commission	Ongoing	2012 and 2018 Plan updates included participation by community colleges, employers, National Parks Service, and outreach to other stakeholders via advertising and newsletter distribution
5	Facilitate continued sharing of GIS maps/data, impact studies, ordinances, plans, etc. among member jurisdictions	2005	All Hazards	High	None other than staff time	None needed		Rappahannock-Rapidan Regional Commission	Ongoing	Completed on an as-needed basis
6	Wildfire prevention and training programs, including support of Firewise training for interested localities	2012/ 2018	Wildfire	Moderate	Staff time	None needed initially		Rappahannock-Rapidan Regional Commission	As funding allows	DOF data sets were not updated since 2012 plan review, representing potential area for

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
										improved data before next plan update
7	Regional Water Supply Plan Development	2025	Drought	High	Staff time	VDEM; DEQ; CIP Funding		RRRC	According to State Schedule	RRRC will work with its localities to develop a regional plan once guidance is released by DEQ
8	Assist local jurisdictions with development of Continuity of Operations Planning	2012	All Hazards	Low	Staff time	CIP funds		Local jurisdictions, RRRC	Ongoing	Local Emergency Management Departments have taken the lead on these activities, along with VDEM Region 2 staff
9	Identify the four missing addresses for repetitive loss properties in the region.	2012	Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	None needed		Local Jurisdictions, RRRC	Not started	Within one year
10	Improve water monitoring capabilities along major rivers in the region (including additional monitor stations and improved data tracking capabilities)	2012	Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	Moderate	Unknown	VA CFPF. FEMA PDM, HMGP, General Fund	Yes	Local Jurisdictions, RRRC	As funding allows	First monitors were installed by VDEM and contractors in 2022-2023 following input and guidance on location selections by RRRC, Rappahannock River Basin Commission and local governments; future installations and expansion is unknown at this time.
11	Consider acquisition, elevation, demolition, reconstruction of repetitive loss properties	2018	Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	Moderate	Dependent on property	VA CFPF. FEMA PDM, HMGP, General Fund	Yes	Local jurisdictions	As funding allows	New strategy for 2018
New Strategies for the 2025 Update										
12	Conduct Regional Urban Heat Island Analysis	2025	Extreme Heat	Moderate	$22,000	DOF grant; CIP or general funds		Rappahannock-Rapidan Regional Commission	2/1/2025	New strategy for 2025
13	Work with localities to develop tree planting and impervious surface reduction projects for hot spots identified in Urban Heat Island Analysis	2025	Extreme Heat	Moderate	Dependent on project	DOF, VCAP, NFWF, General funds	Yes	RRRC, Local jurisdictions	As funding allows	New strategy for 2025

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
14	Work with localities to develop stormwater BMP and flood resiliency projects	2025	Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	Moderate	Dependent on project	SLAF, VCAP, NFWF, VA CFPF, CIP funds	Yes	RRRC, Local jurisdictions	As funding allows	New strategy for 2025
15	Conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible for HMP, VACFPF or other funding sources	2025	All Hazards	Moderate	>$10,000	Discretionary Funds		RRRC	As staff capacity allows	New strategy for 2025
16	Develop Food System Resiliency Plan and distribute across the region to help prepare for all hazards and priorities.	2025	All Hazards	Moderate	>$10,000	Discretionary Funds		RRRC	As staff capacity allows	New strategy for 2025
17	RRRC - REC Threat Resistant Infrastructure Upgrades Mitigating Potential Hazards(TRIUMPH)	2025	Wildfire	High	$4,713,780.20	FEMA HMGP, PDM, CIP or general Funds		RRRC/Madison County	2025	New strategy for 2025
18	Assist the localities to review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes Sinkhole Landslide Tornado Thunderstorms Winter Weather Pandemic	Moderate	Staff time	General funds		RRRC, Local Jurisdictions	As reviews are scheduled	New strategy for 2025
19	Coordinate and schedule FEMA Substantial Damage and Substantial Improvement Training in the region	2025	Flood, Dam/Levee Failure, Hurricanes	High	Staff time	Discretionary Funds	No	RRRC, VDEM Region 2	As capacity allows	New strategy for 2025
Strategies Completed or Deleted During 2025 Plan Update										
	Develop an education and outreach plan for the upcoming changes in FEMA Flood Insurance Rate Maps (FIRM) for property owners and general public	2018	Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	High	Dependent on scope of distribution	Local funds, FEMA HMGP, PDM	Yes	RRRC, Local jurisdictions	Completed	Local governments took the lead to engage impacted property owners
	Develop Emergency Preparedness manual and distribute across the region to help prepare for all hazards	2005	All Hazards	High	Dependent on scope of project	FEMA		Rappahannock-Rapidan Regional Commission	Completed	The Rappahannock-Rapidan Health District coordinates an Emergency

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
										Preparedness Task Force and produces similar materials in support of these efforts
	Facilitate further review of earthquake hazard and its impacts on the region in order to develop locally relevant mitigation strategies	2012	Earthquake	High	Staff time; VDEM/FEMA assistance	None needed initially		Rappahannock-Rapidan Regional Commission	Completed	RRRC staff participated in workshops held by the Virginia Department of Mines, Minerals, and Energy (DMME) regarding earthquake hazard and history in Virginia in 2016 and incorporated relevant data into the 2018 plan update
	GIS Data Analysis of Virginia Department of Forestry's Wildland-Urban Interface zones with recent imagery and projected growth areas in region	2012	Wildfire	Moderate	Staff time	DOF grants; Local funds		Rappahannock-Rapidan Regional Commission	Completed	Completed as part of the 2018 plan update and the December 2017 GIS Land Cover data workshop conducted by RRRC staff

Mitigation Action Plan - Culpeper County

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority (High, Moderate, Low)	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
CC-1	Develop a coordinated GIS department and improve GIS usage and capacity across county departments; Improve Emergency Operations Center use of GIS	2005	All Hazards	Moderate	Staff Salary, Training	FEMA HMGP, PDM General / Funds, CIP		Culpeper County Planning, Culpeper County Emergency Management	Ongoing	GIS capacity and utilization increased among County departments
2	Enhance current GIS capabilities/data to expand in-house hazard mitigation capabilities	2005	All Hazards	Moderate	Staff Salary, Training	FEMA HMGP, PDM General Funds, CIP		Culpeper County Planning; Emergency Management	Ongoing	GIS capacity and utilization increased among County departments
3	Develop policies for early drought conservation measures	2005	Drought	Moderate	Staff time	FEMA HMGP, HMGP Post Fire,		Culpeper County Environmental Services	Ongoing	Joint County/Town Water Supply Plan adopted (2013) and in review
4	Develop Public Awareness campaign for flooding, hurricanes and tropical storms	2005	Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	Moderate	$1,000 annually	VA CFPF, FEMA HMGP, PDM General / Funds, CIP	Yes	Culpeper County Emergency Services	Ongoing	Ongoing task
5	Participate in ICS scenario exercises in conjunction with other local jurisdictions	2012	All Hazards	Moderate	Staff time	None other than staff time		Culpeper County Emergency Services	Ongoing	County staff participate regularly with VDEM regional exercises
6	Join the Community Rating System program to reduce the flood insurance premiums of citizens in Culpeper County and to foster better floodplain management practices	2005	Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	General Fund	Yes	Culpeper County Emergency Services	Not started	CRS What-If Scenarios received in 2017 from Department of Conservation & Recreation
7	Review Hazard Mitigation Plan and identified strategies as part of regular review and update of other County Plans (Comprehensive Plan, Emergency Operations Plan, Capital Improvements Plan, etc.).	2018	All Hazards	Moderate	Staff time	General Funds, CIP Funds		Culpeper County Emergency Services, Planning	Ongoing	New strategy for 2018
8	Consider acquisition, elevation, or flood-proofing of structures with repetitive loss claims to the National Flood Insurance Program	2018	Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	Moderate	Dependent on property in question	VA CFPF, FEMA HMGP, PDM General Funds, CIP	Yes	Culpeper County Emergency Services, Administration	Not Started	Strategy returned to Plan for 2018

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority (High, Moderate, Low)	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
9	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM) for property owners and general public	2018	Hurricanes & Tropical Storms, Dam/Levee Failure, Thunderstorms	High	Staff time	VA CFPF, General funds, FEMA PDM, HMGP	Yes	Culpeper County Emergency Services, Planning	Not Started	New strategy for 2018
New Strategies for the 2025 Update										
10	Stormwater Mitigation and Habitat Creation - Engineering design and construction of stormwater infrastructure in the Brandy Station area, including Route 663, and implement 500 linear feet of stream restoration and bank stabilization along the Jonas Run and Mountain Run Creeks.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	$1,000,000	VA CFPF, FEMA HMGP and PDM, NFWF, EPA 319, CIP	Yes	Culpeper County Planning, Culpeper County Public Works, and Culpeper County Environmental Services	Not Started	New strategy for 2025
11	Permeable Pavers to Increase Stormwater Infiltration at Mountain Run Lake Park. Engineering design and construction of permeable pavers with bio retention facility (ies) in the parking areas at Mountain Run Lake Park, to reduce stormwater runoff, minimize localized flooding, and enhance groundwater recharge. The upper parking area is estimated to be 500 square feet, the lower parking area is estimated to be 8,000 square feet.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$800,000	VA CFPF, FEMA HMGP and PDM, NFWF, EPA 319, CIP	Yes	Culpeper County Planning, Culpeper County Public Works, and Culpeper County Parks	Not Started	New strategy for 2025
12	Develop Substantial Improvement/Substantial Damage Administrative Procedure and consider integration with the town(s)/County to coordinate inspections and enforcement of floodplain development.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	VA CFPF, General Funds	Yes	Culpeper County Planning	Not Started	New strategy for 2025
13	Review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes	Moderate	Staff time	General funds		Culpeper County Emergency Services, Culpeper County Planning	As reviews are scheduled	New strategy for 2025

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority (High, Moderate, Low)	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
			Sinkhole Landslide Tornado Thunderstorms Winter Weather Pandemic							
14	Coordinate with the Virginia Department of Conservation and Recreation and high hazard dam owners to standardize procedures for Emergency Action Plan updates, inundation zone mapping, and regional training exercises to ensure consistent protection of communities downstream.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	General Funds, VA CFPF	Yes	Culpeper County Emergency Services, Culpeper County Planning	Not Started	New strategy for 2025
Strategies Completed or Deleted During 2025 Plan Update										
	Develop county-wide warning and alert system	2005	All Hazards	Moderate	Dependent upon upgrades needed	FEMA, VDEM, ISP		Culpeper County Emergency Services	Completed	Replaced Code Red with Rave Alert System
	Implement Town & County Water & Sewer agreement	2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Unknown	Local Funds		Culpeper County Administration	Completed	Completed as part of voluntary settlement agreement between Town and County (2012)
	Limit the percentage of allowable impervious surface within developed parcels to reduce the impact of erosion and to lessen the impact of flooding	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	None needed		Culpeper County Planning	Completed	In place, reference Culpeper County Code, Chapter 11A
	Require more trees be preserved/planted in landscape designs to reduce the amount of stormwater runoff	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	None needed		Culpeper County Planning	Completed	In place, reference article 33 of Zoning Ordinance
	Require clustering for PUDs in the zoning ordinance that reduce or eliminate development in known hazard areas (generally flood zones)	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	None needed		Culpeper County Planning	Completed	Floodplain ordinance in place, reference article 8A or Zoning Ordinance

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority (High, Moderate, Low)	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
	Install generators in shelter locations for use in times of displacement/evacuations	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms, Wildfire	Moderate	$30,000 per generator	FEMA Funds		Culpeper County Emergency Services	Completed	Review of new critical facility needs on an as-needed basis
	Make sure the new EOC is designed and built in such a way as to be resistant to the effects of natural hazards	2005	All Hazards	Moderate	Dependent on EOC design	FEMA Funds		Culpeper County Emergency Services	Completed	EOC construction completed
	Require setbacks from delineated hazard areas (e.g. wetlands, steep slopes)	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	None needed		Culpeper County Planning	Completed	Addressed as part of floodplain and Zoning ordinance

Mitigation Action Plan - Town of Culpeper

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority (High, Moderate, Low)	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
TC-1	Enhance current GIS capabilities/data to expand in-house hazard mitigation capabilities	2005	All Hazards	Moderate	Staff Salary, Training	FEMA HMGP, PDM, General/Department Funds		Town of Culpeper Department of Planning and Community Development	Ongoing	Town GIS now has layers for 100-year base flood and dam breach inundation zones. Mapping of critical utilities continues.
2	Technology upgrades to allow the Town to more efficiently respond to disasters	2005	All Hazards	High	Dependent upon upgrades identified	FEMA HMGP, PDM General Funds, CIP		Town of Culpeper Administration	Ongoing	Police body and vehicle camera system upgrade implemented in 2016. Tyler Munis ERP platform initiated in 2017 and continues with implementation of successive technology modules. Police, public works and utility fleet upgrades and standardization continue for improving fleet reliability and responsiveness. Emergency generator installations completed for Town Hall, Motor Pool and Operations Center. Three trailer mounted portable generators added to fleet in 2014. Five trailer mounted message boards added to fleet from 2012 to 2016. Radio system upgrades conforming to P25 standards underway in 2017 and 2018 and include use of push to talk (PTT) Smart phones.
3	Create a regulation, policy or incentive that prioritizes vegetative buffers where appropriate to offset effects of potential flooding	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee	Moderate	Staff time	VA CFPF, General Funds	Yes	Town of Culpeper Departments of Planning and Community Development, Public Works	Ongoing	Continuous during plan review of new developments.

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority (High, Moderate, Low)	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
			Failure, Thunderstorms							
4	Employ the use of impervious surfaces, only where practical, to counteract the effects of flooding in developed areas of town	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Town of Culpeper Departments of Planning and Community Development, Public Works	Ongoing	Continuous during plan review of new developments.
5	Complete and implement mitigation planning policies for dams at Lake Pelham and Mountain Run Lake	2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Town of Culpeper Departments of Public Works, Planning and Community Development	Ongoing	Construction phase with dam rehabilitation for both lakes commenced in June 2017 with completion scheduled for December 2018. Federal and State funding has been provided.
6	Participate in ICS scenario exercises in conjunction with other local jurisdictions	2012	All Hazards	Moderate	Staff time	None other than staff time		Town of Culpeper Departments of Public Works, Planning and Community Development	Ongoing	Completed with several ICS scenarios and tabletop exercises at County E911 Center
7	Review Hazard Mitigation Plan and identified strategies as part of the regular review and updates of other Town Plans, including the Comprehensive Plan, Capital Improvements Plan, Emergency Operations Plan, and other plans and documents, as necessary and allowable.	2018	All Hazards	Moderate	Staff time	None other than staff time		Town of Culpeper Department of Planning and Community Development	Ongoing	New strategy for 2018 Continuous during development of new/updated plans including: Comprehensive Plan; Capital Improvements Program; Zoning Ordinance, etc.
New Strategies for the 2025 Update										
8	Tree planting and Stream Restoration in Yowell Meadow Park – along Mountain Run, plant native trees and other native vegetation to stabilize the stream bank, improve water quality and increase stormwater uptake for approximately 1,000 linear feet of streambank, on both sides.	1- 3 Years	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms, Extreme Heat	Moderate	$500,000	VA CFPF, FEMA HMGP and/or appropriate alternative, FEMA FMA, NFWF, EPA 319, CIP	Yes	Town of Culpeper Departments of Public Works, Planning and Community Development	Not Started	New strategy for 2025
9	Purchase a conservation easement on recently acquired 20 acres of land along a tributary of Mountain Run to achieve lasting conservation and flood mitigation benefits in an area that that is	1- 3 Years	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$200,000	VA CFPF, LWCF, VLCF, LPTC	Yes	Town of Culpeper Departments of Public Works, Planning and Community Development	Not Started	New strategy for 2025

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority (High, Moderate, Low)	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
	receiving residential development pressure.									
10	Develop Substantial Improvement/Substantial Damage Administrative Procedure and consider integration with the town(s)/County to coordinate inspections and enforcement of floodplain development.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	VA CFPF, General Funds, CIP	Yes	Town of Culpeper Planning	Not Started	New strategy for 2025
11	Review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes Sinkhole Landslide Tornado Thunderstorms Winter Weather Pandemic	Moderate	Staff time	General funds		Town of Culpeper Departments of Public Works, Planning and Community Development	As reviews are scheduled	New strategy for 2025
Strategies Completed or Deleted During 2025 Plan Update										
	Consider acquisition, elevation, or flood-proofing of structures with repetitive loss claims to the National Flood Insurance Program	2018	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low					Deleted	Deleted
	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM) for property owners and general public	2018	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High				Town of Culpeper Department of Planning and Community Development	Completed	New strategy for 2018

Mitigation Action Plan - Fauquier County and The Town of The Plains

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
FC-1	Build new Emergency Operations Center and Emergency Communications Center	2005	All Hazards	High	Undetermined	FEMA HMGP and/or PDM		Office of Emergency Management/Fauquier Fire Rescue System	Ongoing	Location and funding options remain unidentified. 2025: Potential location identified for EOC in existing county property. Waiting for the finalization of the buildings strategic plan to determine if OEM will occupy the area identified.
2	Relocation of structures out of the floodplain	2005/2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	Dependent upon number structures identified	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Community Development/GIS/Office of Emergency Management	Not started	Requires study of non-conforming homes in updated FIRM maps; Retain strategy as refined in 2012. 2025: Work with internal stakeholders to identify and prioritize structures.
3	Join the Community Rating System program to reduce the flood insurance premium of citizens in Fauquier County and to foster better floodplain management practices	2005/2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Undetermined	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Community Development/	Ongoing	Program in review at County/ 2025: Review CRS and NFIP criteria and determine County status. Work to meet standards and apply for CRS.
4	Improve generator capacity at shelters/schools 2025: Identify critical infrastructure generator capacity and prioritize replacement	2005	All Hazards	High	$35,000 per generator 2025: Undetermined	General Funds, CIP Funds		Fauquier County Office of Emergency Management/ Fauquier County Public Schools/ General Services/ Fauquier Fire Rescue System	Ongoing 2025: Not Started	Implemented as funding is available through local funding streams or grant programs.
5	Establish and manage riparian buffers along rivers and streams to minimize erosion and flooding	2005/2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Community Development/ Office of Emergency Management/GIS	Not Started	Retain strategy as refined in 2012, given pending stormwater and Chesapeake Bay regulations at state level. 2025: Determine the status and identify any changes to the "2012 Strategy"

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF	Lead Agency/Department	Status/Schedule	Comments
6	Incorporate into emergency response plans the procedure for tracking high water marks following a flood	2005/2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low 2025: Medium	Undetermined	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Office of Emergency Management/GIS	Not started	Department of Fire, Rescue, and Emergency Management working with National Weather Service and VDOT on a periodic basis to address. 2023: two stream gauges and one weather station were installed to start tracking of flooding events. 2025: Investigate historical data. Work with internal and external stakeholders to determine locations of existing markers and identify locations for new markers.
7	Retain thick vegetative cover on public lands flanking river to reduce the potential of erosion	2005/2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low 2025: Medium	Undetermined	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Community Development/Office of Emergency Management/GIS/Parks and Recreation	Not started	Department of Community Development encourages on private lands. Department of Parks & Recreation implements, as able, on public lands. 2025: Work with internal and external stake holders to identify County parcels/tracts/right-of-way along rivers and streams
8	Sign a Cooperating Technical Partner (CTP) Agreement with FEMA.	2005/2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	FEMA HMGP and/or PDM		Fauquier County Community Development	As staff time allows	Requires Floodplain Manager and GIS to work with FEMA to determine county eligibility; and Board of Supervisors authorization to pursue such a designation
9	Determine county's eligibility for Coordinating Cooperative Partner designation	2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	FEMA HMGP and/or PDM		Fauquier County Community Development	As staff time allows	Not currently underway

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF	Lead Agency/Department	Status/Schedule	Comments
10	Limit the percentage of allowable impervious surface within developed parcels	2005/2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Community Development	Ongoing	Monitor pending regulations at state and federal level for changes to impervious surface reductions.
11	Encourage residents to keep storm drains clear of debris during storms	2005/2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Community Development	As necessary	
12	Develop an open space acquisition, reuse and preservation plan targeting flood hazard areas.	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	$50,000 to develop plan, additional unknown	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Community Development	Ongoing	No formal plan in place. Department of Community Development reviews locations of open space during review of proposed subdivisions
13	Designate a local floodplain manager/CRS coordinator that achieves Certified Floodplain Manager certification	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Community Development	Ongoing	Certification not yet sought for incumbent in position currently
14	Substitute porous surfaces/pavement for impervious pavement when appropriate to reduce flooding caused by runoff	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Community Development	As necessary	Ongoing, as and where appropriate
15	Retain natural vegetative bed in stormwater channels to reduce erosion	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Community Development	Ongoing	Ongoing, as and where appropriate
16	Install quick connects at critical facilities	2018	All Hazards	Moderate	DFREM	FEMA HMGP and/or PDM		DFREM	Not Started	New strategy for 2018 – Reconsider for 2025
17	Review Hazard Mitigation Plan and identified strategies as part of the regular review and updates of other County Plans, including the Comprehensive Plan, Capital Improvements Plan, Emergency Operations Plan, and other plans and documents, as necessary and allowable.	2018	All Hazards	Moderate	Staff time	FEMA HMGP and/or PDM		Office of Emergency Management/Community Development	Ongoing	Plans are reviewed on an annual basis

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF	Lead Agency/Department	Status/Schedule	Comments
18	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM) for property owners and community at large.	2018	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Fauquier County Community Development	Not started	New strategy for 2018
New Strategies for the 2025 Update										
19	Riparian Restoration for Flood Prevention –Revegetate a 500 foot length of Cedar Run Creek to mitigate against flood events, slow down floodwaters, stabilize soil, and reduce erosion.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$200,000	VA CFPF, FEMA HMGP and/or appropriate alternative, FEMA FMA, NFWF, EPA 319	Yes	Fauquier County Community Development/ Office of Emergency Management/GIS	Not Started	Retain strategy as refined in 2012, given pending stormwater and Chesapeake Bay regulations at state level. 2025: Determine the status and identify any changes to the "2012 Strategy"
20	Stormwater Mitigation and Habitat Creation- Engineering design and installation/replacement of three stormwater roadside ditches into bioswales through the planting of herbaceous native plants to create habitat, increase stormwater uptake and water quality.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	$600,000	VA CFPF, FEMA HMGP and/or appropriate alternative, FEMA FMA, NFWF, EPA 319	Yes	Fauquier County Public Works/ Fauquier County Community Development	Not Started	
21	Continue All-Hazards public education campaign to educate internal and external stakeholders on the likely hazards identified in the Hazard Mitigation Plan to increase community resiliency	2025	All Hazards	Medium	$3,000-$4,000 annually for materials. Staff time undetermined	FEMA HMGP and PDM		Office of Emergency Management	Not Started	New for FY24.
22	Increase Office of Emergency Management staff	2025	All Hazards	High	Undetermined	FEMA HMGP and PDM		Office of Emergency Management	Not Started	New for FY24. We were able to add one part-time staff member in Q2 of FY24 utilizing grant funds. Additional funding for OEM will be needed to obtain full-time position(s).
23	Increase internal and external stakeholders training on All-Hazard Incident Management and their role under their ESF	2025	All Hazards	Medium	Undetermined	FEMA HMGP and PDM		Office of Emergency Management/Office of the County Administrator	Not Started	Proper planning and incident management are critical for mitigation strategies before, during, and after an incident.
24	Develop Substantial Improvement/Substantial Damage Administrative Procedure and consider integration with the	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee	High	Staff Time	VA CFPF, General Funds	Yes	Fauquier County Planning & Development	Not Started	

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF	Lead Agency/Department	Status/Schedule	Comments
	town(s)/County to coordinate inspections and enforcement of floodplain development.		Failure, Thunderstorms							
25	Review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes Sinkhole Landslide Tornado Thunderstorms Winter Weather Pandemic	Moderate	Staff time	General funds		Local Jurisdiction	As reviews are scheduled	New strategy for 2025
26	Coordinate with the Virginia Department of Conservation and Recreation and high hazard dam owners to standardize procedures for Emergency Action Plan updates, inundation zone mapping, and regional training exercises to ensure consistent protection of communities downstream.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	General Funds, VA CFPF	Yes	Fauquier County Community Development, Fauquier County Office of Emergency Management/GIS	Not Started	New strategy for 2025
Strategies Completed of Deleted During 2025 Plan Update										
	Develop Mobile Data Transmission System that is interoperable with Northern Virginia Public Safety agencies	2005/2012	All Hazards	High	Unknown	Local, State, Federal funds		DFREM	Ongoing	Currently in planning stage
	Require developers to plan for on-site sediment retention.	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff time	None needed		Fauquier County Community Development	Ongoing	Completed on a regular basis during development review.

Mitigation Action Plan - Town of Remington

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for CFPF Funding?	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
1	Elevate buildings/buy-out land in floodplain.	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Unknown	VA CFPF, FEMA HMGP and/or appropriate alternative, FEMA HMA	Yes	Town of Remington Administration	Not started	Cost is prohibitive for Town to proceed and dependent on identified structures
2	The water treatment plant for the Town of Remington on Confederate Boulevard needs a backup generator.	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$35,000 per generator	FEMA HMGP and/or PDM		Town of Remington Superintendent	Ongoing	Not yet purchased
3	Work with FEMA, VDEM, and Fauquier County to update floodplain mapping for the Town of Remington	2018	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Town of Remington Administration	Ongoing	FEMA updates to floodplain areas are ongoing
4	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM) for property owners and community at large	2018	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Town of Remington Administration	Not started	New strategy for 2018
5	Review Hazard Mitigation Plan and identified strategies as part of the regular review and updates of other Town and/or County Plans, including the Comprehensive Plan, Capital Improvements Plan, Emergency Operations Plan, and other plans and documents, as necessary and allowable	2018	All Hazards	Moderate	Staff time	General Funds, CIP Funds		Town of Remington Administration	Ongoing	New strategy for 2018
6	Work with Fauquier County and other regional partners to share information regarding hazard mitigation and response with Town citizens	2018	All Hazards	Moderate	Staff time	General funds		Town of Remington Administration	Ongoing	New strategy for 2018
7	Ensure plans for new water treatment facility at 5th Street include backup power generation	2012	Hurricanes & Tropical Storms, Flood,	High	Dependent upon	General Funds, CIP Funds		Town of Remington Superintendent	Completed	Generator installed at facility

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for CFPF Funding?	Lead Agency/Department	Status/Schedule	Comments
			Dam/Levee Failure, Thunderstorms		identified solution					
8	The sewer plant that serves the Town of Remington needs a backup generator	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$30,000 per generator	FEMA HMGP and/or PDM		Town of Remington Superintendent	Completed	Generator installed at facility
New Strategies for the 2025 Update										
9	Engineering design to restore/reroute Tinpot Run creek stream into the Rappahannock River. The design would take into consideration both improving water flow and reducing sedimentation and improving water quality into the River system.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$150,000	VA CFPF, FEMA HMGP and/or PDM, EPA Section 319 Grants	Yes	Town of Remington Superintendent	Not Started	New Strategy for 2025
10	Permeable Pavers and Street Trees with Stormwater Retention Chambers - Engineering design and construction to retrofit E Main St, between James Madison St and N Franklin St (~700 linear ft)to reduce runoff and stormwater ponding. The retrofits include converting the asphalt street and concrete sidewalk to pervious pavers, adding street tree plantings with underground stormwater chambers.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$2,500,000	VA CFPF, FEMA HMGP and/or PDM, EPA Section 319 Grants	Yes	Town of Remington Superintendent	Not Started	New Strategy for 2025
11	Complete a stormwater infrastructure inventory and hydrological/drainage assessment (in coordination with VDOT if appropriate) and prioritization of potential projects to alleviate flood issues at Tin Pot Run and along Rappahannock River.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$100,000 to $250,000	VA CFPF, FEMA HMGP and/or PDM, EPA Section 319 Grants	Yes	Town of Remington Superintendent	Not Started	New Strategy for 2025
12	Prioritize open space preservation for flood reduction while also creating an opportunity for recreation along the river.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Medium	Dependent upon Scope	VA CFPF, NFWF NCRF, Clean Water State Revolving Fund	Yes	Town of Remington Superintendent	Not Started	New Strategy for 2025
13	Combine efforts with tourism and downtown revitalization efforts to increase flooding resiliency in the downtown area.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee	High	Dependent upon Scope	VA CFPF, CDBG, FEMA HMGP and/or PDM	Yes	Town of Remington Superintendent	Not Started	New Strategy for 2025

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for CFPF Funding?	Lead Agency/Department	Status/Schedule	Comments
			Failure, Thunderstorms							
14	Incentivize reducing impervious cover in the downtown area to increase stormwater capacities.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Medium	None	N/A	N/A	Town of Remington Superintendent	Not Started	New Strategy for 2025
15	Develop Substantial Improvement/Substantial Damage Administrative Procedure and consider integration with the town(s)/County to coordinate inspections and enforcement of floodplain development.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	VA CFPF, General Funds	Yes	Town of Remington Superintendent	Not Started	New Strategy for 2025
16	Review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes Sinkhole Landslide Tornado Thunderstorms Winter Weather Pandemic	Moderate	Staff time	General funds		Town of Remington Superintendent	As reviews are scheduled	New strategy for 2025
17	Coordinate with the Virginia Department of Conservation and Recreation and high hazard dam owners to standardize procedures for Emergency Action Plan updates, inundation zone mapping, and regional training exercises to ensure consistent protection of communities downstream.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	General Funds, VA CFPF	Yes	Town of Remington Superintendent	No Started	New strategy for 2025
Strategies Completed or Deleted During 2025 Plan Update										

Mitigation Action Plan - Town of Warrenton

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
1	Coordinate all traffic signals in town. Currently the signals are not coordinated and can cause major problems for emergency vehicles trying to enter and exit the police and fire stations	2005	All Hazards	Moderate	$300,000	FEMA HMGP and/or PDM		Town of Warrenton Department of Public Works and Utilities	In-Progress FY2025	Phase I completed. Phase II in progress via Revenue Sharing application to VDOT. FY2025 CIP Project for signal coordination and updates.
2	Join the Community Rating System program to reduce the flood insurance premiums of citizens in the Town of Warrenton and to foster better floodplain management.	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	VA CFPF	Yes	Town of Warrenton Departments of Public Works and Utilities & Planning and Community Development	Ongoing	Some elements of the CRS program are incorporated into the Planning & Permitting processes. Town has a Certified Floodplain manager to assist with identifying and managing flood risk. The low number of flood insurance policies and at-risk structures in the Town reveals that the identified risk for flood damage is low. No repetitive-loss structures. Town is focusing on Erosion and Sediment control & Stormwater management to address localized flooding issues.
3	Improve enforcement of erosion and sediment control measures to reduce erosion and flooding problems caused by sedimentation.	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	Staff time	None needed		Town of Warrenton Department of Planning and Community Development	Ongoing	The town now has a fully compliant MS4, E&S, TMDL action plan in place per state and federal guidelines. This plan is updated annually. Inspections and Enforcement current. Training ongoing. Improved permitting and tracking processes.
4	Review Hazard Mitigation Plan and identified strategies as part of the regular review and updates of other County Plans, including the Comprehensive Plan, Capital Improvements Plan, Emergency Operations Plan, and other plans and	2018	All Hazards	Moderate	Staff time	General funds		Town of Warrenton Departments of Planning and Community Development and Risk and Emergency Management	Ongoing	Staff with background in risk and emergency management has been hired to assist Planning and Community Development staff to ensure regular review, update, and compliance of Town plans

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
	documents, as necessary and allowable.									
5	Increase public safety awareness in Transportation initiatives	2018	All Hazards	High	Staff time, outreach materials	General Funds, CIP Funds, FEMA HMGP and or/PDM		Town of Warrenton Departments of Planning and Community Development and Public Works	Ongoing	Objectives identified in Transportation and Comprehensive Plans, Broadview Plan, Old Town. Increasing pedestrian and multi-modal access to Critical Facilities.
New Strategies for the 2025 Update										
6	Reducing Riverine Flooding through Stream Restoration - Engineering design and construction for streambank restoration along Rady Park Creek – Cattail Branch. ~250 linear ft	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	$750,000	VA CFPF, FEMA HMGP and/or PDM, NFWF, EPA 319	Yes	Town of Warrenton Departments of Public Works and Utilities	Not Started	New strategy for 2025
7	Stormwater Mitigation and Habitat Creation- Engineering design and installation/replacement of three stormwater roadside ditches into bioswales through the planting of herbaceous native plants to create habitat, increase stormwater uptake and water quality.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	$600,000	VA CFPF, FEMA HMGP and/or PDM, NFWF, EPA 319	Yes	Town of Warrenton Departments of Public Works and Utilities	Not Started	New strategy for 2025
8	Revitalize the Town's efforts of utilizing social media to broadcast hazardous conditions to citizens	2025	All Hazards	Moderate	Staff time	None needed		Town of Warrenton Department of Communications	Ongoing	Communications Manager appointed with expertise in various avenues to increase public awareness of hazardous threats and conditions
9	Increase potable water storage capacity & quality through increased clearwell capacity at the town's water treatment facility.	2025	All Hazards	Moderate/High	$10,000,000	FEMA HMGP and/or PDM, NFWF, EPA 319		Town of Warrenton Department of Public Utilities	In-Process FY24	This project was allocated in the FY24 CIP to replace the existing non-compliant clearwell (no drain in the existing clearwell). This project will also increase water quality through contact time, mixing, and storage capacity. Engineering for this project is currently underway.
10	Warrenton Reservoir Spillway modernization & update	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee	High	$30,000,000	VA CFPF, FEMA HMGP and/or PDM, NFWF, EPA 319	Yes	Town of Warrenton Department of Public Utilities	In-Process FY24	The spillway assessment geotechnical preliminary engineering design, permitting, and additional fund sourcing are needed to continue this

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
			Failure, Thunderstorms							project to remain in compliance with federal and state regulations.
11	Replace aged & outdated wastewater treatment systems: Primary clarifiers, partial headworks, new gravity sludge thickener, inline sludge screen press, associated infrastructure, and electrical components.	2025	All Hazards	High	$15,000,000	FEMA HMGP and/or PDM, NFWF, EPA 319		Town of Warrenton Department of Public Utilities	In-Process FY24	See the CIP Project Number S-003 & 005. Engineering was started in the FY24 budget year.
12	Replace aged & outdated wastewater treatment systems: Secondary clarifiers, Primary Digester, associated infrastructure, and electrical components.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$17,000,000	FEMA HMGP and/or PDM, NFWF, EPA 319		Town of Warrenton Department of Public Utilities	In-Process FY24	See the CIP Project Number S-003 & 005. Engineering was started in the FY24 budget year.
13	Implementation of a stormwater division	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff time, and other costs dependent upon needs of the division	VA CFPF, FEMA HMGP and/or PDM, NFWF, EPA 319	Yes	Town of Warrenton Department of Public Utilities	On-Going	In 2014 it was determined that the town needed it implement a stormwater division to meet the requirements of the DEQ as stipulated by the EPA and Chesapeake Bay Program requirements.
14	Review and design a streambank restoration project for the Rady Park Creek (Cattail Branch).	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	$759,000	VA CFPF, FEMA HMGP and/or PDM, NFWF, EPA 319, SWCD	Yes	Town of Warrenton Department of Public Utilities	In-Process FY24	The town has submitted for state funding and the project is approved in the CIP.
15	Stormwater BMP Pond C Restoration for capacity and water quality treatment	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	$630,000	VA CFPF, FEMA HMGP and/or PDM, NFWF, EPA 319, SWCD	Yes	Town of Warrenton Department of Public Utilities	In-Process FY24	The town has submitted for state funding and the project is approved in the CIP.
16	East Shirley Street Improvements	2025	All Hazards	Moderate	$13,000,000	FEMA HMGP and/or PDM, CDBG		Town of Warrenton Department of Public Works, Community Development & VDOT	Planned in CIP FY27	See the CIP Project Number TC-006. Engineering was started in the FY24 budget year.
17	Smartscale Project: Lee Hwy/Blackwell Rd Safety Improvements	2025	All Hazards	Moderate	$16,656,707	FEMA HMGP and/or PDM.		Town of Warrenton Department of Public Works, Community Development, & VDOT	In-Process FY25	See the CIP Project Number TC-010. Engineering was started in the FY25 budget year and construction is slated to start in FY31.
18	Smartscale Project: W Lee/US17BusN/Winchester Intersect	2025	All Hazards	Moderate	$17,572,482	FEMA HMGP and/or PDM,		Town of Warrenton Department of Public	In-Process	See the CIP Project Number TC-011. Engineering was started in the FY25 budget

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
								Works, Community Development, & VDOT		year and construction is slated to start in FY31.
19	Smartscale Project Round 2: Broadview Ave. Safety Improvement Project	2025	All Hazards	High	$11,500,000	FEMA HMGP and/or PDM,		Town of Warrenton Department of Public Works, Community Development, & VDOT	In-Process/ Construction	See the CIP Project Number TC-001. The project is designed to improve corridor & intersection safety with walkability and pedestrian safety in mind.
20	Broadview Ave Waterline Betterment Project	2025	Wildfire	High	$1,500,000	FEMA HMGP and/or PDM,		Town of Warrenton Department of Public Works & Utilities, & VDOT	In-Process/ Construction	See the CIP Project Number W-006. This project installed a new waterline along Broadview Ave to supply fire suppression apparatus with adequate water flow. This area was previously not served by any fire hydrants that were easily accessible.
21	Complete the designation of the Town of Warrenton Office of Emergency Management as a recognized Emergency Management Agency (EMA) with the Virginia Department of Emergency Management (VDEM) as an independent locality within the County of Fauquier	2025	All Hazards	Moder ate	Staff Time	None needed		Town of Warrenton Office of Emergency Management, VDEM	In- Process	In 2020 a local emergency management ordinance was enacted to establish the office of emergency management. This started the process of establishing our EMA.
22	Continue the establishment of a comprehensive emergency management program that focuses on community resilience and response capabilities through interagency collaboration, public-private partnerships, Community outreach and education, Volunteer programs, and infrastructure assessments.	2025	All Hazards	High	Staff Time	None needed		Town of Warrenton Office of Emergency Management	On-Going	
23	Modernization of our high hazard reservoir dam for the protection of the community water supply. This dam for the Warrenton reservoir is classified in poor condition.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$40,000,000	VA CFPF, FEMA HMGP and/or PDM,	Yes	Town of Warrenton Departement of Public Utilities	In-Process	

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
24	Implementation of a community emergency response team (CERT).	2025	All Hazards	Moderate	Staff Time, Volunteers	General Funds, CIP Funds		Town of Warrenton Office of Emergency Management	Not Started	
25	Strengthen critical infrastructure: modernize utility transmission & distribution networks for water and sewer.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms, Wildfire	High	$500,000 +	FEMA HMGP and/or PDM,.		Town of Warrenton Department of Public Utilities	On-Going	
26	Foster community engagement: encourage community members to plan, prepare, and participate in mitigation efforts.	2025	All Hazards	Moderate	Staff Time	None needed		Town of Warrenton Office of Emergency Management	On-Going	
27	Implement a community alert system and early warning system to alert residents to natural and man-made disasters or hazards.	2025	All Hazards	Moderate	$20,000	FEMA HMGP and/or PDM,.		Town of Warrenton Office of Emergency Management	Not Started	
28	Promote business continuity of operations plans (COOP) for assisted living facilities, long term care facilities, daycare centers, and local merchants to help health facilities and businesses Recover quickly from emergencies.	2025	All Hazards	Moderate	Staff time, other costs dependent upon scope	General Funds, CIP Funds		Town of Warrenton Office of Emergency Management	On-Going	
29	Create and disperse information about the plan and revenant emergency response actions the public can take.	2025	All Hazards	Moderate	$10,000	FEMA HMGP and/or PDM,.		Town of Warrenton Office of Emergency Management	Not Started	
30	Reduce the impact of wind on trees near town structures and critical facilities. Monitor trees and branches at risk of breaking or falling in windstorms. Prune or thin trees and branches on town property/right of ways when they pose an immediate threat to Property, utility lines, or other structures ,or critical facilities in the town.	2025	Hurricanes & Tropical Storms, Flood, Thunderstorms	High	$75,000	FEMA HMGP and/or PDM.		Town of Warrenton	Not Started	The town is seeking to expand its capability in this program area. The mitigation strategy will expand on the current capabilities with tree chippers, dump trucks, and related equipment.
31	Develop Substantial Improvement/Substantial Damage Administrative Procedure and consider integration with the town(s)/County to coordinate inspections and enforcement of floodplain development.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	VA CFPF, FEMA HMGP and/or PDM.	Yes	Town of Warrenton Community Development	Not Started	New strategy for 2025

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
32	Review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes Sinkhole Landslide Tornado Thunderstorms Winter Weather Pandemic	Moder ate	Staff time	General funds		Town of Warrenton Department of Public Utilities and Risk and Emergency Management	As reviews are scheduled	New strategy for 2025
Strategies Completed or Deleted During 2025 Plan Update										
	Increase Town's preparation for severe droughts during summer	2025	Droughts	High	Staff time	FEMA HMGP and/or PDM.		Town of Warrenton Departments of Public Utilities and Risk and Emergency Management	Complete	Drought management plan in place. Significant cooperation from homeowners, private companies, and public entities to ensure ample supply of Town water
	Incorporate active threat training modules of Run-Hide-Fight and Stop the Bleed for employees	2025	Active Threat	Moder ate	Staff time	None needed		Town of Warrenton Department of Risk and Emergency Management	Complete	Town's Risk and Emergency Manager is prior law enforcement with extensive background in subject matter. Staff training ongoing
	Verify street addresses and ensure compliance with posting requirements.	2005	All Hazards	High	Staff time	None needed		Town of Warrenton Department of Planning and Community Development	Completed	Base map completed and verified. Street addresses assigned as bldg. permits applied for, addresses are corrected as issues are discovered, Community Development coordinates with Fauquier Co E-911 to verify and rectify all addressing inconsistencies in accordance with MSAG.
	Update floodplain map for the Town of Warrenton	2023	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$85,000	VA CFPF, FEMA HMGP and/or PDM.	Yes	Town of Warrenton Department of Public Works and Utilities	Completed in FY2025	Final flood hazard determination for Town and County received October 2023. LOMR for Turkey Creek supplied new information for this watershed and is incorporated into the current map update. RiskMAP process ongoing. 1st review product delivered and reviewed, awaiting final updates.

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
	Additional staff training for GIS applications.	2005	All Hazards	Moderate	$2,000 to $4,000; Dependent upon software needs; training needs	General Fund	Yes	Town of Warrenton Departments of Public Works and Utilities & Planning and Community Development	Completed	Working with Fauquier County to combine GIS capabilities. Three (3) GIS Staff – 1 Planning, 1 Utilities, 1 Dept of Public Works. Town has added in-house GIS Technician to further assist Fauquier County and Town needs.
	Increase snow removal capabilities	2005	Winter Storms	Moderate	Additional staff time and funding for new equipment	FEMA HMGP and/or PDM.		Town of Warrenton Department of Public Works and Utilities	Completed	Contracting additional contractor support annually. New equipment was put into place via a new fleet replacement plan in 2017. The fleet has been 75% modernized in this area. Snow removal capabilities have doubled with this initiative. Three additional staff have been added to public works via a part-time to full-time conversion in FY24.
	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM) for property owners and community at large.	2018	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff time	General Funds, FEMA HMGP or PDM	Yes	Town of Warrenton Department of Planning and Community Development	Completed	Staff is working with Fauquier County to review and comment on FIRMs as they are delivered and will assist with implementation and public education throughout this process.
	Appoint or assign a Risk Manager to develop an education and outreach program for building code, fire code, risk assessment, evacuation, continuity of operations, and other public safety awareness issues for Town employees and citizens.	2018	All Hazards	Moderate	Staff time, other costs dependent upon scope	FEMA HMGP and/or PDM.		Town of Warrenton Department of Planning and Community Development	Completed	Staff with background in risk management has been hired and is developing new permitting and process refinements in cooperation with the Community Development Director.
	Consider acquiring additional generator capacity at critical facilities in Town, including Public Works and Utilities building.	2018	All Hazards	Moderate	$65,000	FEMA HMGP and/or PDM.		Town of Warrenton Department of Public Works and Utilities	Completed	Mobile generators for PW facility and wells are available in-house. Seeking to implement permanent options.

Mitigation Action Plan - Madison County

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
MC-1	Identify the two repetitive loss properties in the county.	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	VA CFPF, FEMA HMGP and/or PDM.	Yes	Madison County Emergency Management	Not started	Limited number of repetitive loss properties in the County, and low cost-benefit of potential projects as discussed with VDEM in the past
2	Develop a HAZMAT team to handle possible spills on Route 29	2005	Hazardous Materials	Moderate	Dependent on number of team members and equipment needed	Hazardous Material Emergency Management grant		Madison County Emergency Management	As funding allows	Working through LEPC
3	Expand emergency shelter capabilities for natural disasters and large-scale evacuation	2005	All Hazards	Moderate	Dependent upon improvements needed	FEMA HMGP and/or PDM.		Madison County Emergency Management	Ongoing	Reviewed as part of Emergency Operations Plan
4	Upgrade internal GIS to be used for emergency applications	2018	All Hazards	Moderate	Dependent upon extent of upgrades	FEMA HMGP and/or PDM.		Madison County Emergency Management	Ongoing	New strategy for 2018
5	Upgrade county-wide public safety radio system to a regional P25 public safety grade system	2018	All Hazards	High	$5.63 Million	FEMA HMGP and/or PDM.		Madison County Emergency Management	Ongoing	Completion expected fourth quarter of 2025
New Strategies for the 2025 Update										
6	RRRC - REC Threat Resistant Infrastructure Upgrades Mitigating Potential Hazards(TRIUMPH)	2025	Wildfire	High	$4,713,780.20	FEMA HMGP and/or PDM.	No	RRRC/Madison County Emergency Management	Not Started	New strategy for 2025
7	Reducing Riverine Flooding through Stream Restoration - Engineering design to accommodate Stream Widening and Stream Restoration of 150 linear feet along VA-670 (Old Blue Ridge Turnpike).	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	$1, 000,000	VA CFPF, FEMA HMGP and/or PDM.	Yes	VDOT/Madison County Stormwater	Not Started	New strategy for 2025
8	Develop Substantial Improvement/Substantial Damage Administrative Procedure and consider integration with the town(s)/County to coordinate inspections and enforcement of floodplain development.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	VA CFPF, General Funds	Yes	Madison County Zoning and Planning	Not Started	New strategy for 2025
9	Review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes Sinkhole	Moderate	Staff time	General funds		Madison County Emergency Management	As reviews are scheduled	New strategy for 2025

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
			Landslide Tornado Thunderstorms Winter Weather Pandemic							
10	Coordinate with the Virginia Department of Conservation and Recreation and high hazard dam owners to standardize procedures for Emergency Action Plan updates, inundation zone mapping, and regional training exercises to ensure consistent protection of communities downstream.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	General Funds, VA CFPF	Yes	Madison County Planning, Madison County Emergency Management	Not Started	New strategy for 2025
Strategies Completed of Deleted During 2025 Plan Update										

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding?	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
M-1	Improve stormwater runoff with the implementation of stormwater management techniques	2005	Hurricanes & Tropical Storms, Flood, Dam/Leve e Failure, Thunderst orms	High	Town staff has estimates	FEMA HMGP, PDM USDA, Soil and Water Conservation	Yes	Town of Madison Administration	As funding allows	Work with Rapidan Service Authority to complete
2	Protect utilities by placing overhead wires and cables underground	2005	Hurricanes & Tropical Storms, Flood, Dam/Leve e Failure, Thunderst orms	Moderate	Town staff has estimates for existing line burial; future line burial would be taken care of via ordinance amendments	FEMA HMGP, PDM , CDBG		Town of Madison Administration	As funding allows, long-term	Not currently financially feasible
3	Work with County and Regional partners to plan for potential transportation issues related to hazardous materials transported on Route 29	2018	Hazardous Materials	Moderate	Staff time	Staff time		Town of Madison, Madison County Emergency Management	Not started	New strategy for 2018
4	Work with local and regional partners on wildfire mitigation actions in the town	2018	Wildfire	Moderate	Staff time	FEMA HMGP, PDM		Town of Madison, Madison County Emergency Management, RRRC	Not started	New strategy for 2018
New Strategies for the 2025 Update										
5	Stormwater Mitigation and Habitat Creation - Engineering design and installation/replacement of three stormwater roadside ditches into bioswales through the planting of herbaceous native plants to create habitat, increase stormwater uptake and water quality.	2025	Hurricanes & Tropical Storms, Flood, Dam/Leve e Failure, Thunderst orms	Moderate	$300,000	VA CFPF, FEMA HMGP and/or PDM, USDA, Soil and Water Conservation	Yes	Town of Madison Administration	Not Started	New strategy for 2025
6	Develop Substantial Improvement/Substantial Damage Administrative Procedure and consider integration with the town(s)/County to coordinate inspections and enforcement of floodplain development.	2025	Hurricanes & Tropical Storms, Flood, Dam/Leve e Failure, Thunderst orms	High	Staff Time	VA CFPF, General Funds	Yes	Town of Madison Planning	Not Started	New strategy for 2025

7	Review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes Sinkhole Landslide Tornado Thunderstorms Winter Weather Pandemic	Moderate	Staff time	General funds		Town of Maidson Planning/Administration	As reviews are scheduled	New strategy for 2025
Strategies Completed of Deleted During 2025 Plan Update										

Mitigation Action Plan - Orange County

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
OC-1	Identify and develop additional shelter sites for evacuees from within and outside the region	2005/2012	All Hazards	High	Staff time	None Needed		Orange County Department of Emergency Management	Ongoing	Addressed as needed during updates to Emergency Operations Plan, etc.
2	Install a generator at the Orange County Courthouse facility	2012	All Hazards	Low	$50,000	FEMA HMGP and/or PDM,		Orange County Department of Emergency Management	Not started	To be completed as funding allows
3	Conduct a detailed needs assessment for the county's emergency response services	2005	All Hazards	Moderate	Unknown	FEMA HMGP and/or PDM,		Orange County Department of Emergency Management	Ongoing	Fire programs analysis completed in 2014; overall review included as part of public safety building design
4	Upgrade or replace generators at communications sites throughout Orange County and add surveillance equipment. Monitoring systems should also be added to provide the following information: fuel status, generator status, temperature status, generator output status	2012	All Hazards	High	$100,000	FEMA HMGP and/or PDM,		Orange County Department of Emergency Management	Ongoing	Will be included as part of the public safety building project
5	Apply for and obtain funding for hazard mitigation plan implementation	2005	All Hazards	High	Staff time	None needed initially		Orange County Administration, Emergency Management and Emergency Communications	Ongoing	Funding sought in 2020 Capital Improvements Plan and other sources, as available
6	Identify potential terrorism targets (local) and plan for their protection	2005	Terrorism	High	Staff time	State Homeland Security Grant program, FEMA HMGP and/or PDM,		Orange County Emergency Operations Center, Local Police	Ongoing	Emergency Services and Sheriff's Office collaborate on response
7	Incorporate Hazard Mitigation plan into Comprehensive Plan and Capital Improvements Plan	2005	All Hazards	Moderate	Staff time	None needed		Orange County Administration, Department of Planning and Zoning	Ongoing	Addressed through other means
8	Complete a stormwater drainage study/plan for known problem areas	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	VA CFPF, General Fund, FEMA HMGP and/or PDM	Yes	Orange County Department of Planning and Zoning	As funding allows	Addressed through other means

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
9	Develop and implement a multi-hazard public awareness program	2005	All Hazards	Moderate	Staff time	FEMA HMGP and/or PDM		Orange County Department of Emergency Management and Emergency Communication	Ongoing	County has active communication via social media, training workshops for public
10	Create an evacuation plan and clean up scenario in the event of a train derailment resulting in a toxic spill	2005	Hazardous Materials	Moderate	Dependent on location	FEMA HMGP and/or PDM		Orange County/Town of Orange	Ongoing	Included in County Emergency Operations Plan
11	Identify/prepare evacuation routes and shelter locations for natural or man-made disasters	2005	All Hazards	Moderate	Staff time	FEMA HMGP and/or PDM		Orange County EOC	Ongoing	Included in County Emergency Operations Plan
12	Prepare for radiological problems from North Anna nuclear power station	2005	Hazardous Materials	High	Staff time	FEMA HMGP and/or PDM		Orange County EOC	Ongoing	Regular participation in multi-jurisdictional drills with North Anna, VDEM, and other localities
13	Create a regulation or incentive to Prevent development between Lake of the Woods Dam and the Rapidan River	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Orange County Planning and Zoning	Ongoing	Addressed through Dam Inundation statute; Not expressly prohibited at this time
New Strategies for the 2025 Update										
14	Work with local and regional partners on wildfire mitigation actions in the county	2025	Wildfire	Moderate	Staff time	General funds, FEMA HMGP & HMGP Post Fire, and/or PDM		Orange County Emergency Management, RRRC, Local Developments	Not started	New proposed strategy for 2025
15	Develop policies and communication procedures for early drought conservation measures	2025	Drought	Moderate	Staff time	None needed initially		Orange County Emergency Management	Not started	New proposed strategy for 2025
16	Conduct a detailed needs assessment of the county's debris management strategy and begin coordination of the polices among departments for future events.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	VA CFPF, FEMA HMGP and/or PDM	Yes	Orange County Department of Emergency Management	Not started	New proposed strategy for 2025
17	Land Protection for Flood Reduction – Acquire conservation easements along the Rappahannock River located in the privately held tract #5288-906 acres, located between the Veterans Memorial Damand the Rappahannock River to project water quality and mitigate flood impacts	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	$200,000	VA CFPF, FEMA HMGP and/or PDM	Yes	Orange County Department of Planning and Zoning	Not Started	New proposed strategy for 2025

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
18	Develop Substantial Improvement/Substantial Damage Administrative Procedure and consider integration with the town(s)/County to coordinate inspections and enforcement of floodplain development.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	VA CFPF, General Funds	Yes	Orange County Department of Planning and Zoning, Orange County Department of Emergency Management	Not Started	
19	Review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes Sinkhole Landslide Tornado Thunderstorms Winter Weather Pandemic	Moderate	Staff time	General funds		Orange County Department of Planning and Zoning, Orange County Department of Emergency Management	As reviews are scheduled	New strategy for 2025
20	Coordinate with the Virginia Department of Conservation and Recreation and high hazard dam owners to standardize procedures for Emergency Action Plan updates, inundation zone mapping, and regional training exercises to ensure consistent protection of communities downstream.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	General Funds, VA CFPF	Yes	Orange County Department of Planning and Zoning,	Not Started	New strategy for 2025
Strategies Completed of Deleted During 2025 Plan Update										
	Expand and fully equip Emergency Operations Center	2005	All Hazards	High	$75,000	General fund, North Anna funds, HMGP and/or appropriate alternative		Orange County Administration, Emergency Management	Completed	New Public Safety Building and Emergency Operations Center is in final design phase
	Expand and fully equip E-911 Center	2012	All Hazards	High	$200,000	FEMA HMGP and/or PDM		Orange County Administration, Emergency Management and Emergency Communications	Completed	Orange County 911 Center and LEO dispatch are now combined and will be housed in new public safety building
	Upgrade Reverse 911 system with a modern multi-notification system	2005/2012	All Hazards	High	$40,000	General fund, North Anna funds, HMGP and/or appropriate alternative		Orange County Administration, Emergency Management and Emergency Communications	Completed	Rave Alert system implemented

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
	Retrofit Locust Grove Middle School as an emergency shelter with the addition of a generator	2012/2018	All Hazards	High	$50,000	General fund, HMGP and/or appropriate alternative, ARPA		Orange County Department of Emergency Management	Completed	
	Retrofit Prospect Heights Middle School as an emergency shelter with the addition of a generator	2012/2018	All Hazards	High	$50,000	General fund, HMGP and/or appropriate alternative, ARPA		Orange County Department of Emergency Management	Completed	
	Retrofit High School Field House as an emergency shelter with the addition of a generator	2012/2018	All Hazards	High	$50,000	General fund, grants		Orange County Department of Emergency Management	Completed	Included in 2020 Capital Improvement Plan
	Develop an internal GIS that may be used for analysis in times of emergency	2005/2012	All Hazards	Moderate	Staff time	FEMA, VGIN, Local Funds		Orange County Department of Planning and Zoning	Completed	Position created and implementation to begin in 2019
	Upgrade or replace outdated storage shed at the Orange County Sheriff's office	2012	All Hazards	High	Unknown	General fund, FEMA		Orange County Department of Emergency Management, Sheriff's Office	Completed	Will be completed as part of County Public Safety Building project
	Prepare for loss of electricity at vulnerable facilities	2005	All Hazards	High	Staff time	General fund		Orange County EOC	Completed	Overall strategy addressed by other strategies, also continually reviewing options
	Develop a terrorism response plan	2005	Terrorism	Moderate	Staff Time	General fund		Orange County Administration, EOC, Planning	Deleted	Partially covered through other plans
	Design an early warning system for hazard events	2005	All Hazards	Moderate	Staff time	General fund		Orange County EOC, Law enforcement	Completed	Reverse 911, Rave Alert, and IPAWS
	In the floodplain ordinance, identify "flooding due to manmade structure" as a concern within the County, also determine ways to regulate development within the flood inundation zones as a function of the floodplain ordinance	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	General fund		Orange County Planning and Zoning	Completed	County currently regulates development within floodplain as a function of the floodplain ordinance. FIRM updates were completed in 2022.

Mitigation Action Plan - Town of Gordonsville

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding?	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
G-1	Identify and develop additional shelter sites for evacuees from within and outside the Town	2018	All Hazards	High	Staff time, other costs dependent upon site requirements	General funds, CIP Funds FEMA HMGP, PDM		Town of Gordonsville Manager's Office/Police Department	Ongoing	New strategy for 2018
2	Install a generator at Gordonsville Town Hall	2018	All Hazards	High	~$50,000	General Funds, CIP Funds, FEMA HMGP, PDM		Town of Gordonsville Manager's Office/Police Department	Not started	New strategy for 2018
3	Retrofit Gordon Barbour Elementary School as an emergency shelter with the addition of a generator	2018	All Hazards	Moderate	> ~$50,000	General Funds, CIP Funds, FEMA HMGP, PDM		Orange County Department of Emergency Management, Town of Gordonsville	Not started	Coordination with County and School System
4	Apply for and obtain funding for hazard mitigation plan implementation	2018	All Hazards	High	Dependent upon project	General funds, FEMA HMGP, PDM		Town of Gordonsville Manager's Office/RRRC	Not started	New strategy for 2018
5	Identify potential terrorism targets (local) and plan for their protection	2018	Multiple	High	Staff time	General funds, FEMA HMGP, PDM		Town of Gordonsville Manager's Office/Police Department	Ongoing	Coordination with County staff
6	Incorporate Hazard Mitigation Plan into Comprehensive Plan and Capital Improvements Plan	2018	All Hazards	Moderate	Staff time	General funds, FEMA HMGP, PDM		Town of Gordonsville Manager's Office	Ongoing	New strategy for 2018
7	Complete a stormwater drainage study/plan for known problem areas	2018	Flood	Moderate	Unknown	VA CFPF, General Funds, CIP Funds, FEMA HMGP, PDM	Yes	Town of Gordonsville Manager's Office/RRRC	Not started	New strategy for 2018
8	Develop and implement a multi-hazard public awareness program	2018	All Hazards	Moderate	Staff time	Local funds, FEMA HMGP, PDM		Town of Gordonsville Manager's Office/Police Department	Ongoing	Coordination with County and Regional partners
9	Prepare for loss of electricity at vulnerable facilities	2018	All Hazards	High	Unknown	General funds, FEMA HMGP, PDM		Town of Gordonsville Manager's Office/Police Department	Not started	New strategy for 2018
10	Create and evacuation plan and clean up scenario in the event of a train derailment resulting in a toxic spill	2018	Hazardous Materials	Moderate	Dependent on location	General funds, FEMA HMGP, PDM		Orange County Department of Emergency Management, Town of Gordonsville Manager's Office/Police Department	Ongoing	Included in County Emergency Operations Plan

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding?	Lead Agency/Department	Status/Schedule	Comments
11	Identify/Prepare evacuation routes and shelter locations for natural or man-made disasters	2018	All Hazards	Moderate	Staff time	General Funds, CIP Funds, FEMA HMGP, PDM		Orange County Department of Emergency Management, Town of Gordonsville Manager's Office/Police Department	Ongoing	Included in County Emergency Operations Plan
12	Develop a terrorism response plan	2018	Terrorism	Moderate	Staff time	General funds		Orange County Department of Emergency Management, Town of Gordonsville Manager's Office/Police Department	Ongoing	Partially covered through other County/State plans
13	Design an early warning system for hazard events	2018	All Hazards	Moderate	Staff time	None needed initially		Town of Gordonsville Manager's Office/Police Department	Ongoing	Public outreach via website, Town alert lists
New Strategies for the 2025 Update										
14	Land Protection for Flood Reduction – Engage with landowners and offer conservation easements along Mountain Run Tributary 4 .	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	$100,000	VA CFPF, FEMA HMGP, PDM	Yes	Town of Gordonsville Planning and Zoning	Not Started	New Strategy for 2025
15	Implement a Community or Regional Debris Management Strategy	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Staff time	General Fund, VA CFPF	Yes	Town of Gordonsville Planning and Zoning	Not Started	New Strategy for 2025
16	Develop Substantial Improvement/Substantial Damage Administrative Procedure and consider integration with the town(s)/County to coordinate inspections and enforcement of floodplain development.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	VA CFPF, General Fund	Yes	Town of Gordonsville Department of Planning and Zoning	Not Started	New strategy for 2025
17	Review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes Sinkhole Landslide Tornado Thunderstorms	Moderate	Staff time	General funds		Town of Gordonsville Manager's Office/Police Department	As reviews are scheduled	New strategy for 2025

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding?	Lead Agency/Department	Status/Schedule	Comments
			Winter Weather Pandemic							
Strategies Completed of Deleted During 2025 Plan Update										

Mitigation Action Plan - Town of Orange

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding?	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
O-1	Plan for derailment of freight trains which pass through center of town (4,000 pop) – Large tank cars, chlorine, anhydrous, etc.	2005	Hazardous Materials	Moderate/High	Dependent upon location and event	Hazardous Materials Emergency Preparedness grant		Town of Orange; Railroad	Ongoing	County addresses through Emergency Operations Plan and other plans. Town may also consider short-term safety improvements at rail crossings
2	Implement preferred recommendation of the 2006 Baylor Creek Stream Restoration Study	2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Dependent upon recommendations implemented	VA CFPF, FEMA HMGP, PDM	Yes	Town of Orange Department of Community Development	Not started	
3	Perform floodplain mapping of Town to determine base flood elevations.	2012	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	Staff time	None needed initially; VACFPF	Yes	Town of Orange Department of Community Development	Ongoing	Town staff participating with FEMA in floodplain and FIRM updates in 2018
4	Purchase residences in area(s) subject to recurrent flooding	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	Dependent on number to be acquired	VA CFPF, FEMA HMGP, PDM	Yes	Town of Orange Department of Community Development	Not started	Town staff unaware of specific structures subject to recurrent flooding (2018)
5	Review Hazard Mitigation Plan and identified strategies as part of the regular review and updates of other County Plans, including the Comprehensive Plan, Capital Improvements Plan, Emergency Operations Plan, and other plans and documents, as necessary and allowable	2018	All Hazards	Moderate	Staff time	General funds		Town of Orange Department of Community Development	Ongoing	
6	Develop an education and outreach plan for the upcoming changes in FEMA flood mapping and Flood Insurance Rate Maps (FIRM)	2018	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff time	VA CFPF, FEMA HMGP, PDM	Yes	Town of Orange Community Development	Ongoing	

	for property owners and community at large									
New Strategies for the 2025 Update										
7	Stormwater Mitigation and Stream Restoration -Spicer's Mill Road Culvert and Bridge Replacement and Stream Restoration along the unnamed tributary of Baylor Creek, approximately 500 feet adjacent to Spacers Mill Rd.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	$3,000,000	VA CFPF, FEMA HMGP and/or PDM, VA CFPF, Soil and Water	Yes	Town of Orange, Soil and Water Conservation District	Not Started	New Strategy for 2025
8	Madison Road Stormwater Drainage Rehabilitation and Reconstruction Project – Main Street to Newton Street, supplement CIP project/ funding to include street trees with bioretention cells underneath for this section of the project.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	$1,500,000	FEMA HMGP and/or PDM, VA CFPF,	Yes	Town of Orange Community Development	Not Started	New Strategy for 2025
9	Develop Substantial Improvement/Substantial Damage Administrative Procedure and consider integration with the town(s)/County to coordinate inspections and enforcement of floodplain development.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	VA CFPF, General Funds	Yes	Town of Orange Community Development	Not Started	New Strategy for 2025
10	Review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes Sinkhole Landslide Tornado Thunderstorms Winter Weather Pandemic	Moderate	Staff time	General funds		Town of Orange Community Development	As reviews are scheduled	New strategy for 2025
Strategies Completed of Deleted During 2025 Plan Update										

Mitigation Action Plan - Rappahannock County and the Town of Washington

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
Ongoing Strategies from 2018 Plan										
RC-1	Improve GIS data within the county to perform more accurate risk assessments.	2005	All Hazards	Low	Dependent on scope of project	General Fund	Yes	Rappahannock County E-911 Coordination	Ongoing	NG911 transition completed. Current project underway to develop a GIS system for staff with limited public facing features.
2	Develop/revitalize relationship with Red Cross for shelter operations planning.	2005	All Hazards	High	None needed initially	None needed initially		Rappahannock County Emergency Coordination	Ongoing	Revitalized Red Cross shelter operation relationship is a high priority.
3	Coordinate wildfire planning with Shenandoah National Park.	2005	Wildfire	High	None needed initially	None needed initially		Rappahannock County Administration/Emergency Coordination	Ongoing	Included in Emergency Operations Plan and joint meetings held to discuss past events
4	Promote "Firewise" fire protection by providing literature/brochures with each building permit issued in County for rural area construction.	2005	Wildfire	Moderate	<$1,000 annually	General Fund		Rappahannock County Administration	Ongoing	Has been implemented and part of continuing local coordination. Need to focus on most vulnerable neighborhoods like Chester Gap.
5	Design and build a new EOC.	2005	All Hazards	Moderate	Unknown	FEMA HMGP and PDM		Rappahannock County Administration	Ongoing	The County is working through several interconnected facility projects. Incorporation of multi-purpose space is being contemplated. The school board office can serve as an off-site backup EOC. A backup generator project has been authorized for that building.
6	Counsel commercial uses in floodplain	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	$1 to 1.5M	FEMA HMGP and PDM,VA CFPF	Yes	Rappahannock County Building Official	Ongoing	FIRM was updated in 2021 using Lidar, substantially improving floodplain limits. When commercial uses consider a building permit, counseling is provided with regard to elevation, floodproofing, and relocation.
7	Install emergency generator at alternate primary county emergency shelter located at Rappahannock Elementary School	2012	All Hazards	High	$470,500	FEMA HMGP and PDM,		Rappahannock County Administration	Ongoing	Application submitted to VDEM to assist with funding via the 2023 Emergency Shelters Upgrade Assistance Grant Fund (Shelter Upgrade Grant).
8	Coordinate and assist with exercise and scenario planning on an annual basis	2018	All Hazards	Moderate	Staff time	General Fund, SHSP grants		Rappahannock County Emergency Coordination	Ongoing	New strategy for 2018
9	Coordinate review of hazard mitigation plan with other	2018	All Hazards	Moderate	Staff time	General Fund		Rappahannock County Emergency Coordination	Ongoing	New strategy for 2018

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
	plans, including Comprehensive Plan and Emergency Operations Plan									
New Strategies for the 2025 Update										
10	Evaluate further needs to retrofit Sperryville wastewater treatment plant and evaluate and implement improvement to the collection system to increase flood resilience and address issues with inflow and infiltration.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	To be determined	FEMA HMGP and PDM, VA CFPF	Yes	Rappahannock County Water and Sewer Authority (RCWSA) and Rappahannock County	In coordination with current project to repair plant	New strategy for 2025 - Inflow and infiltration (I&I) are causing overflows and highlighting serious problems within the collection system. A large portion of the service district is situated in a flood zone and designated floodway. Retrofits for the plant and collection system are necessary.
11	Stormwater Mitigation and Water Quality Improvements- During the planned Retrofit of the Sperryville Wastewater Treatment Plant which includes floodproofing the main system and upgrading the collection system, include segments of Stream Restoration along the Thornton River to improve water quality, and reduce riverine flooding near the plant.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	$500,000 t0 $1,000,000 for restoration component	FEMA HMGP and PDM, VA CFPF	Yes	Rappahannock County Water and Sewer Authority (RCWSA) and Rappahannock County	Not Started	New Project in 2025
12	Develop Substantial Improvement/Substantial Damage Administrative Procedure and consider integration with the town(s)/County to coordinate inspections and enforcement of floodplain development.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	VA CFPF, General Funds	Yes	Rappahannock County Department of Planning and Zoning	Not Started	New Project in 2025

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
13	Review available data to address data gaps in identifying greater asset vulnerability information for each hazards addressed.	2025	Drought Dam/Levee Failure Extreme Heat Wildfire Earthquakes Sinkhole Landslide Tornado Thunderstorms Winter Weather Pandemic	Moderate	Staff time	General funds		Rappahannock County Department of Planning and Zoning	As reviews are scheduled	New strategy for 2025
14	Coordinate with the Virginia Department of Conservation and Recreation and high hazard dam owners to standardize procedures for Emergency Action Plan updates, inundation zone mapping, and regional training exercises to ensure consistent protection of communities downstream.	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Staff Time	General Funds, VA CFPF	Yes	Rappahannock County Department of Planning and Zoning, Rappahannock County Emergency Coordination	Not Started	New strategy for 2025
Strategies Completed or Deleted During 2025 Plan Update										
	Join CRS	2005	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	Staff Time	General Funds		Rappahannock County Administration	Deleted	No formal movement towards joining CRS.
	Install emergency generators at county emergency shelters – Amissville Fire Department, Washington Fire Department, Sperryville Fire Department	2012	All Hazards	High	Unknown	General Funds, FEMA		Rappahannock County Emergency Coordination	Completed	Generators in place at some locations

Mitigation Action Plan - Optional Actions for Localities

Project #	Strategy	Year Added	Hazard(s) Addressed	Priority	Estimated Cost	Funding Sources	Eligible for VA CFPF Funding	Lead Agency/Department	Status/Schedule	Comments
1	Develop Stormwater Best Management Practices and/ or Local Regulations	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Dependent on project	SLAF, VCAP, NFWF, General funds	Yes	Local jurisdictions, RRRC	As funding allows	New strategy for 2025
2	Complete a stormwater infrastructure inventory and hydrological assessment (in coordination with VDOT if appropriate) and prioritization of potential projects to alleviate flood issues	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	High	Dependent on project	VA CFPF	Yes	Local jurisdictions, RRRC	As funding allows	New strategy for 2025
3	Identify equitable relocation strategies for repetitive loss structures	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Dependent on project	SLAF, VCAP, NFWF, General funds	Yes	Local jurisdictions, RRRC	As funding allows	New strategy for 2025
4	Limit or Restrict Development in Floodplain Areas through Regulatory or Incentive Based Measures	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	None	VA CFPF	Yes			
5	Work with RRRC to develop flood resiliency projects	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Moderate	Dependent on project	SLAF, VCAP, NFWF, CFPF, General funds	Yes	Local jurisdictions, RRRC	As funding allows	New strategy for 2025
6	Work with RRRC to conduct a crosswalk with other relevant regional and local plans to identify planning and/or implementation projects that may be eligible , HMP, CFPF or other funding sources	2025	All Hazards	Moderate	>$10,000	Discretionary Funds	Yes	Local jurisdiction, RRRC	As staff capacity allows	New strategy for 2025
7	Work with RRRC and other agencies to identify land acquisition projects to boost flood water absorption,	2025	All Hazards	Moderate	>$10,000	DCR, FEMA, NFWF	Yes	Local jurisdiction, RRRC, DCR	As staff capacity allows	New strategy for 2025

	preserved open space, public water access, natural habitat.									
8	Elevate or Retrofit Structures and Utilities		All Hazards			VA CFPF	Yes			
9	Implement routine communication between town and county for local planning efforts to ensure local efforts are being accounted for and included in regional plans and comprehensive updates	2025	All Hazards	Moderate	>$10,000	General funds		Local jurisdiction, RRRC, DCR	As staff capacity allows	New strategy for 2025
10	Coordinate with NOAA or other agency to install flood gauges in flooding locations and along rivers to increase data in region	2025	Hurricanes & Tropical Storms, Flood, Dam/Levee Failure, Thunderstorms	Low	<$10,000	NOAA, VDOT, VA CFPF	Yes	Local jurisdictions, RRRC	As funding allows	New strategy for 2025
11	Coordinate with RRRC for Regional Water Supply Plan Development	2025	Drought	Moderate	RRRC Staff time	VDEM; DEQ; General funds		RRRC	According to State Schedule	RRRC will work with its localities to develop a regional plan once guidance is released by DEQ
12	Review Hazard Mitigation Plan, Flood Resilience Plan, and identified strategies as part of the regular review and updates of other County Plans, including the Comprehensive Plan, Capital Improvements Plan, Emergency Operations Plan, and other plans and documents, as necessary and allowable	2025	All Hazards	Moderate	Staff time	General funds		Local Jurisdiction	As reviews are scheduled	New strategy for 2025

Regional Hazard Mitigation Plan (2025 Update) and Resilience Plan

Chapter 8
Plan Implementation and Maintenance

Rappahannock-Rapidan
REGIONAL COMMISSION

CHAPTER 8 – PLAN IMPLEMENTATION & MAINTENANCE

This Chapter, updated as part of the development of the 2025 update to the *Rappahannock-Rapidan Regional Hazard Mitigation Plan*, discusses how the Plan will be implemented, evaluated, and updated over time by participating jurisdictions. Additionally, this Chapter discusses how the public will continue to be involved in the hazard mitigation and resilience planning process.

8.1 - ADOPTION

Following review, FEMA determined that the 2025 update of the Rappahannock-Rapidan Regional Hazard Mitigation Plan was approvable pending local adoption on MONTH ##, 2025. Subsequently, as required, the governing bodies of each locality participating in the development of the Plan officially adopted the Plan as follows:

- Culpeper County - DATE
- Town of Culpeper - DATE
- Fauquier County - DATE
- Town of Gordonsville - DATE
- Madison County - DATE
- Town of Madison - DATE
- Orange County - DATE
- Town of Orange - DATE
- Town of The Plains - DATE
- Rappahannock County - DATE
- Town of Remington - DATE
- Town of Warrenton - DATE
- Town of Washington - DATE

All resolutions for adoption of the Plan are included in Appendix A.6, copies will be maintained on file with the Rappahannock-Rapidan Regional Commission, and each individual jurisdiction will maintain its own resolution with its records.

With respect to this Plan serving as the Resilience Plan for the region and participating jurisdictions, the Plan was adopted by the Rappahannock-Rapidan Regional Commission on MONTH ##, 2025 and certified by DCR on MONTH ##, 2025. Individual localities will be pursuing adoption and DCR-certification of the Plan as their local resilience plan separately.

8.2 - INTEGRATION & IMPLEMENTATION

As identified in Chapter 7, Mitigation Strategy, participating jurisdictions outlined specific mitigation actions to be implemented at their discretion. Opportunities for regional and cross-jurisdictional collaboration also exist for actions related to training, public awareness and education, prevention, infrastructure, and operational or service-related initiatives.

Since the last Hazard Mitigation Plan (HMP) adoption, all participating jurisdictions have adopted the 2018 Virginia Uniform Statewide Building Code (USBC) for new construction permits. FEMA released preliminary flood map updates beginning in 2020, with final maps becoming effective in 2022. In response, localities coordinated the adoption of floodplain management ordinance amendments to reflect updated flood risk zones and maintain compliance with flood insurance requirements.

Upon adoption, a key first step in implementing the Plan will be the strategic integration of its goals, strategies, and recommendations into local and regional plans, policies, and procedures. These integration efforts are essential to ensure that risk-reduction principles are embedded in day-to-day decision-making. Integration is encouraged with the following planning and regulatory mechanisms, as appropriate:

Comprehensive Plans are long-range planning documents that guide land use, development, and policy decisions. Localities currently using this planning mechanism: Culpeper County, Town of Culpeper, Fauquier County, Town of Remington, Town of Warrenton, Madison County, Town of Madison, Orange County, Town of Orange, Town of Gordonsville, Rappahannock County, Town of Washington. Opportunities for localities to integrate hazard mitigation planning into the comprehensive plan include the incorporation of updated hazard vulnerability data, alignment of growth areas with low-risk zones, and inclusion of mitigation goals. Madison County is aligning its Comprehensive Plan update with the HMP cycle, focusing on sustainable growth and risk reduction.

Zoning Ordinances and Land Use Plans are regulations that control how land can be used, including the type and density of development. Localities currently using this planning mechanism: Culpeper County, Town of Culpeper, Fauquier County, Town of Remington, Town of Warrenton, Madison County, Town of Madison, Orange County, Town of Orange, Town of Gordonsville, Rappahannock County, Town of Washington. Localities should include hazard-reducing provisions such as flood zone overlay districts, impervious surface limits, stormwater management standards (BMPs), and site improvement requirements based on hazard data. Orange County is undertaking a Zoning Ordinance rewrite (completion expected in 2026).

Capital Improvement Program (CIP) Budgets are multi-year plans that prioritize infrastructure investment and large capital projects. Localities currently using this planning mechanism: Culpeper County, Town of Culpeper, Fauquier County, Town of Remington, Town of Warrenton, Madison County, Orange County, Town of Orange, Rappahannock County. Localities with formalized CIPs can prioritize resilient infrastructure (e.g., stormwater upgrades, green infrastructure, emergency shelters). Jurisdictions without CIPs can use annual budgeting or grant funding as alternatives.

Emergency Operations or Management Plans (EOPs) outline procedures and responsibilities for emergency response and disaster management. Localities currently using this planning mechanism: Culpeper County, Town of Culpeper, Fauquier County, Town of Remington, Town of Warrenton, Madison County, Town of Madison, Orange County, Town of Gordonsville, Rappahannock County. Emergency Operations Plans

can incorporate hazard risk scenarios from the HMP and promote coordination with long-range land use and infrastructure planning.

Stormwater and Utility Infrastructure Plans guide the maintenance and expansion of stormwater, water, and sewer systems. Localities currently using this planning mechanism: Culpeper County, Town of Culpeper, Fauquier County, Town of Remington, Town of Warrenton, Orange County, Town of Gordonsville, Rappahannock County, Town of Washington. Localities can incorporate drainage improvements in high-risk flood areas, Low-Impact Development (LID) strategies, climate-adapted water infrastructure planning. The RRRC is developing a regional water supply plan for Culpeper, Fauquier, Madison, Orange, and Rappahannock counties that incorporate climate and drought data.

Subdivision Regulations and Site Plan Review Procedures are guidelines for the division of land and standards for site design and development approvals. Localities currently using this planning mechanism: Culpeper County, Town of Culpeper, Fauquier County, Town of Remington, Town of Warrenton, Madison County, Town of Madison, Orange County, Town of Orange, Town of Gordonsville, Rappahannock County, Town of Washington. The localities can implement hazard mitigation practices through the adoption of higher subdivision standards to help manage development in hazard-prone areas. These may include natural buffer requirements, stormwater best practices, and elevation or limitation of development requirements in flood zones.

Economic Development and Redevelopment Plans are focused on revitalization, job creation, and community investment. Localities currently using this planning mechanism: Culpeper County, Town of Culpeper, Fauquier County, Town of Remington, Town of Warrenton, Madison County, Orange County. Mitigation efforts can be paired with affordable housing, public health, and green space investments to support underserved populations.

While integrating the Plan into other planning documents ensures ongoing awareness of mitigation goals, funding and staff resources are critical for implementation. Each mitigation action table in Chapter 7 includes potential funding sources to support future implementation. These are not exhaustive but provide a useful starting point for pursuing new or ongoing actions. In addition to local budgets, jurisdictions should monitor opportunities such as pre- and post-disaster funds, state or federal earmarked funds, and multi-objective grants.

Capacity of the jurisdictions is a key component of implementation and integration success. Higher-capacity jurisdictions (e.g., counties and urban towns) can fully integrate mitigation into planning and policy updates across departments. These efforts should support lower-capacity jurisdictions by sharing data, resources, or staff expertise.

Upon adoption, RRRC will strive to promote cross-jurisdictional efforts:

- Implement high-priority, low- or no-cost actions
- Promote nature-based solutions to improve flood resiliency, especially for underserved populations

- Keep mitigation central to community decision-making
- Continuously monitor opportunities for cost-sharing and multi-benefit project funding
- Share best practices

8.3 – MONITORING & MAINTENANCE

Plan maintenance requires an on-going effort to monitor and evaluate the implementation of the Plan, and to update the Plan as progress, barriers, or changing circumstances or conditions are recognized. While an update is required every five (5) years for the Hazard Mitigation Plan and the DCR CFPF Resilience Plan per the Round 5 Grant Manual, interim revisions may be necessary. This section outlines overall monitoring and maintenance of the Plan, and the procedures for completing revisions and updates. RRRC will be responsible for coordinating Plan monitoring and maintenance activities.

Evaluation & Annual Review
Plan evaluation and maintenance should be an on-going effort. Annually, RRRC should coordinate with representatives of participating jurisdictions sitting on the Regional Emergency Coordinators Group (or the local Chief Administrative Officer, in case of position turnover) to collect annual updates on implementation progress or other factors impacting the jurisdiction's hazard mitigation capabilities. County Emergency Management Coordinators Group members will be responsible for coordinating reporting activities of the towns within their respective counties.

The primary objective of the annual review is to assess progress in implementing mitigation strategies, identify any changes in vulnerability, risks, capabilities, resources (funding/grants), and new state/federal laws, policies, or programs. The annual review should ensure the plan is in alignment with federal, state, and local priorities.

The Evaluation Criteria of the Annual Review:

- Review the status of each action item (e.g., not started, in progress, completed, deferred) and document any barriers to implementation.
    - Analyze whether completed actions have reduced vulnerability or risk and provided anticipated benefits.
- Evaluate any changes in the type, location, frequency, or severity of hazards that may affect the jurisdiction.
- Monitor land use, infrastructure, population growth, and other factors that may influence risk.
- Gather feedback from state and local staff and partner agencies regarding the effectiveness and relevance of the plan.
- Review integration with comprehensive plans, capital improvement plans, and other relevant policies and regulations.

After compiling the local updates, RRRC staff will develop annual reports. An Annual HMP Effectiveness Report will be prepared and shared with relevant stakeholders,

including local government officials, emergency management personnel, and the public and will include:

- Summary of actions taken over the past year
- Evaluation of plan effectiveness based on the Evaluation criteria
- Identification of any needed plan updates or revisions
- Recommendations for improving future mitigation efforts

The annual evaluation will also inform the five-year update process required by FEMA and serve as a record of continuous improvement in hazard mitigation planning. This annual review process should also be used as an opportunity to note any critical local and regional projects to be prioritized by the state, and as an opportunity to identify any needs for training or technical assistance to enhance mitigation capacity across the region. Once completed, the annual report update will be communicated to FEMA, VDEM, and the Regional Commission board.

Additionally, RRRC staff and stakeholders should regularly coordinate and discuss the relevance and implementation of the Plan. Bimonthly meetings of the Regional Emergency Coordinators Group and quarterly meetings of the RRRC Land Use & Environment Committee present opportunities for such discussions.

Based upon local input and needs, RRRC will determine annually if an update of the Plan is needed and the mechanism for doing so. Factors to consider when determining if an update is necessary include:

- Decreased vulnerability as a result of implementing recommended actions;
- Increased vulnerability as a result of failed or ineffective mitigation actions;
- Increased vulnerability as a result of new development (and/or annexation);
- New state/federal laws, policies, or programs; and/or
- Changes in resource availability.

Review and Update

To meet FEMA requirements and as best practice, the Plan will be updated every five (5) years, initiated, and coordinated by RRRC no less than four (4) years after the effective date of the Plan. RRRC will work to secure funding to support the update of the Plan within three (3) to four (4) years after the effective date of the Plan. Any jurisdiction participating in this Plan update that does not wish to participate in future updates of the Plan, must notify RRRC staff in writing prior to any application for funding for planning assistance in support of a five-year plan update process.

As part of Plan updates, the Plan will be reviewed with localities to determine whether there have been any significant changes within the region that might affect the Plan. Increased development, increased exposure to certain hazards, the development of new mitigation capabilities or techniques, and changes to federal or state laws and regulations are examples of changes that may affect the condition of the Plan. This review and update also gives community officials an opportunity to evaluate those actions that have been successful and to explore the possibility of documenting those losses avoided.

As noted, this Plan also serves as a VA DCR CFPF resilience plan, and CFPF program requirements currently stipulate that such plans be recertified by DCR five (5) years from the date that the Plan is originally certified. Based upon annual reporting discussed above, and interest from participating localities that have adopted and submitted the Plan to DCR for certification, RRRC will coordinate any necessary recertification and update of the Plan. Given that recertification would occur within the five (5) year effective period of the Hazard Mitigation Plan and prior to the necessary update for hazard mitigation planning purposes, RRRC will work with jurisdictions and DCR to determine the appropriate method for updates, with the issuance of any addenda to the Plan being preferred over any broader update of the full Plan.

Disaster Declarations
Following a disaster declaration, the Plan will be reviewed by each affected jurisdiction to reflect lessons learned or to address specific circumstances arising from the changing conditions surrounding subsequent disaster events. The review will focus on lessons learned and specific circumstances arising from the changing conditions surrounding subsequent disaster events. Following local review, changes to the Plan as deemed necessary by RRRC affected localities, and the Regional Emergency Coordinators Group will be prepared as an addendum to the Plan, addressed in annual review reporting, and otherwise maintained by RRRC for consideration in the next five-year update of the Plan. Changes considered major will be submitted to VDEM and FEMA.

Minor Plan Amendment Process
Participating localities may submit minor amendments to their relevant sections of the Plan at any time. Minor amendments should be initiated only by the local governing body, either on its own initiative or upon staff recommendation. Examples of minor amendments include the correction of spelling and grammatical errors, or the correction of statistics, dates, and calculations. These amendments may be made by the local governing body without completing the required public participation and adoption process. Locality representatives of the Emergency Management Coordinators Group shall inform RRRC staff of any minor amendments adopted by the local governing body and such amendments will be prepared as an addendum to the Plan, addressed in annual review reporting, and otherwise maintained by RRRC for consideration in the next five-year update of the Plan.

8.4 – PUBLIC INVOLVEMENT

While Chapter 3, *The Planning Process*, outlines how the public was involved in the development of this current Plan update, continued public engagement is vital as the Plan is locally implemented, reviewed, and updated in the future.

This Plan and its previous iterations are available and will remain available on the RRRC website. Public input on the Plan will continue to be welcomed at any time, with those interested contacting RRRC staff. Other efforts to involve the public in the implementation, maintenance, evaluation, and updating processes will be made as necessary, and may include:

- Advertising meetings of the Emergency Management Coordinators Group to media outlets within the Rappahannock-Rapidan region;
- Utilizing local media to update the public of any maintenance or periodic review activities taking place;
- Utilizing RRRC and locality websites or social media to advertise any maintenance or periodic review activities taking place;
- Making copies of the Plan available at County or Town offices and/or public libraries, as necessary;
- Utilizing social media to inform the public of the Plan and the need for input and review by the public; and
- Actively identifying key stakeholders and those most vulnerable to hazards and involving them in the decision-making process.

Appendices

Rappahannock-Rapidan
REGIONAL COMMISSION

Regional Hazard Mitigation Plan (2025 Update) & Regional Resilience Plan

Public Engagement & Education Plan

October 2023

Table of Contents

Introduction 3
Public Engagement & Education Plan Objectives 3
Public Engagement & Education Plan Strategies 4
Consistent and Timely Messaging 4
Establishment of a Single Landing Page and Contact for Project Information 4
Engagement with the General Public 5
Engagement with Key Communities and Stakeholders 5
Updates to Elected and Key Appointed Boards/Commissions; CAOs 6
Public Engagement & Education Plan Activities 6
1. Public Engagement Activity/Education Kick-Off 6
2. Public Engagement Activity: Review, Evaluation, and Assessment of Current HMP 6
3. Public Engagement Activity: Hazard Identification and Risk Assessment; Flooding Focus . 6
4. Public Meeting: Review and Approve Final Draft Plan 7
Timeline 8

Introduction

Throughout 2023-2024, the Rappahannock-Rapidan Regional Commission (RRRC) will be developing an update to their regional Hazard Mitigation Plan (HMP). As part of RRRC's HMP update, they will also be incorporating a regional Resilience Plan for the purposes of specifically improving regional and local resilience to flooding.

Consistent with the requirements of the Virginia Department of Conservation and Recreation (DCR) Community Flooding Preparedness Fund (CFPF) program and the regulations applicable to the HMP (44 CFR, Part 201, *Mitigation Planning*, Section 201.6 (b), *Planning process*), this Public Engagement & Education Plan is intended to support the proactive establishment of an open public involvement process essential to the development of inclusive and effective plans. There will be opportunities provided to the general public and stakeholders to comment on the HMP and Resilience Plan during the drafting stage and prior to approval; opportunities for disadvantaged and underserved populations to identify their interests and needs; opportunities for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, educational institutions, and other private and nonprofit interests to be involved in the planning process; and opportunities for the review and incorporation of existing plans, studies, reports, and technical information. Additionally, it is the goal of this Public Engagement & Education Plan, to assist in the broad education of the public with respect to the update of the HMP and the development of the Resilience Plan, as well as the overall importance of hazard mitigation.

Public Engagement & Education Plan Objectives

This Public Engagement & Education Plan has been developed to meet the following objectives:

1. Ensure that the public participation process to update the HMP is consistent with the requirements of 44 CFR§201.6(b);

2. Ensure that the process to create the regional Resilience Plan is consistent with the requirements of the DRC's CFPF Appendix F: Elements of Resilience Plans, Funding Manual for the Virginia Flood Preparedness Fund;

3. Define what groups that the member jurisdictions must include in the planning process. This includes representatives from a broad range of sectors or organizations that support underserved communities;

4. Use a whole-community approach for engagement that will provide continuous opportunities for public input into the update of the HMP; and

5. Improve public and organizational education on the relevance of the HMP and importance of hazard mitigation.

Public Engagement & Education Plan Strategies

To ensure that the purposes and objectives of this Public Engagement & Education Plan are achieved in the update of the HMP and development of the Resilience Plan (together referred to as the Plan), the following strategies will be employed. These strategies will be implemented by the collective project team consisting of the consultant and the Project Management Team (PMT), comprised of RRRC staff and representatives of the towns of Culpeper, Gordonsville, Madison, Orange, Remington, and Warrenton, and the counties of Culpeper, Fauquier, Madison, Orange, and Rappahannock.

Consistent and Timely Messaging

RRRC and member jurisdictions shall share periodic and coordinated updates on organization websites and social media that relay the following information:

- The RRRC and/or member jurisdictions are currently pursuing an update of the regional HMP; HMPs are required to be updated every five years, and the region's HMP was last updated in 2018.

- The purpose of the RRRC HMP is to identify hazards that threaten member jurisdictions, determine the likely impacts of those hazards, assess the vulnerability of its communities to the studied hazards, as well as the region's current capability to address those hazards, set mitigation goals, and determine and prioritize appropriate strategies that can lessen the potential impacts of hazard events.

- Having a current HMP is an important emergency management best practice as it seeks to reduce the risks and impacts to our communities from hazards.

- Having a current HMP in addition to a regional Resilience Plan ensures eligibility for numerous funding opportunities.

- Additionally, the Resilience Plan component of the Plan will focus on the sources and impacts of flooding in our communities, and solutions to address these impacts.

Establishment of a Single Landing Page and Contact for Project Information

The RRRC website currently hosts a Hazard Mitigation page with information regarding the official 2018 version of the regional HMP. This page is therefore a natural fit for a clearinghouse of information on the process to update the HMP. The URL of the webpage that will be used to

publish information and updates is https://www.rrregion.org/program_areas/community_development/hazard_mitigation.php with a shortened version created – www.rrregion.org/hmp - for easier use. General communications regarding the HMP update process can be provided to RRRC to be added to the webpage as needed or as necessary. Additionally, a dedicated email address hazardplan@rrregion.org has been created that forwards emails to Plan project managers.

Engagement with the General Public

As part of the *open public involvement* criteria set by FEMA, the general public will have opportunities for public comment throughout the entire planning process. Multiple channels and methods will be utilized to ensure a broad and inclusive approach to engagement is achieved. This may involve plan awareness media campaigns, public meetings, surveys, and social media outreach. The goal is to reach a wide and diverse audience to ensure that the perspectives of the entire community are being considered. Other various opportunities suggested by the PMT for participation and input in the HMP development process will also be considered.

Engagement with Key Communities and Stakeholders

Working with the PMT, key community stakeholders will be identified and engaged for specific Plan development activities. These stakeholders will represent a diverse subsection of the localities. Local resources and platforms for engagement will be identified and utilized for communication. The method of communication may vary according to the preferences of the stakeholders and can include phone calls, virtual meetings, in-person meetings, and/or written or email correspondence. Other various opportunities suggested by the PMT for participation and input in the Plan development process will also be considered.

The following key communities and stakeholder groups will be consciously engaged during the Plan development process:

- Vulnerable communities and communities not previously engaged with during the 2018 HMP development process
- Stakeholders from neighboring communities and abutting jurisdictions
- Representatives from a broad range of sectors, including businesses, educational institutions, and other private and nonprofit interests
- Community lifelines and community-based organizations
- Local and regional agencies involved in hazard mitigation activities
- Local and regional agencies beyond emergency management staff, including local public health, human services, the Virginia Department of Transportation (VDOT), DCR, and regional housing/homelessness agencies
- Agencies that have the authority to regulate development

Updates to Elected and Key Appointed Boards/Commissions; CAOs

Through standard local practices, local representatives to the PMT will update their Chief Administrative Officers, elected officials, and appointees to their Planning Commission monthly on the process to update the Plan.

Public Engagement & Education Plan Activities

The scope of the Plan, including both the HMP update and Resilience Plan development, contains four (4) dedicated public engagement and education activities, as follows:

1. ### Public Engagement Activity/Education Kick-Off

The kick-off will be the initial activity to publicize the start of the Plan process. This activity is expected to include the preparation of a press release, social media content, website information and materials, and email messaging. RRRC and member jurisdictions will be encouraged to post an update and materials (or links to materials) to their local websites and social media pages. The goal of this activity is to raise awareness among the community and to promote future engagement.

2. ### Public Engagement Activity: Review, Evaluation, and Assessment of Current HMP

The goal of this activity would be to conduct a specific outreach and education activity to solicit public and stakeholder input on the value and usefulness of the current HMP. Activities should also involve emailed or publicized requests for feedback. Localities will be provided with template language to broadcast and distribute to stakeholders and networks.

3. ### Public Engagement Activity: Hazard Identification and Risk Assessment; Flooding Focus

The intent of this activity is to receive focused public and stakeholder input on the hazards, risks, and vulnerabilities facing the region and localities, as well as on specific issues and impacts associated with flooding. A digital survey is anticipated; however, it will be necessary to develop plans for the dissemination of the survey and collection of responses through other means.

RRRC and member jurisdictions will need to anticipate accommodating and allowing those without internet access to utilize community facilities with computer and internet access and/or providing alternative options for those unable to or not wishing to use a computer; alternative options may be in-person responses or the use of hardcopy surveys, or physical engagement boards posted around communities. Additionally, accessibility needs, for disabilities and language barriers, must be taken into account when considering survey format and alternative options.

In conjunction with a survey, consideration will be given to hosting an in-person event to support this activity, and public engagement and education in general.

4. Public Meeting: Review and Approve Final Draft Plan

The final public engagement and education activity is intended to coincide with the final meeting of the PMT, to allow an opportunity for public feedback and comments on the final draft of the Plan. It is anticipated that the final draft of the Plan will be made available for review digitally, and in hardcopy form in localities, to allow for public comments and questions to be submitted prior to the meeting.

Timeline

The table on the following page provides the estimated overall timeline for the project to update the HMP and develop the Resilience Plan, with the public engagement and education activities identified.

An updated Timeline can be found in Chapter 3 - The Planning Process on page 3-4.

Hazard Mitigation Plan Update	Resilience Plan		2023					2024									
			August	Sept	October	Nov	Dec	January	Feb	March	April	May	June	July	August	Sept	October
1	1	Project Management & Coordination															
NA	NA	Grant Award/Grant Agreement Execution															
2.1	2.1	Mobilization Meeting with Commission Staff and Local Representatives		V													
2.2	2.2	Development of Public Engagement/Education Plan															
2.3	2.3	Review, Evaluation, Assessment of Current Plan															
2.4	2.4	1st PMT Meeting: Kick-off with Project Management Team; Review, Evaluation, Assessment of Current Plan ★			X												
2.5	2.5	Public Engagement/Education Kick-Off															
3.1	3.1	Public Engagement/Education Activity - Scope of HMP; Review, Evaluation, Assessment of Current Plan															
3.2	3.2	2nd PMT Meeting: Hazard Identification & Vulnerability Assessment ★						V									
3.3	3.3	Hazard Identification and Vulnerability Assessment Update															
3.4	3.4	Public Engagement/Education Activity - Hazard Identification and Vulnerability Assessment; Mitigation Goals and Strategies															
3.5	3.5	3rd PMT Meeting: Capability Assessment; Evaluate/Update Original Mitigation Goals and Strategies ★								V							
3.6	3.6	Evaluate/Update Original Mitigation Goals and Strategies															
3.7	3.7	4th PMT Meeting: Review Project and Draft Plan Status/Progress ★										V					
3.8	3.8	General Plan Update Drafting															
4.1	4.1	Production of Final Draft Plan															
4.2	4.2	5th PMT Meeting: Review Final Draft Plan ★												V			
4.3	4.3	Revision of Final Draft Plan															
4.4	4.4	6th PMT Meeting: Public Meeting; Review/Approve Final Draft Plan ★													X		
4.5	NA	Submit Final Draft Plan to VDEM for Review															
NA	4.5	Submit Final Draft Plan to DCR for Review/Approval															
4.6	NA	Address VDEM/FEMA Comments															
4.7	4.6	Local Jurisdiction Adoption															
		X = Anticipated In-person Attendance; V = Virtual Attendance															
		PMT Meetings															

PRESS RELEASE

Date: Tuesday, November 21, 2023

Contact Information:
Michelle Edwards
medwards@rrregion.org
540-829-7450

Rappahannock-Rapidan Region Launches Hazard Mitigation Planning Effort

The Rappahannock-Rapidan Regional Commission (RRRC), in partnership with its member jurisdictions, kicked off the process to update the region's Hazard Mitigation Plan this week. The current Plan was last updated in 2018, while the updated plan is expected to be completed in 2024 with the final approval of Federal Emergency Management Agency (FEMA) in 2025. In addition to the Hazard Mitigation Plan update, RRRC will incorporate a new Regional Resilience Plan that will primarily address flooding, historically the region's biggest hazard.

FEMA defines hazards as "a source of potential danger or adverse condition" that affects communities, such as floods, wildfire and blizzards. Hazard mitigation plans identify these hazards based on historic data and community input, and outline strategies to lessen the impacts of future hazards on people and property.

Federal regulations require these plans be updated every five years to remain eligible for certain FEMA grants, programs, and disaster relief funds. Additionally, incorporation of the new Resilience Plan, will make the region's local governments eligible to apply for flood mitigation project funding through the Virginia Department of Conservation and Recreation's (DCR) Community Flood Preparedness Fund.

Public participation will play a vital role in the plan update process. As an initial task, RRRC is seeking public feedback on the relevance and usefulness of the 2018 Regional Hazard Mitigation Plan, and suggestions for improvements. The existing Plan can be found at the following link https://www.rrregion.org/hazardmitigation. Feedback can be sent to planinfo@rrregion.org.

In the coming months, RRRC will be coordinating a number of activities to gather community input, including a survey and public meeting. Those interested in staying informed of developments should connect with participating localities on social media or visit the RRRC website.

This effort is primarily funded through FEMA's Building Resilient Infrastructure and Communities and DCR's Community Flood Preparedness Fund grants, awarded to RRRC, as well as funding from the Virginia Department of Environmental Quality.

For any questions or additional information, please contact the project team at planinfo@rrregion.org.

Persons who require special accommodations under the Americans with Disabilities Act or persons who require translation services (free of charge) should contact RRRC at (540) 829-7450 or planinfo@rrregion.org.

Las personas que requieren alojamiento especial de acuerdo con el Americans with Disabilities Act, o personas que requieren servicios de traducción (libre de cargo) deben comunicarse RRRC at (540) 829-7450 or planinfo@rrregion.org.

About the Rappahannock-Rapidan Regional Commission

The Rappahannock-Rapidan Regional Commission serves the counties of Culpeper, Fauquier, Madison, Orange, and Rappahannock, and the towns of Culpeper, Gordonsville, Madison, Orange, Remington, The Plains, Washington, and Warrenton. The 21-member RRRC board includes elected and appointed officials appointed by each member jurisdiction. Localities with greater than 3,500 residents appoint two members to the regional commission, while localities with fewer than 3,500 residents appoint one member to the regional commission.

The Rappahannock-Rapidan Regional Commission facilitates a collaborative approach to regional cooperation, and serves as a convening forum for the interaction of appointed and elected local government officials, regional stakeholders and citizen members. The Regional Commission coordinates a broad range of regional planning activities – including multi-modal and human services transportation, environmental planning, homelessness and affordable housing coordination, regional tourism, agricultural, and economic development activities. The Rappahannock-Rapidan Regional Commission is located in Culpeper, VA, and can be found online at http://www.rrregion.org/.

RRRC REGIONAL HAZARD MITIGATION PLAN UPDATE & FLOOD RESILIENCE PLAN

IMPORTANT NEWS!!

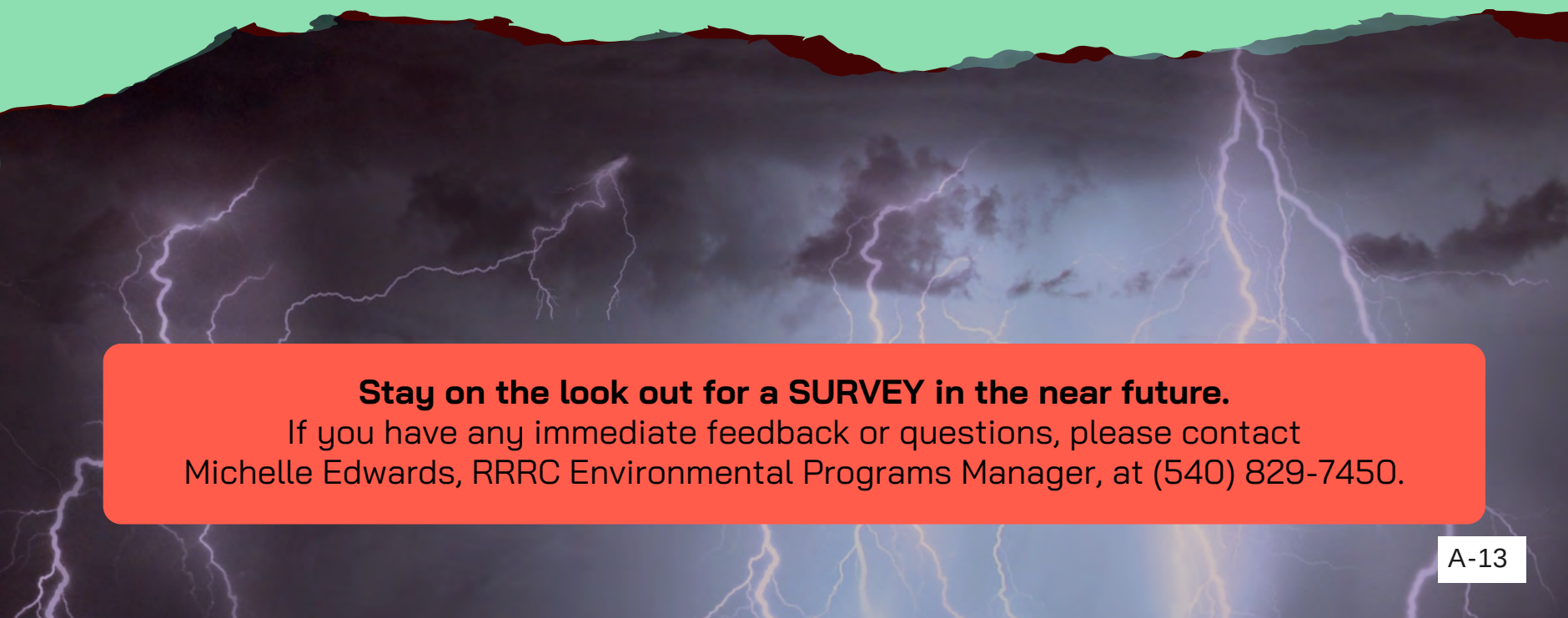
YOUR INPUT IS IMPORTANT!! PARTICIPATE BY REVIEWING THE CURRENT HAZARD MITIGATION PLAN AND PROVIDING FEEDBACK VIA EMAIL!

VIEW THE CURRENT REGIONAL HAZARD MITIGATION PLAN AT HTTPS://WWW.RRREGION.ORG/HAZARDMITIGATION

REGIONAL HAZARD MITIGATION PLAN UPDATE & NEW RESILIENCE PLAN

IMPORTANT NEWS!

It's time to update our community's Hazard Mitigation Plan and develop a new Resilience Plan. YOUR input will be crucial throughout the planning process and we urge you to participate in upcoming engagement opportunities!



Stay on the look out for a SURVEY in the near future.
If you have any immediate feedback or questions, please contact Michelle Edwards, RRRC Environmental Programs Manager, at (540) 829-7450.

IT'S TIME FOR AN UPDATE!

The Rappahannock- Rapidan Regional Commission (RRRC) is working with local governments to update the 5-year **Hazard Mitigation Plan** and create a NEW **Resilience Plan** for our community!

Your insights will be vital throughout the planning process and we urge you to consider participating in...

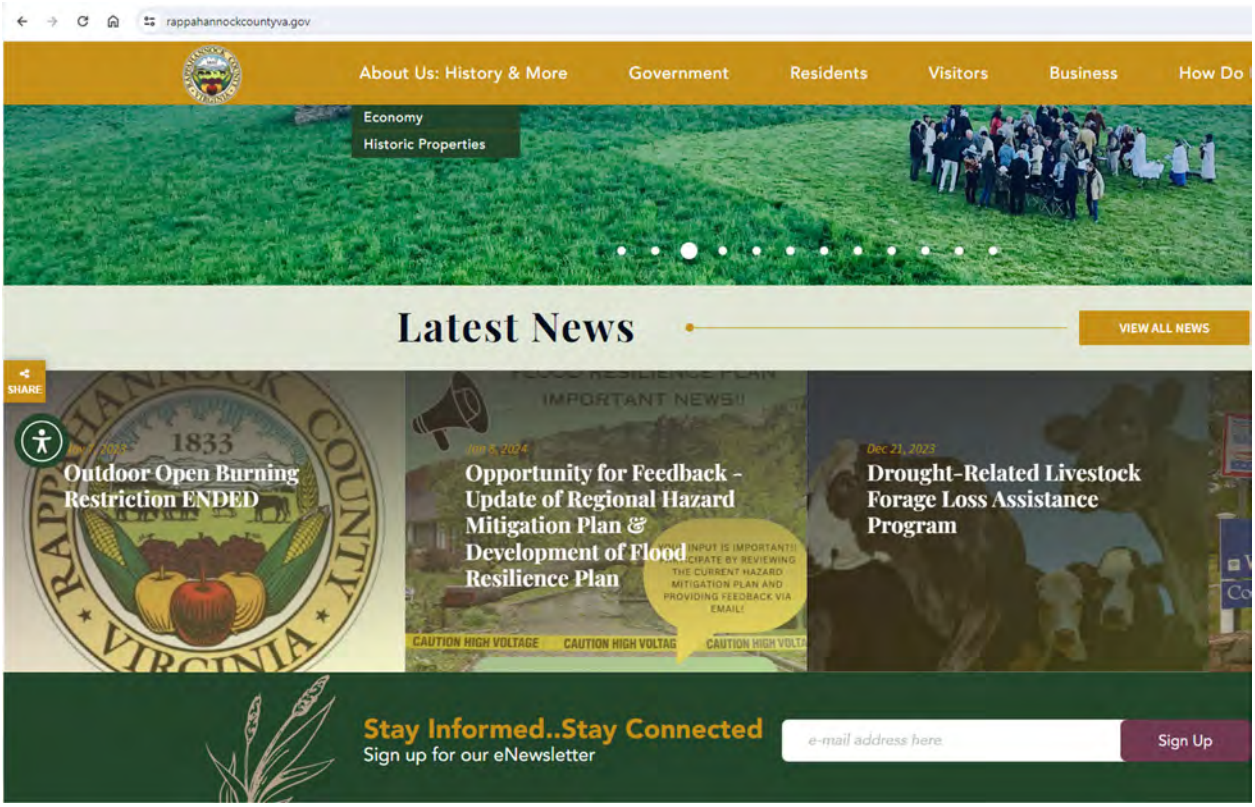
- Public meetings and forums to learn more about different plan focuses.
- Answer our future survey to help us better understand hazards in your area.
- Tell us about the concerns you have with your home/land.
- Let us know what mitigation strategies you already use!

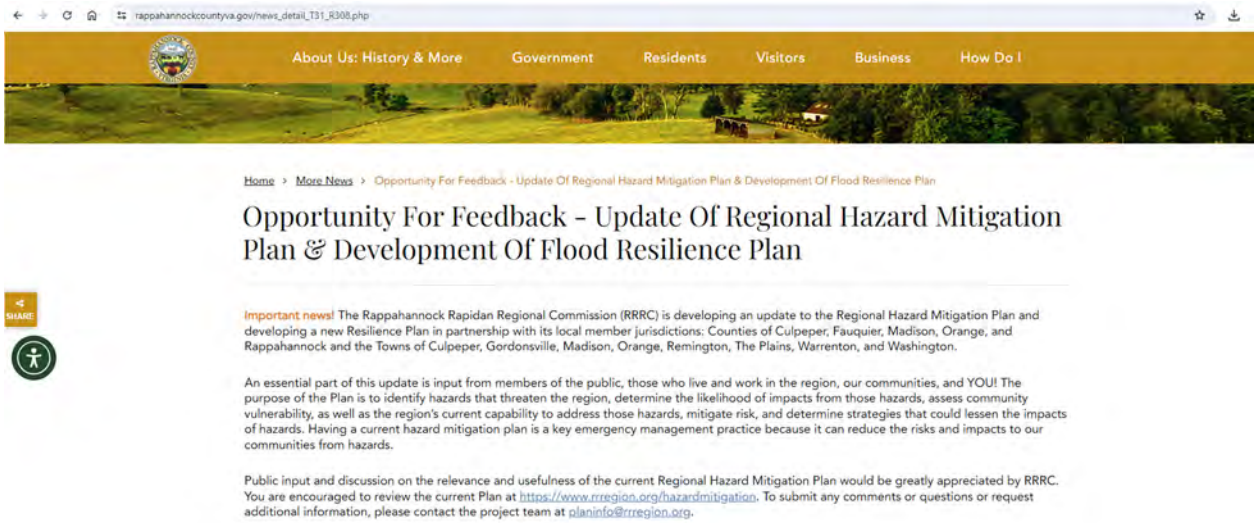
Rappahannock-Rapidan REGIONAL COMMISSION

If you have any immediate feedback or questions, please contact Michelle Edwards, RRRC Environmental Programs Manager, at (540) 829-7450.

Rappahannock Facebook and Webpage Posts – January 8, 2024

RRRC Regional Hazard Mitigation Plan Update & Flood Resilience Plan




rappahannockcountyva.gov/news_detail_T31_R308.php
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Opportunity For Feedback - Update Of Regional Hazard Mitigation Plan & Development Of Flood Resilience Plan
SHARE
Important news! The Rappahannock Rapidan Regional Commission (RRRC) is developing an update to the Regional Hazard Mitigation Plan and developing a new Resilience Plan in partnership with its local member jurisdictions: Counties of Culpeper, Fauquier, Madison, Orange, and Rappahannock and the Towns of Culpeper, Gordonsville, Madison, Orange, Remington, The Plains, Warrenton, and Washington.
An essential part of this update is input from members of the public, those who live and work in the region, our communities, and YOU! The purpose of the Plan is to identify hazards that threaten the region, determine the likelihood of impacts from those hazards, assess community vulnerability, as well as the region's current capability to address those hazards, mitigate risk, and determine strategies that could lessen the impacts of hazards. Having a current hazard mitigation plan is a key emergency management practice because it can reduce the risks and impacts to our communities from hazards.
Public input and discussion on the relevance and usefulness of the current Regional Hazard Mitigation Plan would be greatly appreciated by RRRC. You are encouraged to review the current Plan at https://www.rrregion.org/hazardmitigation. To submit any comments or questions or request additional information, please contact the project team at planinfo@rrregion.org.

PRESS RELEASE

Date: Thursday, September 26, 2024

Contact Information:
Michelle Edwards
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540-829-7450

Regional Commission to Hold Open House for Draft Hazard Mitigation & Resiliency Plan

The Rappahannock-Rapidan Regional Commission (RRRC) will be holding a public forum to gather feedback on the Regional Hazard Mitigation and Resilience Plan. This plan has been prepared with input from each of the region's localities, whom through multiple meetings, provided information, insight, and comments throughout the process. The public forum is an opportunity for all RRRC residents, business owners, elected and appointed officials and other stakeholders to review the document and provide comments.

The in-person public forum will be held on **Monday, October 7th** from **4:00pm to 7:00pm** at the Culpeper County Fieldhouse, 16388 Competition Drive, Culpeper, VA. The event will be an open house with an overview presentation at both 4:30 and 6pm and opportunities to engage with RRRC staff and consultants from Berkley Group throughout the forum.

The draft plan materials are available for viewing and download via the Commission's website at https://www.rrregion.org/hmp and will be open for comment for 30 days. Comments will be received until October 23, 5pm. if you are unable to attend the public forum and would like to submit comments, you can submit them via email to planinfo@rrregion.org.

About the Rappahannock-Rapidan Regional Commission

The Rappahannock-Rapidan Regional Commission serves the counties of Culpeper, Fauquier, Madison, Orange, and Rappahannock, and the towns of Culpeper, Gordonsville, Madison, Orange, Remington, The Plains, Washington, and Warrenton. The 21-member RRRC board includes elected and appointed officials appointed by each member jurisdiction. Localities with greater than 3,500 residents appoint two members to the regional commission, while localities with fewer than 3,500 residents appoint one member to the regional commission.

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Rappahannock Rapidan Regional Commission
Regional Hazard Mitigation Plan
Public Survey Response Report

Introduction

Public engagement is a critical component to the development and update of hazard mitigation plans. Therefore, as part of the update of the Rappahannock Rapidan Regional Commission's (RRRC) *Regional Hazard Mitigation Plan* – in partnership with its local member jurisdictions a public survey was created to seek out public opinions and perspectives regarding the hazards that impact local communities. The survey was activated the week of February 23, 2024 and closed May 31, 2024, with a total of 213 responses being received. This Report is intended to summarize the responses to the survey.

General Information

This section of the survey collected general information identifying where in the Region respondents resided (or the jurisdiction that most closely matched their place of work or interest if they resided outside of the Region), how long they have resided, worked, or had an interest in the identified jurisdiction in the Region, whether they were a resident, employee/owner of a business, or had other interest, whether their residence or business was owned or rented, and the zip code of their residence or business/place of employment.

In Question 1, respondents were asked to identify the RRRC locality in which they reside (or to select the jurisdiction which most closely matches their interest if they reside outside of the Region).

Answers	Counts	Percentages
Culpeper County	26	12%
Fauquier County	96	45%
Madison County	10	5%
Orange County	31	15%
Rappahannock County	18	8%
Town of Culpeper	10	5%
Town of Orange	2	1%
Town of Remington	11	5%
Town of Warrenton	8	4%
Total	212	100%

Question 2 how long have you lived, worked, or had an interest in the County or Town which you selected in Question #1?

Answers	Count	Percentage
10 years or more	150	70.42%
1 to 5 years	33	15.49%
6 to 10 years	28	13.15%
1 year or less	2	0.94%

Question 3 Are you responding as a resident, as an employee or owner of a business located in the RRRC region, or do you have other interest (i.e., former resident, business owners, etc.)?

Answers	Counts	Percentages
Employee or business owner	14	7%
Resident	135	63%
Both resident and employee or both	59	28%
Other	5	2%
Total	213	100%

Hazard Information

To gauge respondents perspectives regarding hazard impacts to the region and localities, a series of questions were asked concerning whether respondents had experienced specific hazards, whether they were concerned about these hazards, whether there were other hazards that they were concerned about, whether there property had sustained damage as the result of a hazard event, whether damages had been reported, and perspectives about increasing or decreasing instances or intensity of hazards.

Question 4 For the hazards listed below, please indicate whether you have experienced the hazard in your locality of residence or business/employment:

Drought

Experience	Counts	Percentages
Have experienced	161	76%
Have not experienced	51	24%
Total	212	100%

Dam/Levee Failure

Experience	Counts	Percentages
Have experienced	203	95%
Have not experienced	10	5%
Total	213	100%

Extreme Heat

Experience	Counts	Percentages
Have experienced	156	74%
Have not experienced	56	26%
Total	212	100%

Wildfires

Experience	Count	Percentages
Have experienced	61	29%
Have not experienced	152	71%
Total	213	100%

Earthquakes

Experience	Count	Percentages
Have Experienced	121	57%
Have not experienced	91	43%
Total	212	100%

Sinkholes

Experience	Counts	Percentages
Have experienced	13	6%
Have not experienced	199	94%
Total	212	100%

Landslides

Experience	Counts	Percentages
Have experienced	10	5%
Have not experienced	202	95%
Total	212	100%

Flooding

Experience	Count	Percentages
Have experienced	127	60%
Have not experienced	85	40%
Total	212	100%

Hurricanes and Tropical Storms

Experience	Count	Percentages
Have experienced	150	71%
Have not experienced	62	29%
Total	212	100%

Tornadoes

Experience	Count	Percentages
Have experienced	88	42%
Have not experienced	124	58%
Total	212	100%

Thunderstorms (Lightning, Hail, & Strong Winds)

Experience	Count	Percentages
Have experienced	207	98%
Have not experienced	5	2%
Total	212	100%

Winter Weather, Nor'easters, & Ice Storms

Answers	Count	Percentage
Have experienced	204	96%
Have not experienced	8	4%
Total	212	100%

Pandemic/Infectious Agent

Answers	Count	Percentage
Have experienced	187	88%
Have not experienced	26	12%
Total	213	100%

Cybersecurity Risk

Answers	Count	Percentage
Have experienced	117	55%
Have not experienced	96	45%
Total	213	100%

Hazardous Materials

Answers	Count	Percentage
Have experienced	181	85%
Have not experienced	32	15%
Total	213	100%

Question 5 for the hazards listed below, please indicate how concerned you are about the hazard:

Drought

Concern	Count	Percentages
Not Concerned	21	10%
Somewhat Concerned	101	47%
Very Concerned	55	26%
Extremely Concerned	36	17%
Total	213	100%

Dam/Levee Failure

Concern	Count	Percentages
Not Concerned	148	69%
Somewhat Concerned	46	22%
Very Concerned	12	6%
Extremely Concerned	7	3%
Total	213	100%

Extreme Heat

Concern	Count	Percentages
Not Concerned	25	12%
Somewhat Concerned	104	49%
Very Concerned	63	30%
Extremely Concerned	21	10%

Total	213	100%

Wildfires

Concern	Count	Percentages
Extremely Concerned	25	12%
Not Concerned	37	17%
Somewhat Concerned	90	42%
Very Concerned	61	29%
Total	213	100%

Earthquakes

Concern	Count	Percentages
Not concerned	93	43%
Somewhat concerned	103	49%
Very Concerned_	13	6%
Extremely Concerned	4	2%
Total	213	100%

Sinkholes

Concern	Count	Percentages
Not Concerned	132	62%
Somewhat Concerned	62	29%
Very Concerned	15	7%
Extremely Concerned	4	2%
Total	213	100%

Landslides

Concern	Counts	Percentages
Not Concerned	160	75.0%
Somewhat Concerned	46	21.7%
Very Concerned	6	2.8%
Extremely Concerned	1	0.5%
Total	213	100.0%

Flooding

Concern	Counts	Percentages
Not Concerned	34	16%

Somewhat Concerned	101	48%
Very Concerned	55	26%
Extremely Concerned	23	11%
Total	213	100%

Hurricanes and Tropical Storms

Concern	Count	Percentages
Not Concerned	31	15%
Somewhat Concerned	106	50%
Very Concerned	57	27%
Extremely Concerned	19	9%
Total	213	100%

Tornadoes

Concern	Counts	Percentages
Not Concerned	32	15%
Somewhat Concerned	109	51%
Very Concerned	59	28%
Extremely Concerned	13	6%
Total	213	100%

Thunderstorms (Lightning, Hail, & Strong Winds)

Concern	Count	Percentages
Not Concerned	23	11%
Somewhat Concerned	74	34%
Very Concerned	89	42%
Extremely Concerned	27	13%
Total	213	100%

Winter Weather, Nor'easters, & Ice Storms

Concern	Count	Percentage
Not Concerned	24	11%
Somewhat Concerned	99	46%
Very Concerned	67	32%
Extremely Concerned	23	11%
Total	213	100%

Pandemic/Infectious Agent

Concern	Count	Percentage
Not Concerned	44	21%
Somewhat Concerned	101	47%
Very Concerned	51	24%
Extremely Concerned	17	8%
Total	213	100%

Cybersecurity

Concern	Count	Percentage
Not Concerned	35	17%
Somewhat Concerned	82	38%
Very Concerned	56	26%
Extremely Concerned	40	19%
Total	213	100%

Hazardous Materials

Concern	Count	Percentage
Not Concerned	57	27%
Somewhat Concerned	109	51%
Very Concerned	34	16%
Extremely Concerned	13	6%
Total	213	100%

Question 6 Are there any other hazards not listed above that you have experienced or are concerned about? If so, please specify and indicate your level of concern?

*Top two responses: trees and roads.

Question 7, in the past, has your home or place of business/employment been damaged by a hazard event? For example, a tree or branches fell and damaged a building, or a building flooded resulting in damages to the building or its contents

Answers	Count	Percentage
No	105	50%
Yes	104	49%
Didn't answer	4	1%
Total	213	100%

Question 8, If 'Yes" was previously selected, please specify the damages.

*Reponses included damage from trees, roof/home destruction, flash flooding.

Question 9, if you answered 'Yes', did you report the damages to your insurance company or local officials?

Answers	Count	Percentage
No	49	42%
Yes	68	58%
Total	117	100%

Question 10, over the last 10 years, have you noticed an increase or decrease in the occurrences or intensity of any of the following hazards?

Dam/Levee Failure

Answers	Counts	Percentage
Decrease	1	0.5%
Increase	9	4%
No Change	199	93%
No Answer	4	2.5%
Total	213	100%

Droughts

Answers	Counts	Percentage
Decrease	2	1%
Increase	128	60%
No Change	79	37%
No Answer	4	2%
Total	213	100%

Wildfires

Answers	Counts	Percentage
Decrease	2	1%
Increase	118	56%
No Change	89	42%
No Answer	3	1%
Total	212	100%

Earthquakes

Answers	Counts	Percentage
Decrease	17	8%
Increase	23	11%
No Change	168	79%
No Answer	4	2%
Total	212	100%

Sinkholes

Answers	Counts	Percentage
Decrease	10	5%
Increase	12	6%
No Change	186	88%
No Answer	4	2%
Total	212	100%

Landslides

Answers	Counts	Percentage
Decrease	8	4%
Increase	3	1%
No Change	197	93%
No Answer	4	2%
Total	212	100%

Flooding

Answers	Counts	Percentage
Decrease	3	1%
Increase	96	45%
No Change	110	52%

No Answer	3	1%
Total	212	100%

Hurricanes and Tropical Storms

Answers	Counts	Percentage
Decrease	6	3%
Increase	78	37%
No Change	124	58%
No Answer	4	2%
Total	212	100%

Tornadoes

Answers	Counts	Percentage
Decrease	5	2%
Increase	42	20%
No Change	160	75%
No Answer	5	2%
Total	212	100%

Thunderstorms

Answers	Counts	Percentage
Decrease	6	3%
Increase	99	47%
No Change	103	49%
No Answer	4	2%
Total	212	100%

Winter Weather

Answers	Counts	Percentage
Decrease	86	41%
Increase	27	13%
No Change	95	45%
No Answer	4	2%
Total	212	100%

Pandemic/Infectious Agent

Answers	Counts	Percentage
Decrease	9	4%

Increase	128	60%
No Change	73	34%
No Answer	3	2%
Total	213	100%

Cybersecurity Risk

Answers	Counts	Percentage
Decrease	7	3%
Increase	119	56%
No Change	82	39%
No Answer	5	2%
Total	213	100%

Hazardous Materials

Answers	Counts	Percentage
Decrease	8	4%
Increase	23	11%
No Change	176	83%
No Answer	6	2%
Total	213	100%

Question 11, for those hazards where you indicated a change in occurrence or intensity, either increasing or decreasing, to what do you think any change (if applicable) can be attributed?

*Reponses include (Global warming, increased land development/destruction of local forests),(global warming by human interference (fumes/gases/toxic chemicals, exploring Outer space etc.), (Global warming, increased land development/destruction of local forests),(Increases in drought, thunderstorms / high wind events, and decrease in winter weather threats appear to be related to climate change)

Question 12, are there any specific areas of your locality that you believe are vulnerable to hazards (e.g., flood-prone areas or specific properties, critical facilities that lack backup power, etc.)

Answers	Counts	Percentages
No	99	46%
Yes	102	48%
No Answer	12	6%
Total	213	100%

Question 13, if 'Yes' selected for the previous question, please list street names and other specific identifiers, if possible.

*Responses include (Yowell Meadow Park) (N. Main St) (Col Jameson Blvd)(James Madison Hwy) (Main St)(Lakeview Parkway) (Opal Rd.) (Rt. 15 Culpepper)(Remington) (Sumerduck Rd.) (Low lying area immediately east of traffic circle) (Run offs) (During freeze)(Business District – Town of Remington)

Flood Hazard Information

The next questions of the survey pertained specifically to flooding, asking whether respondents' homes or places of business/employment are in a special flood hazard area, whether an NFIP insurance policy is in place for their property, to indicate any reasons if no such policy was in place, to describe any past flood damage, if any had occurred, and whether they believed their property was more or less at risk to flooding and the reasons therefor.

Respondents to Question 14, asked respondents to indicate whether their properties are located in a special flood hazard area, such as Zone A, AE, or any other.

Answers	Counts	Percentages
No	162	76%
Yes	10	5%
I do not know	41	19%
Total	213	100%

Then, Question 15 asked respondents if there was an active flood insurance policy through National Flood Insurance Program (NFIP) in place for their respective properties.

Answers	Counts	Percentages
No	139	65%
Yes	18	8%
I do not know	55	25%
Total	212	98%

Question 16 asked respondents who did not have flood insurance to indicate the reason(s) why from a list of options.

Answers	Count	Percentage
Affordability	24	11.27%
Property is not in a special flood hazard area	123	57.75%
Did not purchase property through federal loan/it was not required	19	8.92%

Have never considered carrying flood insurance	33	15.49%
I feel my property is 'High and Dry'	60	28.17%
Other, Please Specify	11	5.16%

Question 17 asked respondents whose property had experienced past damage from flooding to describe the damage. There were 40 responses to the question, with the most common responses indicating impacts to basements, garages, and ground floors resulting from general flooding and drainage issues, foundation cracks, and pump failures.

Hazard Preparedness

The next series of questions focused on preparedness for hazard events, both individual preparedness as well as government's role in reducing impacts from hazards.

Question 18 asked respondents to indicate how prepared they feel their household, business, or place of employment is to address the impacts of hazard events.

Answers	Count	Percentage
Not prepared	6	2.82%
Slightly prepared	42	19.72%
Somewhat prepared	108	50.7%
Significantly prepared	44	20.66%
Most prepared	8	3.76%

In Question 19 respondents were asked to indicate why they believed they were prepared for some level of impacts from hazards, to which they are able to select more than one answer.

Answers	Count	Percentage
Emergency preparedness information from a government source (e.g., federal, state, or local emergency management)	129	60.56%
Locally provided news or other media information	89	41.78%
Information from social media (e.g., Twitter, Facebook, Instagram, etc.)	55	25.82%
Information from schools and other academic institutions	30	14.08%
Attended meetings that have dealt with disaster preparedness	50	23.47%
Past experiences with natural hazards	122	57.28%

Personal equipment and Preparedness plans (e.g., generator, emergency food and supplies, designated checkpoint, etc.)	144	67.61%
Other, Please Specify	10	4.69%

Furthermore, Question 20 asked respondents to identify which measures they have personally taken to ensure their preparedness against hazards.

Answers	Count	Percentage
Received first aid/CPR training	138	64.79%
Made an emergency plan	107	50.23%
Designated a meeting place	81	38.03%
Identified utility shutoffs	113	53.05%
Prepared a disaster supply kit	74	34.74%
Installed smoke detectors on each level of home or business	179	84.04%
Stored food and water	111	52.11%
Stored flashlights and batteries	168	78.87%
Stored a battery-operated radio	83	38.97%
Stored a fire extinguisher	152	71.36%
Stored medical supplies (e.g., first aid kit, medications)	147	69.01%

Question 21 asked respondents to select the top three (3) most effective methods of receiving communications to help prepare for hazards.

Answers	Count	Percentage
Newspaper	13	6.1%
Informational brochures	34	15.96%
Public meetings	21	9.86%
Television news	73	34.27%
Television advertisements	8	3.76%
Radio	80	37.56%
Email	130	61.03%
Social Media	110	51.64%
Public awareness timeframe (e.g., Flood Awareness Week)	32	15.02%
Outdoor advertisements	18	8.45%

Fire department/ EMS agency	73	34.27%
Other, Please Specify	23	10.8%

Under Question 22, respondents were asked to indicate what ideas or suggestion they had if interested in making their home or business less at risk to natural hazards. Of the 47 responses, the following three (3) words had the greatest usage:

- *No*
- *Communication*
- *Internet*

Lastly, Question 23 asked respondents to select the top three (3) projects or actions that they believe government at all levels could be doing to reduce the damage and disruption of hazards in their locality.

Answers	Count	Percentage
Retrofit and strengthen essential facilities, such as police, schools, and hospitals	80	37.56%
Retrofit infrastructure, such as elevating roadways and improving drainage systems	94	44.13%
Work on improving the damage resistance of utilities (e.g., electricity, communications, water/wastewater facilities, etc.)	122	57.28%
Install or improve protective structures, such as floodwalls, levees, and firebreaks	19	8.92%
Enhance stream maintenance programs/projects	30	14.08%
Replace inadequate or vulnerable bridges and causeways	44	20.66%
Strengthen codes, ordinances, and plans to require higher hazard risk management standards and/or provide greater control over development in high hazard areas	36	16.9%

Reducing regulatory restrictions on properties to allow for property owners to make independent decisions that they believe may reduce risk and the potential for damages	24	11.27%

Demographics

The remaining questions in the survey were intended to provide information on the demographics of the survey's respondents. To summarize:

- 46% (107) of the respondents were 54 or younger, with 54% (115) over 55.
- 54% (115) of the respondents were female, while 36% (77) were male.
- 81% (173) of the respondents indicated that their race was White/Caucasian.
- Most respondents held either a bachelor's degree (73/34%) or master's degree (34/16%).
- The majority of respondents, 54% (116), hold full-time jobs, while 24% (52) are retired.

MEETING MINUTES

RRRC Offices (with hybrid online participants)
420 Southridge Pkwy #106, Culpeper, VA 22701

Attendees

In-Person
Kate Jones, Principal Planner, The Berkley Group
Luke Peters, Planner II, The Berkley Group
Holly Meade, Director of Community Development, Fauquier County
Jimmy Steward, Town Superintendent, Town of Remington
Darren Stevens, Emergency Services Management Coordinator, Rappahannock County
Debbie Kendall, Town Manager, Town of Gordonsville
Michelle Edwards, Environmental Programs Manager, Regional Commission
Bill Ooten, Director of Emergency Services and Emergency Management Coordinator, Culpeper County
George Keefer, Operations Captain/Deputy EM Coordinator, Culpeper County
Andrew Hopewell, Director of Planning and Community Development, Town of Culpeper
Jamie Wilkes, Floodplain Manager/Building Official, Madison County
Michael Guditus, Emergency Services Manager, Fauquier County
John Otto, GIS Planner, Rappahannock Rapidan Regional Commission
Frank Cassidy, Interim Director of Community Development and Planning, Town of Warrenton
David Burrelli, Town Administrator, Town of Remington
Patrick Mauney, Executive Director, Rappahannock Rapidan Regional Commission
Sean Peavey, Virginia Department of Emergency Management

Online
Michael Zehner, Director of Planning and Community Development, The Berkley Group
Shelly Plaster, Town of Culpeper, Assistant Director of Public Works
Jennifer Little, Rappahannock Rapidan Regional Commission
Garrey Curry, County Administrator, Rappahannock County
Kathy Hatter, Local Health Emergency Coordinator, Rappahannock Rapidan Health District

Welcome & Introductions

Kate Jones welcomed everyone and coordinated introductions. Michael Zehner began the zoom meeting and recording. Following introductions, Kate Jones led an ice breaker activity. All meeting attendees were asked "What is one word you would use to describe your locality?"

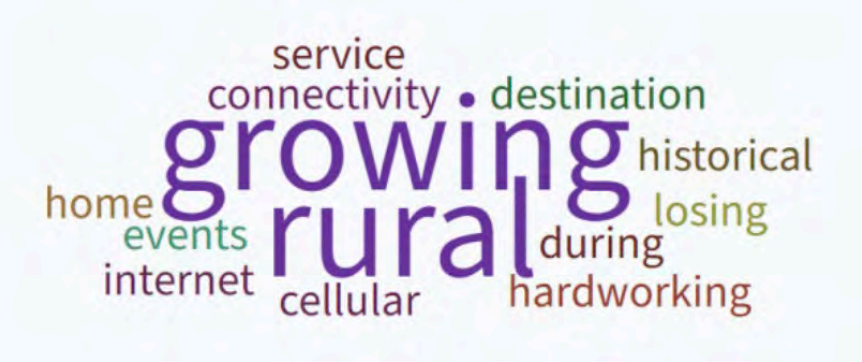

Figure 1. Locality Descriptions

Purpose and Goals for the Hazard Mitigation (HMP) Update

It has been five years since the last HMP update, meaning, it is time to start planning for the next update. It will be important to understand **what has happened in the past five years, what challenges have been faced, and what has been implemented from the last HMP**. The Berkley Group will also be assessing updated hazards, risks, and vulnerability data for each locality and for the region overall. This process will result in refreshed mitigation strategies that also align with new FEMA guidance.

Changes to FEMA guidance that will need to be addressed in the HMP update:

- Holistic, open, public engagement process that reaches communities that are typically not involved in the planning process;
    - For example, FEMA may want to see low-income populations, local-based organizations, or various age demographics being engaged in the process.
- Anticipating and addressing future climatic trends and risks;
- Implementing, enforcing, and educating the community on building codes;
- Connecting land use and development patterns to mitigation strategies;
- Synergy between NFIP program and other FEMA programs (Community Rating System;)
- Other considerations like future growth.

Purpose and Goals of the Resilience Plan

Kate Jones passed out FAQ documents which included information on the HMP and the Resilience Plan process and asked for everyone to review and provide feedback. Michelle Edwards relayed that the purpose of the FAQs is to help attendees communicate this information back to their localities, staff, and officials and not the general public.

Kate Jones then asked how familiar everyone was with Virginia's Community Flood Preparedness Fund (CFPF) program. She explained that the Resilience Plan will have a predominate focus on flooding and will be wrapped into the HMP update process. The Resilience Plan will be project-based which will set localities up for success when applying for future CFPF funding.

The Berkley Group will be assessing if there are low-to-moderate income (LMI) or otherwise vulnerable communities that may benefit from CFPF funding and related projects. This is because the DCR may prioritize funding to these communities. Being a LMI community is not a requirement for funding, but these communities rank a little higher in terms of prioritization. This does not mean that the other projects will not be funded.

It was discussed amongst the group that this is the third update to the HMP and there historically has not been very much funding following each update. The Berkley Group reiterated that incorporating the Resilience Plan may help to qualify the region for more funding on projects at the local level.

Project Timeline

- HMP update and Resilience Plan drafting now through June 2024;
- Submission to VDEM/FEMA and necessary revisions through September 2024;
- FEMA approval;
- Locality adoption (the first locality to adopt sets the 5-year expiration date of the HMP)
    - Because the Resilience Plan will be incorporated into the HMP, adoption should occur at the same time;
- Tentative Project Management Team meetings throughout the project (these meetings may be fully remote or in-person);
    - ~~#1 October 2023~~
    - #2 Winter 2023 or 2024;
    - #3 Late Winter 2024;
    - #4 Spring 2024;
    - #5 Late Summer/Early Fall 2024. (public session and review of final draft plan in-person)

Review of Current HMP

Kate Jones led a discussion reviewing the current 2018 HMP with the localities.

- **What worked? What did not? Planning or engagement process that was or was not successful? Were certain processes useful?**
    - Acknowledged that the 2018 HMP is a great document, but some communities have not used it at all;
    - Unless a hazard occurs, the new plan will not be used either;
    - It is hard to get people excited about mitigation;

  - Would like to see more robust public involvement;
  - Does not want the planning process to feel like a redundant academic activity;
  - Hopefully, with this more holistic process the project will be more useful;
  - There was no meaningful engagement last time which led to a lack of support among local officials.
- **Did the HMP lead to meaningful mitigation strategies?**
  - Regional Commission did a wildfire GIS analysis using FEMA funding;
  - Regional stream gauges project;
  - Lack of capacity to implement and follow up on mitigation strategies among several localities.
- **What needs to be updated?**
  - Funding, partnerships, studies, or more data;
  - Finding funding is one of the most important things;
  - Especially grants that have little to no match requirements;
  - FEMA will want the plan to be extremely specific about potential projects and potential funding sources associated with those projects.

Hazard Identification & Risk Assessment
Luke Peters presented on methodology and data sources that will be used during the planning process. Attendees were asked whether they would like to include other non-human hazards in the HMP update (including cyber-attacks, radiation, or financial disasters).

Data sources, tools, and types of analysis discussed:
- FEMA National Risk Index and Vulnerability Matrix;
- Hazus Level 2 Analysis;
- Natural Climatic Data Center;
- Locality anecdotal experiences and local news sources;
- Assess existing plans and best practices for hazards created by other departments;
- EPA's Environmental Justice Screen and DEQ's EJScreen+.

Attendees then participated in a polling activity and discussion relating to which hazards are most relevant to their community:
- Top responses: Flood, Severe Thunderstorm, Extreme Heat (Figure 2)

Also mentioned in person/online:
- Lack of cooling or warming shelters for the unhoused population;
- Agricultural industry's ability to adapt and respond to drought and extreme heat.

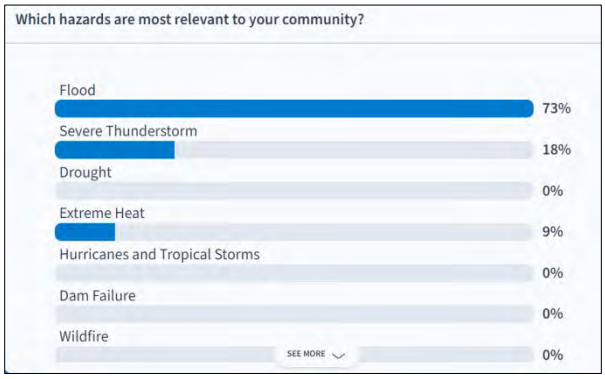

Figure 2. Top Hazards

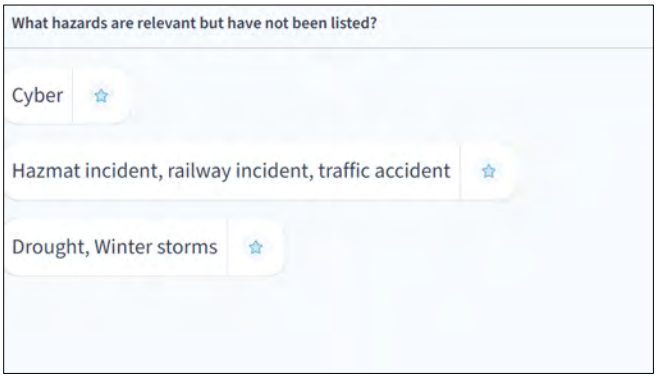

Figure 3. Other Hazards

Public Engagement and Education Plan

Kate Jones and Luke Peters next went over the draft Public Engagement and Education Plan and what types of activities will occur throughout the planning process.

- The Berkley Group will work with localities to identify the best strategies to reach the general public, stakeholders, and special populations for outreach activities;
- Connecting with local organizations already engaging with the public to push out information.

Poll activity: Best way to engage with members in your community?

- Top Responses: Social Media, Community Event (street festival), Email, and Online Survey;
- Outreach process will depend on which population is being engaged with, context matters;
- Prizes/incentives associated with participation;
- Qualitative and quantitative participation options;
- Do not put too much of an emphasis on social media only;
- Surveys or messaging attached to utility bills;
- Something else = All of the above!

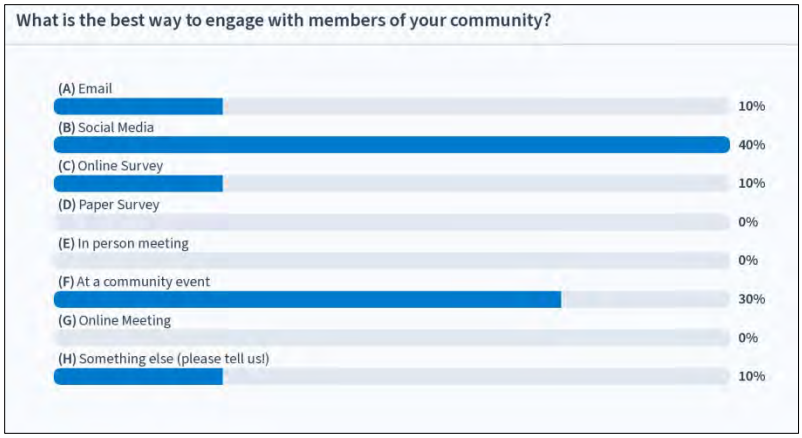

Figure 4. Engagement Preferences

Next Steps

- Localities should review the 2018 HMP;
  - What hazards are the same, which are new?
  - Does your locality currently have the capacity to respond to these hazards?
- Localities should gather information and data that The Berkley Group should include in the planning process;
- Localities should identify elected officials, community stakeholders, and other departments that The Berkley Group should include in the planning process;
- The Berkley Group will be developing paper/online surveys for distribution to localities;
- The Berkley Group will be following up to schedule Project Management Team meeting #2. (tentatively scheduled for around mid-January)

MEETING MINUTES

Attendees

In Person/Online at RRRC Offices
Michelle Edwards, Environmental Programs Manager, Regional Commission
John Otto, GIS Planner, Rappahannock Rapidan Regional Commission
Patrick Mauney, Executive Director, Rappahannock Rapidan Regional Commission
Jennifer Little, Rappahannock Rapidan Regional Commission
Bill Ooten, Director of Emergency Services and Emergency Management Coordinator, Culpeper County
Ryan Switzer, Emergency Services and Emergency Management Coordinator, Culpeper County
George Keefer, Operations Captain/Deputy EM Coordinator, Culpeper County

Online
Michael Zehner, Director of Planning and Community Development, The Berkley Group
Kate Jones, Principal Planner, The Berkley Group
Luke Peters, Planner II, The Berkley Group
Linds Edwards, Planner II, The Berkley Group
Sam McLaren, Planning Director, Fauquier County
Paul Howard, Fauquier County
Michael Guditus, Emergency Services Manager, Fauquier County
Michael Potter, Office of Emergency Management, Fauquier County
Shelly Plaster, Assistant Director of Public Works, Town of Culpeper
Andrew Hopewell, Director of Planning and Community Development, Town of Culpeper
David Burrelli, Town Administrator, Town of Remington
Garrey Curry, County Administrator, Rappahannock County
Debbie Kendall, Town Manager, Town of Gordonsville
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April Clark, Emergency Management Planner, Orange County
Amy Rogers, Chief of Zoning and Development Services,
Chris Melmer, Town of Warrenton
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Darren Stevens, Emergency Services Management Coordinator, Rappahannock County
Sean Peavey, All Hazards Planner, VA Department of Emergency Management
Jacob Hughes, Disaster Response and Recovery Officer, VA Department of Emergency Management
Kathy Hatter, Local Health Emergency Coordinator, Rappahannock Rapidan Health District

Not in Attendance
Gavin Helme, Emergency Management Coordinator, Fauquier County
Nathan Mort, Chief of Fire and EMS, Madison County
Jim Hoy, Director of Public Services, Town of Culpeper
William Lamar, Mayor, Town of Madison
John Cooley, Director of Community Development
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Brian Gordon, Director of Emergency Communications, Madison County
Roger Wilson, Assistant Chief of Operations, Orange County
Robert Coiner, Mayor, Town of Gordonsville
Nancy Knighting, Vice-Mayor, Town of Madison
Gregory Woods, Town Manager, Orange County
Jamie Wilks, Building Official, Madison County
Ligon Webb, County Planner, Madison County

Welcome & Agenda Overview

Michael Zehner began the zoom meeting and recording of the second meeting of the Rappahannock-Rapidan Regional Commission 2024 Hazard Mitigation Plan Update Project Management Team. Roll call for attendees was taken.

Project Status Update; Review of Tasks and Timeline:

Kate Jones reviewed what tasks and steps the project team has completed thus far.

Tasks Completed:

- mobilization meeting back at the project kickoff
- development and completion of public education and engagement plan
- first PMT meeting back in October
- first public engagement activity; we provided messaging for the PMT to use to get the word out about the project and kickoff.

Pending Tasks:

- 2nd engagement activity; review, evaluation, assessment of the current HMP
- 1st Call for Information; Kate reminded the group that we will discuss it in more detail later in the meeting, but this information was sent out at the end of December.
- 2nd PMT meeting (today)
- Public Survey (out early February) – will discuss more later.
- Kate went over the timeline for the project, and where we are now. Then she explained the PMT timeline, which notes specific dates and tasks for the PMT.

Public Engagement Update:

Kate Jones noted that public engagement is something we really want to work with the PMT to improve upon with this HMP update.

- The first public messaging content involved sharing information about the project and process with your communities. Kate reiterated that it is important for communities to get the word out; while many will use social media, the messaging does not have to be on social media. Whatever means that communities are comfortable communicating to the public is fine. It could be an email blast, it even could be an actual physical newsletter. We need to record that an effort was made to reach the public.
- The second messaging content, sent out last week, is really to inform the public, to receive feedback on the current HMP. We would like to document these efforts as part of the plan.

Michael Zehner added that we want to engage the public, but also, we want to make sure that we are educating them through this process. Michael then introduced the online public survey, which will go out to the general public in early February.

Michelle Edwards asked if the public survey will also be available in Spanish?

Michael Zehner responded that we should have the ability to do that and we can work with RRRC on translation of all or a portion of the survey.

Patrick Mauney agreed that translation of the survey would be good, and the RRRC has experience with this on other initiatives. Mr. Mauney referenced that it may be good to also translate the second public engagement messaging.

Mr. Zehner reviewed the online survey questions and mentioned that reports should be able to be generated for each of the localities based on any of the questions answered. Linds Edwards confirmed that this is possible.

Jacob Hughes (VDEM) asked whether definitions for each hazard will be provided? Mr. Zehner responded that a link, if not a pop-up, would be possible.

Michelle Edwards stated that if pop ups are possible that this would definitely be preferred, noting that adding additional length would not be preferred.

Culpeper Emergency Services representative asked whether the survey software has question logic.

Linds Edwards responded that logic rules can be enabled.

Michelle Edwards stated that a PDC contact should also be noted in the survey, and that we should continue to look for ways to pare down the length.

Review, Evaluation and Assessment of 2018 HMP

Kate Jones reviewed feedback from the 1st PMT meeting about what localities did or did not like about the process and plan.

- Plan sat on shelf; an event would need to occur for its use
- No meaningful community or stakeholder engagement

There were some meaningful mitigation actions that came out:

- Stream gauge project
- Wildfire GIS analysis

Patrick Mauney reminded the group that there were regional plans and efforts that resulted from the prior HMP. RRRC looked at mitigation strategies and projects that would fit multiple directives. Chesapeake bay watershed implementation plans, comprehensive economic development strategy currently, and transportation plan.

Michael Zehner noted it is important for a locality to leverage a plan like this in other planning activities, but also ensuring that it is a tool that can support future funding requests at the local level, at the regional level, and in some cases for some types of, especially FEMA funding. Make sure a project was addressed in the plan.

Michael Guditus said the prior HMP plan helped Fauquier develop their Emergency operations plan in 2022. The data, including hazards, demographics, et cetera, were extremely helpful.

Mike Potter also commented that with Warrington, they used the prior HMP plan to develop the Emergency operations plan.

Jakob Hughes noted to make sure mitigation actions are ID'd in the HMP if you want to apply for funding – much easier to develop Wishlist vs. retconning; especially BRIC – projects have to be, specifically identified.

Michael Zehner asked localities to think about projects and funding in advance as funding sources have specific guidelines. (BRIC) We will talk more about mitigation strategies later in the project and will review the list and update. Will want to make sure mitigation strategies are updated – changed, new, not-yet-complete but still relevant, ones to cross off, etc. Avoid standard operating procedures – focus on one-off projects for hazard mitigation.

Hazard Identification and Critical Facilities (ref. email sent on 12/29)

Luke Peters introduced the hazards that will be used in the HMP update.
And the biggest reason for that is because we are going to be relying on the FEMA national risk index for the analysis of a lot of these hazards.

Michael Zehner said the plan will provide descriptions of the hazards and
then descriptions of how they impact the region and the localities. We will also want to determine which hazards are most concerning to localities.
Will ask for qualitative input.

Several Culpeper folks commented that couching it as transportation-related hazards may be the best way of capturing everything.

Mike Potter asked if terrorism would be considered as a human hazard? What about airport incidents?

Michael Zehner put it out to the group. What does everyone think? Technically, if you include a hazard in the plan, there should be mitigation strategies for it.

Culpeper folks stated they do not want to get sucked down the rabbit hole into the human taking over the plan. But that being said, we want to focus on the most important (hazards).

Patrick Mauney commented that the first HMP in 2005 had an appendix on terrorism, which could be used as a building block.

- Could turn into a separate HIRA, so reference them but do not necessarily go too heavily into it.
- On board with putting airports into the transportation bucket, especially if they already have plans.

Sean Peavey asked if this would this be better addressed in the more locality-based section?

Michael Zehner replied yes, especially since that is how we are doing it. Why don't we go back and take a look at the appendix materials. If we can kind of look at combining terrorist active shooter type of events and somehow couch it that way, or at least as a reference.

Luke Peters noted that we are looking at hazards and risk assessment – general definition and then paring it down to individual localities and how they're affected. NRI's overall risk score incorporates social vulnerability. Reviews wildfire example as a heat map example.

Linds Edwards reminded the group that we are using FEMA's national risk index to do a large majority of the hazard identification and risk assessment because they use a wide database, and they have very powerful calculations that they can run. Example from Caroline County down to the census level.

Luke Peters asked about critical facilities; are there any updates to the list that you have either new facilities or facilities that are no longer there. But we wanted to look at additional categories, too. Consistency across the region is considered a critical facility, but it is locality- specific so do not worry about it. Expanded view of critical facilities – include those on the list. Think about logistics and community welfare.

Paul Howard commented that churches can be critical facilities as well as transfer stations (in lieu of landfills).

Michael Zehner reminded the group that for FEMA's purposes, they principally want to ensure that we are documenting those critical facilities that are directly impacted by a hazard.

Luke Peter stated that he would consider thinking about the facilities that other localities have added to their lists and maybe using that as a jumping off point. For instance, a couple of localities included fuel sites as critical facilities.

Michael Zehner asked PMT members to please provide any photos of hazard events. We are also considering having a public forum in April/May.

Patrick Mauney suggested that if having a single regional meeting for public engagement wouldn't work, or there's just not interest, if anyone has a committee locally through their board or town council and want RRRC staff to talk through the current state of things or wherever we are, that's also an option, too, of getting info out esp. to the elected officials.

Next Steps

- Localities should push out messaging #2 and send examples/screenshots to the project team.
- The project team will provide Spanish translation for messaging #2; you will receive that shortly.
- Localities should return the hazards and critical facility info by January 30th.
- Provide feedback by January 30th on the online public survey questions; will be live early February.
- The Berkley Group will be following up to schedule Project Management Team meeting #3. (tentatively scheduled for March)
- Public Forum; likely in April/May in Culpeper.

MEETING MINUTES

Attendees

In Person/Online at RRRC Offices

Patrick Mauney, Executive Director, Rappahannock Rapidan Regional Commission
Michelle Edwards, Environmental Programs Manager, Regional Commission
John Otto, GIS Planner, Rappahannock Rapidan Regional Commission
George Keefer, Operations Captain/Deputy EM Coordinator, Culpeper County
Cheryl Yowell, Town Manager, Town of Madison

Online

Michael Zehner, Director of Planning and Community Development, The Berkley Group
Kate Jones, Principal Planner, The Berkley Group
Luke Peters, Planner II, The Berkley Group
Linds Edwards, Planner II, The Berkley Group
David Burelli, Town Administrator, Town of Remington
Paul Howard, Director of Env. Services, Culpeper County
Michael Guditus, Emergency Services Manager, Fauquier County
Gavin Helme, Emergency Management Coordinator, Fauquier County
Andrew Hopewell, Director of Planning and Community Development, Town of Culpeper
Garrey Curry, County Administrator, Rappahannock County
April Clark, Emergency Management Planner, Orange County
Chris Melmer, Town of Warrenton
Sam McLearen, Planning Director, Fauquier County
Sean Peavey, All Hazards Planner, VA Department of Emergency Management
Rodney Bahner, FEMA Region 3 Community Planner, Commonwealth of VA
Jacob Hughes, Disaster Response and Recovery Officer, VA Department of Emergency Management
Tyler McConnon, Recovery & Mitigation Specialist, VDEM Region 2
Kathy Hatter, Local Health Emergency Coordinator, Rappahannock Rapidan Health District
David Burrelli, Town Administrator, Town of Remington
Jamie Wilks, Building Official, Madison County

Not in Attendance

Bill Ooten, Director of Emergency Services and Emergency Management Coordinator, Culpeper County
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Frank Cassidy, Interim Director of Community Development and Planning, Town of Warrenton
Josh Frederick, Planning and Zoning Services Manager, Orange County
Darren Stevens, Emergency Services Management Coordinator, Rappahannock County

Welcome & Agenda Overview

Kate Jones began the Zoom meeting and recording of the third meeting of the Rappahannock-Rapidan Regional Commission 2024 Hazard Mitigation Plan Update Project Management Team. Roll call for attendees was taken.

Project Status Update; Review of Tasks and Timeline

Kate Jones reviewed the project timeline and tasks using the project Gantt chart.

Tasks Completed:

- First call for information and associated public engagement
- Second PMT meeting in January
- Launch of online public survey in early February

Pending Tasks:

- Second call for information to localities on capability assessment and status of mitigation actions from the previous plan - deadline May 3rd
- Decision needed on hosting a public forum or pivoting to targeted stakeholder interviews
- Third and fourth PMT meetings - March and June
- First full draft of updated plan to be developed over the summer
- Final PMT meeting in the fall to review the draft
- Locality adoption processes in late 2024

Public Engagement Update

Linds Edwards reported that 121 responses have been received to date for the online public survey. Participation has been uneven across the region:

- Fauquier County accounts for 41% of responses
- The towns of Gordonsville, The Plains, and Madison have had no respondents

Locality representatives shared their public outreach efforts and challenges:

- Mike Guditus (Fauquier County) detailed a multi-pronged approach using social media accounts of the county and partner agencies; survey links were also placed on several county websites. Did not use print media.

- While a 48% response rate from a single county is notable, overall participation is still low and not fully representative.
- Not all localities were able to mobilize a coordinated campaign to spread awareness.

The group discussed strategies to increase participation and engage underrepresented populations:

- Provide paper copies of surveys at county offices, public libraries, etc.
- Attend in-person community events and meetings to directly solicit input
- Enlist community organizations and faith-based groups to share survey with their networks
- Utilize county GIS to identify and target outreach to vulnerable communities

FEMA and VDEM representatives (Rodney Bahner and Jacob Hughes) were consulted on the necessary documentation of engagement efforts to meet their standards:

- Localities must demonstrate a good faith effort to invite broad participation and provide multiple response options, especially for underserved communities.
- The engagement process should be as inclusive and well-documented as possible.

The PMT agreed to keep the survey open for at least one additional month, until mid-May, to allow more time for localities to implement new outreach tactics.

- Both online and hard copy surveys are available in English and Spanish.
- April Clarke (Orange County) committed to working with their PIO to do a big promotional push, and other localities indicated they would do the same.

Public Engagement - Forum

Michael Zehner requested PMT input on whether to proceed with the planned in-person public forum in Culpeper or transition to a series of targeted stakeholder interviews with key community groups.

Michael Zehner stated concerns about the ability to get balanced participation across the large region with a single centralized forum:

- Travel time and logistics may be a barrier for residents of counties further from Culpeper.
- Holding the forum in the evening could help expand access but may still be challenging for some.
- Offering a virtual participation option via Zoom could boost attendance but dilutes the collaborative dynamic of in-person dialogues.

Michael Zehner introduced the concept of focused listening sessions and interviews with community organizations was discussed:

- Tailor sessions to specific stakeholder groups like the Fauquier Climate Change coalition, watershed organizations, the agricultural community, businesses, individuals with access and functional needs, etc.
- Develop a standard interview template but allow flexibility to dive deeper into local issues and concerns.
- Conduct sessions in a variety of formats - one-on-one interviews, small group discussions, brief presentations at existing meetings, etc.

PMT members were asked to weigh the pros and cons of each approach and submit their recommendation to the Berkley Group via email in the coming weeks.

2nd Call for Information - Capabilities and Mitigation Actions

Michael Zehner reminded locality representatives to complete the Capability Assessment Questionnaire and provide a status update on Mitigation Actions from the 2018 HMP by the May 3rd deadline.

- This will be treated as a first draft, with the opportunity for further refinement leading up to the 4th PMT meeting in June.
- The Berkley Group will follow up individually with localities to assist in filling out the forms and answering questions as needed.

Michael Zehner said the Capability Assessment Questionnaire is designed to evaluate a community's existing authorities, plans, personnel, and procedures that can support hazard mitigation and resilience-building. Key areas include:

- Administrative and technical capabilities
- Planning and regulatory capabilities
- Financial capabilities
- Education and outreach capabilities
- Safe growth measures
- Regional coordination

Michael Zehner reminded localities to look back at the Mitigation Actions developed during the 2018 HMP and determine the implementation status of each:

- Actions that have been completed can be removed from the list.
- Those that are no longer relevant based on changing conditions can also be eliminated.
- Partially implemented or delayed actions should be kept on the list but refreshed as needed to reflect current priorities and funding realities.

- If an action is still in progress, provide a brief narrative on steps taken to date, percent complete, and updated timeline.

Patrick Mauney (RRRC) offered to share copies of the locality mitigation action forms from the 2018 plan with each jurisdiction to assist in this process.

Michael Zehner emphasized the importance of integrating mitigation actions across local plans, policies, and programs was emphasized:

- Note any specific changes made to ordinances, codes, Comprehensive Plans, Capital Improvement Plans, etc. that advance mitigation priorities from the HMP.
- Be sure to connect the dots and highlight areas where the HMP has informed other initiatives to demonstrate implementation progress.

The 2024 plan update provides an opportunity to identify new, locally specific mitigation actions that will meaningfully reduce risk and strengthen resilience:

- Think broadly and systematically about projects that could prevent or lessen impacts of relevant hazards - not just floods and winter storms, but also emerging concerns like cyber threats, aging infrastructure, and cascading multi-hazard scenarios.
- Consider critical facilities and essential services: What are the key lifelines that must remain functional after a disaster? How can they be hardened or made redundant?
- Look to your Comprehensive Plan, strategic plans, and other guiding documents for clues on pressing issues where hazards could derail community goals.
- Actively engage public works, emergency services, and other departments to help brainstorm needs - mitigation should be everyone's business.

Michael Zehner discussed the potential for regional-scale mitigation initiatives that could support local efforts and foster greater collaboration:

- Examples could include regional post-disaster housing location study, infrastructure resilience assessment, public outreach campaigns, CERT training and exercises, etc.
- Sean Peavey (VDEM) cautioned that while regional projects can enhance the plan, each locality should still have specific actions linked to all relevant hazards to be eligible for FEMA funding.
- Regional actions also need to clearly define each partner's implementation responsibilities to get full credit.

Localities were reminded that in the aftermath of a disaster, FEMA will scrutinize the HMP to ensure alignment between damages and proposed projects during the grant application process:

- It is much easier to secure funding when you can point to a mitigation action that was pre-identified as a need vs. making the connection retroactively.
- Document as you go so the linkages are clear and you are able to leverage windows of opportunity after an event.

Vulnerability & Risk Assessment

Linds Edwards gave an overview of the updated risk assessment methodology, which will rely principally on data from three sources:

- FEMA's National Risk Index - provides baseline data on 18 natural hazards at the census tract and county level, including expected annual losses, social vulnerability, and community resilience. Key resource for seeing relative risk across region.
- FEMA HAZUS model - produces quantitative estimates of physical, economic, and social impacts from floods, hurricanes, and earthquakes at the facility level. Helps dive deeper into specific high-risk areas and assets.
- Various state and federal agencies like VDOT, VDEM, US Forest Service, National Weather Service, etc. - contribute additional localized data on hazard extent, historical occurrences, and potential climate change impacts.

Linds Edwards shared examples of the NRI maps, where each county will have a set of 6 map products per relevant hazard (where data permits) illustrating different aspects of vulnerability and risk:

- Hazard frequency/probability compared to state and national averages.
- Exposure of population, property, and infrastructure to hazard.
- Potential impacts and estimated dollar losses from hazard scenario.
- Projected change in hazard risk due to climate or development trends.
- Areas of highest overall risk based on combined scores across factors.
- Comparisons of hazard risk to key community indicators like social vulnerability, population density, land use types, etc.

Additional customized maps may be created to examine specific issues of local concern, such as:

- Observed flooding outside of official floodplains, including urban/nuisance flooding and impacts on roads/transportation infrastructure.
- Overlap between high wildfire risk zones and concentrations of vulnerable populations.
- Potential storm surge impacts on critical facilities in coastal communities.
- Dam/levee failure inundation areas and evacuation routes.

- Projected sea level rise impacts on future land use, conservation areas, cultural resources, etc.

Luke Peters then showed an example of the quantitative tables for each of the hazards, which explain the data for damages shown in the maps at a county-wide level (as opposed to Census tract), and further explained some of the methodology and answered questions related to the reasoning behind some of the numbers.

Patrick Mauney (RRRC) noted that the Commission has some additional regional datasets that may be useful to incorporate, including updated building footprints, critical facility locations, and natural resources.

The ultimate goal is to validate which hazards are of greatest concern for each locality and the region as a whole based on a combination of quantitative data and local knowledge.

Next Steps

Berkley Group will send out a follow-up email with:

- Detailed instructions on accessing and sharing the public survey, including Spanish translation.
- Link to the full presentation slides and meeting recording.

RRRC will share copies of the 2018 Mitigation Actions for each locality.

PMT members are asked to:

- Implement a coordinated public outreach campaign to increase survey responses, with particular focus on underrepresented areas and populations.
- Decide on preference for public forum vs. stakeholder interviews and inform Berkley Group.
- Complete Capability Assessment and Mitigation Action Status worksheets by May 3rd.
- Begin brainstorming potential new mitigation actions.
- Gather any local GIS data, reports, or other information to support the risk assessment.
- Be on the lookout for scheduling a 1-on-1 risk assessment review meeting with Berkley Group.

Berkley Group and RRRC will work to schedule the 4th PMT meeting for early June, targeting the week of June 10th. A poll will be sent to gauge availability.

The meeting adjourned at roughly 12:30pm.

MEETING MINUTES

Attendees

In Person/Online at RRRC Offices

Patrick Mauney, Executive Director, Rappahannock Rapidan Regional Commission
Michelle Edwards, Environmental Programs Manager, Regional Commission
John Otto, GIS Planner, Rappahannock Rapidan Regional Commission

Online

Michael Zehner, Director of Planning and Community Development, Berkley Group
Kate Jones, Principal Planner, Berkley Group
Luke Peters, Planner II, Berkley Group
Linds Edwards, Planner II, Berkley Group
Bill Ooten, Director of Emergency Services and Emergency Management Coordinator, Culpeper County
Sam Mclearan, Planning Director, Culpeper County
Michael Guditus, Emergency Services Manager, Fauquier County
Michael Potter, Office of Emergency Management, Fauquier County
April Clark, Emergency Management Planner, Orange County
David Burrelli, Town Administrator, Town of Remington
Andrew Hopewell, Director of Planning and Community Development, Town of Culpeper
Shelly Plaster, Assistant Director of Public Works, Town of Culpeper
Garrey Curry, County Administrator, Rappahannock County
Kathy Hatter, Local Health Emergency Coordinator, Rappahannock Rapidan Health District

Not in Attendance

Holly Meade, Director of Community Development, Fauquier County
Ryan Switzer, Emergency Services and Emergency Management Coordinator, Culpeper County
Jennifer Little, Rappahannock Rapidan Regional Commission
Nathan Mort, Chief of Fire and EMS, Madison County
Jim Hoy, Director of Public Services, Town of Culpeper
William Lamar, Mayor, Town of Madison
John Cooley, Director of Community Development
James Steward, Town Superintendent, Town of Remington
Brian Gordon, Director of Emergency Communications, Madison County

Roger Wilson, Assistant Chief of Operations, Orange County
Robert Coiner, Mayor, Town of Gordonsville
Nancy Knighting, Vice-Mayor, Town of Madison
Gregory Woods, Town Manager, Orange County
Tracey Clatterbuck, County Zoning Administrator, Madison County
Michael Potter, Office of Emergency Management, Fauquier County
Amy Rogers, Chief of Zoning and Development Services, Fauquier County
Shelly Plaster, Assistant Director of Public Works, Town of Culpeper
Debbie Kendall, Town Manager, Town of Gordonsville
Stephen Friend, Assistant Public Facilities, Town of Warrenton
Frank Cassidy, Interim Director of Community Development and Planning, Town of Warrenton
Josh Frederick, Planning and Zoning Services Manager, Orange County
Darren Stevens, Emergency Services Management Coordinator, Rappahannock County
Paul Howard, Director of Env. Services, Culpeper County
Gavin Helme, Emergency Management Coordinator, Fauquier County
Chris Melmer, Town of Warrenton
Sean Peavey, All Hazards Planner, VA Department of Emergency Management
Rodney Bahner, FEMA Region 3 Community Planner, Commonwealth of VA
Jacob Hughes, Disaster Response and Recovery Officer, VA Department of Emergency Management
Tyler McConnon, Recovery & Mitigation Specialist, VDEM Region 2
Jamie Wilks, Building Official, Madison County
George Keefer, Operations Captain/Deputy EM Coordinator, Culpeper County
Cheryl Yowell, Town Manager, Town of Madison

Welcome & Agenda Overview

Kate Jones began the Zoom meeting and recording of the fourth meeting of the Rappahannock-Rapidan Regional Commission 2024 Hazard Mitigation Plan Update Project Management Team. Roll call for attendees was taken.

Project Status Update; Review of Tasks and Timeline

Kate Jones reviewed the project timeline and tasks. The project is now over halfway complete.

Tasks Completed:

- Third PMT meeting
- Stakeholder interviews:
  - Rapp @ Home
  - Fauquier Climate Change
- Online public survey closed May 31

Pending Tasks:

- Finalizing the second call for information on the status of mitigation actions and tables
- Drafting plan chapters, which will be shared for review in stages
- Additional stakeholder interviews
- Fourth and fifth PMT meetings: late summer to review draft chapters, and final plan review in the fall
- Locality adoption processes in late 2024

There are no major new requests from stakeholders anticipated, minus discrete pieces of information to fill gaps, especially for resilience plan requirements.

Public Engagement - Outreach

Kate Jones provided an update on stakeholder engagement:

- Conducted virtual interview with Rapp at Home, a senior support group in Rappahannock County
- Interviewed Fauquier Climate Change group

- Upcoming interview with minority and veteran farmers at the Piedmont Group
- Requested suggestions for additional groups to interview, especially those representing underserved populations

Public Engagement – Survey Results

Survey Results (presented by Linds Edwards):

- Over 200 responses received region-wide
- Highest participation from Fauquier County (48%); no responses from towns of Gordonsville, Madison, Plains, and Washington
- 70% of respondents have lived or worked in the area for 10+ years

Key survey findings:

1. Most experienced hazards:
    - Winter weather
    - Drought
    - Extreme heat
    - Hurricanes
    - Flooding
2. Highest future concerns:
    - Cybersecurity risks
    - Drought
    - Wildfires
    - Thunderstorms
3. Additional hazard concerns:
    - Roads (flooding, access issues)
    - Trees (falling hazards)

Cybersecurity and drought will be addressed in more detail in the plan.

- Michelle Edwards suggested combining top two concern categories in final report for a more comprehensive view
- Patrick Mauney inquired about including VDOT strategies for road-related hazards
    - Michael Zehner noted that localities can coordinate with VDOT on roadway-related mitigation actions

- Importance of considering both quantitative risk data and qualitative survey responses when developing mitigation strategies

Michael Guditus (Fauquier County) asked about the survey response rate. Michael Zehner and Patrick Mauney addressed this:

- Probably not statistically significant for a given locality, but provides valuable qualitative input
- Comparable to other regional hazard mitigation plan surveys (e.g., George Washington Regional Commission)
- Useful for supporting existing strategies and identifying potential gaps

The team encouraged localities to use survey results alongside quantitative risk assessments when considering mitigation actions and to continue public engagement efforts beyond the hazard mitigation planning process.

Mission Statement & Goals

Mission Statement:

Michael Zehner presented the current mission statement for the mitigation strategy:

- "Reduce the physical and economic impacts of natural hazards on the jurisdictions within the Rappahannock Rapidan region through effective hazard mitigation techniques."

Initial consensus was to keep the statement “as-is,” with the addition of “resiliency” to reflect the resilience plan component of the HMP. Agreement to wordsmith the statement to include resilience aspect, with RRRC to review.

Goals:

The current goals of the Hazard Mitigation Plan were presented for review. There was general agreement that goals are still appropriate.

- Michael Guditus questioned the relevance of Goal #7 regarding large-scale evacuations from Washington D.C.
    - Kathy Hatter noted that state-level plans for large-scale evacuations still exist, though no state-managed shelters are in the region
    - Potentially revise Goal #7 to focus on regional evacuation planning
- Michelle Edwards suggested incorporating "resiliency" alongside "mitigation" in relevant goals

- Patrick Mauney noted that existing and potential new actions likely fit within the current goal structure
- Michael Zehner highlighted six categories of mitigation techniques to consider when developing actions:
    - Prevention
    - Property protection
    - Natural resource protection
    - Structural projects/infrastructure
    - Emergency services
    - Public information and awareness

Mitigation Actions

Example Mitigation Actions:

- Luke Peters presented several examples of mitigation projects:
    - Portland, OR: Managed retreat project converting a flood-prone neighborhood into a 60+ acre natural area.
    - Indiana/Chicago: Microgrid project with solar array to provide power during outages.
    - Petersburg, VA (Community Flood Preparedness Fund projects):
        - Updated ordinances and drainage studies
        - Installed stormwater infrastructure with novel technologies
        - Developed resilience plan and obtained Certified Floodplain Manager
    - Charlottesville, VA: Created resilience plan, trained staff, and updated stormwater model ($250,000 grant)
    - Norfolk, VA: Elevation of severe repetitive loss properties ($2 million grant)
    - Richmond, VA: Retaining wall to harden water treatment facility ($12 million grant)
    - Sussex/Wakefield, VA: Culvert and pipe upgrades ($5 million grant)

The region has few repetitive loss properties but could focus on critical facilities with drainage/flooding issues. There is potential for proactive work with solar developers to

accomplish resilience goals, including the possibility of rooftop solar and battery storage to replace typical generators in some cases.

Additional Mitigation Strategies:

Kate Jones mentioned the team would distribute an expanded list of potential mitigation strategies organized by hazard, including:

- Wind protection measures (e.g., structural temporary shutters)
- Wildfire mitigation (e.g., Firewise education)
- Tree fall prevention

Patrick Mauney emphasized the increasing prevalence of tornadoes and wind events in the region, suggesting a need for public education and awareness strategies.

Review of Regional and Local Mitigation Actions:

Michelle Edwards and Patrick Mauney presented updates to the regional mitigation actions, including:

- Expanding stream monitoring stations
- Developing tree planting and impervious surface reduction projects based on urban heat island analysis
- Creating stormwater BMP and flood resiliency projects
- Conducting a crosswalk with other relevant regional/local plans
- Developing a food system resiliency plan

Actions listed do not necessarily commit a locality to completion within five years but serve to memorialize priorities and open funding opportunities. Participants were encouraged to think broadly about potential actions, including critical infrastructure projects.

Michael Zehner reiterated that having actions listed in the plan is crucial for FEMA and DCR CFPF grant eligibility. He encouraged localities to continue refining their mitigation actions, offering assistance from the Berkley Group team.

The meeting concluded with a reminder that updated mitigation action tables would be shared, and localities were encouraged to review and update their actions as needed.

Next Steps

- Berkley Group will continue drafting chapters which will be distributed for review.
- Interview with Minority and Veteran Farmers of the Piedmont
- PMT meeting #5 later in the summer (August)
- Localities to reach out to Berkley Group for any help with mitigation actions
- Update and return the 2nd call for information documents asap if you have not already

Meeting Notes: Town of Remington Mitigation Actions Follow-up
Wednesday, July 3, 2024, 2:00PM – 3:00PM EST
Prepared by Luke Peters

In attendance (5):

First	Last	Organization/Affiliation	Position
Luke	Peters	Berkley Group	Planner II
Kate	Jones	Berkley Group	Principal Planner
Anna	Cherry	Berkley Group	Planner II
William	Polk (Jr.)	Remington	Mayor
David	Burrelli	Remington	Town Administrator

Meeting Notes

Meeting with Town of Remington representatives RE: flood mitigation actions for RRRC HMP + Resilience Plan.

Agenda Item:

- Remington wants to address storm drainage concerns – when the river comes up, a few days later it subsides, but when it overflows it is bad.
  - Asked for study from VDOT (who owns all streets, sidewalks, stormdrains, ditches, etc.)
  - Went to Patrick Mauney at RRRC as an additional partner, sent them to USACE.
  - Did walkabout with 4-5 areas during rain.
    - In each location, there was a debris line showing where flooding is.
- Want to determine root cause and mitigation.
  - Undersized storm drainage pipes.
  - Tinpot Run north of Town has a gooseneck before it hits river, hits river in a way that creates backwash instead of running with river.
    - Open field shows big debris line.
- People in Town think flooding in their front yard is normal.
  - Storefront keep sandbags for flooding.
- Cleared pipe at Main & Frankfurt(?) and it removed flooding.
- Remington became VA Main St project last year – got ~$4MM for initial phase.
- Table needs to be updated.
- Might need to do overall drainage study, plus other strategies that can be accomplished in tandem.
- Also reached out to Warner and Wexxon(?) for state/federal funding.
- Policies?

    - Talked with DCR about open field can't be developed, turn it into open space that can't be developed and cause more problems.
    - WSA digging up pipes dig trenches on the side, too.
- Update #9 to discuss storm drainage strategies.
- Get on same page with Fauquier. Their Comp Plan for Remington, will state that there have been opportunities for collaboration, but Remington in the past has always expressed that they wanted to go it alone.
    - Polk wants to change this. County has services Remington can't begin to develop.
    - Water doesn't respect Town limits.
    - #8: Fauquier already has 40 service departments and people working them. DEQ, mapping, inspectors, etc.
- CRS?
    - Could join with Fauquier? Unsure.
- David Burrelli is the floodplain administrator. How to get CFM?
    - Anna: not that bad, have an annual conference 2-3 days, get 2 years of credits, take exam on site.
    - **To-do: send them info.**
- Study could also map infrastructure.
- 2022 Traffic Feasibility Study (https://cms5.revize.com/revize/remington/TD_traffic.study2022.pdf) gives a good idea fo what the Town revitalization project entails.

Follow-up/To-do/Future Meetings/Links:

- Remington FB Flood Pics: https://www.facebook.com/100071192042630/posts/1807127732687079/
- RiskFactor for Remington (flood zone maps, etc.): https://riskfactor.com/city/remington-virginia/5166512_fsid/flood
- Rappahannock at Remington (NOAA Flood Gauges): https://water.noaa.gov/gauges/renv2

Rappahannock-Rapidan Regional Commission
Hazard Mitigation Plan Update &
Regional Resilience Plan
Project Management Team Meeting
Wednesday, September 4, 10:00a-11:30p

- **Attendance**
  - William Polk, Mayor and David Burrelli, Administrator, Town of Remington
  - Michael Guditus, Fauquier County
  - John G Cooley, Town of Orange
  - George Keefer, Culpeper County
  - Darren Stevens, Rappahannock County
  - Jacob Hughes, VDEM Region 2
  - Patrick Mauney, RRRC
  - Michelle Edwards, RRRC
  - Sean Peavey, VDEM Region 2
  - John Otto, RRRC
  - Johnny Switzer, Town of Warrenton EM Coordinator
  - April Clark, Orange County
  - Alexa Boggs, VDEM Region 2
  - Michael Zehner, Kate Jones, Luke Peters, Linds Edwards, Anna Cherry (Berkley)

- **10:00a: Welcome & Agenda Review**
  Reminder that comments can still be submitted until Friday September 20.
  - The final public draft version will still have an opportunity to comment as there are maps, tables and corrections in the works currently. You should have received all eight chapters, and if you have not received them, please reach out.

- **10:10a: Project Status Update; Review of Tasks and Timeline**
  - Review of Completed Tasks and Timeline
  - One month delayed from original planned timeline, feedback at this point is critical as we are winding down on the drafting portion.
  - Pending tasks: Production of Draft Final
  - PMT #5 – (this meeting) and planning on PMT#6 as a combined public meting
  - Review and Adoption of the plan

- **10:15a: Public Engagement Update**
  - PMT#6/Public forum discussion to be held October 7 4-7pm in Culpeper, VA (at the Fieldhouse) conducted as an open house style, possibly presenting the information in presentation form twice to allow two available times. This is the time for public comment period in-person.
  - We will be holding our last PMT meeting, which will also be a public meeting, on **October 7th** to introduce the HMP Update and Resilience Plan to the public.
- We will be creating outreach language for social media for each of your localities to share. Look for that early next week.
  - Localities can begin sharing information sooner if they wish.
- The purpose of the meeting is to introduce the plans, receive recommendations and comments, and incorporate them into the final draft.

- 10:25a: Review and Discuss Draft HMP & Resilience Plan
  - Chapter 1 – This chapter is straightforward and lays out the framework of the overall chapters and content. The resilience plan component of the plan is also introduced here. Regulatory references are included to set the stage for the purpose of the plan.
  - Chapter 2 – This chapter introduces demographics, geography, land use and other distinguishing factors of the region. The important message is the changing conditions within the jurisdictions or "what has changed in the last 5 years". Vulnerable populations are also introduced in this chapter, which is not only important for hazard mitigation planning, and most federal grants, but is a metric in the evaluation of Virginia Community Flood Preparedness Fund's grant process. If you have not already, please review your Town or County's section for accuracy.
  - Chapter 3 – This chapter describes the timeline and process for developing the plan, how the community will be engaged, and who will be involved. It also will lay out the adoption date by both FEMA and VA DCR. Some placeholders will exist until every adoption date can be added, and resolutions from localities plan to added as well.
  - Chapter 4 – This chapter is lengthy, and includes updated information on the region's hazards, recorded occurrences and future conditions. The lengthy information tables will be moved to the appendix, please review for any missing events specific to your locality. If you have hazard specific photos please send those to BG for incorporation.
    - Fauquier County/Warrenton has had some relevant events that are not captured.
    - Localities should send Berkley Group all relevant town/county level hazard events from the past 5 years.
    - Reporting vents from specific locations is encouraged.
  - Chapter 5 – This chapter is also lengthy and is comprised of a vulnerability assessment according to hazards outlined in Chapter 4.
    - The second part of this chapter is contains information that is more specific to the flood resilience portion of the plan, and meets VA DCR's standards for outlining community specific flooding vulnerabilities.
    - Almost all maps are overlaid on top of floodplains, acknowledging that not all flooding occurs there – localities encouraged to identify specific flood hazard areas.
    - Please review for all locality-specific information.

- Chapter 6 - Includes federal, state and regional agencies that are or could be contributing parties to overall hazard mitigation success. Includes capability assessment worksheets.
  - Please review the tables for missing or inaccuracies and provide missing information.
  - Debris management plans or strategies should be included here if available.
  - CFPF – A graphic will be used throughout the plan to highlight the DCR requirements.
- Chapter 7 - Mitigation Strategies – This chapter reviews the plans 7 hazard mitigation goals, and 4 mitigation action categories:
  - ◊ Local and Regional Planning Efforts and Regulations
  - ◊ Education and Awareness Programs
  - ◊ Natural System Processes
  - ◊ Structural and Infrastructure Projects
    - These look a little different from the 2018 update, and better align with FEMA's suggested types of mitigation actions:
      - https://www.fema.gov/sites/default/files/documents/fema_local-mitigation-planning-handbook_052023.pdf
    - Please review the potential strategies, and consider the grant opportunities that could align to get these specific projects in motion.
      - These will be important now and in the future for FEMA BRIC grants or other funding, such as the State Homeland Security grants.
    - Include stream bank erosion stabilization projects following previous Hurricane events.
- Chapter 8 – Plan Implementation
  Please note if DCR changes the guidelines on the 3 year to 5 year timeline to coordinate with HMP timeline for update. If this changes, we will incorporate this. (This has been confirmed)

- Formatting – show what final format will look like? Color Scheme to match the RRRC logo colors and other region plans.
  - Please provide any comments on the layout and formatting.

- 11:25p: Next Steps
  - Review all the chapters but specifically Chapter 4 hazards, Chapter 5.2 Flood Vulnerabilities, and Mitigation Tables by September 20th.
  - Public Meeting will be held as PMT Meeting #6 October 7th 4-7pm in Culpeper.
  - Draft review schedule:
    - DCR (preliminary review)
    - Submit to VDEM for review
    - FEMA
    - Adoption – resolution from local adoption and FEMA drafts a letter
    - First locality adoption date is the effective date for the plan (5 years)

- 12 months from that effective date will have to adopt or have the plan reviewed once again.

Sean Peavey, VDEM:

- Region is currently in "expired" status and will need to approve plans to receive grant funding.
- Make sure to include all you need and want in the plan for the next five years.
- Encouraged localities to reach out to VDEM.

BRIC grants:

- FEMA has not yet released information, but former deadlines were pre-applications by Oct. 15 with full applications due Nov. 22 for VDEM to submit in February.

Berkley Group to meet with Warrenton to catch new staff up to speed.

- 11:30p: Adjourn

RAPIDAN-RAPPAHANNOCK REGIONAL COMMISSION
HAZARD MITIGATION AND RESILIENCE PLAN
JUNE 2024
STAKEHOLDER ENGAGEMENT
MEETING MINUTES

Rapp Home Interview	Page 1
Fauquier Climate Change Group Interview	Page 3
Minority and Veteran Farmers of the Piedmont Interview	Page 6

RAPP HOME INTERVIEW

MARCH 28, 2024, 10-11 AM

INTRODUCTIONS

Rapp Home - a senior support group in Rappahannock County

What is a Hazard Mitigation Plan (HMP) and why do localities need one?

Berkley Group working with RRRC to update HMP and Resilience Plan, flood resilience effort with the state of Virigina.

QUESTIONS

What specific challenges do you believe older adults in our community might face during natural disasters or emergencies?

- Rural and isolated older adults. The group is +50 senior support services.

Are there any particular hazards that you are most concerned about, considering the unique needs and vulnerabilities of older adults?

- *Wildfire – trees fell in the wind and caused sparks.*
- *Communication – needs better cell coverage.*
- *Low taxation not a lot of services the County can provide.*
- *Flooding and erosion along roads are a problem. Grocery stores are far away and are reasonably prepared for food, pharmacy?*

Are there any barriers or limitations that you foresee in accessing emergency services or support during a crisis?

- *EMS know particular people, but it's not organized. 3000 seniors in the community/7300 in the County.*
- *Discussion with fire and rescue wants to meet everyone.*
- *Smart 911? Few are aware. Public information campaign? Has potential but is not used. Mixture of cell and landlines. Neither work well.*

Do you feel adequately informed about evacuation routes, emergency shelters, and other relevant resources available in Rappahannock County?

Have you or someone you know experienced a natural disaster in the past? If so, what were some key lessons learned from that experience?

- *9 years*
- *Nothing major – the hollow was involved in a flood 15 years ago, major snowstorm, neighbors helping neighbors, County did get snow plows out.*
- *Wildfires – edges of roads, all the fire and rescue. Longer term what happens when a road washes.*
- *No mitigation measures. No prep.*
- *Winter Weather*
- *Flooding*

What suggestions or recommendations do you have for improving the community's response and support systems for older adults during natural hazards? –

- Communication #1 – internet and phone
- Coordination
- Strengthening infrastructure in the floodplain
- Shelters – where are they?

Are there specific initiatives or programs that you believe would be beneficial in addressing the needs of older adults before, during, and after natural disasters? – MZ

- Develop an emergency management plan.
- Provide literature to those rural residents.

FAUQUIER CLIMATE CHANGE GROUP

JUNE 3, 2024, 4-5 PM

STAKEHOLDER ATTENDEES

Cindy Burbank has worked in climate change in multiple capacities and is a member of the Fauquier Climate Change Group (Cindy started the group 13 years ago).

Kevin, Chair of Fauquier Climate Change Group (member for 12 years)

INTRODUCTIONS

What is an HMP and why do localities need one?

Component of the Emergency Response (federal funding for this response, FEMA approved HMP to allow for approval of funding)

Risk assessment, Mitigation Strategies, Pre, and Post Disaster Response

Every five-year update or rewrite of the HMP This plan was last written in 2018.

This process is coupled with the Flood Resilience Plan, to be able to receive DCR Fund Preparedness Funding – Flood resilience funds $40 Million dollars quarterly State agency grant for across the state not just focused on coastal flooding.

With DCR guidance the RP is being completed regionally vs county level to be adopted by all the counties.

- *Flooding does not know county boundaries.*
- *Drought being included in this plan update?*

QUESTIONS

How familiar are you with the natural and manmade hazards that Fauquier County faces, such as floods, wildfires, or severe weather events?

- *Reclassifying the natural and manmade hazards (pandemic and technical hazards like pipeline explosions).*

Are there any particular hazards that you are most concerned about, considering the unique needs and vulnerabilities of Fauquier County residents and business owners?

- *Drought is something that (Warrenton) needs to be addressed so there is not an emergency response drawdown on other localized well systems. Water retention efforts of runoff to prepare for emergency drought situations.*
- *Precipitation fed flooding and wind speeds are increasing over time.*
- *How repeated droughts could affect our agricultural community.*
- *How PFAS infiltration of wells might be affected by flooding or drought.*

What point in the process are you in writing the HMP?

We are in the late midpoint and there is a survey online for input and conducting stakeholder interviews during the drafting of the chapters of the plan.

One more point for all of the general public to review the draft (August 2024) at a meeting.

What are the predominant risks including Flooding, Drought, Water access, etc.?

We are currently working on the summary of the survey data and can share the data once that is finished being compiled. The survey closed May 31st.

National Risk Index – Hail is possibly overrepresented and Strong winds are costly due to damage repairs.

Do you feel adequately informed about evacuation routes, emergency shelters, and other relevant resources available in Fauquier County?

- *Solar and battery supported schools and public buildings for increased emergency shelters.*
- *BRIC funded battery backups for a mitigation effort to include in plan.*
- *Evacuation Routes and Emergency shelters are not advertised, never noticed signage, or have had a conversation with other public to the location of these resources.*

Have you or someone you know experienced a natural disaster in the past? If so, what were some key lessons learned from that experience?

- *High winds and tornado activity in forested areas where the concern is high for damage.*
- *Flooding is more common with localized precipitation events.*
- *Microclimates (divided by highways or foothill divide)*
- *Drawdown on wells (30 to 15 feet of depth)*

What suggestions or recommendations do you have for improving the community's response and support systems for Fauquier County residents during natural hazard events?

- *Robust strategies for water recapture after storms and for water conservation measures for households, agriculture, and commercial/industrial operations.*
- *These plans are more reactionary, but water recapture could be included as a mitigation strategy.*

Are there specific initiatives or programs that you believe would be beneficial in addressing the challenges that Fauquier County faces in the future?

- *Data collection for the conditions of the aquifer.*

- *Solar with battery backup, to help in the event of a major storm with electricity outages for lengthy periods.*

What resources do you use for your knowledge of climate trends and for finding case studies for your lobbying efforts?

- *People sharing the information among one another, Warrenton was specified in the DEQ report for its water concerns.*
- *Center for Climate Communications – is a source where they have communicated for resource.*
- *We are aware of the periodic National Climate Assessments, by the Fed Govt, which has regional breakouts in terms of expected climate changes, and we are aware of the PEC resilience study done for Albemarle County, which is likely applicable to Fauquier.*

What would be your initiative to sponsor if you got money today?

- *Rooftop solar and Battery Backup on schools that are dedicated as emergency shelters.*
- *Water conservation and water recapture.*

  Flood Resilience – Water Hazards –
- *None to note.*

OTHER COMMENTS

Update the 2018 plan – footnote stated Gold's gym – Harbor Freight location now.

So why did the charts I found online for the RRRC hazard mitigation plan show such disparate impacts for different counties -- and such absurdly low numbers for damage to agriculture?

Injury to people is more heavily quantified over economic or agricultural loss in the metrics used by FEMA.

MINORITY AND VETERAN FARMERS OF THE PIEDMONT

JUNE 14, 2024, 9-10 AM

STAKEHOLDER ATTENDEES

Eugene Triplett - https://www.mvfpva.org/

INTRODUCTIONS

Berkley Group working with RRRC to update HMP and RP, flood resilience effort with the state of Virigina.

QUESTIONS

What is an HMP and why do localities need one?

FEMA requires to be eligible for disaster mitigation funds and other resources, updated every 5 years.

Combining with a VA program that looks at mostly flooding, to be able to get funding geared towards studies and projects in that area.

- Triplett- Floodplains in the Area, Fighting Data Center Impervious Amounts to Avoid Increased Flooding Risk in Brandy Station.

How familiar are you with the natural and manmade hazards that the region faces, such as floods, wildfires, or severe weather events?

- Recently, A Tornado Touched Down in The Area and The Increasing Impacts of Climate Change. 10-15 Years Increased Mentioning of Severe Storms and Tornados in Va. Hurricane Agnes In1972. Farmland Being Converted to Impervious – Soil Cannot Infiltrate the Water in The Same Way After It's Converted and Developed.
- Data Centers Spoke to Adding 9 Centers and Many Diesel Generators and The Storage for Fuel, Concerned with Volunteer Fire Department That Will Have to Be Able to Respond.
- Wildfire Recently Burned a Couple Hundred Acres, Increasingly Dry and Drought Conditions. Gray's Mountain – Wildfire Started.

Are there any particular hazards that you are most concerned about, considering the unique needs and vulnerabilities of residents and business owners?

- Food Insecurity – Elderly Couples Not Able to Drive to Receive Food, Churches Have Responded to The Need for Transportation Directly to The Needs in The Surrounding 5 Counties. The Hazards Affect Everyone and Change Their Availability to Provide This Service.

Any road outages?

- Road Outages Due to Flooding. Located Between Mountain Run and Jonas Run on Stevenburg Rd. Blackjack Lands, Black Clay with A Layer of Shale Below That Prevents Water from Infiltrating.

What solutions do you see fit for the hazards?

- The Conversion of Farmland to Parking, Impervious, And Housing. – Maintain Open Space and Land for Water Infiltration.
- Zoning And Controlling Growth – Mitigation of Northern Va Residents into The Area Has Brought Increased Development Pressures.

Do you feel adequately informed about evacuation routes, emergency shelters, and other relevant resources available in your region?

- The elderly depend on radio for information. We do not have high speed internet access. phone call over email to spread information. Black churches are the centers for how people information in the region for that population. Schools and churches are the pathways for educating the public. food and pharmacy activism – food is medicine, trying to get healthy food to diabetics – cooperative extension will come to teach healthy recipes.
- The port of Baltimore closure due to bridge collapse had large spread impacts and is an example of how easily we are all affected.

What suggestions or recommendations do you have for improving the community's response and support systems for RRRC residents during natural hazard events?

- Communication – Phone Calls and In Person communication over internet-based communication.
- USDA programs that do not get out to small farmers who are not in the system, just because you built the programs does not mean they will come. Do not wait for the small farmers to come to you, Soil and Water Conservation included. Farm numbers can be a way to get new farmers to the programs and incentives.
- Last Summer, USDA had a drought cost share program to help with cattle and it did not get out to the people that needed.

Have you or someone you know experienced a natural disaster in the past? If so, what were some key lessons learned from that experience? As a farmer, how has drought or flooding impacted you?

- The extremes are becoming more common – unusually wet spring, producing more hay. predicted to have increased hurricanes – flooding risk increases.
- Going from drought conditions to excessive amounts of precipitation creates problems in shocking the system.
- Extreme heat – pressure on a/c units and on those that do not have a/c and or the elderly.
- More days over 95 degrees – the temperature that is the threshold for extreme temperatures.
- To water cattle – rotational grazing to access ponds. People were hauling in water to water the cattle that only had access to dried up water sources. Culpeper supplied the water last season that experienced drought conditions.

What does reserve water supplies look like for human use but also cattle/ farm use?

- Dam Installed on Mountain Run - The Flow has decreased and the cattle that relied on that have had to change sources. Enough water for the residents of Culpeper over the cattle ranchers that relied on the water source.

Are there specific initiatives or programs that you believe would be beneficial in addressing the challenges that RRRC faces in the future?

- Communication before the event happens. If you live near a river, the river will flood at some point, and what do you do when that happens
- Development Pressures on The Community.

Regional Hazard Mitigation Plan (2025 Update) and Resilience Plan

Hazard Incident Tables

Rappahannock-Rapidan REGIONAL COMMISSION

Table A.1 – NCDC Drought Events

Date	Crop Damage	Narrative
7/1/1997	$ 1,000,000	A very dry month, containing one 7-day heat wave, exacerbated drought-like conditions across much of the fertile farmland of northern Virginia. The weather in July proved to be the death knell for much of the crop yields, including corn, hay, alfalfa, and soybeans. Other counties in the northern Virginia piedmont reported damage via local farms; dollar estimates were similar to those in Clarke Co, though no formal declarations of federal emergency were received from them.
8/1/1998	$ -	Persistent high pressure brought unusually dry weather during the entire month for much of northern and central Virginia. Only 0.45 inches of rain fell at Washington Dulles Airport (VAZ042), which was significantly less than the normal of 3.94 inches. Similar readings were found across most of central and northern Virginia. The lack of rainfall substantially reduced crop yields. Corn, hay, and soybeans were hardest hit. Many farmers had to dip into winter reserves to feed livestock. Stafford, Fauquier, and Culpeper Cos. expected to lose around half their corn crop. In general, the drought was expected to reduce the corn and soybean harvest by 20 to 40 percent across the region. The lack of rainfall also contributed to increasingly dry timber and brush. The U.S. Forest Service reported the George Washington and Jefferson National Forests were twice as dry as normal, and five fires broke out in these parks during the first week of the month. In addition to the fire threat, reservoirs continued to dry out.
11/1/1998	$ -	This was the fifth month in a row that drought conditions were seen across Northern Virginia. Persistent high pressure over the Southeast U.S. forced rain producing low pressure systems to steer north of the region. Only 0.91 inches of rain fell at Reagan National Airport in Arlington County during the month of November, 2.19 inches below normal. Only one other year on record (1930) had come close to the lack of rainfall National Airport saw from July 1st to November 30th. The 5-month total at the airport was only 5.78 inches, 11.38 inches below normal. Similarly, 1.21 inches of rain fell at Dulles Airport in Loudoun County, 2.09 inches below normal. Other monthly rainfall totals from affected counties included 1.5 inches in Page, 1.0 in Orange and Rappahannock, 0.9 in Fauquier and Loudoun, 0.8 in Rockingham, 0.7 in Warren, and 0.4 in Shenandoah. The agricultural community continued to suffer through the second worst drought in the past 100 years. By November 30th, 89% of topsoil moisture across the state was rated short or very short and 76% of pastureland was rated poor or very poor. This was the first year the Farm Service Agency had to make direct payments for grazing losses. The extended drought damaged root systems of grass and is expected to have an effect on next year's hay crop. The hardest hit fall crops were barley, corn, hay, soybeans, tobacco, and wheat. The winter wheat crop across Northern Virginia also showed drought stress. Many plants were only 1/3 of their average size at the end of November. The drought has also contributed to a nearly unprecedented amount of

		forest and brush fires. Sixty-five fires were reported across Virginia between November 1st and 20th. A 300-acre fire burned in Nelson County, and over 2000 acres burned in the George Washington and Thomas Jefferson National Forests in Augusta County. Stafford County reported several significant brush fires during the month, and dozens of smaller fires burned in several other locations.
12/1/1998	$ -	This was the sixth month in a row that drought conditions were seen across Northern Virginia. Persistent high pressure over the Southeast U.S. forced most precipitation producing low pressure systems to steer north of the region. In addition, record high temperatures baked the region during the first week of the month. Only 1.74 inches of precipitation fell at Washington Reagan National Airport in Arlington County during December, 1.38 inches below normal. In the past 127 years, only one other July through December on record (1930) received less precipitation than the last half of 1998. The 6-month total at the airport was only 7.45 inches, 12.82 inches below normal. Similarly, 1.53 inches of precipitation fell at Dulles Airport in Loudoun County during December, 1.69 inches below normal. The 6-month precipitation total at Dulles Airport was only 7.27 inches, 13.24 inches below normal. Other monthly precipitation totals from area counties included 0.8 inches in Frederick, 1.2 inches in Clarke, 1.4 inches in Orange, Warren and Loudoun, 1.5 inches in Shenandoah, 1.6 inches in Fauquier and the city of Fredericksburg, 1.7 inches in Culpeper, 1.9 inches in Rockingham, 2.0 inches in Rappahannock and Fairfax, 2.2 inches in Augusta, and 3.1 inches in Madison. Many community wells ran dry in rural Spotsylvania County, Rappahannock County and near Hopkins in Orange County. The Thorton River near Sperryville in Rappahannock County ran dry, and stream flow on all rivers within the Potomac, Shenandoah, and Rappahannock river basins were 85% below normal during December. The Palmer Index rated Northern Virginia in a severe to extreme drought, and the Governor declared a state of emergency across Virginia on December 1st due to the dry weather and resulting extreme fire danger. An open burning ban continued across Virginia through December 10th.
5/1/1999	$ -	High pressure was the dominant weather feature across Northern Virginia during the month. This weather pattern directed rain producing low pressure systems north of the region and continued the climatological drought that has gripped the area since last summer. By the last week of May the Palmer Drought Index, a measure of long-term drought conditions, indicated Northern Virginia was in a moderate drought. May was the 7th month in the past 12 months that precipitation was below normal. Only 2.22 inches of rain fell at Dulles International Airport in Loudoun County during the month of May, 1.80 inches below normal. It was the 8th driest May on record, and rain only fell on 5 days during the month. Additional rainfall totals included Frederick County at 1.5 inches, Shenandoah County at 2.9 inches, Warren County at 1.4 inches, Rockingham and Orange County at 2.4 inches, Augusta County at 3.0 inches, Highland County at 2.2 inches, Nelson and Albemarle County at 2.3 inches, Culpeper County at 2.8 inches, Rappahannock County at 2.1 inches, Fauquier County at 2.2 inches, Spotsylvania County 0.5 inches, and Fairfax and Loudoun County at 2.0 inches.

		Conditions on the Shenandoah and Rappahannock River were extremely dry. Some stations in these two watersheds reported streamflow at or below the 90th percentile exceedance, which rivaled minimum daily mean flow values of the drought of 1980-82. The lack of precipitation also played havoc with spring planting and livestock maintenance. Trees were prematurely shedding leaves in orchards, hay and pastureland were wilting, and watering holes and irrigation sources were slowly drying up. 69% of pastureland and 58% of hay across the state was reported in poor or very poor condition. 58% of topsoil was reported as short or very short of moisture by the end of the month. Some farmers had to reduce their herd sizes in order to stretch hay and water supplies. In addition to agricultural lands, forests, and rural vegetation were also dangerously dry. A fire in Shenandoah National Park burned around 400 acres and closed a 40 mile stretch of Skyline Drive for several days during the first week of the month.
6/1/1999	$ -	High pressure was the dominant weather feature across Northern Virginia during the month. This weather pattern directed rain producing low pressure systems north of the region and continued the climatological drought that has gripped the area since last summer. By the last week of June, the Palmer Drought Index, a measure of long-term drought conditions, indicated Northern Virginia was in a severe drought. June was the 8th month in the past 12 months that precipitation was below normal. From July 1998 through June 1999 precipitation was a staggering 15 inches below average, the 3rd driest 12 months on record. Only 3.00 inches of rain fell at Dulles International Airport during the month of June, 0.92 inches below normal. Reagan National Airport in Arlington reported a monthly total of 2.26 inches, 1.12 inches below normal. Measurable rain only fell on 8 days during the month, with 1.32 inches of the total falling on the 14th. Additional June rainfall totals included Frederick County at 2.2 inches, Shenandoah and Madison County at 1.0 inches, Warren County at 1.4 inches, Rockingham at 0.7 inches, Page County at 1.6 inches, Clark County at 1.9 inches, Orange and Nelson County at 0.8 inches, Augusta and Fauquier County at 1.3 inches, Highland County at only 0.4 inches, Culpeper County at 1.6 inches, Rappahannock County at 1.1 inches, Loudoun County at 2.3 inches, and Fairfax County at 2.5 inches. Flows in the Potomac, Shenandoah, and Rappahannock basins were equal to or slightly below minimum June daily mean flow values recorded during the 1980-82 drought. Many gaging stations reported streamflow at or below the 90 percent exceedance, and a few reported streamflow values at or below the 95th percentile. New daily low flows were set on the North Fork of the Shenandoah at both Cootes Store and Strasburg. Streamflow of the Rappahannock River at Fredericksburg was only 14% of normal. Streamflow of the Rapidan River at Culpeper was only 20% of normal. Fish kills were reported on the North Fork and main Stem of the Shenandoah River from the buildup of algae and low water levels. The lack of precipitation also continued to beat down crops and pastureland. Watering holes and irrigation sources continued to dry up, forcing many farmers to carry water to livestock. 68% of pastureland and 63% of hay across the state was reported in poor or very poor condition.

		Hay producers reported less than half of their normal yields from their second cutting. 78% of topsoil was reported as short or very short of moisture by the end of the month. Some farmers had to reduce their herd sizes in order to stretch hay and water supplies. Corn crops were cut by 25% and were 12 to 14 inches shorter than normal. The alfalfa crop was cut by 30%. Soil evaporation loss per day averaged around 0.3 inches. In addition to agricultural lands, forest, and rural vegetation were also dangerously dry. Many small fires were reported, starting from causes as unusual as a car backfiring or an overheated tractor.
7/1/1999	$ 2,500,000	High pressure was the dominant weather feature across Northern Virginia during the month. This forced most rain producing storm systems to steer north of the region and resulted in the continuation of the climatological, meteorological, and hydrological drought that had plagued the area since last summer. This was the 2nd warmest July on record, with an average temperature of 82.9 degrees. Record highs were set on the 5th and 6th, and temperatures rose above 90 degrees on average temperature of 82.9 degrees. Record highs were set on the 5th and 6th, and temperatures rose above 90 degrees on 22 of the 31 days. By the last week of July the Palmer Drought Index, a measure of long-term drought conditions, indicated Northern Virginia was in an extreme drought except for the Central Shenandoah Valley which was in a severe drought. July was the 10th month in the past 12 months that precipitation was below normal. From August 1998 through July 1999 precipitation was a staggering 10 to 16 inches below average, the 2nd driest 12 months on record. Only 2.56 inches of rain fell at Dulles Airport during the month of July, 0.93 inches below normal. Reagan National Airport in Arlington reported a monthly total of only 1.01 inches, 2.79 inches below normal. Measurable rain only fell on 8 days during the month. The 12-month period from August 1st to July 31st was the driest since record keeping began 58 years ago at the Piedmont Agricultural Research Station in Orange. Additional July rainfall totals included Frederick, Shenandoah, and Clarke County at 2.8 inches; Warren County at 2.3 inches; Rockingham County at 2.4 inches; Orange County at 2.7 inches; Highland County at 1.3 inches; Augusta County at 4.4 inches; Page County at 3.8 inches; Madison and Albemarle County at 3.0 inches; Nelson County at 3.3 inches; Culpeper County at 5.0 inches; Rappahannock County at 5.1 inches; Fauquier County at 3.4 inches; Spotsylvania County at 2.3 inches; and Loudoun County at 2.8 inches. Many stations on the Shenandoah and Rappahannock watersheds reported streamflow at or below the 90 percent exceedance, which rivaled minimum daily mean flow values of the drought of 1980-82. The Rappahannock River was approaching 10% of normal flow, and west of Fredericksburg was flowing with just a few feet of water. By the third week of July, fewer than 40% of small streams in Culpeper County continued to run. With such low water tables, most locations were forced to begin voluntary water restrictions. Lake Pelham, main water source for the town of Culpeper, was 11 inches below normal, and the Staunton Dam was down two feet.

		The lack of precipitation was devastating for the agricultural community. Crops were dying in the fields, trees were prematurely shedding leaves in orchards, hay and pastureland were wilting, and watering holes and irrigation sources were slowly drying up. 46% of pastureland and 77% of non-alfalfa hay crops across the state were reported in poor or very poor condition. Corn that should have been 6 feet high was only waist-high at best and did not germinate. Some farmers had to reduce their herd sizes in order to stretch hay and water supplies. Rappahannock County reported $2,500,000 in losses citing 65,000 acres of devastated pastureland. In addition to agricultural lands, forest and rural vegetation were also dangerously dry. The Virginia Department of Forestry reported a record fire season January through July, 1320 fires burning 6146 acres. This number already exceeded the number of fires reported in 1998. During the month of July alone, 61 fires burned 280 acres. The Cumulative Severity Index, a measure of fire danger which ranges from 1 to 800, gave Northern Virginia a rating of 628 by month's end. Animal control officials also attributed an increase of wildlife entering populated areas in search of food and water to the drought.
8/1/1999	$ 19,200,000	High pressure was the dominant weather feature across Northern Virginia through the 24th of August. Most rain producing storm systems steered north of the region through the period. This resulted in the continuation of the climatological, meteorological, and hydrological drought which has plagued the area since last summer. Heavy rain fell east of the Blue Ridge Mountains on the 25th and 27th, helping to fill surface reservoirs. Unfortunately, because most of the rain fell in the form of thunderstorm downpours, most of the moisture ran off into rivers before it had the chance to seep into the aquifer supply. Groundwater reserves remained unaffected, and wells and springs remained short of water. High temperatures were at or above 90 degrees through the 19th then cooled into the 70s and 80s for the remainder of the month. By the 26th of August the Palmer Drought Index, a measure of long-term drought conditions, indicated Northern Virginia was in an extreme drought. From September 1998 through August 1999 precipitation was a staggering 8 to 14 inches below average. August rainfall totaled 5.46 inches at Dulles Airport in Loudoun County, 1.49 inches above normal. However, 4.38 inches of this total fell on the 25th and 26th. Reagan National Airport in Arlington reported a monthly total of 5.02 inches, 1.11 inches above normal. However, 3.40 inches of this total fell on the 25th and 26th. Charlottesville reported a monthly total of 4.01 inches. Additional August rainfall totals included Fairfax County at 4.5 inches, Albemarle County at 3.3 inches, Shenandoah and Spotsylvania Counties at 2.7 inches, Clarke County at 3.6 inches, Warren County at 2.0 inches, Rockingham and Frederick Counties at 2.7 inches, Orange County at 3.1 inches, Augusta and Nelson Counties at 2.5 inches, Page County at 3.0 inches, and Culpeper County at 2.4 inches. Lake Pelham in Culpeper County was 1 foot below normal. Warrenton's two reservoirs were at 71% of capacity. Some locations such as Eastern Loudoun, Madison, Spotsylvania, and Greene Counties instituted mandatory restrictions. Many residents away from the Washington D.C. suburbs and larger cities became dependent on water deliveries after wells dried up.

		The lack of precipitation continued to devastate the agricultural community. Augusta, Bath, Clarke, Frederick, Highland, Rockingham, Madison, Orange, Greene, Loudoun, and Shenandoah Counties were declared federal drought disaster areas during the month. Across Northern Virginia several crops such as corn and soybeans never reached maturity, trees prematurely shed leaves and fruit in orchards, pastureland became nearly non-existent, and watering holes and irrigation sources dried up. 55% of pastureland, 39% of corn, 23% of soybeans, 28% of apples, and 71% of non-alfalfa hay crops across the state were reported in poor or very poor condition. Corn that should have been over 6 feet high was only chest-high at best. Farmers reduced herd sizes in many cases in order to stretch hay and water supplies. Madison County reported $4 million in losses, and Albemarle County reported $8.4 million in damages. Other county losses included Orange at $10 million, Highland at $7 million, Rockingham at $2 million, Warren at $1.7 million, Greene at $1.5 million, and Stafford at $1 million. Culpeper County reported $3.2 million in crop losses and $2 million in livestock losses. Hay production in Prince William County was cut by 65%. Fauquier County lost 50 to 75% of corn and alfalfa crops. Shenandoah County lost 77% of their corn crop, Loudoun and Culpeper Counties lost 50%, Page County lost 73%, and Rockingham County lost 68%. In addition to agricultural lands, forests, and rural vegetation were also dangerously dry. The Virginia Department of Forestry reported a record fire season January through August, 1444 fires burning 9373 acres. Spotsylvania, Orange, Clarke, and Stafford Counties instituted mandatory burning bans during the month. Madison County recorded 31 fires since January 1st, double the normal recorded during a bad" year.
9/1/1999	$ -	Rainfall from two land falling hurricanes made a tremendous impact on the drought that plagued the region since the summer of 1998. Across Northern Virginia, the greatest amount of rain fell north of a line from Staunton to Fredericksburg. The water shortage came to an end in this area by mid-month. Locations to the south recorded a major increase in water supplies, upgrading their condition from an extreme drought to a mild drought, but not enough rain fell to completely wipe out the shortage. Washington Reagan National Airport in Arlington reported a rainfall total of 10.27 inches for September, 6.96 inches above normal. It was the 4th wettest September on record. Dulles International Airport received 9.32 inches of rain, 5.96 inches above normal. Other monthly rainfall totals included Rappahannock County at 14.8 inches, Clarke County at 13.0 inches, Page County at 12.8 inches, Warren County at 12.5 inches, Culpeper County at 11.9 inches, Greene County at 11.3 inches, Fauquier County at 11.0 inches, Spotsylvania County at 10.0 inches, Loudoun County at 9.9 inches, Fairfax County at 9.7 inches, Orange County at 9.4 inches, Shenandoah County at 9.1 inches, Augusta County at 9.0 inches, Frederick County at 8.3 inches, Prince William County at 7.7 inches, Rockingham County at 7.5 inches, and Albemarle County at 7.0 inches. The much-needed rainfall affected rivers and water reservoirs dramatically. Orange County lifted its water restrictions on the 10th. Effects of the drought still lingered in the agricultural community. Across the

		state by the end of the month, 27% of pastureland, 40% of corn, 16% of soybeans, and 12% of apples remained in poor or very poor condition. Statewide by the 26th, 25% of topsoil remained short or very short of moisture. In addition, harvests were made difficult by heavy rains from the tropical systems. Effects such as shortages of hay and pastureland for livestock, stunted tree growth at orchards and tree farms, and low prices for meagre harvests continued to plague farmers, even after water supplies rebounded.
7/24/2007	$ -	A portion of the Mid Atlantic hydrologic service area experienced severe agricultural drought conditions from July 24th through the end of the month. This area included Orange County north to Frederick and Fairfax Counties. Using a combination of rainfall measurements and radar precipitation estimates, some locations averaged rainfall totals as high as 6 inches below normal. This led to some jurisdictions restricting water use. Damage estimates were not available due to current harvest progress. Several locations were included in primary natural disaster areas due to reductions in farm production. Sources of information included the Virginia Farm Service Agency and the National Drought Monitor.
8/1/2007	$ -	A portion of the Mid Atlantic hydrologic service area experienced severe agricultural drought conditions from mid-July through August 21st. This area included Frederick and Clarke Counties south to Orange County and east to the Washington DC metro area. Using a combination of rainfall measurements and radar precipitation estimates, some locations averaged rainfall totals as high as 6 inches below normal. This led to some jurisdictions restricting water use. Damage estimates were not available. Several locations were included in primary natural disaster areas due to reductions in farm production. Sources of information included the Virginia Farm Service Agency and the National Drought Monitor.
10/1/2007	$ -	Severe Drought conditions persisted through October. In early October, rainfall deficits totaled nearly 10 inches. However, a series of low-pressure systems late in the month brought between 3 and 6 inches of rainfall to slightly reduce those deficits. All counties and independent cities in the Commonwealth were designated primary disaster areas with the exception of the Arlington County and the independent cities of Alexandria and Falls Church, which were designated contiguous disaster areas. Many counties and cities posted both voluntary and mandatory water restrictions throughout the month. Just before the needed rainfall towards the end of the month, the National Drought Monitor listed much of northern Virginia and the northern Piedmont under Extreme Drought conditions. Damage estimates were not available.

Table A.2 –Wildfire Events

Year	Acres Burned	Damages	Description

1917	305,000	$809,000	Earliest known records in Virginia; over 1,460 fires were reported with two fatalities
1927	27,863		An all-time recorded low of 404 fires were reported for the state of Virginia.
1930	333,023		The year that the great drought occurred in Virginia, with a yearlong fire season and unprecedented, disastrous summer fires, but also because it brought disaster to many farmers and stockmen. Coming as it did immediately following the crash in the fall of 1929, its economic effects were severely felt.' 2,554 fires were recorded across 58 counties.
1941-1943			An average of 2,970 wildfires burn 148,937 acres each of the three years.
1948	7,782		The Smokey Bear Campaign was implemented in 1944. This campaign is one of the most successful advertising campaigns in American history and resulted in the first year that Virginia recorded less than 10,000 acres burned.
1952	111,571		2,494 fires burned 111,571 acres. It was the last time 100,000+ acres were burned in a single year.
1963	44,823		3,300 fires burned 44,823 acres in a year.
1982	11,170		More than 10,000 acres in eastern Virginia were destroyed by numerous spring wildfires.
1987	20,393		A dry summer and fall caused extreme fire conditions throughout the state. Governor Wilder considered cancelling fall hunting season as fires burned in southwest Virginia until a frontal system reduced the fire risk.
1995	9,240	$1,258,541	On April 9, dry conditions, gusty winds, and deadwood resulted in 66 acres of forest burned in Buckingham County, 150 acres of forest burned in Franklin County requiring 65 residents to be evacuated, and 24 acres of forest burned in Pittsylvania County, all on the same day. Damage was estimated at about $50,000.
1998	6,480	$1,519,453	Dry conditions and rough terrain led to more than 2,000 acres being burned in one wildfire which occurred in the George Washington and Thomas Jefferson National Forest near Deerfield in Augusta County.
1999	15,663	$3,588,947	1,753 fires burned 15,663 acres. More than 400 acres on Afton Mountain burned on April 2, causing more than $2,000 in property damage. An overheated combine working in a wheat field during dry conditions on July 9 in Clarke County started a fire that burnt 67 acres, including 60 acres of wheat and the combine which resulted in $6,700 and $92,000 in damages, respectively. The Cumulative Severity Index rated Northern Virginia at 628 by the end of July. (1-800 rating for fire danger).
2001	19,476	$13,205,274	This is the only year on record that required significant out- of-state resources, which included 12 USFS crews, 6 Florida Division of Forestry engines, and 1 Florida Division of Forestry plane and pilot. This is also the only year that wildfire funding assistance was received from FEMA. Like 1930, drought was a major cause of the large acreage that was burned.

2006	13,763	$12,465,881	Due to gusty winds and dry fuels, the Bull Mountain Fire in Patrick County burned more than 4,000 acres, including some vehicles and outbuildings.
2008	26,541	$12,706,576	February 10 saw the largest single day outbreak of wildfire in Virginia's recorded history. A strong dry cold front came through the Commonwealth bringing exceptionally high winds which lasted for more than 12 hours. VDOF responded to 354 wildfires which ultimately burned 25,709 acres.
2009	8,779	$6.1 million	Wildfires burned 7,310 acres. Of the $6.1 million in damages, $5 million was timber damage and $1.1 million was property damage.
2010	5,071	$5 million	Wildfires burned 8,485 acres. Of the $5 million in damages, $4 million was timber damage and just under $1 million was property damage.
2011	22,022	$15.7 million	Wildfires burned 14,272 acres. Of the $15.7 million in damages, $11 million was timber damage and $4.7 million was property damage. FEMA fire management assistance was given for the Smith and Coffman Fires which occurred in 2011.
2012	8,033	$3.9 million	633 fires burned 8,033 acres. Almost $2 million of timber was damaged and there was an additional $1.9 million of damage to homes and other buildings.
2013	4,730	$5 million	628 fires burned 4,730 acres. More than $2.3 million of timber was damaged and there was an additional $2.7 million of damage to homes and other structures.
2014	12,675	$8.3 million	872 fires burned 12,675 acres. More than $6.8 million of timber was damaged and damage to homes and other buildings amounted to $1.5 million.
2015	4,941	$2 million	647 fires burned 4,941 acres. More than $740,000 of timber was damaged and damage to homes and other buildings amounted to $1.3 million.
2016	8,618	$6.9 million	498 fires burned 8,618 acres. More than $6.2 million of timber was damaged and there was an additional $759,000 of damages to homes and other structures.
2017	23,081	$14.3 million	693 fires burned a total of 23,081 acres. Nearly $13.6 million of timber was damaged and an additional $726,000 in damages were caused to homes and other buildings.
2018	6,683	$3.5 million	727 fires burned 6,683 acres. Nearly $2.7 million of timber was damaged and an additional $845,058 in damages were caused to homes and other buildings.
2019	1,396	$1.2 million	247 fires burned 1,396 acres. Approximately $833,000 of timber was damaged and an additional $332,800 in damages were caused to homes and buildings.
2020	5,038	unknown	475 fires burned 5,038 acres. Estimates of damages are not included in the VDOF 2020 State of the Forest Report.
2021	6,749	$5.6 million	418 fires burned 6,749 acres. Approximately $4.2 million in timber was damaged and an additional $1.4 million in damages were caused to homes and buildings.
2023	3,937		On November 17, the Madison County Quaker Run Fire was declared 100% contained. Firefighters and support staff from Virginia Department of Forestry (DOF), Virginia Department of

			Wildlife Resources, Madison County, and National Park Service worked to contain the fire, which affected 3,937 acres on private, state, and federal lands. About 700 acres were within Shenandoah's boundary.

Table A.3 – Significant Earthquakes in Virginia

Year	Month	Magnitude (Richter Scale)	Epicenter Location	Description
1774	21-Feb	4.5	Petersburg City Prince George County	A sharp earthquake that was felt over much of Virginia displaced houses "considerably off their foundations" at Blandford and Petersburg. Although the shock was severe in Richmond and

				terrified residents about 80 km north of Richmond at Fredericksburg, it caused no damage at those towns. Several "smart shocks" were reported in parts of Virginia from Feb. 20th to the 22nd. The main tremor rang bells at Salem (now Winston-Salem), N.C.
1833	27-Aug	4.5	Central Virginia Goochland County	A rather strong shock agitated walls of buildings at Lynchburg (west of Richmond, in southern Amherst County) and rattled windows violently. Fences along the road were shaken near the Louisa County Courthouse, northwest of Richmond. It was described as "severe" at Charlottesville, about 85 km northeast of Lynchburg. Two miners were killed in a panic caused by the tremor at a mine near Richmond.
1852	29-Apr	4.8	Town of Wytheville Wythe County	A severe earthquake that was observed over a large area threw down a chimney near Wytheville, in southwest Virginia, and shook down tops of chimneys at Buckingham Courthouse, about 55 km south of Charlottesville. Houses were shaken violently at Staunton, about 65 km west of Charlottesville. A brick was shaken from a chimney as far south as Davie County, N.C. Also felt in the District of Columbia, Maryland, New York, Ohio, and Pennsylvania.
1852	2-Nov	4.3	Central Virginia Buckingham County	Chimney damage occurred at Buckingham, about 55 km south of Charlottesville. This earthquake was reported to be "quite strong" at Fredericksburg, Richmond, and Scottsville. At Scottsville, where every house in the village was shaken, water in the canal was "troubled," and boats were tossed to and fro.
1875	23-Dec	4.8	Central Virginia Goochland County	The highest intensities from this earthquake occurred mainly at towns near the James River waterfront in Goochland and Powhatan Counties, and in Louisa County. In Richmond (Henrico County), the most severe damage was sustained in the downtown business and residential areas adjacent to the James River or on islands in the river. Damage included bricks knocked from chimneys, fallen plaster, an overturned stove, and several broken windows. Waves "suddenly rose several

				feet" at the James River dock at Richmond, causing boats to "part their cables" and drift below the wharf. At Manakin, about 20 km west of Richmond, shingles were shaken from a roof and many lamps and chimneys were broken. Several small aftershocks were reported through Jan. 2, 1876.
1897	3-May	4.3	Southwest Virginia Pulaski County	This earthquake was most severe at Radford (about 65 km west of Roanoke), where a few chimneys were wrecked, and plaster fell from walls. Chimneys were damaged at nearby Pulaski and at Roanoke. Felt in most of southwest Virginia and as far south as Winston-Salem, NC
1897	31-May	5.8	Town of Pearisburg Giles County	This earthquake was the largest in intensity and areal extent in Virginia in historical times and is the 3rd largest in the eastern US and was felt in 12 states. The earthquake had a maximum Modified Mercalli Intensity of VIII, and the area of maximum ground motion extended over an elliptical area- from near Lynchburg, Va., west to Bluefield, W.Va., and from Giles County south to Bristol, Tenn. The MM intensity VIII assigned to this earthquake is based on "many downed chimneys" and "changes in the flow of springs." The shock was strong at Pearisburg, where walls of old brick houses were cracked, and many chimneys were thrown down or badly damaged. Many chimneys also were shaken down at Bedford, Pulaski, Radford, and Roanoke, Va., and Bristol, Tenn.; many chimneys were damaged at Christiansburg, Dublin, Floyd, Houston, Lexington, Lynchburg, Rocky Mount, Salem, Tazewell, and Wytheville, Va.; Charlotte, Oxford, Raleigh, and Winston, N.C.; Knoxville, Tenn.; and Bluefield, W.Va. Aftershocks continued through June 6, 1897.

1898	5-Feb	4.4	Pulaski County	Bricks were thrown from chimneys, furniture was shifted in a few houses, and residents rushed into the streets at Pulaski, about 70 km southwest of Roanoke. Felt throughout southwest Virginia and south to Raleigh, NC
1907	11-Feb	4	Town of Arvonia Buckingham County	Chimneys were cracked at Ashby, about 20 km southeast of Arvonia, and a window was broken at a store at Buckingham, 25 km southwest of Arvonia. A "terrific" shock sent people rushing outdoors at Arvonia and displaced furniture. Felt strongly from Powhatan to Albemarle County.
1918	10-Apr	4.6	Town of Luray Page County	In the Shenandoah Valley, at Luray, windows were broken, and plaster was cracked severely. Ceilings of houses were cracked badly a few kilometers north of Luray, at Edinburg; windows were broken at Harrisonburg and Staunton, Va., and Washington, D.C. (at Georgetown University). In addition, a new spring formed in Page County, near Hamburg, almost in the middle of a road. A minor aftershock was reported in the area, about 5 hours later. Also felt in Maryland, Pennsylvania, and West Virginia.
1919	6-Sep	Unknown	Town of Front Royal Warren County	This earthquake affected towns mainly in Warren and Rappahannock Counties. At Arco, in the Blue Ridge Mountains south of Front Royal, chimneys were damaged, plaster fell from walls, and springs and streams were muddied. Reports from the adjacent northern part of Rappahannock County state that similar shocks were felt and that streams were "rendered turbid." Also felt in parts of Maryland and West Virginia. Several aftershocks occurred.

1929	26-Dec	3.7	Charlottesville City Albemarle County	A moderate tremor at Charlottesville shook bricks from chimneys in some places; also felt in other parts of Albemarle County.
1959	23-Apr	3.9	Giles County	The earthquake was strongest in Giles County, at Eggleston and Pembroke. Residents there reported several damaged chimneys and articles shaken from shelves and walls. One chimney toppled at the Norfolk and Western Station in Eggleston. Also felt in WV.
1975	11-Nov	3.2	Southwest Virginia Giles County	Windows were broken in the Blacksburg area of Montgomery County, and plaster was cracked at Poplar Hill (south of Pearisburg, in Giles County). Also felt in Pulaski County.
1976	13-Sep	3.3	Southwest Virginia Carroll County	Bricks fell from chimneys and pictures fell from walls in Surry County at Mount Airy, N.C. At the nearby town of Toast, N.C., cracks formed in masonry and plaster. The earthquake was observed in many towns in North Carolina and Virginia and in a few towns in South Carolina and West Virginia.

2003	9-Dec	4.5	Central Virginia Powhatan County	This was a complex event consisting of two sub-events occurring 12 seconds apart. Felt (V) at Columbia, Fork Union, Goochland, Oilville, Rockville and Sandy Hook; (IV) at Appomattox, Amelia Court House, Amherst, Blackstone, Bumpass, Charlottesville, Chester, Chesterfield, Colonial Heights, Cumberland, Dillwyn, Farmville, Glen Allen, Lawrenceville, Louisa, Manakin Sabot, Mechanicsville, Midlothian, Mineral, Palmyra, Petersburg, Powhatan, Richmond, Scottsville and Spotsylvania; (III) at Alexandria, Fairfax, Falls Church, Fredericksburg, Lexington, Lynchburg, McLean, Roanoke, Staunton and Vienna. Felt in much of Maryland and Virginia. Also felt in north-central North Carolina and a few areas of Delaware, New Jersey, New York, Pennsylvania, and West Virginia.
2008	6-May	2.0	Annandale	A minor earthquake occurred near Annandale, Virginia. Felt reports were primarily received from people in Fairfax County, Virginia; the District of Columbia; and Montgomery County, Maryland.
2011	23-Aug	5.8	Mineral, Virginia	Virginia and much of the East Coast experiences a widely- felt earthquake. According to the USGS, the epicenter of the event was located near Cuckoo, in Louisa County. With a magnitude of 5.8, this was the largest earthquake recorded by seismometers in Virginia. Between August 25, 2011, and January 1, 2012, 876 aftershocks were recorded. The event resulted in a Federal Disaster Declaration for Virginia.

Table B.4 – Significant Flooding Events

Date	Location	Description
June 27, 1995	Graves Mill, Madison County	On June 27, 1995, as much as 30 inches of rain fell in a 16-hour period on the steep slopes of Madison County, triggering hundreds of landslides and producing widespread flooding. Structures were inundated or crushed by flowing debris, pastures and crop-fields were obliterated and livestock perished. One fatality occurred near Rogersville. Seven others lost their lives in different parts of the state as a result of this storm. Culpeper, Madison, Orange, and Rappahannock counties were declared major disaster areas (FEMA).
January 19, 1996	Entire region	Within twelve hours, rising temperatures melted the 20 – 30-inch snow cover. Snowmelt, along with 2 to nearly 5 inches of rain produced extensive regional flooding, the worst in over a decade. The event began with flash floods in the headwaters of all basins. River flooding progressed downstream through January 22nd. Crests ranged from 3 to 21 feet above flood stage. High water caused millions of dollars in damage, closed roads, destroyed homes and businesses, and forced the evacuation of several towns. Although low-water bridges were closed, a driver of a vehicle with 3 passengers dared the high waters of the Hazel River. All four perished as the automobile was swept downstream.
September 6, 1996	Entire region	Along with significant wind damage, flooding resulted from heavy rains associated with Hurricane Fran. A major disaster was declared.
September 18, 2003	Entire region	The combined effects of Hurricane Isabel's high winds and heavy rains and associated flooding resulted in the declaration of a major disaster for the region and the Commonwealth.
June 2006	Rappahannock County	Rappahannock County was included with a number of other counties contiguous with the RRRC Region in the declaration of a major disaster due to severe storms, tornadoes, and flooding.
August 2015	Fauquier County	Orlean in Fauquier County experienced a flash flood due to heavy rain. There was a road closed due to being washed out, and there was a five foot drop off left of the road.
May 2018	Madison County	Major flooding occurred in the Banco, Syria, and Criglersville areas of Madison County. Two women attempted to cross the swollen Rose River at Graves Mountain Lodge in an ATV. When one of the women got out to check on the water, she was knocked off her

		feet and swept away. The other woman was uninjured and rescued. The upslope winds on the east side of the Blue Ridge just north of an approaching warm front aided in producing torrential rainfall and catastrophic flooding in parts of Central Virginia. Rainfall amounts of 4-10 inches occurred north and west of Charlottesville.
June 2018	Culpeper County	The stream gage on Hazel River near Rixeyville exceeded the 16-foot flood stage and was washed away during the height of the flood, which was at least 10 feet over the flood stage. Significant flooding was reported in the Monumental Mills area, with homes and roads flooded. US 15 flooded and closed in Gordonsville. Heavy rain on saturated soils during the evening of June 21st caused flooding. The heavy rains intensified overnight, causing both flooding and flash flooding early on the 22nd. Widespread flooding persisted throughout Northern Virginia throughout the day on the 22nd. Additional heavy rain during the evening of the 22nd caused more flooding, which continued into the 23rd, and the combination of all the rain events created stream flooding that continued through the 24th.
June 2021	Entire region	There were over a dozen calls for roads to be closed due to high water. A slow-moving cold front dropped into the area from the northeast. The airmass was very warm and humid ahead of the boundary, and that led to the development of showers and thunderstorms with heavy rainfall. The storm motion was slow due to light winds aloft, so the heavy rain led to instances of flooding and flash flooding.
December 2022	Entire region	A coastal low-pressure system interacted with a warm front resulting in a widespread two to three inches of rain with localized amounts up to four inches. This resulted in numerous road closures due to high water and small streams overflowing their banks. Several river forecast points also reached minor flood stage.
January 2024	Entire region	An extended period of moderate rain caused widespread minor flooding with isolated moderate flooding, including numerous road closures in the RRRC Region.

Table A.4- NCDC Tornado Events in RRRC Region

County	Date	F-Scale	Deaths	Injuries	Property Damage	Crop Damage
Culpeper Co.	9/20/2001	F0	0	0	$ -	$ -
Culpeper Co.	9/24/2001	F4	0	2	$ 2,000,000	$ -
Culpeper Co.	7/10/2003	F0	0	0	$ -	$ -
Culpeper Co.	9/8/2004	F1	0	0	$ 50,000	$ -
Culpeper Co.	9/17/2004	F1	0	0	$ 850,000	$ -
Culpeper Co.	9/17/2004	F1	0	0	$ 150,000	$ -
Culpeper Co.	8/30/2005	F0	0	0	$ 5,000	$ -
Culpeper Co.	6/4/2008	EF0	0	0	$ 15,000	$ -
Total	8		0	2	$ 3,070,000	$ -
Fauquier Co.	5/7/2003	F1	0	0	$ 12,000	$ -
Fauquier Co.	9/8/2004	F2	0	0	$ 500,000	$ -
Fauquier Co.	9/8/2004	F1	0	0	$ 7,000	$ -
Fauquier Co.	9/8/2004	F0	0	0	$ 2,000	$ -
Fauquier Co.	9/17/2004	F3	0	2	$ 250,000	$ -
Fauquier Co.	9/17/2004	F2	0	0	$ 500,000	$ -
Fauquier Co.	9/17/2004	F2	0	0	$ 750,000	$ -
Fauquier Co.	8/30/2005	F0	0	0	$ 50,000	$ -
Fauquier Co.	8/30/2005	F1	0	0	$ 1,500,000	$ -
Fauquier Co.	6/4/2008	EF0	0	0	$ 15,000	$ -
Fauquier Co.	6/4/2008	EF1	0	0	$ 25,000	$ -
Fauquier Co.	3/10/2011	EF1	0	0	$ 25,000	$ -
Fauquier Co.	10/13/2011	EF0	0	0	$ 30,000	$ -
Fauquier Co.	4/6/2017	EF0	0	0	$ -	$ -
Fauquier Co.	4/6/2017	EF0	0	0	$ -	$ -
Fauquier Co.	4/6/2017	EF0	0	0	$ -	$ -
Fauquier Co.	8/11/2017	EF0	0	0	$ -	$ -
Total	17		0	2	$ 3,666,000	$ -
Madison Co.	9/10/1997	F1	0	0	$ 15,000	$ 5,000
Madison Co.	8/9/2000	F1	0	0	$ 15,000	$ -
Madison Co.	5/2/2004	F1	0	0	$ 8,250	$ -
Madison Co.	9/17/2004	F2	0	0	$ 200,000	$ -
Madison Co.	8/30/2005	F0	0	0	$ 10,000	$ -
Total	5		0	0	$ 248,250	$ 5,000
Orange Co.	7/21/1995	F1	0	0	$ 80,000	$ -
Orange Co.	9/10/1997	F0	0	0	$ -	$ -
Orange Co.	7/24/1999	F1	0	0	$ 50,000	$ -
Orange Co.	6/6/2002	F1	0	0	$ 10,000	$ -
Orange Co.	9/8/2004	F0	0	0	$ 5,000	$ -
Orange Co.	9/17/2004	F1	0	0	$ 150,000	$ -

Orange Co.	9/17/2004	F2	0	0	$	75,000	$	-
Orange Co.	10/13/2011	EF0	0	0	$	5,000	$	-
Orange Co.	4/6/2017	EF0	0	0	$	-	$	-
Orange Co.	5/5/2017	EF1	0	0	$	-	$	-
Total	10		0	0	$	375,000	$	-
Rappahannock Co.	8/30/2005	F0	0	0	$	50,000	$	-
Rappahannock Co.	7/23/2008	EF0	0	0	$	15,000	$	-
Total	2		0	0	$	65,000	$	-

Source: National Climatic Data Center Storm Events Database[1]

[1] https://www.ncdc.noaa.gov/stormevents

Table A.5 NCDC Significant Thunderstorm (strong wind, lightning, and hail) Events

Culpeper County

Date	Hazard	Deaths	Injuries	Total Dmg	Narrative
3/2/2018	High Wind	0	0		The Culpeper 911 center reported that approximately 175 calls came in due to high wind. A low pressure system moving eastward from the central United States on Thursday March 1st, intensified rapidly as it moved offshore Thursday night and early Friday, deepening to 974 mb by the evening of Friday March 2nd. | |Strong winds were present in the low levels of the atmosphere due to the strengthening pressure gradient, and were able to mix down to the surface in strong wind gusts under northwest flow cold air advection.
5/13/2018	Hail	0	0		Hail up to the size of quarters was reported. A few showers and thunderstorms developed near a stationary front. Some storms became severe due to an unstable atmosphere.
5/13/2018	Thunderstorm Wind	0	0		A tree was down near the intersection of Alum Springs Road and Dutch Hollow Road. A tree was down on power lines on Newbys Shop Road near Lewis Lane. A few showers and thunderstorms developed near a stationary front. Some storms became severe due to an unstable atmosphere.
5/26/2018	Thunderstorm Wind	0	0		A tree was down at the intersection of Zachary Taylor Highway and Winston Station Lane. A weak boundary combined with a warm and humid air mass to trigger some showers and thunderstorms. A few thunderstorms became severe.
6/1/2018	Thunderstorm Wind	0	0		A tree was down on S. Merrimac Road near James Monroe Highway. A weak cold front triggered a few showers and thunderstorms.

					An isolated storm became severe due to an unstable atmosphere.
6/23/2018	Thunderstorm Wind	0	0		A tree was down at the intersection of Rixeyville Road and Colvin Road. A trough triggered some showers and thunderstorms, and there was enough instability for a few storms to become severe.
8/12/2018	Hail	0	0		Nickel sized hail fell near the intersection of Route 522 and Woodland Church Road. Hail up to the size of golf balls fell at this location. Half dollar sized hail fell at this location. Widespread showers and thunderstorms formed due to a combination of high instability and a stalled frontal boundary. Some storms became severe.
8/12/2018	Thunderstorm Wind	0	0		Tree limbs were blown down in town. Several trees were blown down in the vicinity of Sperryville Pike and Chestnut Fork Road. Large tree limbs were blown down on Ira Hoffman Lane near US 15/29 Business. Trees were also damaged near the Culpeper Police Station, near the intersection of Autumn Ridge Road and Kings Grant Road, and in Yowell Meadow Park. Trees were blown down along US 29 between Elkwood and Remington. Trees were blown down off US 29 near Culpeper. Approximately 40 to 50 trees were blown down, some onto houses and farm buildings, just east of Culpeper. This included numerous 75- to 100-foot-tall trees up to 3 feet in diameter that were uprooted and snapped in the vicinity of Carrico Mills Road. Widespread showers and thunderstorms formed due to a combination of high instability and a stalled frontal boundary. Some storms became severe.

8/17/2018	Thunderstorm Wind	0	0		A tree was blown down on Novum Road at the Culpeper County line. A cold front interacted with a moist and unstable air mass to produce thunderstorms across the region. Some of these storms became severe.
9/26/2018	Thunderstorm Wind	0	0		A tree was blown down near the intersection of Scotts Mill Road and Stone Bridge Road. A tree was blown down on Dutch Hollow Road near Alum Spring Road. A tree was also blown down on Shiloh Church Road near Ryland Chapel Road. A cold front moving into the region combined with an unstable hot and humid air mass to generate showers and thunderstorms, some of which became severe.
4/26/2019	Thunderstorm Wind	0	0		A tree was blown down on Mount Pony Road. An upper-level trough east of the Mississippi River on the morning of April 26th deepened and closed off over the eastern Great Lakes by the morning of April 27th. A forced convective line was ongoing in the morning hours of April 26th over West Virginia and progressed eastward into Virginia during the afternoon hours. A few individual cells also formed ahead of this convective line. Modest instability developed during the late morning and early afternoon hours which helped to support showers and thunderstorms across the region, and this combined with moderate levels of wind shear led to strong to severe thunderstorms which produced locally damaging winds.
5/23/2019	Thunderstorm Wind	0	0		Three trees were blown down in the Rapidan area. A warm front crossed the region during the morning hours of May 23rd, placing the area in the warm sector by the afternoon hours. At the same time, surface low pressure tracked across the northern Great Lakes, with an attendant cold front moving into the Ohio Valley by

					the evening. A mesoscale convective system (MCS) was ongoing during the morning hours and moved eastward and into the region during the afternoon hours. Out ahead of the MCS, moisture and warmth increased with moderate instability developing. Aloft, wind shear increased throughout the day and became quite substantial by the late afternoon. The MCS entered Virginia by the midafternoon hours and intensified into a linear feature that produced damaging winds before exiting during the evening.
5/25/2019	Thunderstorm Wind	0	0		A tree was blown down on Waterloo Road near Old Bridge Road. A tree was also reported down on Lee Highway near Rixeyville Road. A warm front slowly moved northeastward through southwestern and central Virginia during the day of May 25th, reaching northern Virginia and the Washington Metropolitan area during the night of May 25th into the 26th. Near and south and west of this frontal boundary instability developed during the afternoon of the 25th which led to the development of showers and thunderstorms during the afternoon and evening hours, some of which became severe.
5/30/2019	Thunderstorm Wind	0	0		A tree was blown down onto powerlines near Country Club Road and Stonybrook Lane. On the morning of May 30th, a surface front was positioned across Pennsylvania, with a surface low positioned west of Chicago, Illinois. Through the day the surface low moved eastward along the frontal boundary, reaching western Pennsylvania by late in the afternoon. The low then quickly pushed eastward off the NJ coastline by late in the evening, with a cold front crossing the region. In addition, two disturbances aloft moved across the area, one during the mid to late afternoon hours, and another in the evening. Out

					ahead of the front, warmth and humidity allowed for the development of moderate instability and that coupled with moderate wind shear aloft set the stage for two rounds of scattered showers and thunderstorms, some of which became severe.
6/13/2019	Thunderstorm Wind	0	0		A tree was blown down near the intersection of Drogheda Mountain Road and Eggbornsville Road. A tree was also blown down in the 8600 block of Rixeyville Road. A potent upper-level trough and associated cold front moved into the region during the daylight hours of June 13th. Instability aided by low heights aloft and warm surface temperatures combined with strong wind shear set the stage for scattered strong to locally severe thunderstorms across the region during the afternoon and evening hours.
6/24/2019	Thunderstorm Wind	0	0		A tree was blown down on White Shop Road near South Merrimac Road. A warm front lifted across the region during the morning hours of June 24th, leading to increasing warmth and instability by the afternoon. At the same time, an upper-level trough and surface low tracked through the Great Lakes, with the trailing cold front approaching the region during the afternoon and evening. Showers and thunderstorms developed ahead of the front and crossed the area during the late afternoon and evening hours. There was enough instability and wind shear for some of these thunderstorms to become strong to locally severe.
8/15/2019	Thunderstorm Wind	0	0		A tree was blown down near the 8300 block of North James Madison Highway. An upper-level trough moved southeastward from the Great Lakes and into the Mid-Atlantic states during the day of August 15th. At the surface, a boundary also

					moved southeastward from Ohio and into the region. With building instability, scattered showers and thunderstorms developed across the higher elevations in the midafternoon hours, and then moved eastward during the late afternoon and evening. With relatively strong westerly to west-northwesterly flow aloft, deep layer shear increased and that, combined with the instability, led to some thunderstorms becoming strong to locally severe.
8/19/2019	Thunderstorm Wind	0	0		A tree was blown down on Sperryville Pike near Griffinsburg Road. A weak mid-level trough crossed the region on August 19th, and that combined with significant amounts of instability led to the development of isolated to scattered showers and thunderstorms. A few of these thunderstorms became strong to locally severe.
9/11/2019	Thunderstorm Wind	0	0		A tree was blown down in the 12500 block of Scotts Mill Road. A tree was blown down on Slate Mills Road near Sperryville Pike. Another tree was reported down in the 12200 block of Yeawood Drive. In the afternoon hours of September 11th, a weak upper-level trough approached the region from the Ohio Valley. This coupled with abundant surface heating led to the development of showers and thunderstorms by the afternoon and evening hours. |With ample instability and modest shear, some thunderstorms became locally severe.
9/28/2019	Thunderstorm Wind	0	0		Three trees were blown down near the 10000 block of Homeland Road. Another tree was blown down onto wires on Eggbornsville Road. A trough of surface low pressure developed during the midday hours of September 28th in the lee of the Appalachian crest and with anomalous heat and humidity, and therefore instability, scattered thunderstorms developed. A few

					thunderstorms became strong to locally severe.
10/31/2019	Thunderstorm Wind	0	0		Trees and wires were down on James Madison Highway near Kettle Club Road. A tree was down on Hoover Road near True Blue Lane. Tree down on Inlet Road near Brandy Road. Multiple trees were down on Eleyes Ford Road. Tree reported down in the 15000 block of Inlet Road. Multiple trees were reported down on the Algonquin Trail. A tree was down on Stevensburg Road near Greens Corner Road. A tree was also down in the 17000 block of Carrico Mills Road. A strong cold front passed through during the evening of the 31st. A southerly flow led to warm and humid conditions ahead of the boundary, which caused an unstable atmosphere. The instability along with the cold front caused showers and isolated thunderstorms, some of which were able to mix down strong winds from aloft.
1/12/2020	Thunderstorm Wind	0	0	$ 250	Tree reported down on Eleys Ford Road near Jennings Road. A negatively tilted trough and associated surface low tracked into Ohio. Warm, humid air streamed northward into the area in southerly flow well in advance of the low. A band of pre-frontal storms moved across VA, transporting some of the high winds from aloft down to the surface.
2/26/2020	Thunderstorm Wind	0	0		Tree down along Settle School Road near Dutch Hollow Road. A developing area of low pressure tracked from northern Virginia toward New Jersey, dragging a cold front across the area. A narrow band of low-topped thunderstorms developed in the warm humid airmass in advance of the front. These storms produced a couple damaging wind gusts as they progressed through portions of central Virginia.

6/22/2020	Thunderstorm Wind	0	0	$ 8,000	About half a dozen trees were blown down on Beverly Ford Road near Saint James Church Road. A weak pressure trough/surface front ignited a cluster of strong to severe thunderstorms. The storms began over eastern West Virginia during the early afternoon, then progressed eastward through central Maryland and northern Virginia producing scattered damaging downburst wind gusts.
7/24/2020	Thunderstorm Wind	0	0	$ 8,000	Trees were blown down near the intersection of VA-663 Stevensburg Road and VA-666 Greens Corner Road. Multiple trees were blown down near the intersection of VA-3 Germana Highway and VA-647 Batna Road/Revercomb Road. Trees and wires were blown down near the intersection of Mountain View Farm Road and VA-663 Batna Road. A few isolated severe thunderstorms developed over central Virginia and near Baltimore.
8/25/2020	Thunderstorm Wind	0	0	$10,000	There were multiple reports of trees and wires blown down throughout Culpeper County. An outflow boundary from a decaying convective system triggered an isolated severe thunderstorm over northern Virginia around midday. A cold front then triggered an organized line of thunderstorms which produced scattered to numerous damaging wind gusts over eastern West Virginia, western Maryland, and northern into central Virginia as well as the DC metro area.
6/3/2021	Thunderstorm Wind	0	0	$ 1,000	A tree was blown down into the roadway near the intersection of Rapidan Road and Hardy Lane. A pressure trough ignited numerous showers and thunderstorms, several of which produced localized damaging winds, hail, and a tornado.

6/10/2021	Thunderstorm Wind	0	0	$5,000	Multiple trees and wires were blown down around Culpeper. Thunderstorms with very heavy rain produced sporadic, minor wind damage. All but one storm seemed to produce sub-severe winds based on the sporadic nature of the damage and the environment unfavorable for severe wind.
7/14/2021	Thunderstorm Wind	0	0	$ 10,000	Wires blew down in the 400 block of Business US-15 James Madison Highway. Wires blew down on West Asher Street. Wires blew down in the 200 block of Chestnut Drive. Wires blew down in the 2100 block of Country Club Road. A tree blew down onto wires off of Webster Lane. A tree blew down along southbound US-29 James Monroe Highway at US-15 James Madison Highway. A cold front produced numerous thunderstorms that resulted in scattered wind damage across east-central Virginia into southern Maryland.
8/11/2021	Thunderstorm Wind	0	0	$22,000	Several trees blew down along VA-629 Settle School Road. Several trees blew down near the intersection of VA-626 Black Hill Road and VA-229 Rixeyville Road. Several trees blew down in Culpeper. Several trees blew down along VA-615 Rapidan Road. Several trees blew down along VA-673 Newbys Shop Road. A lee pressure trough and weak cold front combined to ignite numerous thunderstorms in a strongly unstable environment. The strongest thunderstorms produced severe wind gusts and sporadic hail.
8/28/2021	Thunderstorm Wind	0	0	$ 21,000	A large tree blew down at the intersection of US-29 and Greens Corner Road. Numerous trees and wires blew down throughout Culpeper County. Widely scattered severe thunderstorms developed ahead of a weak cold front.

6/8/2022	Thunderstorm Wind	0	0	$ 3,500	Tree damage was reported west of Culpeper, including a tree that blew down blocking one lane near the intersection of VA-719 Mountain Run Lake Road and J.B. Carpenter Junior Drive. Trees blew down along VA-229 Rixeyville Road and VA-611 Waterford Road. A large tree limb blew down along VA-229 Rixeyville Road near Hamilton Lane. A cold front spawned numerous thunderstorms resulting in scattered instances of damaging wind, some large hail, and a tornado.
6/16/2022	Hail	0	0	$30,000	Quarter size hail was reported near Slate Mills and Riva. Numerous trees blew down along US-15/US-29 James Madison Highway, US-522 Zachary Taylor Highway, and VA-615 Rapidan Road. Thunderstorms produced scattered instances of damaging winds and large hail, some considerable, across extreme eastern West Virginia into northern and central Virginia.
6/22/2022	Thunderstorm Wind	0	0	$262,000	Hundreds of trees, branches, and wires blew down across northern Culpeper County between Amissville, Jeffersonton, and Rixeyville between 4:40 and 4:50 PM. Minor damage to farm buildings was reported, as well. This was part of the same destructive thunderstorm cluster that affected Fauquier County. Peak winds were estimated to be up to around 75 MPH in this area. Several trees and wires blew down around Culpeper. A strongly unstable airmass in a moderately sheared environment squeezed between two fronts resulted in several clusters of destructive thunderstorms. The most intense thunderstorms propagated north to south along a stalled front dividing very unstable air near and west of Interstate 95, from notably more stable air closer to the Chesapeake Bay. | |The event was unusual not only because of the intensity of the thunderstorms, but because they moved in

					a north to south direction, even propagating south-southwestward at times.
7/12/2022	Thunderstorm Wind	0	0	$ 5,000	Trees blew down along VA-625 Mount Zion Church Road. Trees blew down along Business US-15/US-29 Brandy Road near VA-666 Bradford Road/Braggs Corner Road. An outbreak of significant severe weather occurred during the afternoon and evening hours of Tuesday, July 12th, 2022. An unseasonably strong cold front interacted with a high instability airmass to result in several bowing lines of thunderstorms, which maintained their organization and intensity due to strong atmospheric wind shear. Swaths of widespread damaging winds were observed, much of which was considerable. A couple of tornadoes were also confirmed, along with some significant hail. A wind gust of over 100 MPH was measured in one of the most powerful storms over eastern West Virginia.
7/16/2022	Thunderstorm Wind	0	0	$12,000	Numerous trees blew down along VA-614 Locust Dale Road in Rapidan. Trees blew down near VA-729 Eggbornsville Road. Several thunderstorms produced localized wind damage ahead of a weak cold front.
7/25/2022	Thunderstorm Wind	0	0	$5,000	Tree damage was reported around Culpeper. Three trees blew down in the 16900 block of VA-643 North Merrimac Road. A tree and large tree limbs blew down near VA-719 Mountain Lake Road and Bella Pointe Drive. A weak cold front sparked scattered to numerous showers and thunderstorms that resulted in several instances of damaging wind gusts. One storm in particular contained considerable hail and destructive winds just east of the City of Charlottesville.

8/22/2022	Thunderstorm Wind	0	0	$ 3,000	Trees blew down in the 9400 block of US-15 James Madison Highway, including a large pine tree that blocked all travel lanes. A couple of thunderstorms produced localized downbursts resulting in tree damage.
8/30/2022	Thunderstorm Wind	0	0	$4,000	Wires were reported down in the 7000 block of VA-634 Griffinsburg Road. Trees and wires blew down near Stevensburg and Culpeper. Trees blew down near the intersection of VA-666 Greens Corner Road and VA-703 Jonas Road. Wires were reported down in the 19000 block of VA-1115 Colonial Drive. A gust front associated with a low-topped line of showers and thunderstorms produced sporadic wind damage.
9/12/2022	Thunderstorm Wind	0	0	$5,000	Numerous trees blew down near the intersection of VA-679 Farley Road and VA-663 Alanthus Road. Showers and a few thunderstorms developed ahead of a cold front. A few took on brief supercell characteristics resulting in localized wind damage.
4/22/2023	Thunderstorm Wind	0	0	$ 14,000	Trees and wires blew down in the 18000 block of VA-643 South Merrimac Road. Trees blew down along VA-641 Gibson Mill Road. Multiple trees blew down at the intersection of VA-633 Norman Road and VA-643 North Merrimac Road. A tree blew down onto a vehicle along VA-632 Dutch Hollow Road. A strong cold front produced a line of thunderstorms that resulted in widely scattered damaging straight-line wind gusts and a couple tornadoes.
6/16/2023	Hail	0	0		Quarter size hail was reported near Dunavant. Several isolated supercell thunderstorms produced sporadic wind damage and localized large hail.

7/25/2023	Thunderstorm Wind	0	0	$ 3,000	Tree damage was reported east of Slate Mills, including in the 5000 block of VA-707 Slate Mills Road. Tree damage was reported west of Reva, including in the 4000 block of VA-606 Novum Road. Tree damage was reported west of Cardova, including near the intersection of US-522 Sperryville Pike and VA-738 Old Turnpike Road. Remnant outflow from convection the day before over the Midwest combined with a lee pressure trough resulted in scattered to numerous showers and thunderstorms. Several produced localized wind damage and some hail.
7/28/2023	Thunderstorm Wind	0	0	$ 2,000	Trees blew down on VA-229 Rixeyville Road near VA-611 Waterford Road. A subtle remnant disturbance from prior day's convection over the Midwest amplified a pre-existing lee pressure trough, igniting numerous thunderstorms. Given the excessive hot, humid, and unstable environment, these thunderstorms were able to organize into clusters and lines despite a lack of stronger wind shear.
8/7/2023	Thunderstorm Wind	0	0	$ 16,000	Several trees and wires blew down in Rixeyville, including along VA-229 Rixeyville Road. Trees blew down on VA-611 Waterford Road. Trees blew down along Quail Ridge Drive. Trees blew down along VA-628 Hazel River Road. Trees blew down west of Winston, including near the intersection of VA-601 Kettle Club Road and US-15 North James Madison Highway. A strong cold front, driven by an unusually strong upper-level trough and wind shear, interacted with a hot, humid, and unstable airmass over the Mid-Atlantic. This pattern resulted in the formation of lines of thunderstorms and several supercells. The most widespread and significant wind damage was noted over northern Maryland, although pockets of considerable wind damage were noted

					over portions of northwestern Virginia and eastern West Virginia. Somewhat atypical for the Mid-Atlantic is late summer was the number of large hail reports, with multiple instances of giant hail noted.
9/9/2023	Thunderstorm Wind	0	0	$15,000	Several trees and wires blew down in southern Culpeper County near Stevensburg. Several trees and wires blew down around Culpeper. Several trees and wires blew down around Rixeyville. A cold front stalling over the Mid-Atlantic ignited several severe thunderstorms that produced mainly localized wind damage.

Fauquier County

Date	Hazard	Deaths	Injuries	Total Dmg	Narrative
3/2/2018	High Wind	0	0		The Fauquier County 911 center reported approximately 1100 calls mainly for trees and wires down, and many on houses as well. A low pressure system moving eastward from the central United States on Thursday March 1st, intensified rapidly as it moved offshore Thursday night and early Friday, deepening to 974 mb by the evening of Friday March 2nd. | |Strong winds were present in the low levels of the atmosphere due to the strengthening pressure gradient, and were able to mix down to the surface in strong wind gusts under northwest flow cold air advection.
5/10/2018	Thunderstorm Wind	0	0		A tree was down blocking the roadway in the 10400 Block of Old Marsh Road. A wind gust of 64 mph was measured at the Warrenton Airport. A cold front passed through the area on the 10th. Warm and humid air ahead of the boundary led to an unstable atmosphere. The instability

					combined with forcing from the cold front to trigger a few severe thunderstorms.
7/27/2018	Thunderstorm Wind	0	0		A tree was down on the 6000 block of Airlie Road. Two trees were down with the motorist trapped between the intersection of Old Bust Head Road and Fosters Fork Road. No injuries were reported. A tree was blocking the 5300 Block of Old Alexandria Turnpike. A cold front passed through the area on the 27th. Ahead of the boundary, a southerly flow led to plenty of moisture an unstable atmosphere. A potent upper-level low caused stronger winds aloft as well. Some thunderstorms associated with the cold front became severe due to the instability and stronger winds aloft.
8/17/2018	Thunderstorm Wind	0	0		A tree was blown down near the intersection of Crest Hill Road and Leeds Manor Road. A cold front interacted with a moist and unstable air mass to produce thunderstorms across the region. Some of these storms became severe.
2/25/2019	High Wind	0	0		Wind gusts of up to 58 mph were estimated. There were also reports of downed trees and power lines. An area of low pressure rapidly intensified as it moved from the Mid-Mississippi Valley northward into the Great Lakes from late in the evening of February 24th and into the morning hours of February 25th. The low then tracked northeastward into Canada during the remainder of the 25th. A secondary area of low pressure also developed along the Mid-Atlantic coastline and moved into New England. Strong winds associated with the system led to high wind gusts across northern and western Virginia.
4/19/2019	Thunderstorm Wind	0	0		A tree was blown down on Brent Town Road. A closed upper-level low moved eastward from Missouri and Arkansas and into Tennessee during the daytime hours of April 19th, and then moved northward into

					Kentucky during the night. At the surface, low pressure moved from near Tennessee in the morning to eastern Kentucky by the evening, and into Ohio by late in the night, intensifying along its track. This brought strong forcing across the Mid-Atlantic and southeastern United States with divergent flow aloft and deep moist southerly flow at the surface. Moderate instability developed by the afternoon hours with strong speed and directional shear aloft. This led to two distinct rounds of showers and thunderstorms across northern and central Virginia, with the first round in the mid to late afternoon hours, and a second more organized round in the evening that evolved into a quasi-linear convective system. Some of the thunderstorms became severe with locally damaging winds. Two tornadoes were also confirmed, one from a supercell in the late afternoon, and one from the quasi-linear convective system in the late evening.
4/26/2019	Thunderstorm Wind	0	0		Trees were down along the 1600 block of Summerduck Road. An upper-level trough east of the Mississippi River on the morning of April 26th deepened and closed off over the eastern Great Lakes by the morning of April 27th. A forced convective line was ongoing in the morning hours of April 26th over West Virginia and progressed eastward into Virginia during the afternoon hours. A few individual cells also formed ahead of this convective line. Modest instability developed during the late morning and early afternoon hours which helped to support showers and thunderstorms across the region, and this combined with moderate levels of wind shear led to strong to severe thunderstorms which produced locally damaging winds.

5/18/2019	Thunderstorm Wind	0	0		An apple tree was uprooted by strong winds. Numerous trees were blown down along Brent Town Road between Courthouse Road and MCB3. A weak warm front was located across central Maryland southward along the Potomac River during the afternoon hours of May 18th. Enough instability and wind shear were present for thunderstorms to develop near and along this boundary, and one became severe.
5/23/2019	Thunderstorm Wind	0	0		Four trees were blown down in the northern part of Fauquier County near The Plains. Three trees were blown down in the southern part of Fauquier County. A warm front crossed the region during the morning hours of May 23rd, placing the area in the warm sector by the afternoon hours. At the same time, surface low pressure tracked across the northern Great Lakes, with an attendant cold front moving into the Ohio Valley by the evening. A mesoscale convective system (MCS) was ongoing during the morning hours and moved eastward and into the region during the afternoon hours. Out ahead of the MCS, moisture and warmth increased with moderate instability developing. Aloft, wind shear increased throughout the day and became quite substantial by the late afternoon. The MCS entered Virginia by the midafternoon hours and intensified into a linear feature that produced damaging winds before exiting during the evening.
5/25/2019	Thunderstorm Wind	0	0		Multiple trees were blown down on Waterloo Road in Warrenton. A tree was blown down on Broadview Avenue. Tree, power line, and telephone pole damage was reported within Warrenton town limits. A warm front slowly moved northeastward through southwestern and central Virginia during the day of May 25th, reaching northern Virginia and the Washington Metropolitan area during the night of May

					25th into the 26th. Near and south and west of this frontal boundary instability developed during the afternoon of the 25th which led to the development of showers and thunderstorms during the afternoon and evening hours, some of which became severe.
5/30/2019	Thunderstorm Wind	0	0		A tree was blown down on powerlines on the 3500 block of Milestone Road. A tree was blown down onto powerlines on the 4200 block of Mosby Street. A tree was also blown down onto powerlines on the 6200 block of Lee Street. On the morning of May 30th, a surface front was positioned across Pennsylvania, with a surface low positioned west of Chicago, Illinois. Through the day the surface low moved eastward along the frontal boundary, reaching western Pennsylvania by late in the afternoon. The low then quickly pushed eastward off the NJ coastline by late in the evening, with a cold front crossing the region. In addition, two disturbances aloft moved across the area, one during the mid to late afternoon hours, and another in the evening. Out ahead of the front, warmth and humidity allowed for the development of moderate instability and that coupled with moderate wind shear aloft set the stage for two rounds of scattered showers and thunderstorms, some of which became severe.
6/2/2019	Hail	0	0		Hail up to the size of ping pong balls (1.50 diameter) was reported. Hail up to the size of golf balls (1.75 diameter) was reported at the Aspen Dale Winery. Hail up to the size of nickels (0.88 diameter) was reported. Hail up to the size of quarters (1.0 diameter) was reported. Hail up to the size of dimes (0.75 diameter) was reported. A cold front approached the region during the day of June 2nd, and that combined with broadly falling heights and increasing instability and

					wind shear, led to the development of scattered strong to locally severe thunderstorms during the afternoon and evening hours.
6/13/2019	Thunderstorm Wind	0	0		A tree was blown down on Kennedy Road. Another tree was also blown down on Greenwich Road. A potent upper-level trough and associated cold front moved into the region during the daylight hours of June 13th. Instability aided by low heights aloft and warm surface temperatures combined with strong wind shear set the stage for scattered strong to locally severe thunderstorms across the region during the afternoon and evening hours.
6/18/2019	Thunderstorm Wind	0	0		A tree was blown down in the 6200 block of Old Auburn Road. Instability and low-level moisture in combination with energy moving through the upper levels of the atmosphere generated scattered showers and thunderstorms in the afternoon and evening. A couple of these thunderstorms intensified to severe levels.
6/27/2019	Thunderstorm Wind	0	0		A tree was blown down near Leeds Manor Road and Stillhouse Road. Relatively high low-level moisture and surface instability combined with local terrain | circulations to generate a few pulse severe thunderstorms during the afternoon and evening hours of June 27th.
6/28/2019	Thunderstorm Wind	0	0		A tree was blown down in the 10600 block of Hume Road. While large scale forcing was weak, moderate amounts of instability combined with local terrain circulations and remnant mesoscale boundaries to generate scattered showers and thunderstorms in the afternoon. With steep low level lapse rates, a few of these storms became strong to locally severe.

7/2/2019	Thunderstorm Wind	0	0		Trees were blown down near the intersection of Ridge Road and Summit Drive. Multiple trees were blown down in and around Warrenton. Large trees were also blown down blocking the 8700 block of Green Road. Increasing temperatures and low-level moisture led to developing instability across the region during the day of July 2nd. The strongest mid-level forcing remained to the north across northern PA/OH where a stationary boundary lingered. However, a weak upper-level shortwave trough moving through did help showers and scattered thunderstorms to develop across portions of the state, and given the instability a few became severe.
7/17/2019	Thunderstorm Wind	0	0		Large tree limbs were reported down blocking Freemans Ford Road. Multiple trees were reported down in the Warrenton area. A tree was blown down on Old Dumfries Road. On July 17th, the remnant circulation of Barry moved into Pennsylvania with a surface pressure trough out ahead of it over the Mid-Atlantic. Out ahead of the circulation, a hot, humid, and unstable air mass was in place, and this helped to initiate scattered to numerous showers and thunderstorms in the afternoon. Some of these thunderstorms became strong to locally severe.
7/20/2019	Thunderstorm Wind	0	0		Multiple trees were blown down just southeast of Warrenton. Isolated thunderstorms developed during the evening hours of July 20th as weak shortwave energy from a weakening mesoscale convective vortex acted in concert with local terrain circulations to initiate convection. These isolated thunderstorms became strong to locally severe.

7/22/2019	Thunderstorm Wind	0	0		A tree was blown down blocking the roadway at the intersection of Midland Road and Elk Run Road. Falling heights, an increasing southwest flow aloft, an approaching cold front, and strengthening pressure trough overhead combined with instability from a hot and humid air mass in place to trigger showers and thunderstorms during the afternoon hours of July 22nd. With high levels of CAPE and increased shear profiles, thunderstorms became strong to severe as they organized into linear structures.
7/29/2019	Thunderstorm Wind	0	0		Dozens of trees were blown down, some snapped, near the intersection of VA-605 and Saddle Ridge Court. A few fences were damaged. One greenhouse was destroyed. High pressure gradually shifted eastward and off the southeastern US coast through the day on July 29th. This promoted the development of southerly flow and the return of low-level moisture. This allowed for the development of marginal instability and a few isolated |showers and thunderstorms. One storm became severe.
8/7/2019	Thunderstorm Wind	0	0		Trees were blown down in the 1600 and 2200 block of Leeds Manor Road. A tree was blown down onto a power line near the intersection of US-15 and Blantyre Road. An upper-level disturbance and remnant mesoscale convective vortex (MCV) crossed the region during the afternoon hours of August 7th. This, combined with moderate amounts of instability, led to the development of scattered showers and thunderstorms across portions of northern and central Virginia. A couple of these thunderstorms became severe.
8/18/2019	Thunderstorm Wind	0	0		A tree was reported blown down onto wires in the 5400 block of Courtneys Corner Road. A hot and humid air mass in place led to increasing amounts of instability across the

					region. This fostered the development of a few showers and thunderstorms, a couple of which became locally severe.
9/2/2019	Thunderstorm Wind	0	0		Two trees and multiple large branches were blown down near Hickory Tree Farm. A cold front crossed the region during the afternoon and evening hours at the same time as an upper-level disturbance approached the region. A southerly flow out ahead of the boundary brought increased moisture and that combined with heating from sunshine led to unstable conditions by late in the day. Shear also increased late in the day in response to the approaching upper-level disturbance. This combination of instability, forcing, and wind shear led to showers and thunderstorms, some of which became severe.
9/11/2019	Thunderstorm Wind	0	0		Five to six inch in diameter tree limbs were blown down on the Lord Fairfax Community College campus. A tree was blown down in the 2200 block of Leeds Manor Road. A tree was blown down in the 10200 block of Pleasant Vale Road. A tree was blown down in the 5700 block of Wilson Road. A tree was blown down on Citation Drive near Bears Den Road. Multiple trees were blown down in the area of Courthouse Road and Elk Run Road. A tree was blown down in the 6700 block of Beach Road. Another tree was blown down on Opal Road near Sir Topas Drive. A tree was blown down in the 8800 block of Old Dumfries Road. In the afternoon hours of September 11th, a weak upper-level trough approached the region from the Ohio Valley. This coupled with abundant surface heating led to the development of showers and thunderstorms by the afternoon and evening hours. |With ample instability and modest shear, some thunderstorms became locally severe.

10/31/2019	Thunderstorm Wind	0	0		A tree was down on Messick Road at Germantown Road. A second tree was down in the 5500 block of Germantown Road. Tree reported down in the 11000 block of Rougues Road. Tree reported down in 2700 block of Dumfries Road. Tree reported down in 1400 block of Swoego Road. Tree reported down in the 8100 block of Burwell Road. A strong cold front passed through during the evening of the 31st. A southerly flow led to warm and humid conditions ahead of the boundary, which caused an unstable atmosphere. The instability along with the cold front caused showers and isolated thunderstorms, some of which were able to mix down strong winds from aloft.
6/4/2020	Thunderstorm Wind	0	0	$20,000	Multiple trees were blown down at a residence, including one that fell onto the garage. There were a couple of reports of trees down east of Marshall. A tree was blown down in the 8300 block of MD-55 John Marshall Highway. Numerous trees and wires were blown down near Pickett Street. Thunderstorms initiated along a pressure trough in the lee of the Appalachian Mountains during the mid to late afternoon and persisted into the evening. Some thunderstorms became severe, producing scattered instances of damaging wind gusts.
6/22/2020	Thunderstorm Wind	0	0	$23,000	A roof was blown off a barn and numerous trees and fencing were blown down. Several trees were blown down across central Fauquier County. A weak pressure trough/surface front ignited a cluster of strong to severe thunderstorms. The storms began over eastern West Virginia during the early afternoon, then progressed eastward through central Maryland and northern Virginia producing scattered damaging downburst wind gusts.

6/25/2020	Thunderstorm Wind	0	0	$ 25,000	Numerous trees were blown down in Warrenton. Several trees were blown down near and just east of Warrenton. An unseasonably strong upper-level trough interacted with a modestly unstable environment over the Middle Atlantic to produce several supercell thunderstorms which transitioned into small bowing line segments across far eastern West Virginia, central Maryland, and northern Virginia. The storms produce substantial and relatively widespread wind damage and some hail along their path, though the storms themselves were isolated to widely scattered in nature.
7/22/2020	Thunderstorm Wind	0	0	$ 7,000	Multiple trees were blown down in the Opal area. A tree was blown down on Summerduck Road near Courtneys Corner Road. A tree blew down on Morrisville Road near Marsh Road. An upper-level trough interacted with a stalled surface front draped over the Mid-Atlantic resulting in scattered numerous showers and thunderstorms developing in the lee of the Appalachians Mountains as early as midday. The storms coalesced into a bow echo moved eastward across central Maryland and northern Virginia (including the DC metro) during the midafternoon. Thunderstorms exited the area by nightfall.
7/24/2020	Thunderstorm Wind	0	0	$ 6,000	A large tree was blown down blocking the roadway near the intersection of VA-687 Opal Road and VA-651 Lees Mill Road. Several other trees and wires were blown down in the area. A few isolated severe thunderstorms developed over central Virginia and near Baltimore.
8/25/2020	Thunderstorm Wind	0	0	$16,000	A tree was blown down on Leeds Manor Road. There were multiple reports of trees and wires blown down near Warrenton. There were multiple reports of trees and wires blown down near Bealeton. An

					outflow boundary from a decaying convective system triggered an isolated severe thunderstorm over northern Virginia around midday. A cold front then triggered an organized line of thunderstorms which produced scattered to numerous damaging wind gusts over eastern West Virginia, western Maryland, and northern into central Virginia as well as the DC metro area.
8/28/2020	Thunderstorm Wind	0	0	$ 10,000	There were multiple reports of trees blown down in the Upperville area. A tree was blown down on Routts Hill Road. A tree was blown down onto power lines on VA-643 Meetze Road near VA-674 Green Road/Lunsford Road. The stream gage on Carter Run near Orlean/Jeffersontown exceeded the 12-foot flood stage during the indicated period. Cliff Mills Rd. was flooded near Orlean. The peak level of 14.49 feet occurred at 1:30 AM on the 29th. A broken line of strong to severe thunderstorms developed southward into the area from Pennsylvania during the mid to late afternoon and early evening hours.
5/4/2021	Thunderstorm Wind	0	0	$12,000	A tree blew down on VA-683 Turnbull Road near VA-802 Springs Road. A pole and wires were down in the 4000 block of Ringwood Road. A tree blew down in the 5000 block of VA-28 Cattlett Road. A cold front sparked scattered severe thunderstorms that produced mainly damaging straight-line wind gusts across much of Virginia into parts of Maryland.
5/26/2021	Thunderstorm Wind	0	0	$ 3,000	A tree blew down in the 13000 block of VA-635 Hume Road. A tree blew down on VA-674 Georgetown Road. A tree blew down near the intersection of US-17 James Madison Highway and VA-628 Keith Road. A pre-frontal trough and approaching cold front ignited multiple rounds of severe thunderstorms during the afternoon and

					evening hours. Some thunderstorms produced significant microbursts.
6/3/2021	Thunderstorm Wind	0	0	$ 1,000	A tree blew down in the 13100 block of VA-806 Elk Run Road. A pressure trough ignited numerous showers and thunderstorms, several of which produced localized damaging winds, hail, and a tornado.
6/8/2021	Thunderstorm Wind	0	0	$ 11,000	Nearly a dozen trees and large limbs blew down along VA-721 Free State Road near and south of I-66, and along I-66 between Exits 23 and 32. A tree blew down near the intersection of VA-688 Leeds Manor Road and Braemont Lane. Isolated severe thunderstorms caused tree damage in Fauquier County and Rockingham County VA.
7/1/2021	Thunderstorm Wind	0	0	$ 2,000	Two trees blew down across VA-670 Old Auburn Road near VA-692 Kines Road. Two rounds of severe thunderstorms produced two tornadoes, hail, and widespread wind damage (some significant) across the DC metro and central Maryland, with spottier wind damage extending into the Baltimore area.
7/14/2021	Thunderstorm Wind	0	0	$ 2,000	A tree blew down on VA-721 Free State Road at VA-720 Mountjoy Road. A tree blew down near the intersection of VA-688 Leeds Manor Road and VA-647 Crest Hill Road. A cold front produced numerous thunderstorms that resulted in scattered wind damage across east-central Virginia into southern Maryland.
7/17/2021	Thunderstorm Wind	0	0	$ 4,000	A tree blew down on VA-651 Lees Mill Road near Westbury Drive. Two trees blew down onto power lines on VA-744 Lovers Lane near Lees Ridge Road. Showers and thunderstorms produced scattered instances of wind damage during the afternoon and early evening hours.

8/10/2021	Hail	0	0	$10,000	Golf ball size hail was reported near Upperville. Numerous trees and power lines were blown down in and around Upperville off US-50 John S. Mosby Highway near VA-619 Trappe Road. A lee pressure trough ignited thunderstorms in a strongly unstable environment. The strongest thunderstorms produced severe downbursts and sporadic hail.
8/11/2021	Thunderstorm Wind	0	0		Several trees blew down along VA-55 in Markham. A lee pressure trough and weak cold front combined to ignite numerous thunderstorms in a strongly unstable environment. The strongest thunderstorms produced severe wind gusts and sporadic hail.
8/13/2021	Thunderstorm Wind	0	0	$ 87,000	A tree was reported down in the 2100 block of VA-688 Leeds Manor Road. Wind gusts of up to 64 knots (74 MPH) were measured by the AWOS at Warrenton Airport. Numerous large trees several feet in diameter were uprooted with other trees and large branches toppled and snapped in the area, including near the intersection of VA-610 Midland Road and Airport Road. Trees blew down near the intersection of VA-600 Beverleys Mill Road and US-29/US-15 Lee Highway. A tree blew down in the 6600 block of VA-675 Kelly Road. Trees blew down near the intersection of VA-28 Catlett Road and Smith Midland Lane. Trees blew down in the 5100 block of Germantown Road. A tree blew down near the intersection of Kennedy Road and Vint Hill Parkway. A tree blew down on Beverley Mill Drive near I-66. Numerous trees blew down near the intersection of VA-616 Casanova Road and VA-643 Meetze Road. Numerous trees blew down in the 8900 block of VA-667 Old Dumfries Road. Numerous trees blew down on VA-616 Casanova Road near Poplar Springs Manor. A tree blew down on VA-609 Courthouse Road. A cold

					front intersected an extremely unstable airmass. The result was numerous strong to severe thunderstorms containing damaging wind gusts and some hail.
8/25/2021	Thunderstorm Wind	0	0	$ 3,000	Several trees blew down along VA-674 Green Road near Bealeton. Scattered thunderstorms produced several instances of localized wind damage.
8/28/2021	Thunderstorm Wind	0	0	$ 18,000	A tree blew down on US-50 John S. Mosby Highway at the intersection with Crofton Lane. A tree blew down in the 9300 block of VA-602 Rogues Road. Two trees blew down in Calverton. Several trees blew down in Midland, including a large tree that blew down onto wires in the 11100 block of VA-602 Rogues Road. A tree blew down in the 13400 block of VA-752 Sillamon Road. A tree blew down on Union Church Road. Several trees and branches blew down in Morrisville. Widely scattered severe thunderstorms developed ahead of a weak cold front.
8/30/2021	Thunderstorm Wind	0	0	$ 2,000	Several trees blew down around Broken Hill. A tree blew down on VA-694 Old Bust Head Road near Oliver Lane. A tree blew down on VA-676 Riley Road near VA-1306 Lake Drive/Broken Hills Road. A weak cold front triggered a few severe thunderstorms.
5/15/2022	Thunderstorm Wind	0	0	$ 2,000	Tree damage was reported near Warrenton, including a tree that blew down near the intersection of US-29/US-15 Lee Highway and Snow Hill Drive, and a large tree limb that fell blocking the roadway on US-29/US-15 Lee Highway near VA-605 Colonial Road/Dumfries Road. An isolated severe thunderstorm produced localized wind damage near Warrenton.
5/16/2022	Thunderstorm Wind	0	0	$5,000	A couple of trees blew down near Warrenton. A tree blew down near the intersection of VA-688 Harts Mill Road and VA-802 Springs Road. A tree blew down in

					the 10000 block of VA-651 Lees Mill Road. Trees and power lines blew down near the intersection of VA-602 Rogues Road and VA-605 Dumfries Road. An intense supercell thunderstorm spawned by a strong cold front and negatively tilted upper-level trough resulted in a swatch of considerable wind damage and significant hail from parts of northern Virginia, across the southern suburbs of Washington DC, to southern Maryland.
5/22/2022	Thunderstorm Wind	0	0	$ 5,000	Three trees blew down near Markham. Two trees blew down along US-29/US-15 Lee Highway near Warrenton. A strong cold front produced multiple rounds of strong to severe thunderstorms resulting in isolated large hail and scattered wind damage.
6/1/2022	Thunderstorm Wind	0	0	$ 150,000	Damage was reported to two separate hangars at Warrenton-Fauquier Airport (KHWY). Approximately 300 feet of roofing and siding was torn off, causing damage to a nearby plane. No injuries were reported. A few localized downbursts caused sporadic wind damage.
6/2/2022	Thunderstorm Wind	0	0	$ 22,000	Multiple large tree limbs blew down on VA-687 Opal Road near VA-651 Lees Mill Road. Numerous trees blew down and a barn roof was torn off in the 7000 block of Candy Meadow Lane. Scattered to numerous showers and thunderstorms produced isolated instances of large hail and wind damage.
6/8/2022	Thunderstorm Wind	0	0	$ 3,500	Trees blew down in the 2600 and 3100 blocks of VA-610 Midland Road. Tree damage was reported near Bristersburg, including a tree that blew down along VA-616 Bristersburg Road at VA-637 Courtney School Road. A tree was reported down on West Lee Street. A cold front spawned numerous thunderstorms resulting in

					scattered instances of damaging wind, some large hail, and a tornado.
6/16/2022	Thunderstorm Wind	0	0	$2,000	Tree damage was reported near Turnbull, including a tree that blew down onto power lines near the intersection of VA-687 Opal Road and South Pines Road. Tree damage was reported near Remington, including a tree that blew down in the 11200 block of VA-660 Saint Paul's Road. Thunderstorms produced scattered instances of damaging winds and large hail, some considerable, across extreme eastern West Virginia into northern and central Virginia.
6/22/2022	Thunderstorm Wind	0	0	$821,500	Hundreds of trees, branches, and wires blew down between Middleburg and Upperville. A destructive thunderstorm blew down thousands of trees, tree limbs, wires, and poles across northern and west-central Fauquier County, with peak wind gusts estimated to be between 80 and 90 MPH. This storm affected the Delaplane, Marshall, and Ashville areas between 4:20 and 4:30 PM. Numerous large trees blew down onto power lines and poles along VA-731 Cobbler Mountain Road between Delaplane and Ashville. Dozens of large trees and tree limbs blew down onto I-66 near Marshall. Numerous trees blew down blocking US-17 Winchester Road near Old Tavern. A destructive thunderstorm blew down thousands of trees, tree limbs, wires, and poles across northern and west-central Fauquier County, with peak wind gusts estimated to be between 80 and 90 MPH. This storm affected between Ada, Meadowville, Bethel, and Orlean near and just north and west of Warrenton between 4:30 and 4:40 PM. Thousands of large trees were blown down and snapped in this area, with many homes suffering shingle and siding damage. At least three buildings collapsed due to falling trees, with one

					resident trapped for several hours but uninjured in the area of Orlean. Numerous trees blew down blocking US-15/US-29 Lee Highway between Warrenton and New Baltimore. Dozens of large trees blew down between Warrenton and Opal on US-15/US-29 James Madison Highway. A strongly unstable airmass in a moderately sheared environment squeezed between two fronts resulted in several clusters of destructive thunderstorms. The most intense thunderstorms propagated north to south along a stalled front dividing very unstable air near and west of Interstate 95, from notably more stable air closer to the Chesapeake Bay. | |The event was unusual not only because of the intensity of the thunderstorms, but because they moved in a north to south direction, even propagating south-southwestward at times.
7/12/2022	Hail	0	0	$ 46,000	Half dollar size hail was reported in Marshall. Numerous trees blew down in The Plains, including on Bunker Hill Road near Featherstone Lane. Numerous trees blew down near Broken Hill. VA-676 Riley Road from Oakmont Drive to VA-1325 Lakeview Drive was closed due to downed trees and power lines. A large tree blew down onto an occupied vehicle nearby. Numerous trees blew down around Bealeton. Numerous trees and wires blew down in Sumerduck, including along VA-651 Sumerduck Road between VA-631 Snake Castle Road and VA-632 Rogers Ford Road. An outbreak of significant severe weather occurred during the afternoon and evening hours of Tuesday, July 12th, 2022. An unseasonably strong cold front interacted with a high instability airmass to result in several bowing lines of thunderstorms, which maintained their organization and intensity due to strong atmospheric wind shear. Swaths of widespread damaging winds were observed, much of which was

					considerable. A couple of tornadoes were also confirmed, along with some significant hail. A wind gust of over 100 MPH was measured in one of the most powerful storms over eastern West Virginia.
7/14/2022	Thunderstorm Wind	0	0	$2,000	Trees blew down near the 7000 block of VA-688 Leeds Manor Road. A couple of isolated severe thunderstorms produced localized wind damage from east-central Virginia into southern Maryland.
7/25/2022	Thunderstorm Wind	0	0	$103,000	Trees and wires blew down near Catlett, including along VA-604 Burwell Road in the 8300 block. A wind gust of 58 knots (67 MPH) was measured by the AWOS at Warrenton Airport. A hangar that had roof damage from a storm earlier in the year had its walls collapse as a result of the wind and prior damage. A weak cold front sparked scattered to numerous showers and thunderstorms that resulted in several instances of damaging wind gusts. One storm in particular contained considerable hail and destructive winds just east of the City of Charlottesville.
8/4/2022	Thunderstorm Wind	0	0	$ 2,000	Tree damage was reported near Airlie and Broken Hill. A tree blew down in the 6600 block of VA-628 Blantyre Road. A tree blew down in the 5800 block of VA-674 Georgetown Road. A surface trough ignited numerous showers and thunderstorms that resulted in scattered instances of damaging wind gusts and sporadic large hail.
8/30/2022	Thunderstorm Wind	0	0	$ 1,000	Trees blew down in Remington, including one that blocked the roadway near the intersection of North Franklin Street and East Madison Street. A gust front associated with a low-topped line of showers and thunderstorms produced sporadic wind damage.

4/22/2023	Thunderstorm Wind	0	0	$ 3,000	A large tree blew down onto power lines near the intersection of VA-615 Silver Hill Road and VA-631 Royalls Mill Road. A large tree blew down near the intersection of VA-652 Kennedy Road and VA-603 Greenwich Road. A strong cold front produced a line of thunderstorms that resulted in widely scattered damaging straight-line wind gusts and a couple tornadoes.
6/19/2023	Thunderstorm Wind	0	0	$ 3,000	Trees blew down on I-66 and VA-55 John Marshall Highway near Markham. A few thunderstorms produced localized wind damage over portions of north-central Virginia.
7/28/2023	Thunderstorm Wind	0	0	$ 12,000	Several trees and wires blew down around Warrenton. Trees blew down in Sumerduck. A subtle remnant disturbance from prior day's convection over the Midwest amplified a pre-existing lee pressure trough, igniting numerous thunderstorms. Given the excessive hot, humid, and unstable environment, these thunderstorms were able to organize into clusters and lines despite a lack of stronger wind shear.
8/7/2023	Thunderstorm Wind	0	0	$365,000	Dozens of trees blew down on VA-688 Leeds Manor Road and nearby roads just south of I-66. Dozens of trees, branches and wires blew down around Upperville. Dozens of trees, branches and wires blew down in northeastern Fauquier County, including along VA-626 Halfway Road, VA-626 The Plains Road, and VA-702 Rock Hill Mill Road. Several trees blew down along VA-741 Enon School Road. Dozens of trees, wires and a few poles blew down between Warrenton and Old Tavern, including in the vicinity of US-17. Several roads were blocked by fallen trees between Somerville and Bristersburg. A strong cold front, driven by an unusually strong upper-level trough and wind shear, interacted with a hot, humid, and unstable airmass over the Mid-Atlantic. This pattern

					resulted in the formation of lines of thunderstorms and several supercells. The most widespread and significant wind damage was noted over northern Maryland, although pockets of considerable wind damage were noted over portions of northwestern Virginia and eastern West Virginia. Somewhat atypical for the Mid-Atlantic is late summer was the number of large hail reports, with multiple instances of giant hail noted.
9/7/2023	Thunderstorm Wind	0	0	$ 14,000	There were several calls for trees blown down along VA-55 John Marshall Highway between Linden and Markham. Trees blew down along VA-55 John Marshall Highway near Markham. Downed trees and wires caused a power outage near Delaplane. Delaplane Fire Department responded to several calls for downed trees and wires. Numerous showers and thunderstorms developed along a lee pressure trough after several days of late season heat. Several of these storms turned severe, producing both damaging wind gusts and large hail.
9/9/2023	Thunderstorm Wind	0	0	$15,000	There were about a dozen calls for trees, branches, and wires blown down around Warrenton and central Fauquier County. A cold front stalling over the Mid-Atlantic ignited several severe thunderstorms that produced mainly localized wind damage.

Madison County

Date	Hazard	Deaths	Injuries	Total Dmg	Narrative
3/2/2018	High Wind	0	0		Wind gusts around 60 to 70 mph were estimated based on observations nearby. Pine trees were toppled into a fence near Madison. Numerous trees were down in Etlan and Madison. A low pressure system moving eastward from the central United States on Thursday March 1st, intensified

					rapidly as it moved offshore Thursday night and early Friday, deepening to 974 mb by the evening of Friday March 2nd. | |Strong winds were present in the low levels of the atmosphere due to the strengthening pressure gradient, and were able to mix down to the surface in strong wind gusts under northwest flow cold air advection.
5/14/2018	Thunderstorm Wind	0	0		A tree was down on Shelby and Wolftown Hood Road. A tree fell into a home. A tree fell onto N. Blue Ridge Turnpike. A tree fell onto the S. Blue Ridge Turnpike. Low pressure passed through the area on the 14th. The low tracked along a boundary that separated warm and humid air to the south and west from cooler marine air to the north and east. The warm and humid air led to an unstable atmosphere, and there was enough instability for storms to become severe.
5/15/2018	Thunderstorm Wind	0	0		Multiple trees were down between Syria and Graves Mill. A cold front passed through the area. Warm and humid conditions led to an unstable atmosphere ahead of the boundary, and that caused a few storms to become severe.
6/24/2018	Thunderstorm Wind	0	0		A tree was down near the intersection of Seville Road and Seminole Trail. A tree was down on Lonnie Burke Road near north Seminole Trail. A cold front passed through the area on the 24th and it was accompanied by a potent upper-level trough. The upper-level trough caused stronger winds aloft, and storms that developed were able to drag these stronger winds down to the surface.
8/2/2018	Thunderstorm Wind	0	0		Tree blown down on Slaughter Drive. A stalled front near the region combined with high instability and moderate shear values

					to produce thunderstorms, a few of which became severe.
8/12/2018	Thunderstorm Wind	0	0		A tree was blown down in the 220 block of Locust Grove Church Road. A tree was blown down on Tatums School Road 2 miles east of Locust Grove Road. A tree was blown down in the 300 block of Caves Ford Lane. Widespread showers and thunderstorms formed due to a combination of high instability and a stalled frontal boundary. Some storms became severe.
8/17/2018	Thunderstorm Wind	0	0		A tree was blown down near the intersection of West Hoover Road and Novum Church Road. A cold front interacted with a moist and unstable air mass to produce thunderstorms across the region. Some of these storms became severe.
2/24/2019	High Wind	0	0		Wind gusts of up to 70 mph were measured, with the peak gust measured near Shady Grove. There were also multiple reports of downed trees. An area of low pressure rapidly intensified as it moved from the Mid-Mississippi Valley northward into the Great Lakes from late in the evening of February 24th and into the morning hours of February 25th. The low then tracked northeastward into Canada during the remainder of the 25th. A secondary area of low pressure also developed along the Mid-Atlantic coastline and moved into New England. Strong winds associated with the system led to high wind gusts across northern and western Virginia.
5/23/2019	Thunderstorm Wind	0	0		A tree was blown down blocking one lane of traffic along Hebron Valley Road. A tree was blown down on West Hoover Road. Two trees were blown down in the vicinity of US-15 and Oak Park Road. A tree was blown down on the Old Blue Ridge Turnpike. A warm front crossed the region during the

					morning hours of May 23rd, placing the area in the warm sector by the afternoon hours. At the same time, surface low pressure tracked across the northern Great Lakes, with an attendant cold front moving into the Ohio Valley by the evening. A mesoscale convective system (MCS) was ongoing during the morning hours and moved eastward and into the region during the afternoon hours. Out ahead of the MCS, moisture and warmth increased with moderate instability developing. Aloft, wind shear increased throughout the day and became quite substantial by the late afternoon. The MCS entered Virginia by the midafternoon hours and intensified into a linear feature that produced damaging winds before exiting during the evening.
5/30/2019	Thunderstorm Wind	0	0		Multiple trees were blown down along South Blue Ridge Turnpike near Uno. On the morning of May 30th, a surface front was positioned across Pennsylvania, with a surface low positioned west of Chicago, Illinois. Through the day the surface low moved eastward along the frontal boundary, reaching western Pennsylvania by late in the afternoon. The low then quickly pushed eastward off the NJ coastline by late in the evening, with a cold front crossing the region. In addition, two disturbances aloft moved across the area, one during the mid to late afternoon hours, and another in the evening. Out ahead of the front, warmth and humidity allowed for the development of moderate instability and that coupled with moderate wind shear aloft set the stage for two rounds of scattered showers and thunderstorms, some of which became severe.
6/24/2019	Thunderstorm Wind	0	0		Several trees were blown down on Duet Road. Several trees were blown down on Hebron Valley Road. Several trees were blown down on Ruth Road. A warm front

					lifted across the region during the morning hours of June 24th, leading to increasing warmth and instability by the afternoon. At the same time, an upper-level trough and surface low tracked through the Great Lakes, with the trailing cold front approaching the region during the afternoon and evening. Showers and thunderstorms developed ahead of the front and crossed the area during the late afternoon and evening hours. There was enough instability and wind shear for some of these thunderstorms to become strong to locally severe.
6/28/2019	Thunderstorm Wind	0	0		Several trees and wires were blown down along Garth Run Road. While large scale forcing was weak, moderate amounts of instability combined with local terrain circulations and remnant mesoscale boundaries to generate scattered showers and thunderstorms in the afternoon. With steep low level lapse rates, a few of these storms became strong to locally severe.
7/31/2019	Thunderstorm Wind	0	0		A tree was blown down in the 7100 block of Ruth Road. A surface front moved slowly through the Ohio Valley on the afternoon of July 31st, with a secondary surface trough positioned just east of the I-95 corridor. Aloft, an upper-level trough slowly moved across the region. As instability increased during the afternoon hours, scattered showers and thunderstorms developed, and a few became severe.
8/15/2019	Thunderstorm Wind	0	0		A tree was blown down at the intersection of VA-629 and VA-699. A tree was blown down on West Hoover Road. A tree was blown down on Carpenter Mill Road near Tom Johnson Road. A tree was blown down on Beahm Town Road. An upper-level trough moved southeastward from the Great Lakes and into the Mid-Atlantic states during the day of August 15th. At the

					surface, a boundary also moved southeastward from Ohio and into the region. With building instability, scattered showers and thunderstorms developed across the higher elevations in the midafternoon hours, and then moved eastward during the late afternoon and evening. With relatively strong westerly to west-northwesterly flow aloft, deep layer shear increased and that, combined with the instability, led to some thunderstorms becoming strong to locally severe.
8/19/2019	Thunderstorm Wind	0	0		Multiple trees were blown down on Tatums School Road. A weak mid-level trough crossed the region on August 19th, and that combined with significant amounts of instability led to the development of isolated to scattered showers and thunderstorms. A few of these thunderstorms became strong to locally severe.
9/11/2019	Thunderstorm Wind	0	0		A tree was blown down on Tennant Church Road near Mill Hill Road. Multiple trees were blown down in the area of West Hoover Road and Ridgeview Road. In the afternoon hours of September 11th, a weak upper-level trough approached the region from the Ohio Valley. This coupled with abundant surface heating led to the development of showers and thunderstorms by the afternoon and evening hours. |With ample instability and modest shear, some thunderstorms became locally severe.
11/27/2019	High Wind	0	0		Low pressure intensified to the northeast and high pressure approached from the Midwest. A strong pressure gradient between these systems led to high winds across the higher elevations in the Blue Ridge Mountains and Potomac Highlands of Virginia. Wind gusts around 60 mph occurred.

7/5/2020	Thunderstorm Wind	0	0	$1,500	A large tree was blown down on Wolftown-Hood Road near the Madison/Greene County Line. An upper-level disturbance interacting with a stalled surface front draped over Maryland produced widely scattered severe thunderstorms during the afternoon of Sunday, July 5th, 2020.
7/6/2020	Thunderstorm Wind	0	0	$2,000	Trees and wires blew down near Wolftown. An upper-level disturbance triggered scattered to numerous showers and thunderstorms. The very unstable lower-level air mass resulted in an environment conducive to downburst winds.
7/21/2020	Thunderstorm Wind	0	0	$25,000	Multiple trees and power lines were blown down along Moonlight Mountain Road. One tree fell onto a vehicle. Some trees were snapped off about 15 feet above the ground. Numerous trees were blown down and a horse shed was destroyed on private property. Scattered strong to severe thunderstorms developed along a stalled front draped across the Middle Atlantic, peaking during the early evening hours.
7/14/2021	Thunderstorm Wind	0	0	$2,000	A tree blew down on VA-231 South FT Valley Road at VA-670 Old Blue Ridge Turnpike. A tree blew down in the 3000 block of VA-662 Shelby Road. A cold front produced numerous thunderstorms that resulted in scattered wind damage across east-central Virginia into southern Maryland.
7/15/2021	Thunderstorm Wind	0	0	$2,000	A tree blew down in Brightwood. A tree blew down in Radiant. An isolated thunderstorm produced a couple instances of wind damage over central Virginia.
8/11/2021	Hail	0	0	$14,000	Golf ball size hail was reported in Haywood. Four large trees blew down in Haywood. There were numerous reports of trees blown down in the Fordsville area. A lee pressure trough and weak cold front combined to ignite numerous thunderstorms in a strongly

					unstable environment. The strongest thunderstorms produced severe wind gusts and sporadic hail.
8/13/2021	Thunderstorm Wind	0	0	$6,000	A tree blew down in the 1300 block of VA-616 Good Hope Church Road. A tree blew down near the intersection of VA-231 North Blue Ridge Turnpike and Holden Lane. A tree blew down near the intersection of VA-641 Weaver Hollow Road and VA-609 West Hoover Road. Large tree limbs blew down on VA-621 South Blue Ridge Turnpike. A tree blew down near the intersection of VA-609 West Hoover Road and VA-604 Arrington Mountain Road/Towles Road. A cold front intersected an extremely unstable airmass. The result was numerous strong to severe thunderstorms containing damaging wind gusts and some hail.
9/28/2021	Hail	0	0		Hail up to half dollar size was reported near Five Forks. Several supercell thunderstorms produced large hail across portions of central Virginia.
6/8/2022	Thunderstorm Wind	0	0	$3,000	Three trees blew down in the 3400 block of VA-630 Thoroughfare Road. A cold front spawned numerous thunderstorms resulting in scattered instances of damaging wind, some large hail, and a tornado.
6/16/2022	Thunderstorm Wind	0	0	$3,000	Tree damage was reported near Radiant. A tree blew down in the 900 block of VA-616 Locust Grove Church Road. A tree blew down along VA-700 Wrights Lane. A tree blew down near the intersection of VA-620 Tatums School Road and VA-616 Locust Grove Church Road. Thunderstorms produced scattered instances of damaging winds and large hail, some considerable, across extreme eastern West Virginia into northern and central Virginia.

6/17/2022	Thunderstorm Wind	0	0	$2,000	Tree damage was reported near Madison. A tree blew down near the intersection of VA-231 North Blue Ridge Turnpike and VA-1021 Hebron Court. Power lines blew down in the 200 block of VA-634 Oak Park Road. Localized severe thunderstorms produced several instances of wind damage across portions of central Virginia.
6/22/2022	Thunderstorm Wind	0	0	$3,000	A few trees blew down between Zeus and Brightwood, including along VA-650 Oak Grove Road. A strongly unstable airmass in a moderately sheared environment squeezed between two fronts resulted in several clusters of destructive thunderstorms. The most intense thunderstorms propagated north to south along a stalled front dividing very unstable air near and west of Interstate 95, from notably more stable air closer to the Chesapeake Bay. | |The event was unusual not only because of the intensity of the thunderstorms, but because they moved in a north to south direction, even propagating south-southwestward at times.
7/12/2022	Thunderstorm Wind	0	0	$18,000	Quarter size hail was reported southeast of Madison. Quarter size hail was reported north of Oakpark. Several trees blew down along VA-630 Thoroughfare Road. A wind gust of 58 knots (67 MPH) was measured near Oakpark. Several trees blew down along VA-230 Orange Road and VA-684 Radiant Way. Numerous trees blew down near Pratts. An outbreak of significant severe weather occurred during the afternoon and evening hours of Tuesday, July 12th, 2022. An unseasonably strong cold front interacted with a high instability airmass to result in several bowing lines of thunderstorms, which maintained their organization and intensity due to strong atmospheric wind shear. Swaths of widespread damaging winds were observed, much of which was

					considerable. A couple of tornadoes were also confirmed, along with some significant hail. A wind gust of over 100 MPH was measured in one of the most powerful storms over eastern West Virginia.
7/16/2022	Thunderstorm Wind	0	0	$ 10,000	Numerous trees blew down along VA-614 Locust Dale Road. Several thunderstorms produced localized wind damage ahead of a weak cold front.
7/17/2022	Thunderstorm Wind	0	0	$24,000	Numerous trees and wires blew down near Reva and Fordsville. Several trees and wires blew down in the 1200 and 1800 blocks of VA-607 Ridgeview Road. Several trees blew down on VA-218 Caledon Road near Caledon State Park. A few thunderstorms produced localized wind damage along a stalling cold front.
7/25/2022	Thunderstorm Wind	0	0	$ 3,000	Tree damage was reported southwest of Reva. Trees and large tree limbs blew down in the 2700 block of VA-607 Ridgeview Road. A weak cold front sparked scattered to numerous showers and thunderstorms that resulted in several instances of damaging wind gusts. One storm in particular contained considerable hail and destructive winds just east of the City of Charlottesville.
8/4/2022	Thunderstorm Wind	0	0	$5,000	Five trees blew down on VA-615 Bluff Mountain Road. A surface trough ignited numerous showers and thunderstorms that resulted in scattered instances of damaging wind gusts and sporadic large hail.
4/1/2023	High Wind	0	0		Significant tree damage along Skyline Drive and other parts of Shenandoah National Park. A period of damaging high gradient winds developed across the region in wake of a strong cold front, resulting in numerous downed trees and power lines.

7/7/2023	Thunderstorm Wind	0	0	$7,000	Multiple large trees blew down in the 2100 block of VA-231 South F T Valley Road. A large tree blew down in the 3900 block of VA-603 Hebron Valley Road. A pressure trough sparked several thunderstorms during the afternoon and evening hours, a few of which produced localized wind damage east of the Blue Ridge and Catoctin Mountains.
7/8/2023	Thunderstorm Wind	0	0	$3,000	Multiple trees blew down on VA-609 West Hoover Road. An isolated severe thunderstorm produced localized wind damage in Greene and Madison Counties during the early evening hours.
7/28/2023	Thunderstorm Wind	0	0	$6,000	There were multiple reports of trees blown down in northeastern Madison County, including near Brightwood, Fordsville, and Oakpark. A subtle remnant disturbance from prior day's convection over the Midwest amplified a pre-existing lee pressure trough, igniting numerous thunderstorms. Given the excessive hot, humid, and unstable environment, these thunderstorms were able to organize into clusters and lines despite a lack of stronger wind shear.
8/7/2023	Thunderstorm Wind	0	0	$100,000	Dozens of trees blew down north of Syria, including along Weakley Hollow Road. A strong cold front, driven by an unusually strong upper-level trough and wind shear, interacted with a hot, humid, and unstable airmass over the Mid-Atlantic. This pattern resulted in the formation of lines of thunderstorms and several supercells. The most widespread and significant wind damage was noted over northern Maryland, although pockets of considerable wind damage were noted over portions of northwestern Virginia and eastern West Virginia. Somewhat atypical for the Mid-Atlantic is late summer was the

					number of large hail reports, with multiple instances of giant hail noted.

Orange County

Date	Hazard	Deaths	Injuries	Total Dmg	Narrative
3/2/2018	High Wind	0	0		The Orange County 911 center reported approximately 215 calls due to wind damage including trees and wires down. A low pressure system moving eastward from the central United States on Thursday March 1st, intensified rapidly as it moved offshore Thursday night and early Friday, deepening to 974 mb by the evening of Friday March 2nd. | |Strong winds were present in the low levels of the atmosphere due to the strengthening pressure gradient, and were able to mix down to the surface in strong wind gusts under northwest flow cold air advection.
5/14/2018	Thunderstorm Wind	0	0		A tree was down in the yard. Multiple trees were down in the Lake of the Woods Community. Low pressure passed through the area on the 14th. The low tracked along a boundary that separated warm and humid air to the south and west from cooler marine air to the north and east. The warm and humid air led to an unstable atmosphere, and there was enough instability for storms to become severe.
6/20/2018	Thunderstorm Wind	0	0		A few large trees were down in Orange. A large tree was down along the 24200 block of Narrow Gauge Road. A large tree was down. A cold front passed through the area. Hot and humid conditions ahead of the front led to some severe storms.
7/16/2018	Thunderstorm Wind	0	0		A tree was reported down in the Unionville area. Two reports of trees were down in the Mine Run/Locust Grove section of the

					county. An unstable atmosphere led to a couple severe thunderstorms.
7/27/2018	Thunderstorm Wind	0	0		Numerous trees were snapped in a subdivision off of Route 3. A tree was down near the intersection of VA-615 Rapidan Road and VA-700 Trimmers Road. Twenty to thirty trees were down, and a barn was heavily damaged in Unionville. A cold front passed through the area on the 27th. Ahead of the boundary, a southerly flow led to plenty of moisture an unstable atmosphere. A potent upper-level low caused stronger winds aloft as well. Some thunderstorms associated with the cold front became severe due to the instability and stronger winds aloft.
8/12/2018	Hail	0	0		Dime sized hail fell at this location. Several trees were blown down near Lahore Road and Gum Tree Road. A tree was blown down near the intersection of Kendall Road and VA Route 20. A tree was blown down into power lines and blocked the roadway. Widespread showers and thunderstorms formed due to a combination of high instability and a stalled frontal boundary. Some storms became severe.
4/26/2019	Thunderstorm Wind	0	0		Numerous trees were blown down in Barboursville. Numerous trees were blown down in Lahore. Numerous trees were blown down in the Locust Grove area. An upper-level trough east of the Mississippi River on the morning of April 26th deepened and closed off over the eastern Great Lakes by the morning of April 27th. A forced convective line was ongoing in the morning hours of April 26th over West Virginia and progressed eastward into Virginia during the afternoon hours. A few individual cells also formed ahead of this convective line. Modest instability developed during the late morning and early afternoon hours which helped to

					support showers and thunderstorms across the region, and this combined with moderate levels of wind shear led to strong to severe thunderstorms which produced locally damaging winds.
5/30/2019	Thunderstorm Wind	0	0		A tree was blown down near the intersection of Homewood Drive and Rapidan Road. Half dollar-sized hail (1.25 inch in diameter) was reported. Golf ball-sized hail (1.75 inch in diameter) was reported. A tree was blown down on Hawfield Road. Quarter-sized hail (1.0 inch in diameter) was reported. Dozens of trees were blown down near Price Road and Lake Country Lane. On the morning of May 30th, a surface front was positioned across Pennsylvania, with a surface low positioned west of Chicago, Illinois. Through the day the surface low moved eastward along the frontal boundary, reaching western Pennsylvania by late in the afternoon. The low then quickly pushed eastward off the NJ coastline by late in the evening, with a cold front crossing the region. In addition, two disturbances aloft moved across the area, one during the mid to late afternoon hours, and another in the evening. Out ahead of the front, warmth and humidity allowed for the development of moderate instability and that coupled with moderate wind shear aloft set the stage for two rounds of scattered showers and thunderstorms, some of which became severe.
6/29/2019	Thunderstorm Wind	0	0		A tree was blown down at the intersection of West Main Street and Twyman Street in Orange. Heat and humidity through the day on June 29th led to a moderately unstable air mass by the afternoon. A weak pressure trough developed, and heights began to fall by the evening as an upper-level ridge broke down. Also late in the evening, a cold front began to approach,

					increasing force across the region. Several rounds of scattered showers and thunderstorms developed from the midafternoon hours through well past sunset. Some thunderstorms became strong to severe.
7/22/2019	Thunderstorm Wind	0	0		A tree was blown down on US-15 near Cedar Hill Road. Another tree was blown down blocking both lanes of Blue Ridge Parkway at Rocklands Farm Road. A tree and power lines were blown down near Old Gordonsville Road and US-15. Three trees were reported down on Zachary Taylor Highway just north of Arrow Point Drive. A tree was blown down blocking Zoar Road at Old Office Road. Falling heights, an increasing southwest flow aloft, an approaching cold front, and strengthening pressure trough overhead combined with instability from a hot and humid air mass in place to trigger showers and thunderstorms during the afternoon hours of July 22nd. With high levels of CAPE and increased shear profiles, thunderstorms became strong to severe as they organized into linear structures.
7/31/2019	Thunderstorm Wind	0	0		A tree was blown down on VA-609 Scuffletown Road near Spring Brook Road. A tree was blown down on US-33 Spotswood Trail near VA-645 Magnolia Road. A large maple tree was snapped over driveway of residence in Somerset. A tree was blown down in the 11300 block of VA-625 Porter Road. Hail up to the size of nickels (0.88 in diameter) was observed. A tree was blown down in the 19000 block of VA-612 Monrovia Road. Hail up to the size of quarters (one inch in diameter) was observed. A surface front moved slowly through the Ohio Valley on the afternoon of July 31st, with a secondary surface trough positioned just east of the I-95 corridor. Aloft, an upper-level trough slowly moved across

					the region. As instability increased during the afternoon hours, scattered showers and thunderstorms developed, and a few became severe.
8/1/2019	Thunderstorm Wind	0	0		A tree was blown down near the intersection of Independence Road and Daffodil Lane. Two large trees were blown down near the intersection of VA-612 Monrovia Road and Brick Church Road. Trees were blown down near the intersection of VA-650 Independence Road and Magnolia Drive. Trees were blown down near the intersection of VA-669 Marquis Road and VA-629 Lahore Road. A large tree, 3 feet in diameter, was blown down across the 19400 block of Lahore Road. An upper-level trough and its associated energy approached and crossed the region during the late afternoon and evening hours of August 1st. At the surface, a frontal boundary remained stalled across central Virginia and into eastern Maryland. Temperatures in the 80s to around 90F combined with dew points in the 60s to near 70F and led to the development of moderate instability across the area during the afternoon hours. Scattered showers and thunderstorms then formed in the afternoon and evening, and some of them became locally severe.
8/15/2019	Thunderstorm Wind	0	0		Trees were blown down onto a house in 100 block of Scott Street. Another tree was also blown down in the 400 block of East Main Street. Trees were blown down onto a house in the 18000 block of Constitution Highway. Trees were also blown down on May Lane along VA-20 near Orange. Additionally, about 30 trees were blown down across central Orange County. An upper-level trough moved southeastward from the Great Lakes and into the Mid-Atlantic states during the day of August 15th. At the surface, a boundary also

					moved southeastward from Ohio and into the region. With building instability, scattered showers and thunderstorms developed across the higher elevations in the midafternoon hours, and then moved eastward during the late afternoon and evening. With relatively strong westerly to west-northwesterly flow aloft, deep layer shear increased and that, combined with the instability, led to some thunderstorms becoming strong to locally severe.
8/19/2019	Thunderstorm Wind	0	0		A tree was blown down in the 13300 block of Albano Road. Multiple trees were also reported down on Ridge Road near Scuffletown. A tree was blown down in the 5300 block of Ridge Road. A weak mid-level trough crossed the region on August 19th, and that combined with significant amounts of instability led to the development of isolated to scattered showers and thunderstorms. A few of these thunderstorms became strong to locally severe.
8/21/2019	Thunderstorm Wind	0	0		A tree was blown down on Independence Road at Tower Road. Another tree was blown down on Lafayette Drive near Constitution Highway. An upper-level trough crossed the Appalachian Mountains during the morning of August 21st and moved through the region during the mid to late afternoon hours, followed by a second weaker trough in the evening. At the surface, a weak pressure trough gradually pushed eastward through the day as well. Modest amounts of instability and deep layer shear were present during the afternoon and evening when these features moved across and a few isolated strong to locally severe thunderstorms were able to develop in portions of central Virginia.

9/11/2019	Thunderstorm Wind	0	0		A tree was blown down in the 14200 block of James Madison Highway. In the afternoon hours of September 11th, a weak upper-level trough approached the region from the Ohio Valley. This coupled with abundant surface heating led to the development of showers and thunderstorms by the afternoon and evening hours. |With ample instability and modest shear, some thunderstorms became locally severe.
10/31/2019	Thunderstorm Wind	0	0		A tree was down at Spicers Mill Road and Miller Road. A tree was down in the 14100 block of Old Gordonsville Road. A tree was down at Old Gordonsville Road and Morningside Drive. A tree was down at the intersection of Litchfield Drive and Old Gordonsville Road. A tree was down near the intersection of Mountain Track Road and Old Gordonsville Road. A tree was down on Little Zion Road at Tomahawk Creek Road. A tree was down along the 28000 block of Raccoon Ford Road. A tree was down on VA-20 Constitution Highway at Ivy Lane. A tree was also down along the 11300 block of US-522 Zachary Taylor Highway. Multiple trees were down on US-522 Zachary Taylor Highway. A tree was also down along the 20000 block of Mount Pony Road. Tree down in 34400 block of Constitution Highway. Tree down in 400 block of Westover Parkway. A strong cold front passed through during the evening of the 31st. A southerly flow led to warm and humid conditions ahead of the boundary, which caused an unstable atmosphere. The instability along with the cold front caused showers and isolated thunderstorms, some of which were able to mix down strong winds from aloft.
1/11/2020	Thunderstorm Wind	0	0	$250	A tree was down on Madison Run Road near Gordonsville. A negatively tilted trough and associated surface low tracked into Ohio. Warm, humid air streamed northward

					into the area in southerly flow well in advance of the low. A band of pre-frontal storms moved across VA, transporting some of the high winds from aloft down to the surface.
1/12/2020	Thunderstorm Wind	0	0	$250	A tree was down on Indiantown Road in Locust Grove. A negatively tilted trough and associated surface low tracked into Ohio. Warm, humid air streamed northward into the area in southerly flow well in advance of the low. A band of pre-frontal storms moved across VA, transporting some of the high winds from aloft down to the surface.
2/26/2020	Thunderstorm Wind	0	0		Tree down across Rapidan Road in Orange. A developing area of low pressure tracked from northern Virginia toward New Jersey, dragging a cold front across the area. A narrow band of low-topped thunderstorms developed in the warm humid airmass in advance of the front. These storms produced a couple damaging wind gusts as they progressed through portions of central Virginia.
6/22/2020	Thunderstorm Wind	0	0	$5,000	Several trees were blown down just north of Orange. A weak pressure trough/surface front ignited a cluster of strong to severe thunderstorms. The storms began over eastern West Virginia during the early afternoon, then progressed eastward through central Maryland and northern Virginia producing scattered damaging downburst wind gusts.
6/25/2020	Thunderstorm Wind	0	0	$22,000	A wind gust of 51 knots (59 MPH) was measured by the AWOS at Orange County Airport. There were multiple reports of trees down between Orange and Unionville. There were multiple reports of trees blown down near Kendall and Lahore Roads. Multiple trees were blown down near Monrovia and Marquis Roads. An

					unseasonably strong upper-level trough interacted with a modestly unstable environment over the Middle Atlantic to produce several supercell thunderstorms which transitioned into small bowing line segments across far eastern West Virginia, central Maryland, and northern Virginia. The storms produce substantial and relatively widespread wind damage and some hail along their path, though the storms themselves were isolated to widely scattered in nature.
7/5/2020	Thunderstorm Wind	0	0	$5,000	Trees were blown down on Boxley Lane near Maddox Drive. Trees were blown down on West Main Street in Orange. An upper-level disturbance interacting with a stalled surface front draped over Maryland produced widely scattered severe thunderstorms during the afternoon of Sunday, July 5th, 2020.
7/24/2020	Thunderstorm Wind	0	0	$1,000	A tree was blown down near the intersection of VA-609 Scuffletown Road and VA-644 Ridge Road/Blue Hill Drive. A few isolated severe thunderstorms developed over central Virginia and near Baltimore.
7/28/2020	Thunderstorm Wind	0	0	$ 5,000	A tree was blown down at the intersection of VA-624 Tower Road and VA-650 Independence Road. A tree was blown down on Houseworth Street in Orange. A tree was blown down at the intersection of Tomahawk Creek Road and Old Gordonsville Road. A couple of severe thunderstorms developed near the Fredericksburg area.
8/3/2020	Thunderstorm Wind	0	0	$13,000	Multiple trees and large branches were down around Wilderness Battlefield. A tree blew down onto a car in the 4000 block of US-522 Zachary Taylor Highway. A band of showers and thunderstorms developed well ahead of Tropical Cycolne Isaias. Some of

					the thunderstorms in the band produced damaging wind gusts. A few isolated cells just ahead of the band also produced severe weather.
8/6/2020	Thunderstorm Wind	0	0	$3,000	Trees were blown down in Gordonsville, including one on power lines in the 300 block of Grove Avenue. A slow-moving warm front sparked multiple rounds of isolated severe thunderstorms across the Middle Atlantic on Thursday, August 6th, 2020. The first moved through the greater DC metro area during the early morning hours. The second was a supercell that moved across the southern Shenandoah River Valley and central Virginia Piedmont, causing significant damage and unusually large hail for so late in the season. A final (third) round of thunderstorms affected northern Virginia with isolated wind damage during the mid to late evening hours.
8/17/2020	Thunderstorm Wind	0	0	$2,000	A tree blew down on VA-2020 Miller Road near the intersection with Gobler Knob Lane. A tree blew down onto VA-629 Lahore Road near the intersection with VA-631 Brick Church Road. A couple of isolated, marginally severe thunderstorms developed over portions of the central Virginia Piedmont on the afternoon of Monday, August 17th, 2020.
5/4/2021	Thunderstorm Wind	0	0	$2,000	Two large trees blew down on a trained spotter's property in Thornhill. A cold front sparked scattered severe thunderstorms that produced mainly damaging straight-line wind gusts across much of Virginia into parts of Maryland.
6/3/2021	Thunderstorm Wind	0	0	$4,000	A tree blew down on Woodroof Road near Carey Town Road. A tree blew down in the 24000 block of VA-629 Lahore Road. Trees were blown down on westbound VA-3 Germanna Highway near the

					Orange/Spotsylvania County line. A pressure trough ignited numerous showers and thunderstorms, several of which produced localized damaging winds, hail, and a tornado.
7/17/2021	Thunderstorm Wind	0	0	$5,000	A tree blew down on VA-616 Montford Road in Montford. A tree blew down on May Fray Avenue near North Almond Street. A tree blew down on Hetfield Drive near VA-624 Tower Road. A tree blew down at the corner of VA-20 Constitution Highway and VA-692 Grasty Gold Mine Road. A tree blew down blocking one lane at the corner of VA-20 Constitution Highway and VA-621 Mine Run Road. Showers and thunderstorms produced scattered instances of wind damage during the afternoon and early evening hours.
8/10/2021	Thunderstorm Wind	0	0	$1,000	A large tree was reported down in the 19000 block of Lovers Lane. A lee pressure trough ignited thunderstorms in a strongly unstable environment. The strongest thunderstorms produced severe downbursts and sporadic hail.
8/11/2021	Lightning	0	0	$100,000	Lightning struck a house causing significant structural damage in the 11500 block of VA-669 Marquis Road. A lee pressure trough and weak cold front combined to ignite numerous thunderstorms in a strongly unstable environment. The strongest thunderstorms produced severe wind gusts and sporadic hail.
8/11/2021	Thunderstorm Wind	0	0	$3,000	A tree blew down onto power lines in the 8200 block of VA-655 Weyburn Road. A tree blew down across the roadway in the 11300 block of VA-655 Jacksontown Road. A tree blew down in the 33200 block of VA-603 Indiantown Road. A lee pressure trough and weak cold front combined to ignite numerous thunderstorms in a strongly unstable environment. The strongest

					thunderstorms produced severe wind gusts and sporadic hail.
8/13/2021	Thunderstorm Wind	0	0	$6,000	Wires blew down in the 15200 block of VA-657 Albano Road. A large tree blew down near the intersection of VA-664 Ridge Road and Marsh Run Lane. A tree blew down near the intersection of VA-655 Blue Run Road and VA-20 Constitution Highway. A tree blew down near the intersection of VA-646 Lovers Lane and Briar Patch Drive. A tree blew down in the 300 block of Bock Street. A tree blew down near the intersection of VA-643 Cox Mill Road and VA-648 Browntown Road. A cold front intersected an extremely unstable airmass. The result was numerous strong to severe thunderstorms containing damaging wind gusts and some hail.
8/14/2021	Thunderstorm Wind	0	0	$5,000	Several trees blew down onto wires between Locust Grove and Unionville causing several traffic light outages. Thunderstorms ignited along a stalled front and produced several instances of wind damage.
8/28/2021	Thunderstorm Wind	0	0	$10,000	Ten trees blew down on VA-627 Clarks Mountain Road just east of Rapidan. Widely scattered severe thunderstorms developed ahead of a weak cold front.
8/31/2021	Thunderstorm Wind	0	0	$6,000	A tree blew down near the intersection of VA-231 Blue Ridge Turnpike and VA-646 Lovers Lane. Numerous large tree limbs blew down near the intersection of VA-20 Constitution Highway and Mount Athos Drive. A leading band of the remnants of Hurricane Ida spawned a few supercells that resulted in sporadic wind damage.
9/1/2021	Thunderstorm Wind	0	0	$3,000	A tree blew down near the intersection of US-522 Zachary Taylor Highway and VA-617 Pine Stake Road/Everona Road. Trees blew down along VA-603 Indiantown Road near

					VA-611 Zoar Road and VA-685 Russell Road. The remnants of Ida produced sporadic straight line wind damage.
9/28/2021	Hail	0	0		Up to golf ball size hail was reported near Rhoadsville. Several supercell thunderstorms produced large hail across portions of central Virginia.
6/2/2022	Thunderstorm Wind	0	0	$7,000	Tree damage was reported near Barboursville, including a tree that blew down near the intersection of US-33 Spotswood Trail and Carter Winky Road. Tree damage was reported in Unionville. A tree and wires blew down in the 22000 block of VA-20 Constitution Highway. A tree blew down near the intersection of VA-20 Constitution Highway and US-522 Zachary Taylor Highway. Tree damage was reported near Orange, including a tree and wires that blew down near the intersection of Verdiersville Road and VA-20 Constitution Highway. A tree and wires blew down in the 20000 block of Llama Lane. Scattered to numerous showers and thunderstorms produced isolated instances of large hail and wind damage.
6/16/2022	Thunderstorm Wind	0	0	$5,000	Multiple trees blew down throughout the city of Orange. Half dollar size hail was reported in the city of Orange. Quarter size hail was reported six miles southeast of Orange. Thunderstorms produced scattered instances of damaging winds and large hail, some considerable, across extreme eastern West Virginia into northern and central Virginia.
6/17/2022	Thunderstorm Wind	0	0	$3,000	A few trees blew down along VA-669 Marquis Road between VA-612 Monrovia Road and Double W Farm Road. Localized severe thunderstorms produced several instances of wind damage across portions of central Virginia.

6/22/2022	Thunderstorm Wind	0	0	$3,000	A few trees blew down near Rapidan. A strongly unstable airmass in a moderately sheared environment squeezed between two fronts resulted in several clusters of destructive thunderstorms. The most intense thunderstorms propagated north to south along a stalled front dividing very unstable air near and west of Interstate 95, from notably more stable air closer to the Chesapeake Bay. | |The event was unusual not only because of the intensity of the thunderstorms, but because they moved in a north to south direction, even propagating south-southwestward at times.
7/12/2022	Thunderstorm Wind	0	0	$35,000	A wind gust of 54 knots (62 MPH) was measured by the AWOS at Orange County Airport (KOMH). Dozens of trees and wires blew down along VA-624 Tower Road. Multiple trees blew down along VA-20 Constitution Highway. Trees blew down along VA-609 Scuffletown Road. An outbreak of significant severe weather occurred during the afternoon and evening hours of Tuesday, July 12th, 2022. An unseasonably strong cold front interacted with a high instability airmass to result in several bowing lines of thunderstorms, which maintained their organization and intensity due to strong atmospheric wind shear. Swaths of widespread damaging winds were observed, much of which was considerable. A couple of tornadoes were also confirmed, along with some significant hail. A wind gust of over 100 MPH was measured in one of the most powerful storms over eastern West Virginia.
7/16/2022	Thunderstorm Wind	0	0	$12,000	Numerous trees blew down southeast of Rapidan. Trees blew down near the intersection of VA-627 Clarks Mountain Road and VA-615 Rapidan Road, and near VA-697 Moormont Road. Trees blew down in the 8500 block of VA-628 Clifton Road. Numerous trees blew down near the

					intersection of VA-628 Clifton Road and Barclay Lane/Jackson's Quarters Road. Several thunderstorms produced localized wind damage ahead of a weak cold front.
7/21/2022	Thunderstorm Wind	0	0	$3,000	Tree damage was reported around Orange. A tree blew down near the intersection of Cathedral Place and West Nelson Street. A tree blew down onto wires in the 16000 block of VA-612 Monrovia Road. A couple of thunderstorms produced sporadic instances of wind damage when a surface trough interacted with the bay breeze.
8/4/2022	Thunderstorm Wind	0	0	$6,000	A few trees blew down near the intersection of VA-629 Lahore Road and Pamunkey Lane. A few trees blew down near the intersection of US-33 Spotswood Trail and VA-20 Constitution Highway. A surface trough ignited numerous showers and thunderstorms that resulted in scattered instances of damaging wind gusts and sporadic large hail.
5/11/2023	Thunderstorm Wind	0	0	$2,000	Minor wind damage was reported in Gordonsville. A tree was reported down in the 300 block of US-15 North Main Street. A wire was reported down in the 200 block of Charles Street. An isolated thunderstorm produced minor wind damage in Gordonsville.
6/16/2023	Hail	0	0		Half dollar to golf ball size hail was reported in Flat Run. Several isolated supercell thunderstorms produced sporadic wind damage and localized large hail.
8/7/2023	Thunderstorm Wind	0	0	$3,000	Trees and wires blew down on VA-612 Monrovia Road near Shady Grove Lane. A strong cold front, driven by an unusually strong upper-level trough and wind shear, interacted with a hot, humid, and unstable airmass over the Mid-Atlantic. This pattern resulted in the formation of lines of

					thunderstorms and several supercells. The most widespread and significant wind damage was noted over northern Maryland, although pockets of considerable wind damage were noted over portions of northwestern Virginia and eastern West Virginia. Somewhat atypical for the Mid-Atlantic is late summer was the number of large hail reports, with multiple instances of giant hail noted.
9/9/2023	Thunderstorm Wind	0	0	$10,000	Several trees blew down across central Orange County, including one onto a car at House Inn and Bistro, and along VA-617 Everona Road. A cold front stalling over the Mid-Atlantic ignited several severe thunderstorms that produced mainly localized wind damage.

Rappahannock County

Date	Hazard	Deaths	Injuries	Total Dmg	Narrative
3/2/2018	High Wind	0	0		Wind gusts around 60 to 70 mph were estimated based on observations nearby. A wind gust of 70 mph was reported near Slate Mills at 0408 EST. The Rappahannock County 911 center reported 146 calls for wind damage including 56 for trees down. A low pressure system moving eastward from the central United States on Thursday March 1st, intensified rapidly as it moved offshore Thursday night and early Friday, deepening to 974 mb by the evening of Friday March 2nd. | |Strong winds were present in the low levels of the atmosphere due to the strengthening pressure gradient, and were able to mix down to the surface in strong wind gusts under northwest flow cold air advection.
5/10/2018	Thunderstorm Wind	0	0		A tree branch was down on Crest Hill near Zachary Boulevard. A cold front passed through the area on the 10th. Warm and humid air ahead of the boundary led to an

					unstable atmosphere. The instability combined with forcing from the cold front to trigger a few severe thunderstorms.
8/17/2018	Thunderstorm Wind	0	0		A tree was blown down on Little Long Mountain Road. A tree was blown down on Hittles Mill Road. A cold front interacted with a moist and unstable air mass to produce thunderstorms across the region. Some of these storms became severe.
2/24/2019	High Wind	0	0		Wind gusts of up to 70 mph were measured, with the peak gust measured near Shady Grove. There were also multiple reports of downed trees. An area of low pressure rapidly intensified as it moved from the Mid-Mississippi Valley northward into the Great Lakes from late in the evening of February 24th and into the morning hours of February 25th. The low then tracked northeastward into Canada during the remainder of the 25th. A secondary area of low pressure also developed along the Mid-Atlantic coastline and moved into New England. Strong winds associated with the system led to high wind gusts across northern and western Virginia.
5/23/2019	Thunderstorm Wind	0	0		Multiple trees were reported down along Richmond Road, Aaron Mountain Road, Forest Grove Road, and Rudasill Mill Road. A warm front crossed the region during the morning hours of May 23rd, placing the area in the warm sector by the afternoon hours. At the same time, surface low pressure tracked across the northern Great Lakes, with an attendant cold front moving into the Ohio Valley by the evening. A mesoscale convective system (MCS) was ongoing during the morning hours and moved eastward and into the region during the afternoon hours. Out ahead of the MCS, moisture and warmth increased with moderate instability developing. Aloft, wind shear increased throughout the day and became quite substantial by the late

					afternoon. The MCS entered Virginia by the midafternoon hours and intensified into a linear feature that produced damaging winds before exiting during the evening.
6/28/2019	Thunderstorm Wind	0	0		Several trees were blown down along F.T. Valley Road. Several trees were blown down along Richmond Road. Several trees were blown down in the Slate Mills area. While large scale forcing was weak, moderate amounts of instability combined with local terrain circulations and remnant mesoscale boundaries to generate scattered showers and thunderstorms in the afternoon. With steep low level lapse rates, a few of these storms became strong to locally severe.
7/11/2019	Thunderstorm Wind	0	0		A tree was blown down across the 500 block of Battle Mountain Road. A cold front approached from the west during the day of July 11th, with warm and moist air advection occurring on southerly flow. This promoted the development of significant amounts of instability, and that coupled with an approaching shortwave trough and modest shear values, led to the generation of scattered showers and thunderstorms, some of which became severe.
7/17/2019	Thunderstorm Wind	0	0		Two reports of trees down in Chester Gap were received. On July 17th, the remnant circulation of Barry moved into Pennsylvania with a surface pressure trough out ahead of it over the Mid-Atlantic. Out ahead of the circulation, a hot, humid, and unstable air mass was in place, and this helped to initiate scattered to numerous showers and thunderstorms in the afternoon. Some of these thunderstorms became strong to locally severe.

9/11/2019	Thunderstorm Wind	0	0		Multiple trees were blown down on Zachary Taylor Highway in the Flint Hill area. A tree was also reported down on Hittles Mill Road. Multiple trees were blown down on parts of Crest Hill Road. Multiple trees were blown down on Laurel Mills Road. In the afternoon hours of September 11th, a weak upper-level trough approached the region from the Ohio Valley. This coupled with abundant surface heating led to the development of showers and thunderstorms by the afternoon and evening hours. |With ample instability and modest shear, some thunderstorms became locally severe.
9/28/2019	Thunderstorm Wind	0	0		Trees were blown down near the 1200 block of Lee Highway, and between Lee Highway and VA-231. A tree was blown down near the 200 block of Castleton Ford Road. A tree was blown down on VA-729 Richmond Road near Aaron Mountain Road. A trough of surface low pressure developed during the midday hours of September 28th in the lee of the Appalachian crest and with anomalous heat and humidity, and therefore instability, scattered thunderstorms developed. A few thunderstorms became strong to locally severe.
10/31/2019	Thunderstorm Wind	0	0		A tree was down on Zachary Taylor Road at Hume Road. A strong cold front passed through during the evening of the 31st. A southerly flow led to warm and humid conditions ahead of the boundary, which caused an unstable atmosphere. The instability along with the cold front caused showers and isolated thunderstorms, some of which were able to mix down strong winds from aloft.
11/27/2019	High Wind	0	0		Low pressure intensified to the northeast and high pressure approached from the Midwest. A strong pressure gradient between these systems led to high winds

					across the higher elevations in the Blue Ridge Mountains and Potomac Highlands of Virginia. Wind gusts around 60 mph occurred.
7/22/2020	Thunderstorm Wind	0	0	$15,000	Numerous trees were blown down in the Flint Hill area. Numerous trees were blown down in the 400 block of View Town Road. An upper-level trough interacted with a stalled surface front draped over the Mid-Atlantic resulting in scattered to numerous showers and thunderstorms developing in the lee of the Appalachians Mountains as early as midday. The storms coalesced into a bow echo moved eastward across central Maryland and northern Virginia (including the DC metro) during the midafternoon. Thunderstorms exited the area by nightfall.
8/25/2020	Thunderstorm Wind	0	0	$15,000	There were multiple reports of trees and wires blown down in Washington. There were multiple reports of trees and wires blown down in Amissville. There were multiple reports of trees and wires blown down in Woodville. An outflow boundary from a decaying convective system triggered an isolated severe thunderstorm over northern Virginia around midday. A cold front then triggered an organized line of thunderstorms which produced scattered to numerous damaging wind gusts over eastern West Virginia, western Maryland, and northern into central Virginia as well as the DC metro area.
5/4/2021	Thunderstorm Wind	0	0	$1,000	Multiple large tree limbs were snapped on Hopewell Lane. A cold front sparked scattered severe thunderstorms that produced mainly damaging straight-line wind gusts across much of Virginia into parts of Maryland.

6/10/2021	Thunderstorm Wind	0	0	$1,000	A tree was reported down near the intersection of US-522 Sperryville Pike and VA-626 Scrabble Road. Thunderstorms with very heavy rain produced sporadic, minor wind damage. All but one storm seemed to produce sub-severe winds based on the sporadic nature of the damage and the environment unfavorable for severe wind.
8/10/2021	Thunderstorm Wind	0	0	$18,000	Large tree limbs blew down between Sperryville and Washington. About a dozen trees blew down along VA-231 F T Valley Road and Nethers Road. Several trees blew down along Grimsley Road. A lee pressure trough ignited thunderstorms in a strongly unstable environment. The strongest thunderstorms produced severe downbursts and sporadic hail.
8/11/2021	Thunderstorm Wind	0	0	$20,000	Numerous trees and large tree limbs blew down near Chester Gap. Tree limbs went through the windshield of a car near the intersection of US-522 Zachary Taylor Highway and VA-662 Little Long Mountain Road. About 5 to 10 trees blew down in this area. A lee pressure trough and weak cold front combined to ignite numerous thunderstorms in a strongly unstable environment. The strongest thunderstorms produced severe wind gusts and sporadic hail.
8/28/2021	Thunderstorm Wind	0	0	$8,000	Several trees blew down around Flint Hill. A tree blew down on VA-606 Fodderstack Road near Dearing Road. Two trees blew down on US-522 Zachary Taylor Highway, including one near the intersection of US-522 Zachary Taylor Highway and VA-630 Hittles Mill Road. A tree blew down on Old Mill Road near Business US-211 Warren Avenue. Three trees blew down on VA-729 Richmond Road. A tree blew down on VA-616 Castleton View Road near VA-617.

					Widely scattered severe thunderstorms developed ahead of a weak cold front.
8/30/2021	Thunderstorm Wind	0	0	$2,000	Two trees about one foot in diameter blew down just south of the intersection of VA-637 South Poes Road and Shurgen Lane. A weak cold front triggered a few severe thunderstorms.
6/2/2022	Thunderstorm Wind	0	0	$3,000	A tree blew down in the 300 block of VA-620 Fletchers Mill Road. A tree blew down in the 700 block of Rudasill Mill Road/Hunters Road. Tree damage was reported near Viewtown, including a tree that blew down near the intersection of VA-611 Waterford Road and VA-626 Korea Road. Scattered to numerous showers and thunderstorms produced isolated instances of large hail and wind damage.
6/9/2022	Thunderstorm Wind	0	0	$10,000	Trees blew down on a power pole on US-522 Sperryville Pike and Rudasill Mill Road. A cold front spawned numerous thunderstorms resulting in scattered instances of damaging wind, some large hail, and a tornado.
6/16/2022	Hail	0	0		Golf ball size hail was reported in Chester Gap. Ping pong ball size hail was reported near Chester Gap. Thunderstorms produced scattered instances of damaging winds and large hail, some considerable, across extreme eastern West Virginia into northern and central Virginia.
6/17/2022	Thunderstorm Wind	0	0	$1,000	Tree damage was reported near Sperryville, including in the 400 block of VA-600 Woodward Road. Localized severe thunderstorms produced several instances of wind damage across portions of central Virginia.

6/22/2022	Thunderstorm Wind	0	0	$26,000	Tree damage was reported near Flint Hill, including along VA-659 Resettlement Road. Numerous trees blew down around Castleton, including along VA-616 Castleton View Road, VA-615 Castleton Ford Road, and VA-729 Richmond Road. Tree damage was reported around Sperryville. A tree blew down on Main Street. Trees blew down along US-211/US-522 Lee Highway. Trees blew down along VA-628 Fodderstack Road. A strongly unstable airmass in a moderately sheared environment squeezed between two fronts resulted in several clusters of destructive thunderstorms. The most intense thunderstorms propagated north to south along a stalled front dividing very unstable air near and west of Interstate 95, from notably more stable air closer to the Chesapeake Bay. | |The event was unusual not only because of the intensity of the thunderstorms, but because they moved in a north to south direction, even propagating south-southwestward at times.
7/12/2022	Thunderstorm Wind	0	0	$4,000	Tree damage was reported on Skyline Drive just before the intersection with US-211 Lee Highway. Trees blew down along VA-626 Piedmont Avenue. An outbreak of significant severe weather occurred during the afternoon and evening hours of Tuesday, July 12th, 2022. An unseasonably strong cold front interacted with a high instability airmass to result in several bowing lines of thunderstorms, which maintained their organization and intensity due to strong atmospheric wind shear. Swaths of widespread damaging winds were observed, much of which was considerable. A couple of tornadoes were also confirmed, along with some significant hail. A wind gust of over 100 MPH was measured in one of the most powerful storms over eastern West Virginia.

8/4/2022	Thunderstorm Wind	0	0	$44,000	Numerous trees blew down around Five Forks. Five trees blew down near the intersection of Five Forks Road and Rudasill Mill Road/Hunters Road. Three trees blew down in the 200 block of VA-620 Fletchers Mill Road. Numerous trees and wires blew down around Flint Hill. At least seven trees blew down onto VA-637 Jericho Road between US-522 Zachary Taylor Highway and North Poes Road, especially near Fox Hall Farm Lane; one tree fell onto wires bringing down a pole. A tree blew down blocking the roadway on US-522 Zachary Taylor Highway near VA-641 Aileen Road. A tree also blew down in the 100 block of Grimsley Road. Several trees blew down around Washington. A tree blew down onto power lines causing a fire in the 200 block of VA-628 Fodderstack Road. Two trees blew down on VA-628 Main Street near where it becomes Fodderstack Road, including one onto power lines which caused a fire. A surface trough ignited numerous showers and thunderstorms that resulted in scattered instances of damaging wind gusts and sporadic large hail.
4/1/2023	High Wind	0	0		Significant tree damage along Skyline Drive and other parts of Shenandoah National Park. A mesonet station in Boston, VA measured a peak gradient wind gust of 59 mph at 2016LST. A period of damaging high gradient winds developed across the region in wake of a strong cold front, resulting in numerous downed trees and power lines.
4/22/2023	Thunderstorm Wind	0	0	$1,000	Tree damage was reported in Viewtown, including a tree that blew down along Viewtown Road. A strong cold front produced a line of thunderstorms that resulted in widely scattered damaging straight-line wind gusts and a couple tornadoes.

6/19/2023	Hail	0	0	$12,000	Quarter size hail was reported northwest of Amissville. Several trees and branches blew down on Blossom Lake Lane near Laurel Hill Lane. Multiple trees blew down on Aaron Mountain Road. Several trees blew down on VA-626 Long Mountain Road/Tiger Valley Road. A few thunderstorms produced localized wind damage over portions of north-central Virginia.
7/25/2023	Thunderstorm Wind	0	0	$ 2,000	Tree damage was reported near Sperryville, including in the unit block of VA-651 Atkins Road. Tree damage was reported north of Slate Mills, including near the intersection of US-522 Sperryville Pike and Kidwell Lane. Remnant outflow from convection the day before over the Midwest combined with a lee pressure trough resulted in scattered to numerous showers and thunderstorms. Several produced localized wind damage and some hail.
7/28/2023	Thunderstorm Wind	0	0	$41,000	Trees and wires blew down along US-522 Zachary Taylor Highway near Ben Venue Road. Multiple other trees blew down in Flint Hill along US-522 Zachary Taylor Highway and VA-628 Fodderstack Road. Multiple trees blew down along Rudasill Mill Road/Hunters Road. Several trees blew down in Rock Mills and Laurel Mills. Numerous trees blew down along US-522 Sperryville Pike, including at least one onto a car. Trees blew down between Rock Mills and Massanova, including along Rock Mills Road and VA-729 Richmond Road. A subtle remnant disturbance from prior day's convection over the Midwest amplified a pre-existing lee pressure trough, igniting numerous thunderstorms. Given the excessive hot, humid, and unstable environment, these thunderstorms were able to organize into clusters and lines despite a lack of stronger wind shear.

8/7/2023	Thunderstorm Wind	0	0	$13,000	Several trees blew down along VA-628 Fodderstack Road. Trees blew down near the intersection of US-522 Sperryville Pike and VA-621 Yancy Road. Trees blew down near the intersection of VA-729 Richmond Road and Campground Lane. Trees blew down near the intersection of VA-642 View Town Road and Barn View Lane. Trees blew down near the intersection of VA-646 Dodson Road and Starwood Drive. A strong cold front, driven by an unusually strong upper-level trough and wind shear, interacted with a hot, humid, and unstable airmass over the Mid-Atlantic. This pattern resulted in the formation of lines of thunderstorms and several supercells. The most widespread and significant wind damage was noted over northern Maryland, although pockets of considerable wind damage were noted over portions of northwestern Virginia and eastern West Virginia. Somewhat atypical for the Mid-Atlantic is late summer was the number of large hail reports, with multiple instances of giant hail noted.
9/7/2023	Thunderstorm Wind	0	0	$ 3,000	There was a call for a few trees blown down in Chester Gap. Numerous showers and thunderstorms developed along a lee pressure trough after several days of late season heat. Several of these storms turned severe, producing both damaging wind gusts and large hail.

8/7/2023	Thunderstorm Wind	0	0	$13,000	Several trees blew down along VA-628 Fodderstack Road. Trees blew down near the intersection of US-522 Sperryville Pike and VA-621 Yancy Road. Trees blew down near the intersection of VA-729 Richmond Road and Campground Lane. Trees blew down near the intersection of VA-642 View Town Road and Barn View Lane. Trees blew down near the intersection of VA-646 Dodson Road and Starwood Drive. A strong cold front, driven by an unusually strong upper-level trough and wind shear, interacted with a hot, humid, and unstable airmass over the Mid-Atlantic. This pattern resulted in the formation of lines of thunderstorms and several supercells. The most widespread and significant wind damage was noted over northern Maryland, although pockets of considerable wind damage were noted over portions of northwestern Virginia and eastern West Virginia. Somewhat atypical for the Mid-Atlantic is late summer was the number of large hail reports, with multiple instances of giant hail noted.
9/7/2023	Thunderstorm Wind	0	0	$ 3,000	There was a call for a few trees blown down in Chester Gap. Numerous showers and thunderstorms developed along a lee pressure trough after several days of late season heat. Several of these storms turned severe, producing both damaging wind gusts and large hail.

Table A.6 – NCDC Winter Storms

Date	Narrative
11/15/2018	Widespread ice accretion of around a half inch occurred along the higher elevations of the Northern Virginia Blue Ridge. In addition, between 1 and 2 inches of snow and sleet accumulated. An area of low pressure developed across the southeastern United States on the night of November 14th, and tracked northeastward along the North and South Carolina coastlines during the daytime hours on the 15th, strengthening to around 995mb on the night of the 15th as it continued moving northward through the Delmarva to New Jersey by the morning of the 16th. Further strengthening to around 985 mb occurred on the 16th as the system sped up and moved towards Nova Scotia. Widespread precipitation was brought to the region, including heavy snow and mixed precipitation north of I-66 and west of I-81, and mainly rain in central Virginia.
11/24/2018	Ice accumulations of around a tenth of an inch were observed across the higher elevations of the Northern Virginia Blue Ridge, including at Big Meadows. An area of low pressure developed along the Gulf Coast on the night of November 23rd, and tracked northeastward to the North and South Carolina coastlines during the daytime hours on the 24th, strengthening to around 990mb on the night of the 24th as it continued moving northeastward through the Delmarva to off the coast of New Jersey by the morning of the 25th. The system then began weakening on the 25th as it moved out into the western Atlantic Ocean. Widespread rain was brought to the region, along with a period of freezing rain and ice accumulations along and west of the Blue Ridge.
12/9/2018	Widespread snowfall amounts from 1 to 2 inches were observed across the region, with 2 inches measured near Sperryville. An area of low pressure developed along the Gulf Coast on December 8th and tracked northeastward along the North and South Carolina coastlines during the daytime hours on the 9th, strengthening to around 1000mb by the evening. The low then exited eastward off the coast of Cape Hatteras and weakened on the night of the 9th. Widespread significant snow was brought to central Virginia, with a sharp cutoff to completely dry conditions across far northern Virginia.
1/12/2019	Snowfall amounts of 6 to 8 inches were observed across Rappahannock County, with 8.0 inches reported near Sperryville. A low-pressure system developed across the south-central United States during the daylight hours of January 12th as high pressure was positioned over the northeastern United States and southeastern Canada. The low-pressure system then tracked into the southeastern United States during the overnight hours of January 12th and moved northeastward offshore near the Outer Banks of North Carolina through the day of January 13th. Widespread accumulating snow affected northern and central Virginia, with the highest totals in northern Virginia.
1/17/2019	Snowfall amounts of 1 to 2 inches were observed across the northern Virginia Blue Ridge. A cold front crossed the Mid-Atlantic on the night of January 16th with high pressure building in across the northeastern United States. A wave of low pressure developing near the St. Louis area then moved eastward along the frontal boundary during the daytime hours of the 17th and into the eastern Great Lakes overnight. The combination of the cold air provided by the high-pressure area to the north and the moisture and lift associated with the low pressure system generated widespread accumulating snow from late afternoon on January 17th and persisting through the first half of the night until precipitation ended and temperatures rose to near or above freezing.
1/19/2019	Trace amounts of ice were observed across the northern Virginia Blue Ridge. On the morning of January 19th, a low-pressure system was located across the lower Mississippi Valley. This moved northeastward through the day and by the evening of the 19th was

	located across eastern Kentucky and Tennessee, intensifying to 994 mb as it did so. Overnight, the low tracked across Virginia and by mid-morning on January 20th it was located near Philadelphia and had strengthened further to 988 mb. As it crossed the region, the system brought widespread rain to central and northern Virginia, although trace amounts of ice were reported across the Blue Ridge and in western and far northwestern Virginia.
1/29/2019	Snowfall amounts of 1 to 3 inches were observed across southern Fauquier County. A strong surface cold front crossed the region from west to east on January 29th. As it did so, a wave of low pressure developed along the frontal boundary over southwestern Virginia and moved northeastward to a position near Philadelphia by the evening of the 29th. This led to a rain and snow mix developing ahead of the cold front, but changing over to all snow following the frontal passage. In general, 1 to 3 inches of snow were observed across northern Virginia, with less amounts south and west.
2/10/2019	A light glaze of ice less than 0.10 inches was observed across the higher elevations of Madison County. Surface high pressure was located over the region on the morning of February 10th. This gave way to several waves of low pressure that moved near the region from the evening of the 10th and through the 12th. Several periods of rain and mixed wintry precipitation affected northern and western Virginia during this time, with snow accumulations up to around one inch and ice accumulations generally between 0.10 and 0.20 inches but as high as 0.50 to 1.0 inch across the higher elevations.
2/17/2019	Trace amounts of ice were observed across the Northern Virginia Blue Ridge. A ridge of high pressure was in place over the northeastern United States in the early morning hours of February 17th. At the same time, low pressure was tracking northeastward from the lower Mississippi Valley. By the afternoon, the area of low pressure had progressed into the Ohio Valley with warm air advection occurring aloft over the Mid-Atlantic states, while cold surface temperatures remained. This led to areas of freezing rain and sleet during the afternoon and evening hours of the 17th for locations near and west of the Blue Ridge in northern and western Virginia. Trace amounts of ice were observed. Precipitation then changed to rain during the overnight hours.
2/20/2019	Snowfall amounts of 2 to 3 inches were observed across southern Fauquier County, with 2.9 inches reported near Opal. A few hundredths to up to a tenth of an inch of ice accumulation was also reported. Surface high pressure was in place over the northeastern United States during the overnight hours of February 19th. At the same time, low pressure was tracking northeastward from the south-central US. Strong warm air advection and associated frontogenetical forcing led to a period of moderate to heavy snow that spread northeastward across central and northern Virginia, especially along and north of Interstate 66. As warmer air continued to move aloft, precipitation then transitioned over to sleet and then freezing rain during the afternoon hours. By later that evening, the primary low was moving through the Great Lakes region as a secondary low moved along the Mid-Atlantic coastline. Eventually enough warm air moved into the region, changing all precipitation over to rain during the overnight hours on the 20th.
2/23/2019	Ice accumulations of up to a tenth of an inch were reported. Surface high pressure was located over New England through the day on February 23rd. Overrunning warm and moist air advection associated with a developing system in the southern plains led to rain overspreading portions of central and western Virginia. Along and near the Allegheny Front and the Blue Ridge, temperatures at elevations between 1500 and 4000 feet were below freezing for much of the day and evening, which led to a glazing of ice up to about a tenth of an inch.
3/1/2019	Trace amounts of snow and ice were observed across the northern Virginia Blue Ridge. During the overnight hours of February 28th into the early morning hours of March 1st, an

	upper-level trough moved through the Ohio Valley as an area of surface low pressure |moved through North and South Carolina. This helped to foster warm air advection aloft across the region as high pressure positioned over the eastern Great Lakes and New York funneled in cool air at the surface. This led to the development of a wintry mix across central and northern Virginia during the early morning hours of March 1st, although snow was the favored precipitation type, and several inches accumulated.
3/3/2019	Up to one inch of snow was observed, with 0.5 inches measured near Sperryville. A trace accumulation of ice was also observed. A low-pressure system organized over the southeastern United States on the morning of March 3rd and tracked northeastward to a position near coastal North Carolina by that evening. The low pressure then intensified overnight and moved to a position southeast of Cape Cod by the morning of March 4th. This system brought widespread precipitation to northern and central Virginia, with several inches of snow falling across the western portions of the state, and very little to no snow falling southeast of the Blue Ridge where the majority of the precipitation was rain. An accumulation of ice was also observed in some locations.
3/8/2019	Snowfall accumulations of 1 to 3 inches were observed. During the overnight hours of March 7th and into the early morning hours of the 8th, surface high pressure was positioned offshore of the Northeastern United States' coastline as a weak area of surface low pressure passed south of the region across North and South Carolina. This led to modest warm air advection and light precipitation amounts, although enough for some snow accumulations across portions of central and western Virginia, mainly across the higher elevations. Precipitation then tapered off during the afternoon hours.
3/21/2019	Snowfall accumulations of 4 to 8 inches were reported, with 6.0 inches measured near Swift Run. An area of low pressure developed along the coastline of North Carolina in the early morning hours of March 21st. The low intensified and moved northward during the day, reaching the Virginia tidewater by midafternoon and the Chesapeake Bay by the evening. During the overnight hours of March 21st and into the morning hours of the 22nd, the low intensified further, reaching 989 mb as it passed off of the New Jersey coastline. Further intensification occurred as it moved towards the Gulf of Maine, peaking at 976 mb. Overrunning of warm moist air over colder surface air led to widespread precipitation developing during the morning hours of March 21st. The precipitation became heavy at times, and there was enough cold air aloft when coupled with dynamical cooling in heavy precipitation that snow was observed across the higher elevations of the Blue Ridge mountains, with significant accumulations reported. Elsewhere precipitation was all rain.
11/17/2019	Moisture from the Atlantic Ocean overran surface colder air in place, resulting in some freezing drizzle and light freezing rain. Ice amounts ranged from a trace to a couple hundredths of an inch over the Blue Ridge Mountains into portions of the Shenandoah Valley in Virginia.
11/23/2019	Rain fell across most areas, but there was a layer of cold air aloft that caused freezing rain over the Blue Ridge Mountains. Ice amounts ranged from a trace to around one tenth of an inch.
12/1/2019	A layer of cold air caused rain to freeze on surfaces over the Blue Ridge Mountains. Ice accumulation was between one and two tenths of an inch.
12/10/2019	A cold front passed through on the evening of the 11th, but the upper-level trough axis lagged behind by several hours. The upward motion from the trough axis combined with cold air advection to bring a period of snow before dry air eventually took over. Snowfall amounts were around two inches in the Blue Ridge Mountains and a coating to an inch across northern Virginia. This did impact the morning commute.

12/13/2019	Low pressure tracking to the west allowed for warm and moist air to overrun surface colder air in place. However, the surface air was cold enough for a period of freezing rain across northern Virginia. Ice amounts ranged from a light glaze to around a tenth of an inch.
12/16/2019	Low pressure passed by to the west on the 16th into the 17th. Ahead of the low, plenty of cold air remained in place, and this led to a period of snow across northern Virginia during the morning of the 16th. Temperatures rose above freezing, causing precipitation to change to rain for most areas. However, across extreme northern Virginia, temperatures hovered very close to freezing and this led to some freezing rain later on the 16th into the morning of the 17th.
1/7/2020	A wave of low pressure passed through the area on the 7th of January. There was plenty of cold air ahead of this system for precipitation to fall as a period of snow. Snow accumulation ranged from one to three inches in the Virginia Piedmont into the Washington Metropolitan area, to three to five inches near and west of the Blue Ridge Mountains.
1/18/2020	A push of warm advection aloft well in advance of a developing surface low over the Great Lakes produced a period of freezing rain for locations along and northwest of the I-95 corridor in Northern and Central VA. Ice accumulations were minor, and ranged from less than a tenth of an inch along the I-95 corridor, to 0.1-0.2 further north and west.
12/16/2020	Low pressure tracked into the Ohio Valley before transferring its energy to a coastal low along the Mid-Atlantic Coast. The coastal low intensified as it moved to the northeast. At the same time, high pressure was located to the north. Therefore, significant wintry precipitation fell across the area in the form of snow, sleet, and freezing rain. Snowfall amounts averaged around 6 to 12 inches near and west of the Blue Ridge Mountains with 2 to 4 inches west of Interstate 95. Freezing rain also occurred with around a quarter to one-half inch of ice near the Blue Ridge Mountains in northern and central Virginia and ice amounts around a tenth of an inch just west of Interstate 95.
1/1/2021	Low pressure tracked through the Ohio Valley and toward the Great Lakes. Warmer air aloft overran colder air in places associated with high pressure over New England, resulting in some freezing rain. Ice accumulations around a quarter inch were estimated on the ridge tops of the Blue Ridge Mountains based on observations nearby.
1/25/2021	Low pressure tracked through the Ohio Valley. Warmer air aloft overran colder air in place that was associated with high pressure over New England, resulting in freezing rain. Ice accumulations ranged from less than a tenth of an inch along and east of Interstate 95, to around one to two tenths of an inch west of Interstate 95, to around a quarter inch in the higher elevations of the Blue Ridge Mountains.
1/31/2021	Light wintry precipitation continued at times into February 2nd. Closed low pressure slowly tracked into the Ohio Valley on the 31st before transferring its energy to low pressure off the Mid-Atlantic Coast on the 1st of February. The coastal low slowly tracked northeast while intensifying through midday on February the 2nd. ||Snow overspread the area on the 31st of January ahead of the first low. Drier air and warmer air moved in aloft, causing snow to change to a light wintry mix on the night of the 31st into the 1st. However, another period of snow developed as the coastal low strengthened to the east later on the 1st and that continued into the 2nd. ||Total snowfall accumulations ranged from 3 to 5 inches around Interstate 95, to around 4 to 8 inches over central Virginia into the central Shenandoah Valley, to around 8 to 16 inches across the northern Shenandoah Valley. Ice accumulation was around a tenth of an inch east of the Blue Ridge Mountains.

2/7/2021	Low pressure in the southern stream of the jet passed by just to the south on the morning of the 7th. However, temperatures were marginal due to the lack of cold high pressure to the north. Therefore, precipitation began as rain east of the Blue Ridge Mountains where low-level warm air held on. However, colder air did eventually work its way in causing precipitation to change to snow. Farther west for locations near the Blue Ridge Mountains and westward, precipitation fell mainly in the form of snow. ||Snowfall accumulations ranged from around 1 to 2 inches near Interstate 95, with 3 to 6 inches near the Blue Ridge Mountains into the Shenandoah Valley. Snowfall accumulations were around 1 to 3 inches farther west toward the Potomac Highlands due to less precipitation.
2/10/2021	Low pressure passed through the area while high pressure to the north supplied cold air. The heaviest snow occurred over northern Virginia, north of the surface low. Snowfall amounts across these areas were around 2 to 4 inches in the northern Shenandoah Valley toward the Blue Ridge Mountains. Snowfall amounts were less across central Virginia and the nearby suburbs of Washington DC, where precipitation amounts were lighter and there was some warmer air as well. ||A light glaze of ice occurred over the Allegheny Highlands in Highland County as warmer air worked its way in aloft, causing precipitation to end as light freezing rain and freezing drizzle.
2/13/2021	Low pressure tracked into the Ohio Valley on the 13th before transferring its energy to a coastal low that moved offshore on the 14th. A period of sleet and freezing rain occurred across the area. Ice accumulations ranged from less than a tenth of an inch across the northern Shenandoah Valley, to 0.1-0.2 west of Interstate 95 into the central Shenandoah Valley, to around a quarter near and east of Interstate 95.
2/18/2021	Low pressure passed by to the west as it tracked into the Ohio Valley and Great Lakes on the 18th into the morning of the 19th, before transferring its energy to a coastal low along the Mid-Atlantic Coast. The coastal low moved out to sea later on the 19th. ||Canadian high pressure supplied plenty of low-level cold air, but warmer air worked its way in aloft, and this caused a wintry mix of snow, sleet, and freezing rain. Snow and sleet overspread the area on the early morning of the 18th. Snow and sleet changed to a light wintry mix including freezing rain by the evening of the 18th. Precipitation ended as a period of light snow and sleet on the morning of the 19th. ||The highest snowfall accumulations (around 4 to 8 inches) were across the northern Shenandoah Valley toward the northern Blue Ridge Mountains of Virginia where the heaviest precipitation occurred, and temperatures aloft were cold enough for precipitation to start off as snow. However, mostly sleet occurred across central Virginia toward the Washington Metropolitan area, so accumulations were less (around an inch or two). Ice accumulation from freezing rain was up to a tenth of an inch for most areas, but around a tenth to a quarter inch in the Virginia Piedmont where warmer air aloft caused more freezing rain vs. snow or sleet.
2/22/2021	Low pressure tracked through the Great Lakes and the cold front associated with the low moved toward the area on the 22nd. A southerly flow ahead of the low and its associated cold front ushered in moisture from the Atlantic. Despite the southerly flow, there was still plenty of cold and dry air in place ahead of the system. Therefore, precipitation started off as snow and ice before eventually changing to rain. The heaviest snow was across the northern Shenandoah Valley with 1 to 2 inches for most areas. Elsewhere, snowfall amounts were generally less than one inch. ||Ice accumulation from freezing rain was less than a tenth of an inch for most areas and confined mainly to elevated surfaces near and west of Interstate 95.
2/26/2021	Low pressure passed by to the south on the 26th into the 27th. A period of snow occurred, mainly in the higher elevations of central Virginia where 1 to 3 inches of snow fell.

1/3/2022	Low pressure tracked along a cold front and intensified while doing so, bringing a period of snow to most of northern and central Virginia. The heaviest snow fell across the Virginia Piedmont around the Fredericksburg Metropolitan area. Snowfall totaled up to 1 to 3 inches across extreme northern Virginia, 3 to 6 inches around the Washington Metropolitan area, and 6 to 12 inches across central Virginia into the Virginia Piedmont, including the Fredericksburg Metropolitan area. There were localized amounts just over 12 inches in portions of the Fredericksburg Metropolitan area.
1/6/2022	A wave of low pressure tracked through the area, bringing some snow with it. Snowfall ranged from around two to 4 inches across central Virginia and around Interstate 95 in northern Virginia, with 4 to 6 inches across extreme northern Virginia.
1/16/2022	Low pressure developed over the southeastern CONUS while high pressure to the north supplied cold air to start. Precipitation started as snow, but warmer air worked its way in from the Atlantic, causing precipitation to change to ice and even rain for many locations east of the Blue Ridge Mountains. Snowfall amounts ranged from around 2 to 4 inches east of the Blue Ridge with 4 to 8 inches for most areas west of the Blue Ridge.||Ice accumulation from freezing rain was around or less than a tenth of an inch east of the Blue Ridge Mountains with one to two tenths of an inch west of the Blue Ridge Mountains to around Interstate 81.
1/28/2022	An upper-level disturbance triggered a period of snow during the afternoon and evening of the 28th. Snowfall totaled around an inch in northern Virginia with 1 to 2 inches in the Shenandoah Valley as well as central Virginia. Snowfall amounts around 3 inches were reported in the Blue Ridge Mountains.
2/13/2022	An upper-level disturbance triggered a period of snow. Snowfall amounts averaged around 1 to 3 inches across central Virginia near the Blue Ridge Mountains, as well as northern Virginia and the Shenandoah Valley. Localized amounts around 3 to 5 inches were reported along the ridges.
2/24/2022	A wave of low pressure passed by to the west high pressure remained to the north. Warm and moist air overran the low-level cold air, resulting in a wintry mix. Snow and sleet amounts were light. Freezing rain ranged from a light glaze on elevated surfaces west of Washington DC to around one to two tenths of an inch in the northern Shenandoah Valley.
3/12/2022	A very strong cold front passed through the area during the early morning hours of the 12th. Arctic air behind the boundary combined with low pressure and an upper-level disturbance to bring a period of snow during the morning and midday hours of the 12th. Snow showers persisted later in the afternoon and evening, with most of the additional accumulation being along and west of the Allegheny Front in western Highland County.||Snowfall amounts totaled from around 1 to 3 inches near Interstate 95, with 3 to 6 inches across northern Virginia. Snowfall amounts in the Blue Ridge Mountains were about 4 to 8 inches.
4/18/2022	Six inches of snow was reported at Big Meadows. Coastal low pressure intensified as it tracked up the Mid-Atlantic coast. There was enough cold air in place for precipitation to fall as snow, especially along and west of the Blue Ridge and Catoctin Mountains. Snowfall amounts ranged from 1 to 3 inches in the valleys, with 3 to 6 inches along the ridge tops. There were localized amounts around 6 to 8 inches along the ridge tops above 3,000 feet.||There was a warm layer aloft on the western side of the Allegheny Highlands as well as central Virginia. This led to some freezing rain and sleet, with ice accumulation from freezing rain in the mountains averaging around a tenth of an inch.

11/15/2022	Low pressure passed by to our west while another low passed by to our east on the 15th of November. High pressure remained to the north and this allowed for a layer of cold air to hang around, causing a wintry mix over the higher elevations. | | Snowfall accumulations were around a coating to an inch across the ridges with little or no accumulations in the valleys. | | Freezing rain led to ice accumulation over the higher elevations generally above 1,000 feet in elevation. Ice amounts ranged from a trace to around one tenth of an inch.
12/14/2022	NPS reported significant ice accretion resulting in a significant number of downed trees throughout Shenandoah National Park. The park remained closed for nearly a week. An area of low pressure passed by to the west with another area of low pressure developing near the Chesapeake Bay. This resulted in southeasterly winds to overrun colder air near the surface and a prolonged wintry mix/freezing rain event across the Allegheny and Potomac Highlands where temperatures were just below freezing. Ice accumulations totaled one quarter to three quarters for most, with upwards of one inch across the higher terrain of the Blue Ridge. Sleet accumulations totaled upwards of 1 as well. This led to numerous accidents, downed trees and power lines which resulted in isolated power outages.
12/22/2022	A wave of wintry precipitation developed over the region with temperatures at or just below freezing. This resulted in a period of snow, sleet, and freezing rain that eventually turned to rain during the late morning and afternoon. Snow/sleet accumulations totaled one to four inches and ice accumulations totaled a few hundredths to one tenth of an inch. This led to several accidents.
1/8/2023	A wave of wintry precipitation developed over the region with temperatures at or just below freezing. This resulted in a period of snow, sleet, and freezing rain. Snow/sleet accumulations totaled a few tenths to two inches and ice accumulations totaled a few hundredths to one tenth of an inch. This led to several accidents.
1/22/2023	A wave of wintry precipitation developed over the region with temperatures at or just below freezing. This resulted in a period of sleet and freezing rain. Sleet accumulations totaled a coating to a few tenths and ice accumulations totaled a few hundredths to one tenth of an inch.
1/25/2023	Trained spotters reported a coating to an inch or snow/sleet accumulation and a coating to a tenth of an inch of ice. A wave of wintry precipitation along a warm front moved through the region bringing snow, sleet, and freezing rain that eventually changed over to rain.
1/31/2023	The event continued until 6:30 EST February 1st. A wave of wintry precipitation developed to the north of an area of low pressure with temperatures falling below freezing. This resulted in a period of freezing drizzle which then changed to snow. Ice accumulations totaled a coating to a few hundredths of an inch and snow accumulations totaled a coating to one inch.
2/12/2023	An area of low pressure moved through North Carolina before tracking northeast off the coast of Virginia. North of the area of low pressure, a mixture of snow, sleet, and freezing rain developed. Ice accumulations totaled a few hundredths to two tenths of an inch and snow accumulations totaled a coating to four inches. The greatest impacts were above 2,000 ft AGL, where numerous trees were downed due to the ice. Several accidents and isolated power outages were reported.
2/25/2023	A wave of wintry precipitation developed to the north of a frontal boundary with temperatures near or just below freezing. This resulted in a period of freezing rain, sleet, and snow. Ice accumulations totaled a coating to a few hundredths of an inch and snow accumulations totaled a coating to one inch.

3/3/2023	An area of low pressure passed by to the west with another area of low pressure developing near the Chesapeake Bay. This resulted in southeasterly winds to overrun colder air near the surface and a period of freezing rain and sleet. Ice accumulations totaled a trace to one tenth of an inch generally above 2,000 feet.
3/12/2023	An upper-level system and weak area of surface low pressure brought a period of snow across the region during the daylight hours of March 12th which transitioned to freezing drizzle during the evening and continued into the overnight. Total snow accumulations were one to three inches with ice accumulations of a trace to one tenth of an inch.
11/21/2023	A strong area of low pressure passed by to the west, causing southerly winds to overrun colder air near the surface. This resulted in freezing rain across the higher elevations in the Allegheny and Potomac Highlands to the Virginia Blue Ridge where temperatures were just below freezing. Ice accumulation totaled around a trace to a few hundredths.
12/5/2023	Upslope snow showers behind a departing low-pressure system resulted in snowfall accumulations of two to four inches across the Allegheny Mountains with one to three inches across the Northern Virginia Blue Ridge.
12/10/2023	Low pressure strengthened as it moved northeast with rain changing to snow on the backside of the system. Amounts of two to five inches were reported along the ridges with localized amounts upwards of seven inches along the Virginia Blue Ridge.
1/6/2024	Low pressure tracked along the Mid-Atlantic coast bringing a period of snow, sleet, and freezing rain to portions of Virginia. Snowfall totaled 3 to 7 inches northwest of I-81, with one to three inches toward the Blue Ridge Mountains. A trace to one quarter of an inch of freezing rain fell as well, with the lesser amounts along the US-29/US-15 corridor and higher amounts on the Blue Ridge Mountains.
1/9/2024	An area of low pressure moved into the Ohio Valley with a warm frontal band of snow moving through parts of western Virginia toward the Blue Ridge Mountains. Temperatures held at or just below freezing for several hours resulting in a quick three to six inches of snow in the Alleghenies. A general one to three inches fell in parts of the Shenandoah Valley toward the Blue Ridge. A trace to few hundredths of freezing rain was observed before precipitation transitioned to rain. Winds gusted to 40-50 mph.
1/15/2024	Multiple waves of low pressure moved along a frontal boundary bringing several rounds of snow. Two-day totals averaged two to five inches. Amounts of four to eight inches were observed across western Highland County and a stripe of four to seven inches across northern Virginia. As the system departed, precipitation ended as a light freezing drizzle areawide during the morning of January 16th.
1/19/2024	An area of surface low pressure moved by to the south as an upper-level disturbance moved through the Ohio Valley into the Northeast. This produced a swath of four to seven inches of snow north of I-66 in Northern Virginia on January 20th. Across western Highland County, upslope snow continued through the day of January 21st resulting in storm total snowfall amounts of around one foot. Winds gusted upwards of 45 mph resulting in blowing snow.
2/13/2024	An area of low pressure moved by to the south bringing rain that changed to a period of moderate to heavy snow. Snow accumulations ranged two to locally six inches across the higher hills.
2/16/2024	An area of low pressure moved across southern West Virginia and Virginia bringing snow accumulations. Snowfall accumulations ranged from four to eight inches in across the Alleghenies with a general two to five inches across the northern Shenandoah Valley toward the Potomac River.

Local Capability Assessment Worksheets

Culpeper County.....A-176
Town of Culpeper.....A-182
Fauquier County A-199
Town of Warrenton.....A-216
Madison County **A-250**

Town of Orange **A-250**
Orange County
Rappahannock County **A-267**
Town of Washington **A-267**

Capability Assessment Worksheet

Jurisdiction: Culpeper County

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. Complete one worksheet for each jurisdiction.

Planning and Regulatory

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following your jurisdiction has in place.

Plans	Yes/No Year	Does the plan address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	Yes	
Capital Improvements Plan	Yes	
Economic Development Plan	Yes	
Local Emergency Operations Plan	Yes 2015	Yes to all. Update on EOP in 2019
Continuity of Operations Plan	Yes 2015	Yes to all. Part of the County EOP
Transportation Plan	Yes	
Stormwater Management Plan	Yes	
Community Wildfire Protection Plan	NO	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)		

Worksheet 4.1
Capability Assessment Worksheet

Building Code, Permitting, and Inspections	Yes/No	Are codes adequately enforced?
Building Code	Yes	Version/Year: 2021 - Virginia USBC
Building Code Effectiveness Grading Schedule (BCEGS) Score	YES	Score: 142 FAMILY DWELLINGS - CLASS 3 ALL OTHER CONSTRUCTION - CLASS 3
Fire department ISO rating	Yes	Rating:
Site plan review requirements	Yes	COMMERCIAL MORE THAN RESIDENTAL
Land Use Planning and Ordinances	**Yes/No**	**Is the ordinance an effective measure for reducing hazard impacts?** **Is the ordinance adequately administered and enforced?**
Zoning ordinance	Yes	
Subdivision ordinance	Yes	
Floodplain ordinance	Yes	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	YES	EROSION, SEDIMENT + STORMWATER
Flood insurance rate maps	Yes	
Acquisition of land for open space and public recreation uses	YES	EASMENTS - BUT NO BUDGET FOR IT YET.
Other		

How can these capabilities be expanded and improved to reduce risk?

Administrative and Technical

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level government that can provide technical assistance, indicate so in your comments.

Administration	Yes/No	Describe capability Is coordination effective?
Planning Commission	Yes	
Mitigation Planning Committee	Yes	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)		
Mutual aid agreements	Yes	
Staff	**Yes/No FT/PT[1]**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	Yes	
Floodplain Administrator		
Emergency Manager	Yes	
Community Planner	Yes	
Civil Engineer		
GIS Coordinator	Yes	
Other		

1 Full-time (FT) or part-time (PT) position

Worksheet 4.1
Capability Assessment Worksheet

Technical	Yes/No	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	Yes	Rave Alert System, Reverse 911
Hazard data and information	Yes	Local Emergency Planning Commission / EOC
Grant writing	Yes	Culpeper Employed for Grants
Hazus analysis		
Other		

How can these capabilities be expanded and improved to reduce risk?

Financial

Identify whether your jurisdiction has access to or is eligible to use the following funding resources for hazard mitigation.

Funding Resource	Access/ Eligibility (Yes/No)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Yes	
Authority to levy taxes for specific purposes	Yes	
Fees for water, sewer, gas, or electric services	Yes	
Impact fees for new development		
Storm water utility fee		
Incur debt through general obligation bonds and/or special tax bonds		
Incur debt through private activities		
Community Development Block Grant		
Other federal funding programs	Yes	
State funding programs	Yes	
Other		

How can these capabilities be expanded and improved to reduce risk?

Worksheet 4.1
Capability Assessment Worksheet

Education and Outreach

Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Yes	Local VOAD, LEPC
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes	Emergency Services, local Fire/Rescue
Natural disaster or safety related school programs	Yes	Local School Safety Committee
StormReady certification		Currently in the begining stages for Certification
Firewise Communities certification	NO	
Public-private partnership initiatives addressing disaster-related issues	Yes	Partnerships with VDEM
Other		

How can these capabilities be expanded and improved to reduce risk?

REGION 3

HAZARD MITIGATION PLAN GUIDANCE

Community Capability Assessment Worksheet

JURISDICTION: Town of Culpeper

PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

COMPREHENSIVE/MASTER LAND USE PLAN	Overall policy guide for future community growth and development.
Is this Plan/Policy in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Town of Culpeper Comprehensive Plan (2018)
Author/Owner:	Town of Culpeper Planning Commission
Effective Date:	May 10, 2016 (Last Amended May 10, 2022)
Next Scheduled Update (if known):	2025/26
Relation to Hazard Mitigation:	Chapter 7: Transportation & Public Facilities – addresses the Town's key infrastructure related to transportation, water and wastewater management. Chapter 8: Natural, Historic & Cultural Resources – addresses the Town's natural resources and potential impacts on and from natural resources such as dam-break inundation zones, steep slopes and watershed protection.

JURISDICTION: Town of Culpeper

PLANS AND POLICIES (CONTINUED)

CLIMATE CHANGE ADAPTATION PLAN	An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate.
Is this Plan/Policy in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

EMERGENCY OPERATIONS PLAN	Organizational procedures and processes to respond to and recover from an emergency.
Is this Plan/Policy in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Culpeper County Emergency Operations Plan
Author/Owner:	Culpeper County Director of Emergency Management
Effective Date:	April 2019
Next Scheduled Update (if known):	TBD (Should have been 2023)
Relation to Hazard Mitigation:	Emergency Operations Plan consists of three plans: 1. The Basic Plan describes the concept of emergency operations and assigns duties and responsibilities to agency heads or organizations that are either part of, or will serve in support of, local government in time of emergency. It becomes the organizational and legal basis for emergency operations 2. The federal Superfund and Reauthorization Act (SARA Title III) requires the development and maintenance of detailed procedures for identifying facilities with extremely hazardous materials and for assuring an adequate emergency response capability by these facilities and by local emergency services. 3. The Radiological Emergency Response Plan (RERP) provides guidance for effective emergency response operations in the event of a radiological emergency precipitated by events at fixed nuclear facilities or by transportation accidents.

JURISDICTION: Town of Culpeper

PLANS AND POLICIES (CONTINUED)

STREAMBANK BUFFER PROTECTION PROGRAM	A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway.
Is this Plan/Policy in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

JURISDICTION: Town of Culpeper

CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

BUILDING CODE	Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety.
Is this Code or Ordinance in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	2021 Uniform Statewide Building Code
Responsible Agency:	Culpeper County Building Department
Effective Date:	January 18, 2024
Next Scheduled Update (if known):	2027
Relation to Hazard Mitigation:	See Culpeper County response.

JURISDICTION: Town of Culpeper

CODES AND ORDINANCES (CONTINUED)

FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE	The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use.
Is this Code or Ordinance in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Town of Culpeper Zoning Ordinance, Article IV – Flood Hazard Areas
Responsible Agency:	Town of Culpeper Department of Planning & Community Development
Effective Date:	December 8, 2020
Next Scheduled Update (if known):	Unknown
Relation to Hazard Mitigation:	Per the Code of Virginia, flood ordinances shall be designed to provide for safety from flood, to facilitate the provision of flood protection, and to protect against loss of life, health, or property from flood.

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

JURISDICTION: Town of Culpeper

ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.

ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

ENGINEERING DEPARTMENT	An in-house department providing civil engineering capability.
Is this Board, Commission, or Department in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Town of Culpeper, Public Works Dept.
Point-of-Contact:	Jim Hoy, P.E.
Meeting Schedule:	Varies
Relation to Hazard Mitigation:	Public works will address immediate community needs and strategically reduce hazard vulnerability by ensuring road accessibility, flood control, safeguarding the environment, and stabilizing utilities. Projects are identified through risk assessments, community feedback, infrastructure evaluations, and prioritizing based on impact and urgency. Staffing and training are adequate based on the current size of the community/budget/nature of services provided.

JURISDICTION: Town of Culpeper

ADMINISTRATIVE (CONTINUED)

CODE ENFORCEMENT DEPARTMENT	An in-house department responsible for evaluating private properties and public grounds against local codes.
Is this Board, Commission, or Department in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Department of Planning & Community Development
Point-of-Contact:	Andrew Hopewell – Town of Culpeper Zoning Administrator
Meeting Schedule:	Board of Zoning Appeals meets monthly as needed
Relation to Hazard Mitigation:	Zoning ordinances shall be for the general purpose of promoting the health, safety or general welfare of the public. To that end, they articulate the rules of development to ensure the safe and harmonious use of property within the Town. This includes provisions to protect against hazards both during and after construction.

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

JURISDICTION: Town of Culpeper

TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CHIEF BUILDING OFFICER	The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations.
Is this Staff Position in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☒ FT ☐ PT If PT, indicate % time or hours _____
Title:	Building Official
Current Position Holder:	Robert (Bob) Orr
Length of Employment in this Position:	
Relation to Hazard Mitigation:	See Culpeper County response.

JURISDICTION: Town of Culpeper

TECHNICAL (CONTINUED)

CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT	The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints.
Is this Staff Position in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☑ FT ☐ PT If PT, indicate % time or hours _____
Title:	Public Services Director
Current Position Holder:	Jim Hoy, P.E.
Length of Employment in this Position:	13+ years
Relation to Hazard Mitigation:	Actively involved in the planning/prep. for various hazards. In an event he coordinates with other emergency services to provide critical support, allocates resources, engages the community, collaborates with other governmental agencies/private sector partners, establishes operating policies and procedures.

GRANT ADMINISTRATOR	The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	

JURISDICTION: Town of Culpeper

TECHNICAL (CONTINUED)

GRANT WRITER	The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

JURISDICTION: Town of Culpeper

FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CAPITAL IMPROVEMENTS PROGRAM	A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan.
Is there Access to and/or Eligibility for this Funding Resource?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Town of Culpeper Capital Improvements Program
Responsible Agency/Organization:	Town of Culpeper Planning Commission
Relation to Hazard Mitigation:	Identifies large Town-planned capital projects. These have included transportation safety improvements, dam improvements among other projects.

JURISDICTION: Town of Culpeper

FINANCIAL (CONTINUED)

FUNDING PROGRAMS – FEDERAL (NON-FEMA)	Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc.
Is there Access to and/or Eligibility for this Funding Resource?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Safe Streets and Roads for All (SS4A)
Responsible Agency/Organization:	U.S. Department of Transportation funded grant to the Town of Culpeper's Department of Planning & Community Development
Relation to Hazard Mitigation:	Grant to develop a Vision Zero Transportation Plan with a goal of zero transportation related fatalities in the Town of Culpeper by 2034. Plan provides recommended transportation infrastructure and systemic operations improvements to improve transportation safety.

UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES	Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions.
Is there Access to and/or Eligibility for this Funding Resource?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Water, Sewer & Electric Tap Privilege Fees
Responsible Agency/Organization:	Town of Culpeper Various Departments
Relation to Hazard Mitigation:	Tap Privilege Fees are intended to fund capital costs for the expansion of capacity of the relevant utility infrastructure. The design and construction of these expansions shall incorporate the current standards to ensure safety and compliance with existing regulations.

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

JURISDICTION: Town of Culpeper

EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

STORMREADY CERTIFICATION	National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event.
Is this Program/Method in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

JURISDICTION: Town of Culpeper

EDUCATION AND OUTREACH (CONTINUED)

SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH	Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction.
Is this Program/Method in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

JURISDICTION: _____

ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

PLANNING AND REGULATORY

PLANS AND POLICIES

PLAN/POLICY	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Comprehensive/ Master Land Use Plan	Planning or Zoning Departments	▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis? ▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Climate Change Adaptation Plan	Planning Department	▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Emergency Operations Plan (EOP)	Emergency Management Department	▫ Does the EOP address all hazards identified in the current approved HMP? ▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider? ▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations?
Streambank Buffer Protection Program	Local or regional natural resources conservation non-profit organizations	▫ Does the program reference problem areas identified in the current approved HMP? ▫ Does the program identify problem areas that should be referenced in the HMP? ▫ Is acreage in the program increasing year to year?

CODES AND ORDINANCES

CODE/ORDINANCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Building Code	Code Enforcement or Engineering Departments	▫ What is the community's Building Code Effectiveness Grading Schedule Score?
Floodplain Ordinance/NFIP Compliance	Code Enforcement or Engineering Departments	▫ What is the community's current status in the NFIP? ▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation?

Community Capability Assessment Worksheet

JURISDICTION: _____

ADMINISTRATIVE AND TECHNICAL

ADMINISTRATIVE

BOARD/COMMISSION/ DEPARTMENT	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Engineering Department	Engineering or Public Works Departments	▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update?
Code Enforcement Department	Code Enforcement or Engineering Departments	▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments? ▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation?

TECHNICAL

STAFF POSITION	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Chief Building Officer	Code Enforcement or Engineering Departments	▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator?
Civil Engineer - Construction Project Management	Engineering Department	▫ Have previous construction projects been completed, meeting budget and schedule constraints?
Grant Administrator	Finance or Emergency Management Departments	▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully? ▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully?
Grant Writer	Finance or Emergency Management Departments	▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded? ▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded?

Community Capability Assessment Worksheet

JURISDICTION: _____

FINANCIAL

FUNDING RESOURCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Capital Improvement Program	Administration or Financial Departments	▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection?
Funding programs – Federal (non-FEMA)	Finance or Emergency Management Departments	▫ What were the grants, and what kinds of projects were funded?
Utility fees for stormwater, water, sewer, gas, or electric services	Finance or Public Works Departments	▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years? ▫ What kinds of projects have been funded in this manner?

EDUCATION AND OUTREACH

PROGRAM/METHOD	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
StormReady Certification	Emergency Management or Public Information Departments	▫ How long has the community been certified? ▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results?
Seasonal Emergency Management and Mitigation Outreach	Emergency Management or Public Information Departments	▫ Is awareness of potential hazard impacts increasing year to year? ▫ Are individuals and businesses taking necessary precautions in advance of events?

REGION 3

HAZARD MITIGATION PLAN GUIDANCE

Community Capability Assessment Worksheet

JURISDICTION: Fauquier County_____

PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

COMPREHENSIVE/MASTER LAND USE PLAN	Overall policy guide for future community growth and development.
Is this Plan/Policy in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Fauquier County Comprehensive Plan
Author/Owner:	Fauquier County Community Development
Effective Date:	August 13, 2015
Next Scheduled Update (if known):	Ongoing amendments as they occur in response to new information and dynamic changes.
Relation to Hazard Mitigation:	Mitigation actions in time of drought to include working with WSA to conserve water.

JURISDICTION: Fauquier County

PLANS AND POLICIES (CONTINUED)

CLIMATE CHANGE ADAPTATION PLAN	An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate.
Is this Plan/Policy in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

EMERGENCY OPERATIONS PLAN	Organizational procedures and processes to respond to and recover from an emergency.
Is this Plan/Policy in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Fauquier County Emergency Operations Plan
Author/Owner:	Emergency Management
Effective Date:	November 2022
Next Scheduled Update (if known):	2026
Relation to Hazard Mitigation:	The EOP is an All-Hazards plan that identifies the County mitigation efforts and each agencies roles in **Mitigation**, Preparedness, Response, and Recovery.

JURISDICTION: Fauquier County

PLANS AND POLICIES (CONTINUED)

STREAMBANK BUFFER PROTECTION PROGRAM	A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway.
Is this Plan/Policy in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

JURISDICTION: Fauquier County

CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

BUILDING CODE	Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety.
Is this Code or Ordinance in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	2018 Virginia Uniform Statewide Building Code (USBC)
Responsible Agency:	Community Development
Effective Date:	July 1, 2022
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	Fauquier County follows the VA State USBC and by adopting State Codes we meet state requirements for mitigation against hazard impacts. We also permit, regulate, and inspect projects to ensure compliance.

JURISDICTION: Fauquier County

CODES AND ORDINANCES (CONTINUED)

FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE	The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use.
Is this Code or Ordinance in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Fauquier County Zoning Ordinance Section 4-400
Responsible Agency:	Community Development
Effective Date:	1979 - ongoing
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	County first adopted floodplain regulations as part of its Zoning Ordinance in 1979. Section 4-400 of the current Zoning Ordinance establishes a Floodplain Overlay District that encompasses all the lands within the 100-year floodplain. The District limits the development that can occur within the floodplain and requires permitting for all uses and activities within the floodplain except for production agriculture.

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

JURISDICTION: Fauquier County_____

ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.

ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

ENGINEERING DEPARTMENT	An in-house department providing civil engineering capability.
Is this Board, Commission, or Department in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Name:	
Point-of-Contact:	
Meeting Schedule:	
Relation to Hazard Mitigation:	

JURISDICTION: Fauquier County

ADMINISTRATIVE (CONTINUED)

CODE ENFORCEMENT DEPARTMENT	An in-house department responsible for evaluating private properties and public grounds against local codes.
Is this Board, Commission, or Department in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Community Development and Fire Marshalls Office
Point-of-Contact:	In house code enforcement.
Meeting Schedule:	
Relation to Hazard Mitigation:	Community Development staff investigates complaints pertaining to the Zoning Ordinance, the Virginia Building Code, Virginia Erosion and Sediment Control Handbook, and Design Standard Manual. In addition, the County adopted the VA Fire Code and is enforced by the Fire Marshalls Office.

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

JURISDICTION: Fauquier County

TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CHIEF BUILDING OFFICER	The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations.
Is this Staff Position in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☒ FT ☐ PT If PT, indicate % time or hours _____
Title:	Building Official
Current Position Holder:	Jeffrie Morrow
Length of Employment in this Position:	
Relation to Hazard Mitigation:	Ensure buildings meet codes and are inspected to confirm. Codes follow State regulations for building and inspections of completed buildings are done by county staff.

JURISDICTION: Fauquier County_____

TECHNICAL (CONTINUED)

CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT	The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints.
Is this Staff Position in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	Civil Engineer is on contract as needed.
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

GRANT ADMINISTRATOR	The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	Finance and Budget staff and other agency staff perform grant administration as needed.
Length of Employment in this Position:	

JURISDICTION: Fauquier County_____

TECHNICAL (CONTINUED)

GRANT WRITER	The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	Finance and Budget staff and other agency staff perform grant writing as needed.
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

JURISDICTION: Fauquier County_____

FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CAPITAL IMPROVEMENTS PROGRAM	A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan.
Is there Access to and/or Eligibility for this Funding Resource?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Multiple Capital Improvement Plans.
Responsible Agency/Organization:	County Administration and a Facilities Planning Committee.
Relation to Hazard Mitigation:	

JURISDICTION: Fauquier County

FINANCIAL (CONTINUED)

FUNDING PROGRAMS – FEDERAL (NON-FEMA)	Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc.
Is there Access to and/or Eligibility for this Funding Resource?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	Various agencies request through Administration and Board approval.
Relation to Hazard Mitigation:	

UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES	Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions.
Is there Access to and/or Eligibility for this Funding Resource?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

JURISDICTION: Fauquier County

EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

STORMREADY CERTIFICATION	National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event.
Is this Program/Method in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Storm Ready
Responsible Agency/Organization:	Fauquier County Emergency Management
Relation to Hazard Mitigation:	Emergency Management in partnership with the National Weather Service provides timely notifications of potential weather hazards and impending events allowing us to prepare, notify, and warn our residents of weather emergencies.

JURISDICTION: Fauquier County

EDUCATION AND OUTREACH (CONTINUED)

SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH	Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction.
Is this Program/Method in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	Fauquier County Emergency Management
Relation to Hazard Mitigation:	Education helps residents and staff be prepared for emergencies, taking a burden off of emergency services.

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

JURISDICTION: Fauquier County_____

ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

PLANNING AND REGULATORY

PLANS AND POLICIES

PLAN/POLICY	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Comprehensive/ Master Land Use Plan	Planning or Zoning Departments	▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis? ▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Climate Change Adaptation Plan	Planning Department	▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Emergency Operations Plan (EOP)	Emergency Management Department	▫ Does the EOP address all hazards identified in the current approved HMP? ▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider? ▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations?
Streambank Buffer Protection Program	Local or regional natural resources conservation non-profit organizations	▫ Does the program reference problem areas identified in the current approved HMP? ▫ Does the program identify problem areas that should be referenced in the HMP? ▫ Is acreage in the program increasing year to year?

CODES AND ORDINANCES

CODE/ORDINANCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Building Code	Code Enforcement or Engineering Departments	▫ What is the community's Building Code Effectiveness Grading Schedule Score?
Floodplain Ordinance/NFIP Compliance	Code Enforcement or Engineering Departments	▫ What is the community's current status in the NFIP? ▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation?

Community Capability Assessment Worksheet

JURISDICTION: Fauquier County_____

ADMINISTRATIVE AND TECHNICAL

ADMINISTRATIVE

BOARD/COMMISSION/ DEPARTMENT	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Engineering Department	Engineering or Public Works Departments	▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update?
Code Enforcement Department	Code Enforcement or Engineering Departments	▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments? ▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation?

TECHNICAL

STAFF POSITION	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Chief Building Officer	Code Enforcement or Engineering Departments	▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator?
Civil Engineer - Construction Project Management	Engineering Department	▫ Have previous construction projects been completed, meeting budget and schedule constraints?
Grant Administrator	Finance or Emergency Management Departments	▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully? ▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully?
Grant Writer	Finance or Emergency Management Departments	▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded? ▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded?

Community Capability Assessment Worksheet

JURISDICTION: Fauquier County_____

FINANCIAL

FUNDING RESOURCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Capital Improvement Program	Administration or Financial Departments	▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection?
Funding programs – Federal (non-FEMA)	Finance or Emergency Management Departments	▫ What were the grants, and what kinds of projects were funded?
Utility fees for stormwater, water, sewer, gas, or electric services	Finance or Public Works Departments	▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years? ▫ What kinds of projects have been funded in this manner?

EDUCATION AND OUTREACH

PROGRAM/METHOD	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
StormReady Certification	Emergency Management or Public Information Departments	▫ How long has the community been certified? ▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results?
Seasonal Emergency Management and Mitigation Outreach	Emergency Management or Public Information Departments	▫ Is awareness of potential hazard impacts increasing year to year? ▫ Are individuals and businesses taking necessary precautions in advance of events?

REGION 3

HAZARD MITIGATION PLAN GUIDANCE

Community Capability Assessment Worksheet

JURISDICTION: tOWN OF wARRENTON, va

PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

COMPREHENSIVE/MASTER LAND USE PLAN	Overall policy guide for future community growth and development.
Is this Plan/Policy in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

JURISDICTION: Town of Warrenton, VA

PLANS AND POLICIES (CONTINUED)

CLIMATE CHANGE ADAPTATION PLAN	An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate.
Is this Plan/Policy in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

EMERGENCY OPERATIONS PLAN	Organizational procedures and processes to respond to and recover from an emergency.
Is this Plan/Policy in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

JURISDICTION: Town of Warrenton, VA

PLANS AND POLICIES (CONTINUED)

STREAMBANK BUFFER PROTECTION PROGRAM	A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway.
Is this Plan/Policy in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

Community Capability Assessment Worksheet

JURISDICTION: Town of Warrenton, VA

CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

BUILDING CODE	Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety.
Is this Code or Ordinance in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

JURISDICTION: Town of Warrenton, VA

CODES AND ORDINANCES (CONTINUED)

FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE	The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use.
Is this Code or Ordinance in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

JURISDICTION: Town of Warrenton, VA

ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.

ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

ENGINEERING DEPARTMENT	An in-house department providing civil engineering capability.
Is this Board, Commission, or Department in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Point-of-Contact:	
Meeting Schedule:	
Relation to Hazard Mitigation:	

JURISDICTION: Town of Warrenton, VA

ADMINISTRATIVE (CONTINUED)

CODE ENFORCEMENT DEPARTMENT	An in-house department responsible for evaluating private properties and public grounds against local codes.
Is this Board, Commission, or Department in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Point-of-Contact:	
Meeting Schedule:	
Relation to Hazard Mitigation:	

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

JURISDICTION: Town of Warrenton, VA

TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CHIEF BUILDING OFFICER	The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations.
Is this Staff Position in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

JURISDICTION: Town of Warrenton, VA

TECHNICAL (CONTINUED)

CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT	The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints.
Is this Staff Position in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

GRANT ADMINISTRATOR	The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

JURISDICTION: Town of Warrenton, VA

TECHNICAL (CONTINUED)

GRANT WRITER	The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

JURISDICTION: Town of Warrenton, VA

FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CAPITAL IMPROVEMENTS PROGRAM	A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan.
Is there Access to and/or Eligibility for this Funding Resource?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

JURISDICTION: Town of Warrenton, VA

FINANCIAL (CONTINUED)

FUNDING PROGRAMS – FEDERAL (NON-FEMA)	Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc.
Is there Access to and/or Eligibility for this Funding Resource?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES	Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions.
Is there Access to and/or Eligibility for this Funding Resource?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

JURISDICTION: Town of Warrenton, VA

EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

STORMREADY CERTIFICATION	National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event.
Is this Program/Method in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

JURISDICTION: Town of Warrenton, VA

EDUCATION AND OUTREACH (CONTINUED)

SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH	Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction.
Is this Program/Method in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

JURISDICTION: Town of Warrenton, VA

ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

PLANNING AND REGULATORY

PLANS AND POLICIES

PLAN/POLICY	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Comprehensive/ Master Land Use Plan	Planning or Zoning Departments	▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis? ▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Climate Change Adaptation Plan	Planning Department	▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Emergency Operations Plan (EOP)	Emergency Management Department	▫ Does the EOP address all hazards identified in the current approved HMP? ▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider? ▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations?
Streambank Buffer Protection Program	Local or regional natural resources conservation non-profit organizations	▫ Does the program reference problem areas identified in the current approved HMP? ▫ Does the program identify problem areas that should be referenced in the HMP? ▫ Is acreage in the program increasing year to year?

CODES AND ORDINANCES

CODE/ORDINANCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Building Code	Code Enforcement or Engineering Departments	▫ What is the community's Building Code Effectiveness Grading Schedule Score?
Floodplain Ordinance/NFIP Compliance	Code Enforcement or Engineering Departments	▫ What is the community's current status in the NFIP? ▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation?

Community Capability Assessment Worksheet

JURISDICTION: Town of Warrenton, VA

ADMINISTRATIVE AND TECHNICAL

ADMINISTRATIVE

BOARD/COMMISSION/ DEPARTMENT	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Engineering Department	Engineering or Public Works Departments	▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update?
Code Enforcement Department	Code Enforcement or Engineering Departments	▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments? ▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation?

TECHNICAL

STAFF POSITION	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Chief Building Officer	Code Enforcement or Engineering Departments	▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator?
Civil Engineer - Construction Project Management	Engineering Department	▫ Have previous construction projects been completed, meeting budget and schedule constraints?
Grant Administrator	Finance or Emergency Management Departments	▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully? ▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully?
Grant Writer	Finance or Emergency Management Departments	▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded? ▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded?

Community Capability Assessment Worksheet

JURISDICTION: Town of Warrenton, VA

FINANCIAL

FUNDING RESOURCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Capital Improvement Program	Administration or Financial Departments	▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection?
Funding programs – Federal (non-FEMA)	Finance or Emergency Management Departments	▫ What were the grants, and what kinds of projects were funded?
Utility fees for stormwater, water, sewer, gas, or electric services	Finance or Public Works Departments	▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years? ▫ What kinds of projects have been funded in this manner?

EDUCATION AND OUTREACH

PROGRAM/METHOD	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
StormReady Certification	Emergency Management or Public Information Departments	▫ How long has the community been certified? ▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results?
Seasonal Emergency Management and Mitigation Outreach	Emergency Management or Public Information Departments	▫ Is awareness of potential hazard impacts increasing year to year? ▫ Are individuals and businesses taking necessary precautions in advance of events?

REGION 3

HAZARD MITIGATION PLAN GUIDANCE

Community Capability Assessment Worksheet

JURISDICTION: Madison County

PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

COMPREHENSIVE/MASTER LAND USE PLAN	Overall policy guide for future community growth and development.
Is this Plan/Policy in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Comprehensive Plan
Author/Owner:	Madison County
Effective Date:	2018
Next Scheduled Update (if known):	2024
Relation to Hazard Mitigation:	

JURISDICTION: Madison County

PLANS AND POLICIES (CONTINUED)

CLIMATE CHANGE ADAPTATION PLAN	An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate.
Is this Plan/Policy in Place?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

EMERGENCY OPERATIONS PLAN	Organizational procedures and processes to respond to and recover from an emergency.
Is this Plan/Policy in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Emergency Operations Plan
Author/Owner:	Madison County
Effective Date:	2020
Next Scheduled Update (if known):	2024
Relation to Hazard Mitigation:	All hazards planning.

JURISDICTION: Madison County

PLANS AND POLICIES (CONTINUED)

STREAMBANK BUFFER PROTECTION PROGRAM	A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway.
Is this Plan/Policy in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Virginia DEQ Plan
Author/Owner:	State of Virginia
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

JURISDICTION: _____

CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

BUILDING CODE	Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety.
Is this Code or Ordinance in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	USBC
Responsible Agency:	Madison Building Department
Effective Date:	1/18/2024
Next Scheduled Update (if known):	2027
Relation to Hazard Mitigation:	

JURISDICTION: Madison County

CODES AND ORDINANCES (CONTINUED)

FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE	The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use.
Is this Code or Ordinance in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Flood Protection Ordinance
Responsible Agency:	Madison County Zoning
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

JURISDICTION: _____

ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.

ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

ENGINEERING DEPARTMENT	An in-house department providing civil engineering capability.
Is this Board, Commission, or Department in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Madison County Emergency Management
Point-of-Contact:	Gavin Helme
Meeting Schedule:	Annaul LEPC
Relation to Hazard Mitigation:	

JURISDICTION: _____

ADMINISTRATIVE (CONTINUED)

CODE ENFORCEMENT DEPARTMENT	An in-house department responsible for evaluating private properties and public grounds against local codes.
Is this Board, Commission, or Department in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Madison Zoning Department
Point-of-Contact:	Tracey Clatterbuck
Meeting Schedule:	First and third Wednesday of every month
Relation to Hazard Mitigation:	

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

JURISDICTION: Madison County

TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CHIEF BUILDING OFFICER	The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations.
Is this Staff Position in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☑ FT ☐ PT If PT, indicate % time or hours _____
Title:	Building Official
Current Position Holder:	Jamie Wilks
Length of Employment in this Position:	Five Years
Relation to Hazard Mitigation:	

JURISDICTION: _____

TECHNICAL (CONTINUED)

CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT	The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints.
Is this Staff Position in Place?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

GRANT ADMINISTRATOR	The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

JURISDICTION: Madison County

TECHNICAL (CONTINUED)

GRANT WRITER	The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

JURISDICTION: Madison County

FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CAPITAL IMPROVEMENTS PROGRAM	A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan.
Is there Access to and/or Eligibility for this Funding Resource?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Jonathon Weakley
Responsible Agency/Organization:	Madison County Administration
Relation to Hazard Mitigation:	

JURISDICTION: Madison County

FINANCIAL (CONTINUED)

FUNDING PROGRAMS – FEDERAL (NON-FEMA)	Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc.
Is there Access to and/or Eligibility for this Funding Resource?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES	Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions.
Is there Access to and/or Eligibility for this Funding Resource?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

JURISDICTION: Madison County

EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

STORMREADY CERTIFICATION	National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event.
Is this Program/Method in Place?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

JURISDICTION: Madison County

EDUCATION AND OUTREACH (CONTINUED)

SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH	Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction.
Is this Program/Method in Place?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

JURISDICTION: Madison County

ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

PLANNING AND REGULATORY

PLANS AND POLICIES

PLAN/POLICY	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Comprehensive/ Master Land Use Plan	Planning or Zoning Departments	▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis? ▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Climate Change Adaptation Plan	Planning Department	▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Emergency Operations Plan (EOP)	Emergency Management Department	▫ Does the EOP address all hazards identified in the current approved HMP? ▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider? ▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations?
Streambank Buffer Protection Program	Local or regional natural resources conservation non-profit organizations	▫ Does the program reference problem areas identified in the current approved HMP? ▫ Does the program identify problem areas that should be referenced in the HMP? ▫ Is acreage in the program increasing year to year?

CODES AND ORDINANCES

CODE/ORDINANCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Building Code	Code Enforcement or Engineering Departments	▫ What is the community's Building Code Effectiveness Grading Schedule Score?
Floodplain Ordinance/NFIP Compliance	Code Enforcement or Engineering Departments	▫ What is the community's current status in the NFIP? ▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation?

Community Capability Assessment Worksheet

JURISDICTION: Madison County

ADMINISTRATIVE AND TECHNICAL

ADMINISTRATIVE

BOARD/COMMISSION/ DEPARTMENT	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Engineering Department	Engineering or Public Works Departments	▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update?
Code Enforcement Department	Code Enforcement or Engineering Departments	▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments? ▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation?

TECHNICAL

STAFF POSITION	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Chief Building Officer	Code Enforcement or Engineering Departments	▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator?
Civil Engineer - Construction Project Management	Engineering Department	▫ Have previous construction projects been completed, meeting budget and schedule constraints?
Grant Administrator	Finance or Emergency Management Departments	▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully? ▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully?
Grant Writer	Finance or Emergency Management Departments	▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded? ▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded?

Community Capability Assessment Worksheet

JURISDICTION: _____

FINANCIAL

FUNDING RESOURCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Capital Improvement Program	Administration or Financial Departments	▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection?
Funding programs – Federal (non-FEMA)	Finance or Emergency Management Departments	▫ What were the grants, and what kinds of projects were funded?
Utility fees for stormwater, water, sewer, gas, or electric services	Finance or Public Works Departments	▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years? ▫ What kinds of projects have been funded in this manner?

EDUCATION AND OUTREACH

PROGRAM/METHOD	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
StormReady Certification	Emergency Management or Public Information Departments	▫ How long has the community been certified? ▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results?
Seasonal Emergency Management and Mitigation Outreach	Emergency Management or Public Information Departments	▫ Is awareness of potential hazard impacts increasing year to year? ▫ Are individuals and businesses taking necessary precautions in advance of events?

REGION 3

HAZARD MITIGATION PLAN GUIDANCE

Community Capability Assessment Worksheet

JURISDICTION: Town of Orange

PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

COMPREHENSIVE/MASTER LAND USE PLAN	Overall policy guide for future community growth and development.
Is this Plan/Policy in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Town of Orange Comprehesive Plan
Author/Owner:	Town of Orange Planning Commission
Effective Date:	
Next Scheduled Update (if known):	Ongoing
Relation to Hazard Mitigation:	The plan does effectively reduce or eliminate development in the known hazard areas

Community Capability Assessment Worksheet

JURISDICTION: _____

PLANS AND POLICIES (CONTINUED)

CLIMATE CHANGE ADAPTATION PLAN	An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate.
Is this Plan/Policy in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

EMERGENCY OPERATIONS PLAN	Organizational procedures and processes to respond to and recover from an emergency.
Is this Plan/Policy in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	Orange County
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

Community Capability Assessment Worksheet

JURISDICTION: _____

PLANS AND POLICIES (CONTINUED)

STREAMBANK BUFFER PROTECTION PROGRAM	A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway.
Is this Plan/Policy in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

Community Capability Assessment Worksheet

JURISDICTION: _____

CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

BUILDING CODE	Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety.
Is this Code or Ordinance in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency:	Orange County Dept. of Development Services
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

Community Capability Assessment Worksheet

JURISDICTION: _____

CODES AND ORDINANCES (CONTINUED)

FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE	The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use.
Is this Code or Ordinance in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Floodplain Management Ordinance
Responsible Agency:	Community Development
Effective Date:	May 16, 2022
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	The Town adopted, with slight variations, The Virginia Model Floodplain Ordinance

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

JURISDICTION: _____

ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.

ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

ENGINEERING DEPARTMENT	An in-house department providing civil engineering capability.
Is this Board, Commission, or Department in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Name:	
Point-of-Contact:	
Meeting Schedule:	
Relation to Hazard Mitigation:	

Community Capability Assessment Worksheet

JURISDICTION: _____

ADMINISTRATIVE (CONTINUED)

CODE ENFORCEMENT DEPARTMENT	An in-house department responsible for evaluating private properties and public grounds against local codes.
Is this Board, Commission, or Department in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Department of Community Development
Point-of-Contact:	John G. Cooley
Meeting Schedule:	
Relation to Hazard Mitigation:	Within the ~~Town~~ Town, Zoning and Floodplain Management, are under the purview of the Town of Orange Department of Community Development The Building Code is under the purview of the Orange County Department of Development Services

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

Community Capability Assessment Worksheet

JURISDICTION: _____

TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CHIEF BUILDING OFFICER	The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations.
Is this Staff Position in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	The Town utilizes the Orange County Building official as ~~the~~ Town's Building Official

Community Capability Assessment Worksheet

JURISDICTION: _____

TECHNICAL (CONTINUED)

CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT	The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints.
Is this Staff Position in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☑ FT ☐ PT If PT, indicate % time or hours _____
Title:	Director of Community Development
Current Position Holder:	John G. Corley
Length of Employment in this Position:	12 years
Relation to Hazard Mitigation:	

GRANT ADMINISTRATOR	The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☑ FT ☐ PT If PT, indicate % time or hours _____
Title:	Director of Finance
Current Position Holder:	Dianna Gomez
Length of Employment in this Position:	2.5 years
Relation to Hazard Mitigation:	

JURISDICTION: _____

TECHNICAL (CONTINUED)

GRANT WRITER	The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

JURISDICTION: _____

FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CAPITAL IMPROVEMENTS PROGRAM	A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan.
Is there Access to and/or Eligibility for this Funding Resource?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Town of Orange Capital Improvements Plan
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

JURISDICTION: _____

FINANCIAL (CONTINUED)

FUNDING PROGRAMS – FEDERAL (NON-FEMA)	Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc.
Is there Access to and/or Eligibility for this Funding Resource?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	John G Cooley
Responsible Agency/Organization:	Community Development
Relation to Hazard Mitigation:	

UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES	Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions.
Is there Access to and/or Eligibility for this Funding Resource?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Water and Wastewate Availability Fees
Responsible Agency/Organization:	Finance Department
Relation to Hazard Mitigation:	

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

JURISDICTION: _____

EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

STORMREADY CERTIFICATION	National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event.
Is this Program/Method in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

JURISDICTION: _____

EDUCATION AND OUTREACH (CONTINUED)

SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH	Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction.
Is this Program/Method in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

REGION 3

HAZARD MITIGATION PLAN GUIDANCE

Community Capability Assessment Worksheet

FEMA

JURISDICTION: Orange County

PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

COMPREHENSIVE/MASTER LAND USE PLAN	Overall policy guide for future community growth and development.
Is this Plan/Policy in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Orange County
Author/Owner:	Orange County
Effective Date:	2023
Next Scheduled Update (if known):	N/A
Relation to Hazard Mitigation:	

Community Capability Assessment Worksheet

JURISDICTION: _____

PLANS AND POLICIES (CONTINUED)

CLIMATE CHANGE ADAPTATION PLAN	An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate.
Is this Plan/Policy in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

EMERGENCY OPERATIONS PLAN	Organizational procedures and processes to respond to and recover from an emergency.
Is this Plan/Policy in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Orange County Emergency Operations Plan
Author/Owner:	April Clark
Effective Date:	1/23/2024
Next Scheduled Update (if known):	1/23/2028
Relation to Hazard Mitigation:	

Community Capability Assessment Worksheet

JURISDICTION: Orange County ?

CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

BUILDING CODE	Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety.
Is this Code or Ordinance in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Virginia Construction Code
Responsible Agency:	Orange County
Effective Date:	2018 + 2021
Next Scheduled Update (if known):	[redacted] N/A
Relation to Hazard Mitigation:	

Community Capability Assessment Worksheet

JURISDICTION: Orange County

PLANS AND POLICIES (CONTINUED)

STREAMBANK BUFFER PROTECTION PROGRAM	A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway.
Is this Plan/Policy in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

Community Capability Assessment Worksheet

JURISDICTION: Orange County

ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.

ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

ENGINEERING DEPARTMENT	An in-house department providing civil engineering capability.
Is this Board, Commission, or Department in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Name:	
Point-of-Contact:	
Meeting Schedule:	
Relation to Hazard Mitigation:	

Community Capability Assessment Worksheet

JURISDICTION: Orange County

CODES AND ORDINANCES (CONTINUED)

FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE	The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use.
Is this Code or Ordinance in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Orange County Planning and Zoning
Responsible Agency:	
Effective Date:	2022
Next Scheduled Update (if known):	N/A
Relation to Hazard Mitigation:	

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

Community Capability Assessment Worksheet

JURISDICTION: Orange County

TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CHIEF BUILDING OFFICER	The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations.
Is this Staff Position in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☒ FT ☐ PT If PT, indicate % time or hours _____
Title:	Building Official
Current Position Holder:	G.W Gray
Length of Employment in this Position:	Since ~~2012~~ 2017
Relation to Hazard Mitigation:	

Community Capability Assessment Worksheet

JURISDICTION: Orange County

ADMINISTRATIVE (CONTINUED)

CODE ENFORCEMENT DEPARTMENT	An in-house department responsible for evaluating private properties and public grounds against local codes.
Is this Board, Commission, or Department in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Point-of-Contact:	NO
Meeting Schedule:	NO Standing Meetings
Relation to Hazard Mitigation:	

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

Community Capability Assessment Worksheet

JURISDICTION: Orange County

TECHNICAL (CONTINUED)

GRANT WRITER	The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☒ PT If PT, indicate % time or hours 10%
Title:	Emergency Planner / Grants Coordinator
Current Position Holder:	April Clark
Length of Employment in this Position:	1 year
Relation to Hazard Mitigation:	

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

Community Capability Assessment Worksheet

JURISDICTION: Orange County

TECHNICAL (CONTINUED)

CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT	The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints.
Is this Staff Position in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

GRANT ADMINISTRATOR	The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☒ PT If PT, indicate % time or hours 10%
Title:	Emergency Planner / Grants Coordinator
Current Position Holder:	April Clark
Length of Employment in this Position:	1 year
Relation to Hazard Mitigation:	

Community Capability Assessment Worksheet

JURISDICTION: Orange County

FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CAPITAL IMPROVEMENTS PROGRAM	A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan.
Is there Access to and/or Eligibility for this Funding Resource?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Sara Keeler, Finance Director
Responsible Agency/Organization:	Orange County
Relation to Hazard Mitigation:	

Community Capability Assessment Worksheet

JURISDICTION: Orange County

FINANCIAL (CONTINUED)

FUNDING PROGRAMS – FEDERAL (NON-FEMA)	Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc.
Is there Access to and/or Eligibility for this Funding Resource?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES	Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions.
Is there Access to and/or Eligibility for this Funding Resource?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

Community Capability Assessment Worksheet

JURISDICTION: Orange County

EDUCATION AND OUTREACH (CONTINUED)

SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH	Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction.
Is this Program/Method in Place?	☒ YES ☐ NO ☐ IDK (see Attachment A)
Name:	April Clark
Responsible Agency/Organization:	County of Orange Fire & EMS
Relation to Hazard Mitigation:	

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

JURISDICTION: Orange County

EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

STORMREADY CERTIFICATION	National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event.
Is this Program/Method in Place?	☐ YES ☒ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

Community Capability Assessment Worksheet

JURISDICTION: Orange County

ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

PLANNING AND REGULATORY

PLANS AND POLICIES

PLAN/POLICY	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Comprehensive/ Master Land Use Plan	Planning or Zoning Departments	▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis? ▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Climate Change Adaptation Plan	Planning Department	▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Emergency Operations Plan (EOP)	Emergency Management Department	▫ Does the EOP address all hazards identified in the current approved HMP? ▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider? ▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations?
Streambank Buffer Protection Program	Local or regional natural resources conservation non-profit organizations	▫ Does the program reference problem areas identified in the current approved HMP? ▫ Does the program identify problem areas that should be referenced in the HMP? ▫ Is acreage in the program increasing year to year?

CODES AND ORDINANCES

CODE/ORDINANCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Building Code	Code Enforcement or Engineering Departments	▫ What is the community's Building Code Effectiveness Grading Schedule Score?
Floodplain Ordinance/NFIP Compliance	Code Enforcement or Engineering Departments	▫ What is the community's current status in the NFIP? ▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation?

Community Capability Assessment Worksheet

JURISDICTION: Orange County

ADMINISTRATIVE AND TECHNICAL

ADMINISTRATIVE

BOARD/COMMISSION/ DEPARTMENT	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Engineering Department	Engineering or Public Works Departments	▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update?
Code Enforcement Department	Code Enforcement or Engineering Departments	▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments? ▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation?

TECHNICAL

STAFF POSITION	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Chief Building Officer	Code Enforcement or Engineering Departments	▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator?
Civil Engineer - Construction Project Management	Engineering Department	▫ Have previous construction projects been completed, meeting budget and schedule constraints?
Grant Administrator	Finance or Emergency Management Departments	▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully? ▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully?
Grant Writer	Finance or Emergency Management Departments	▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded? ▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded?

Community Capability Assessment Worksheet

JURISDICTION: Orange County

FINANCIAL

FUNDING RESOURCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Capital Improvement Program	Administration or Financial Departments	▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection?
Funding programs – Federal (non-FEMA)	Finance or Emergency Management Departments	▫ What were the grants, and what kinds of projects were funded?
Utility fees for stormwater, water, sewer, gas, or electric services	Finance or Public Works Departments	▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years? ▫ What kinds of projects have been funded in this manner?

EDUCATION AND OUTREACH

PROGRAM/METHOD	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
StormReady Certification	Emergency Management or Public Information Departments	▫ How long has the community been certified? ▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results?
Seasonal Emergency Management and Mitigation Outreach	Emergency Management or Public Information Departments	▫ Is awareness of potential hazard impacts increasing year to year? ▫ Are individuals and businesses taking necessary precautions in advance of events?

REGION 3

HAZARD MITIGATION PLAN GUIDANCE

Community Capability Assessment Worksheet

JURISDICTION: County of Rappahannock

PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

COMPREHENSIVE/MASTER LAND USE PLAN	Overall policy guide for future community growth and development.
Is this Plan/Policy in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Comprehensive Plan
Author/Owner:	Rappahannock County
Effective Date:	December 7, 2020
Next Scheduled Update (if known):	Reviewed every five years
Relation to Hazard Mitigation:	The document drives the land use vision for the community including allowable housing density in forested areas and the overall amount of development envisioned for the community

JURISDICTION: _____

PLANS AND POLICIES (CONTINUED)

CLIMATE CHANGE ADAPTATION PLAN	An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate.
Is this Plan/Policy in Place?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

EMERGENCY OPERATIONS PLAN	Organizational procedures and processes to respond to and recover from an emergency.
Is this Plan/Policy in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Emergency Operations Plan, Rappahannock County
Author/Owner:	Rappahannock County
Effective Date:	April 22, 2024
Next Scheduled Update (if known):	Reviewed every four years
Relation to Hazard Mitigation:	Direct relation to hazard mitigation

JURISDICTION: _____

PLANS AND POLICIES (CONTINUED)

STREAMBANK BUFFER PROTECTION PROGRAM	A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway.
Is this Plan/Policy in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Stream Protection Overlay District, Zoning
Author/Owner:	Rappahannock County
Effective Date:	January 7, 2008
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	Establishes a riparian buffer of 100-feet on either side of perenial streams and adjacent wetlands in some zoning districts. This buffer serves to support hazard mitigation from a flooding perspective.

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

JURISDICTION: _____

CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

BUILDING CODE	Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety.
Is this Code or Ordinance in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Virginia Uniform Statewide Building Code
Responsible Agency:	Commonwealth of Virginia with local Building Official
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

JURISDICTION: _____

CODES AND ORDINANCES (CONTINUED)

FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE	The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use.
Is this Code or Ordinance in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Floodplain Overlay District, part of Zoning Ordinance
Responsible Agency:	Rappahannock County Zoning
Effective Date:	1/4/2021 (new ordinance and new FIRMS effective this date)
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	Direct relation to hazard mitigation

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

JURISDICTION: _____

ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.

ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

ENGINEERING DEPARTMENT	An in-house department providing civil engineering capability.
Is this Board, Commission, or Department in Place?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Name:	... but the County Administrator is an engineer (Civil PE)
Point-of-Contact:	
Meeting Schedule:	
Relation to Hazard Mitigation:	

JURISDICTION: _____

ADMINISTRATIVE (CONTINUED)

CODE ENFORCEMENT DEPARTMENT	An in-house department responsible for evaluating private properties and public grounds against local codes.
Is this Board, Commission, or Department in Place?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Name:	
Point-of-Contact:	
Meeting Schedule:	
Relation to Hazard Mitigation:	

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

JURISDICTION: _____

TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CHIEF BUILDING OFFICER	The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations.
Is this Staff Position in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☑ FT ☐ PT If PT, indicate % time or hours _____
Title:	Building Official
Current Position Holder:	Richard Cornell
Length of Employment in this Position:	6+ years
Relation to Hazard Mitigation:	

JURISDICTION: _____

TECHNICAL (CONTINUED)

CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT	The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints.
Is this Staff Position in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	County Administrator
Current Position Holder:	Garrey W. Curry, Jr., P.E. (only happenstance that CA is a PE)
Length of Employment in this Position:	6+ years
Relation to Hazard Mitigation:	

GRANT ADMINISTRATOR	The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☑ FT ☐ PT If PT, indicate % time or hours _____
Title:	Assistant County Administrator
Current Position Holder:	Bonnie L Jewell
Length of Employment in this Position:	2 Years
Relation to Hazard Mitigation:	

JURISDICTION: _____

TECHNICAL (CONTINUED)

GRANT WRITER	The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

JURISDICTION: _____

FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CAPITAL IMPROVEMENTS PROGRAM	A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan.
Is there Access to and/or Eligibility for this Funding Resource?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Very informal plan exists
Responsible Agency/Organization:	County Administration
Relation to Hazard Mitigation:	Handles planning and accounting for larger hazard mitigation projects like backup generators

JURISDICTION: _____

FINANCIAL (CONTINUED)

FUNDING PROGRAMS – FEDERAL (NON-FEMA)	Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc.
Is there Access to and/or Eligibility for this Funding Resource?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	We have access to CDBG, etc. but have not made recent use
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES	Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions.
Is there Access to and/or Eligibility for this Funding Resource?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

JURISDICTION: _____

EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

STORMREADY CERTIFICATION	National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event.
Is this Program/Method in Place?	☐ YES ☑ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

JURISDICTION: _____

EDUCATION AND OUTREACH (CONTINUED)

SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH	Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction.
Is this Program/Method in Place?	☑ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Very limited via social media
Responsible Agency/Organization:	Rappahannock County Fire and Rescue Department
Relation to Hazard Mitigation:	

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

JURISDICTION: _____

ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

PLANNING AND REGULATORY

PLANS AND POLICIES

PLAN/POLICY	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Comprehensive/ Master Land Use Plan	Planning or Zoning Departments	▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis? ▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Climate Change Adaptation Plan	Planning Department	▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Emergency Operations Plan (EOP)	Emergency Management Department	▫ Does the EOP address all hazards identified in the current approved HMP? ▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider? ▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations?
Streambank Buffer Protection Program	Local or regional natural resources conservation non-profit organizations	▫ Does the program reference problem areas identified in the current approved HMP? ▫ Does the program identify problem areas that should be referenced in the HMP? ▫ Is acreage in the program increasing year to year?

CODES AND ORDINANCES

CODE/ORDINANCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Building Code	Code Enforcement or Engineering Departments	▫ What is the community's Building Code Effectiveness Grading Schedule Score?
Floodplain Ordinance/NFIP Compliance	Code Enforcement or Engineering Departments	▫ What is the community's current status in the NFIP? ▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation?

Community Capability Assessment Worksheet

JURISDICTION: _____

ADMINISTRATIVE AND TECHNICAL

ADMINISTRATIVE

BOARD/COMMISSION/ DEPARTMENT	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Engineering Department	Engineering or Public Works Departments	▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update?
Code Enforcement Department	Code Enforcement or Engineering Departments	▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments? ▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation?

TECHNICAL

STAFF POSITION	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Chief Building Officer	Code Enforcement or Engineering Departments	▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator?
Civil Engineer - Construction Project Management	Engineering Department	▫ Have previous construction projects been completed, meeting budget and schedule constraints?
Grant Administrator	Finance or Emergency Management Departments	▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully? ▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully?
Grant Writer	Finance or Emergency Management Departments	▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded? ▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded?

JURISDICTION: _____

FINANCIAL

FUNDING RESOURCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Capital Improvement Program	Administration or Financial Departments	▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection?
Funding programs – Federal (non-FEMA)	Finance or Emergency Management Departments	▫ What were the grants, and what kinds of projects were funded?
Utility fees for stormwater, water, sewer, gas, or electric services	Finance or Public Works Departments	▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years? ▫ What kinds of projects have been funded in this manner?

EDUCATION AND OUTREACH

PROGRAM/METHOD	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
StormReady Certification	Emergency Management or Public Information Departments	▫ How long has the community been certified? ▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results?
Seasonal Emergency Management and Mitigation Outreach	Emergency Management or Public Information Departments	▫ Is awareness of potential hazard impacts increasing year to year? ▫ Are individuals and businesses taking necessary precautions in advance of events?

REGION 3

HAZARD MITIGATION PLAN GUIDANCE

Community Capability Assessment Worksheet

JURISDICTION: Town of Washington

PLANNING AND REGULATORY

Planning and regulatory capabilities are plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards.

PLANS AND POLICIES

Indicate if the jurisdiction has the following plans or policies in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider development of the plan/policy as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the plan/policy address hazard impacts? If so, how? For example, does the plan/policy include limitations to building in areas of risk, noted by the hazard mitigation plan? If so, what are those restrictions?
- Does the plan/policy identify projects that could be included in the mitigation strategy?
- Can the plan/policy be used to implement mitigation actions?
- How can the plan/policy be expanded and improved to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific plans or policies.

COMPREHENSIVE/MASTER LAND USE PLAN	Overall policy guide for future community growth and development.
Is this Plan/Policy in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Town of Washington Comprehensive Plan
Author/Owner:	Planning Commission
Effective Date:	2017-09-11
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	A Comprehensive Plan enables local government officials and citizens to anticipate and deal constructively with the changes occurring within the community. It reflects the needs and desires of its citizens, tempered with the recognition that conditions change.

JURISDICTION: _____

PLANS AND POLICIES (CONTINUED)

CLIMATE CHANGE ADAPTATION PLAN	An action plan and vulnerability assessment across a broad range of government services to anticipate, plan for, increase awareness of, and build momentum to address and adapt to a changing climate.
Is this Plan/Policy in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Title:	
Author/Owner:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

EMERGENCY OPERATIONS PLAN	Organizational procedures and processes to respond to and recover from an emergency.
Is this Plan/Policy in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Title:	Emergency Response Plan
Author/Owner:	Town of Washington and Environmental System Services
Effective Date:	2024-03-20
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	The identifies potential hazards and plans to mitigate their impact on the community.

JURISDICTION: _____

PLANS AND POLICIES (CONTINUED)

STREAMBANK BUFFER PROTECTION PROGRAM	A combination of conservation easements, vegetation management, and landscape restoration of vegetative buffers for streams and waterways to attenuate stormwater runoff quantity and quality issues, decrease streambank erosion, and increase habitat value of the waterway.		
Is this Plan/Policy in Place?	☐ YES	☐ NO	☐ IDK (see Attachment A)
Title:			
Author/Owner:			
Effective Date:			
Next Scheduled Update (if known):			
Relation to Hazard Mitigation:			

Other plans and policies that should be included in the capability assessment for each participating jurisdiction:

- Brownfields Redevelopment Program
- Coastal Zone Management Program
- National Flood Insurance Program (NFIP) Community Rating System
- Community Wildfire Protection Plan
- Continuity of Operations Plan
- Disaster Recovery Plan
- Economic Development Plan
- Flood Mitigation Plan
- Land acquisition for open space and public recreation uses
- Transportation Plan
- Stormwater Management Plan

JURISDICTION: _____

CODES AND ORDINANCES

Indicate if the jurisdiction has the following codes or ordinances in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider enactment of the code/ordinance as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the code/ordinance address hazard impacts? If so, how?
- Is the code/ordinance adequately administered and enforced? For example, are there personnel dedicated to enforcement? Are the procedures for addressing violations clear?
- How many times has the code/ordinance been applied to enforce restrictions in hazard areas?
- Is the code/ordinance an effective measure for reducing hazard impacts?
- How can the code/ordinance be improved to reduce risk through the use of higher standards?

In addition, see Attachment A for additional questions or considerations for specific codes or ordinances.

BUILDING CODE	Minimum requirements that must be met in the construction and maintenance of buildings to ensure public health and safety.
Is this Code or Ordinance in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	Rappahannock County provides this service.

JURISDICTION: _____

CODES AND ORDINANCES (CONTINUED)

FLOODPLAIN MANAGEMENT ORDINANCE/NFIP COMPLIANCE	The minimum floodplain management regulations for compliance with the NFIP that must be met by participating communities once FEMA provides flood hazard information. This is to ensure participating communities consider flood hazards, to the extent that they are known, in all official actions relating to land management and use.
Is this Code or Ordinance in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency:	
Effective Date:	
Next Scheduled Update (if known):	
Relation to Hazard Mitigation:	

Other codes and ordinances that should be included in the capability assessment for each participating jurisdiction:

- Fire department inspections
- International Property Maintenance Code
- Oher hazard-specific ordinances (stormwater, steep slope, and wildfire)
- Site plan development review ordinance
- Subdivision development review ordinance
- Zoning ordinance

JURISDICTION: _____

ADMINISTRATIVE AND TECHNICAL

Administrative and technical capabilities include boards, commissions, departments, staff and consulting services, along with the related skills and tools, that can be used for mitigation planning and the implementation of specific mitigation actions.

Note: For smaller jurisdictions without local resources, resources at the next level government may be able to provide administrative, technical, and/or financial assistance.

ADMINISTRATIVE

Indicate if the jurisdiction has the following boards, commissions, or departments in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider forming the board/commission/department as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the board / commission / department address hazard impacts? If so, how? For example, is the risk assessment of the approved Hazard Mitigation Plan (HMP) consulted when this board, commission or department considers projects or activities? If so, what is the process for review?
- Are staffing numbers and training adequate to carry out the mission of the board/commission/department?
- Does the board/commission/department identify projects that could be included in the mitigation strategy?
- Can the board/commission/department be engaged to implement mitigation actions?
- How can the board/commission/department be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

ENGINEERING DEPARTMENT	An in-house department providing civil engineering capability.
Is this Board, Commission, or Department in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Point-of-Contact:	
Meeting Schedule:	
Relation to Hazard Mitigation:	

JURISDICTION: _____

ADMINISTRATIVE (CONTINUED)

CODE ENFORCEMENT DEPARTMENT	An in-house department responsible for evaluating private properties and public grounds against local codes.
Is this Board, Commission, or Department in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Point-of-Contact:	
Meeting Schedule:	
Relation to Hazard Mitigation:	Rappahannock County provides this service.

Other administrative boards, commissions, or departments that should be included in the capability assessment for each participating jurisdiction:

- Board of Education
- Emergency Management
- Maintenance Department
- Mitigation Implementation Team
- Mutual aid agreements
- Planning Commission/Zoning Board
- Public Utility Board(s)
- Public Works Department
- Purchasing Department

JURISDICTION: _____

TECHNICAL

Indicate if the jurisdiction has the following staff positions in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider adding the position as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Does the staff position description include addressing hazard impacts and/or mitigation? If so, how and is staff trained on relevant issues related to hazard impacts and/or mitigation?
- What training and/or certification is required of the staff position?
- What additional training and/or certification does the current staff need?
- How can the staff be further engaged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CHIEF BUILDING OFFICER	The in-house or contracted code enforcement staff responsible for evaluating private properties and public grounds against local codes, answering citizen questions about the codes, and issuing citations for code violations.
Is this Staff Position in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours 20hrs/week
Title:	Zoning Administrator
Current Position Holder:	Steve Gyurisin
Length of Employment in this Position:	1.5 years
Relation to Hazard Mitigation:	

JURISDICTION: _____

TECHNICAL (CONTINUED)

CIVIL ENGINEER - CONSTRUCTION PROJECT MANAGEMENT	The in-house or contracted engineering staff responsible for managing construction projects and meeting budget and schedule constraints.
Is this Staff Position in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	

GRANT ADMINISTRATOR	The in-house or contracted staff familiar with and capable of successfully handling FEMA Hazard Mitigation Assistance (HMA) grant program requirements consistent with the Code of Federal Regulations, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	Rappahannock County provides this service.

JURISDICTION: _____

TECHNICAL (CONTINUED)

GRANT WRITER	The in-house or contracted staff familiar with and capable of successfully applying for FEMA HMA grants, as well as non-FEMA funding sources.
Is this Staff Position in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Full Time or Part Time?	☐ FT ☐ PT If PT, indicate % time or hours _____
Title:	
Current Position Holder:	
Length of Employment in this Position:	
Relation to Hazard Mitigation:	Rappahannock County provides this service.

Other technical staff positions that should be included in the capability assessment for each participating jurisdiction:

- Business Administrator
- Chief Financial Officer
- Civil Engineer – Design
- Civil Engineer – Inspections
- Clerk
- Community Planner
- Emergency Manager
- Floodplain Administrator
- GIS Coordinator (hazard and community asset data and information management, Hazus)

JURISDICTION: _____

FINANCIAL

Financial capabilities include access to or eligibility to use funding resources for hazard mitigation.

Indicate if the jurisdiction has access and/or eligibility for the following funding resources.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider pursuing the funding resource as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the funding resource been used in the past for hazard mitigation? If so, for what type of activities?
- Could the resource be used to fund future mitigation actions?
- How can the funding resource be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

CAPITAL IMPROVEMENTS PROGRAM	A short-range plan, usually 4 to 10 years, which identifies capital projects and equipment purchases, provides a planning schedule and identifies options for financing the plan.
Is there Access to and/or Eligibility for this Funding Resource?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Capital Improvement Plan
Responsible Agency/Organization:	Town Manager/Clerk and Town Council.
Relation to Hazard Mitigation:	Identifies future needs to mitigate potential hazards to the community.

JURISDICTION: _____

FINANCIAL (CONTINUED)

FUNDING PROGRAMS – FEDERAL (NON-FEMA)	Grant programs administered by Federal agencies other than FEMA with potential to fund mitigation actions. For example, the U.S. Department of Housing and Urban Development Community Development Block Grants, U.S. Department of Energy, and the U.S. Department of Transportation, etc.
Is there Access to and/or Eligibility for this Funding Resource?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Virginia Department of Health
Responsible Agency/Organization:	Town Manager/Clerk
Relation to Hazard Mitigation:	Provides resources to maintain the quality of the water and wastewaters systems, along with contributing to the completion of the capital improvement plan.

UTILITY FEES FOR STORMWATER, WATER, SEWER, GAS, OR ELECTRIC SERVICES	Fee levied by the jurisdiction, in addition to cost of service provided, for use in funding related capital programs, such as non-Federal shares for mitigation actions.
Is there Access to and/or Eligibility for this Funding Resource?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	Tap and EDU assessment fees.
Responsible Agency/Organization:	Town Manager/Clerk
Relation to Hazard Mitigation:	Additional fees provide funding to complete projects on the capital improvement plan.

Other funding resources that should be included in the capability assessment for each participating jurisdiction:

- Community Development Block Grant
- FEMA – Hazard Mitigation Assistance
- FEMA – Public Assistance 406 Mitigation
- Funding programs – State
- Funding programs – Philanthropic
- General obligation bonds and/or special tax bonds
- Impact fees for new development
- Tax levies for specific purposes

JURISDICTION: _____

EDUCATION AND OUTREACH

Education and outreach capabilities include programs and methods already in place that could be used to support implementation of mitigation actions and communicate hazard-related information.

Indicate if the jurisdiction has the following programs or methods in place.

- If YES, complete the remaining rows in the table to the extent possible.
- If NO, refer to the planning team to consider developing the program or method as part of the mitigation strategy.
- If you do not know (IDK), see Attachment A for recommended agencies or organizations to contact.

In the "Relation to Hazard Mitigation" field, answer the following general questions:

- Has the program/method been used in the past for hazard mitigation? If so, for what type of activities?
- Could the program/method be used to support future mitigation actions?
- How can the program/method be further leveraged to reduce risk?

In addition, see Attachment A for additional questions or considerations for specific boards, commissions, or departments.

STORMREADY CERTIFICATION	National Weather Service program that helps arm America's communities with communication and safety skills needed to save lives and property, before, during and after an event.
Is this Program/Method in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

JURISDICTION: _____

EDUCATION AND OUTREACH (CONTINUED)

SEASONAL EMERGENCY MANAGEMENT AND MITIGATION OUTREACH	Seasonal outreach. For example, in advance of hurricane season or in anticipation of winter weather, including information regarding preparedness and mitigation measures that individuals can undertake for their own risk reduction.
Is this Program/Method in Place?	☐ YES ☐ NO ☐ IDK (see Attachment A)
Name:	
Responsible Agency/Organization:	
Relation to Hazard Mitigation:	

Other programs or methods that should be included in the capability assessment for each participating jurisdiction:

- Firewise USA certification
- Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Natural disaster or safety related school programs
- Ongoing public education or information program (e.g., Environmental Education, Fire Safety, Household Preparedness, Responsible Water Use, etc.)
- Public-private partnership initiatives addressing disaster-related issues

JURISDICTION: _____

ATTACHMENT A

Attachment A includes the following additional guidance for assessment of specific capabilities:

- Potential agencies and organizations to contact for information
- Additional questions or considerations

PLANNING AND REGULATORY

PLANS AND POLICIES

PLAN/POLICY	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Comprehensive/ Master Land Use Plan	Planning or Zoning Departments	▫ Does the plan integrate hazard profile information from the current approved HMP into development suitability analysis? ▫ Is the plan effectively reducing or eliminating development in known hazard areas, i.e., is the rate of development in the Special Flood Hazard Area lower, the same, or higher? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Climate Change Adaptation Plan	Planning Department	▫ Does the plan include future hazard vulnerability projections? If so, are these projections included in the current approved HMP risk assessment? ▫ Does the plan include recommendations or cross reference relevant mitigation actions from the current approved HMP?
Emergency Operations Plan (EOP)	Emergency Management Department	▫ Does the EOP address all hazards identified in the current approved HMP? ▫ Does the EOP address any hazards that are not included in the current approved HMP? If so, are these hazards for which mitigation actions might be appropriate to consider? ▫ Does the EOP identify obstacles or problems for response and recovery operations that could be alleviated entirely or in part through mitigation, e.g., limited access to floodprone areas due to transportation infrastructure limitations?
Streambank Buffer Protection Program	Local or regional natural resources conservation non-profit organizations	▫ Does the program reference problem areas identified in the current approved HMP? ▫ Does the program identify problem areas that should be referenced in the HMP? ▫ Is acreage in the program increasing year to year?

CODES AND ORDINANCES

CODE/ORDINANCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Building Code	Code Enforcement or Engineering Departments	▫ What is the community's Building Code Effectiveness Grading Schedule Score?
Floodplain Ordinance/NFIP Compliance	Code Enforcement or Engineering Departments	▫ What is the community's current status in the NFIP? ▫ Does the ordinance include higher standards than minimum requirements of the NFIP, e.g., additional freeboard above the Base Flood Elevation?

JURISDICTION: _____

ADMINISTRATIVE AND TECHNICAL

ADMINISTRATIVE

BOARD/COMMISSION/ DEPARTMENT	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Engineering Department	Engineering or Public Works Departments	▫ Does the department have ability and availability for design, engineering, project scoping (per HMA or other grant program requirements) and construction project management for mitigation actions included in the current approved HMP and/or proposed for plan update?
Code Enforcement Department	Code Enforcement or Engineering Departments	▫ Are all ordinances and codes related to hazard mitigation (e.g., building code, floodplain management ordinance, zoning), enforced by the same department? If not, what are the departments and their respective responsibilities and are compliance reviews and enforcement activities coordinated between departments? ▫ Does the department have ability and availability to enforce all ordinances and codes related to hazard mitigation?

TECHNICAL

STAFF POSITION	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Chief Building Officer	Code Enforcement or Engineering Departments	▫ How does the Chief Building Officer position interact with other code and ordinance enforcement officials with hazard mitigation-related responsibilities, e.g., Floodplain Administrator?
Civil Engineer - Construction Project Management	Engineering Department	▫ Have previous construction projects been completed, meeting budget and schedule constraints?
Grant Administrator	Finance or Emergency Management Departments	▫ Does the Grant Administrator have experience with FEMA HMA grants administration? If so, have previous HMA grant administration experiences been completed successfully? ▫ Does the Grant Administrator have experience with other Federal non-FEMA grants administration used for mitigation purposes? If so, what are the grants and was the administration of the grants completed successfully?
Grant Writer	Finance or Emergency Management Departments	▫ Does the grant writer have experience with FEMA HMA grants applications? Have previous HMA grant applications been awarded? Is so, what kinds of projects were funded? ▫ Does the grant writer have experience with other Federal non-FEMA grants applications used for mitigation purposes? Have previous non-FEMA grant applications been awarded? If so, what were the grants and what kinds of projects were funded?

Community Capability Assessment Worksheet

JURISDICTION: _____

FINANCIAL

FUNDING RESOURCE	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
Capital Improvement Program	Administration or Financial Departments	▫ What is the process and timeframe for adding projects to the Critical Infrastructure Protection?
Funding programs – Federal (non-FEMA)	Finance or Emergency Management Departments	▫ What were the grants, and what kinds of projects were funded?
Utility fees for stormwater, water, sewer, gas, or electric services	Finance or Public Works Departments	▫ How much money is available annually to support implementation of hazard mitigation actions? Is that level of funding expected to decrease, stay the same, or increase in the next five years? ▫ What kinds of projects have been funded in this manner?

EDUCATION AND OUTREACH

PROGRAM/METHOD	AGENCY/ORGANIZATION	ADDITIONAL QUESTIONS/CONSIDERATIONS
StormReady Certification	Emergency Management or Public Information Departments	▫ How long has the community been certified? ▫ Have surveys been conducted to determine the effectiveness of the program? If so, what were the results?
Seasonal Emergency Management and Mitigation Outreach	Emergency Management or Public Information Departments	▫ Is awareness of potential hazard impacts increasing year to year? ▫ Are individuals and businesses taking necessary precautions in advance of events?

Local Adoption Resolutions

Locality	Board of Adoption	Date of Adoption	Notes
Culpeper County			
Town of Culpeper			
Fauquier County The Plains			
Town of Remington			
Town of Warrenton			
Madison County			
Town of Madison			
Orange County			
Town of Orange			
Town of Gordonsville			
Rappahannock Town of Washington			

Critical Facilities, SFHA Maps, and Hazus Flood Analysis

Culpeper County and Town of Culpeper.....A-285

Fauquier County, Towns of Remington and Warrenton.....A-291

Orange County, Towns of Orange and Gordonsville.....A-302

Madison County.....A-312

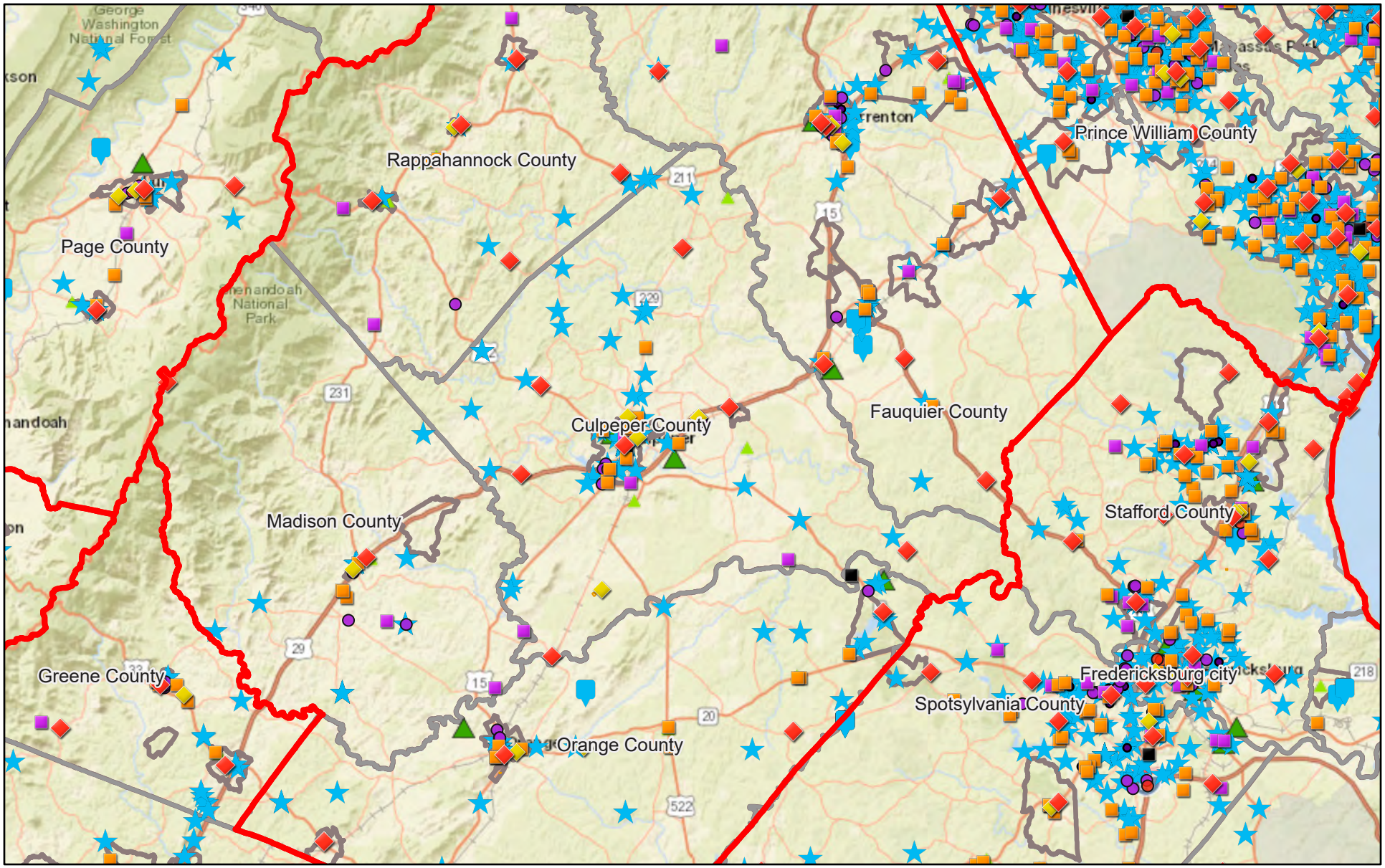
Rappahannock County.....A-319

Hazus Flood Analysis.....A-326

Locality Floodplain Regulations.....A-407

Critical Facility Hazard Analysis.....A-409

Culpeper County Critical Facilities and SFHAs



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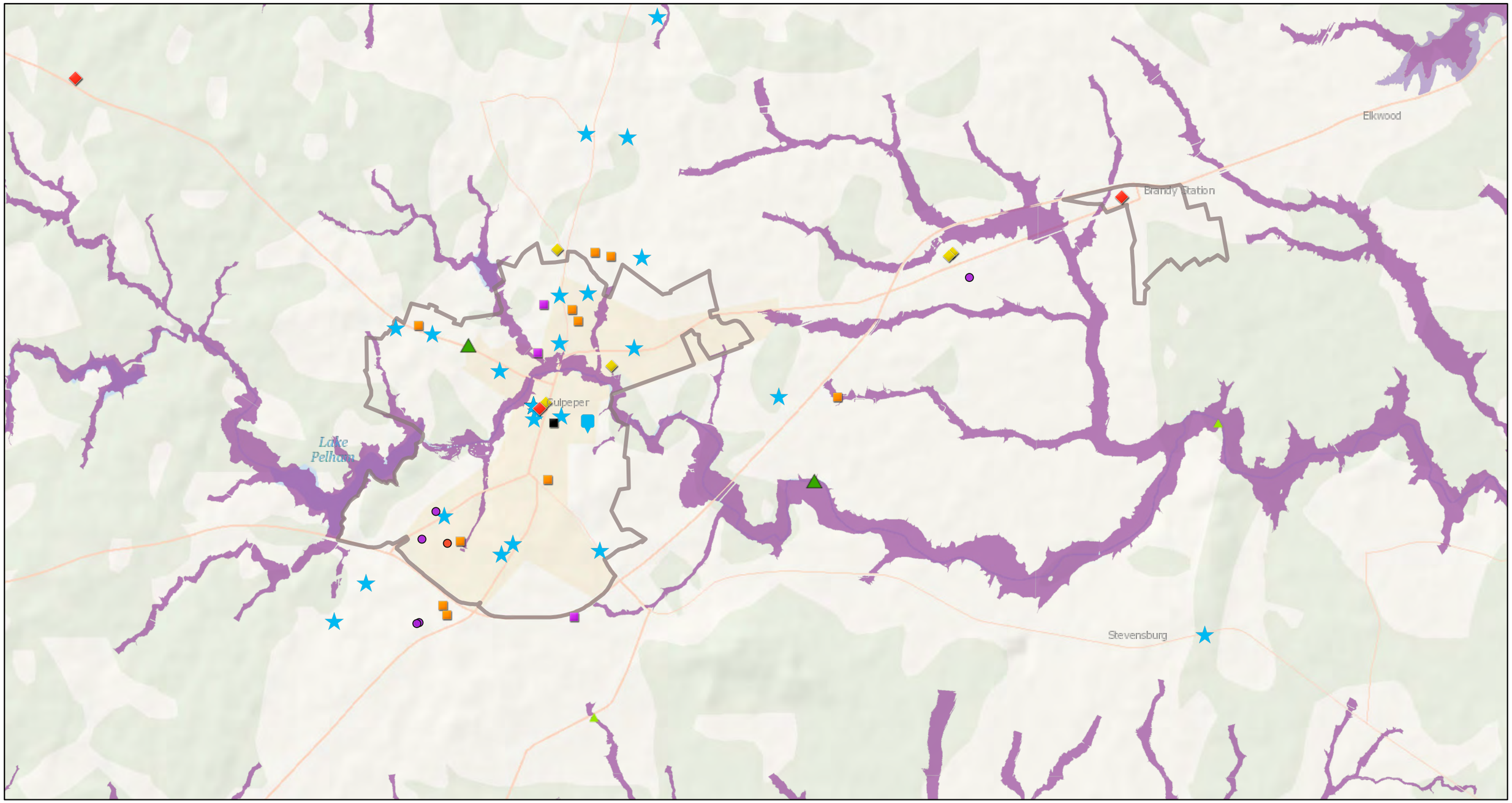
All Places Of Worship
Municipal Boundaries
VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
Fire Stations
Local Law Enforcement Locations
Prison Boundaries
Public Schools
Private Schools
Colleges and Universities
Hospitals
Nursing Homes
Urgent Care Facilities
Wastewater Treatment Plants (FRS)
Major
Minor
Power Plants
FEMA - Flood Hazard (zoom to activate)
0.2% Annual Chance Flood Hazard
1% Annual Chance Flood Hazard

Esri, HERE, Garmin, NGA, USGS, NPS

Resilience Analysis and Planning Tool

NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration, NOAA, National Weather Service, NWS, Weather Prediction Center,

Culpeper Town and Surrounding Area



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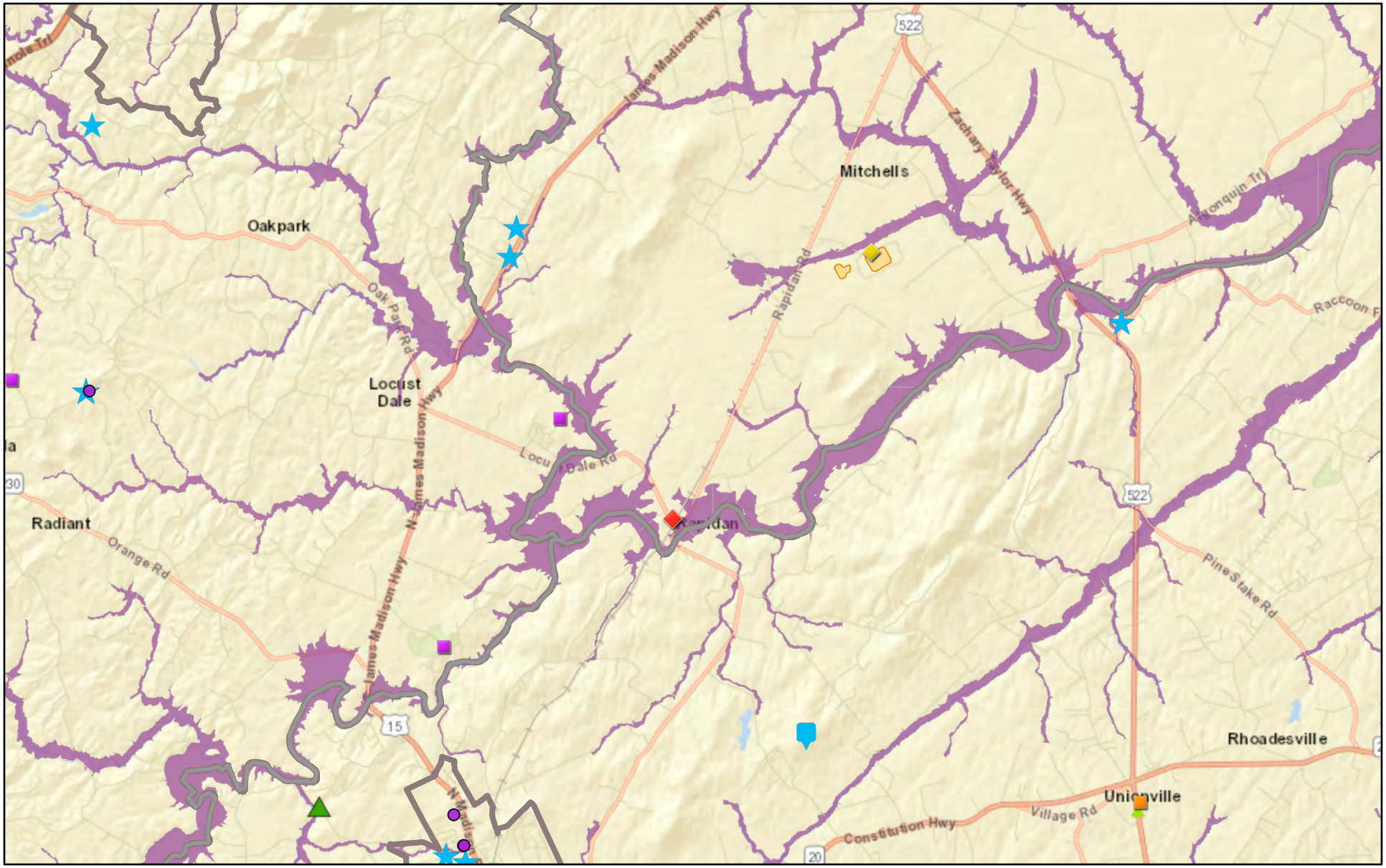
Esri, Garmin, NaturalVue, NOAA OCS, Esri, Garmin

- All Places Of Worship
- Municipal Boundaries
- VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
- Fire Stations
- Local Law Enforcement Locations
- Prison Boundaries
- Public Schools
- Private Schools
- Colleges and Universities
- Hospitals
- Nursing Homes
- Wastewater Treatment Plants (FRS)
- Major
- Minor
- Power Plants
- FEMA - Flood Hazard (zoom to activate)
- 0.2% Annual Chance Flood Hazard
- 1% Annual Chance Flood Hazard

Resilience Analysis and Planning Tool
NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration, NOAA, National Weather Service, NWS, Weather Prediction Center, WPC | National Oceanic and Atmospheric

Rapidan and Surrounding Critical Facilities and SFHAs



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All Places Of Worship
Municipal Boundaries
VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
Fire Stations
Local Law Enforcement Locations
Prison Boundaries
Public Schools
Private Schools
Nursing Homes
Wastewater Treatment Plants (FRS)
Major
Minor
Power Plants
FEMA - Flood Hazard (zoom to activate)
1% Annual Chance Flood Hazard

Esri, HERE, Garmin, NGA, USGS, NPS

Resilience Analysis and Planning Tool

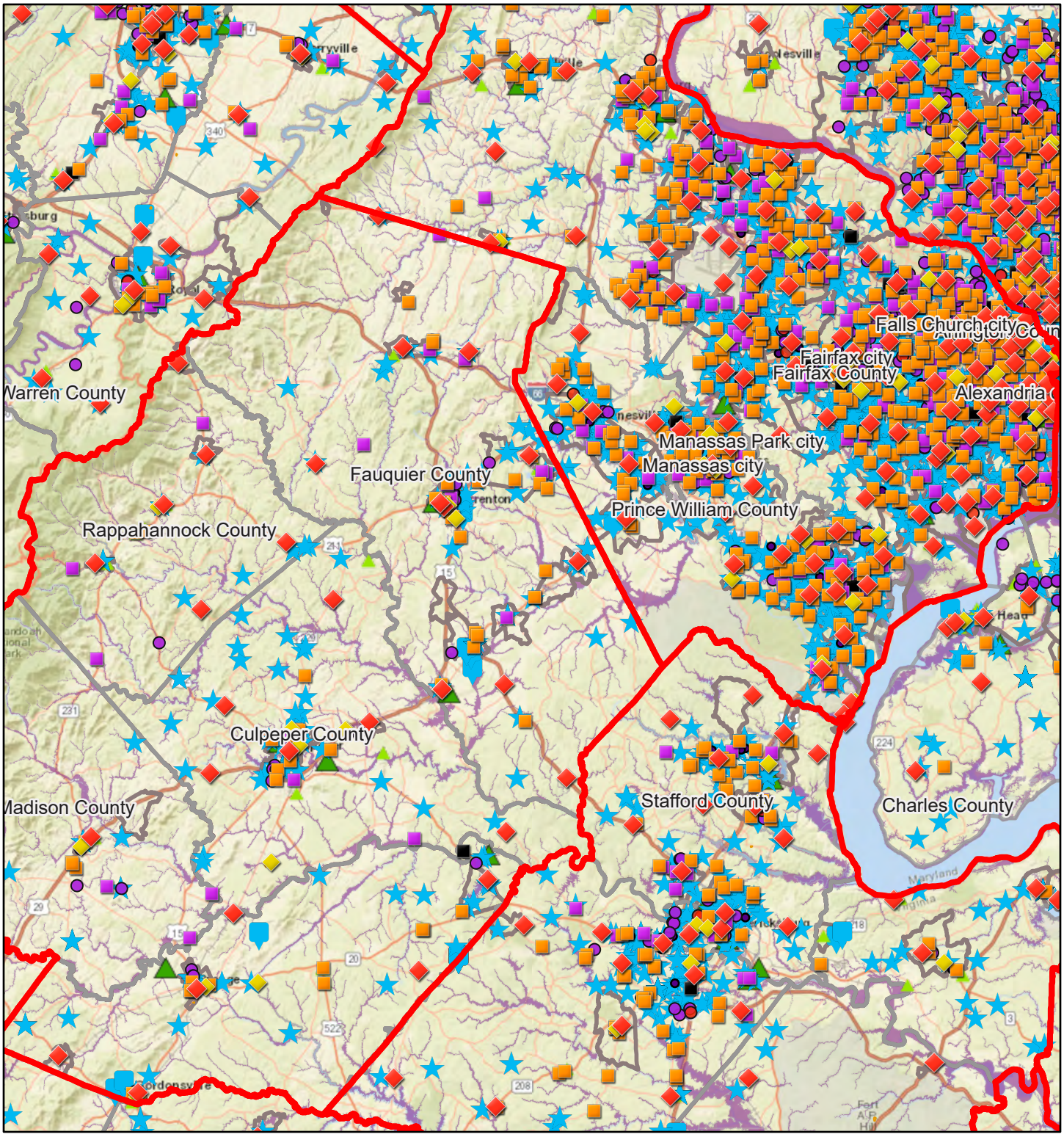
NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration, NOAA, National Weather Service, NWS, Weather Prediction Center,

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Culpeper	Culpeper	Culpeper Regional Hospital	Community Health	Hospital	
Culpeper	Elkwood	Culpeper Regional Airport	Transportation	Airport	
Culpeper	Culpeper	Culpeper EMS Building	Safety & Emergency Management	Emergency Coordination	
Culpeper	Culpeper	Culpeper Emergency Operations Center	Safety & Emergency Management	Emergency Operations	
Culpeper	Culpeper	Reva Volunteer Fire & Rescue	Safety & Emergency Management	Fire Station	
Culpeper	Brandy Station	Brandy Volunteer Fire Dept	Safety & Emergency Management	Fire Station	
Culpeper	Culpeper	Salem Volunteer Fire & Rescue	Safety & Emergency Management	Fire Station	
Culpeper	Lignum	Alice C Tyler Village of Children	Gov't Services	School	
Culpeper	Culpeper	Epiphany Catholic School	Gov't Services	School	
Culpeper	Culpeper	G.W. Carver-Pied. Tec Ed Center	Gov't Services	School	Commercial Kitchen
Culpeper	Culpeper	Central VA Regional Program	Gov't Services	School	
Culpeper	Culpeper	A. G. Richardson Elementary	Gov't Services	School	
Culpeper	Culpeper	Culpeper County High	Gov't Services	School	
Culpeper	Culpeper	Culpeper County Middle	Gov't Services	School	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Culpeper	Culpeper	Farmington Elementary	Gov't Services	School	
Culpeper	Culpeper	Pearl Sample Elementary	Gov't Services	School	
Culpeper	Culpeper	Sycamore Park Elementary	Gov't Services	School	
Culpeper	Culpeper	Culpeper Christian School	Gov't Services	School	
Culpeper	Culpeper	Emerald Hill Elementary	Gov't Services	School	
Culpeper	Culpeper	Eastern View High School	Gov't Services	School	
Culpeper	Culpeper	Germanna Community College	Gov't Services	College	
Culpeper	Culpeper	Culpeper County Sheriff's Office	Safety & Emergency Management	Police Station	
Culpeper	Culpeper	Culpeper Police Dept	Safety & Emergency Management	Police Station	
Culpeper	Culpeper	SWIFT	Resources	Financial Security	
Culpeper	Culpeper	Town Water Pollution Control Facility	Infrastructure	Water Utility	
Culpeper	Culpeper	Town Water Treatment Plant	Infrastructure	Water Utility	
Culpeper	Culpeper	Town Light & Power	Infrastructure	Electric Utility	
Culpeper	Culpeper	Town Operations Center	Infrastructure	Public Works and Environmental Services	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Culpeper	Culpeper	Equinix Facility	Infrastructure	Communications	
Culpeper	Culpeper	Solid Waste Transfer Station	Infrastructure	MSW Transfer Station	
Culpeper	Culpeper	Clevengers Water Plant	Infrastructure	Water Supply Utility	
Culpeper	Culpeper	Clevengers Sewer Plant	Infrastructure	Sewage Treatment Plant	
Culpeper	Culpeper	Airpark Water Plant	Infrastructure	Water Supply Utility	
Culpeper	Culpeper	Airpark Sewer Plant	Infrastructure	Sewage Treatment Plant	
Culpeper	Culpeper	County Animal Shelter	Animal Control	Animal Shelter	
Culpeper	Culpeper	Early Headstart #1	Gov Services	Day Care	Commercial Kitchen
Culpeper	Culpeper	Early Headstart #2	Gov Services	Day Care	Commercial Kitchen
Culpeper	Culpeper	Field House	Gov Services	Gym/Classrooms	
Culpeper	Culpeper	County Library	Gov Services	Library	
Culpeper	Culpeper	Coffeewood Correctional Facility	Prison	Prison	Vacant State Womens Prison

Fauquier County Critical Facilities and SFHAs



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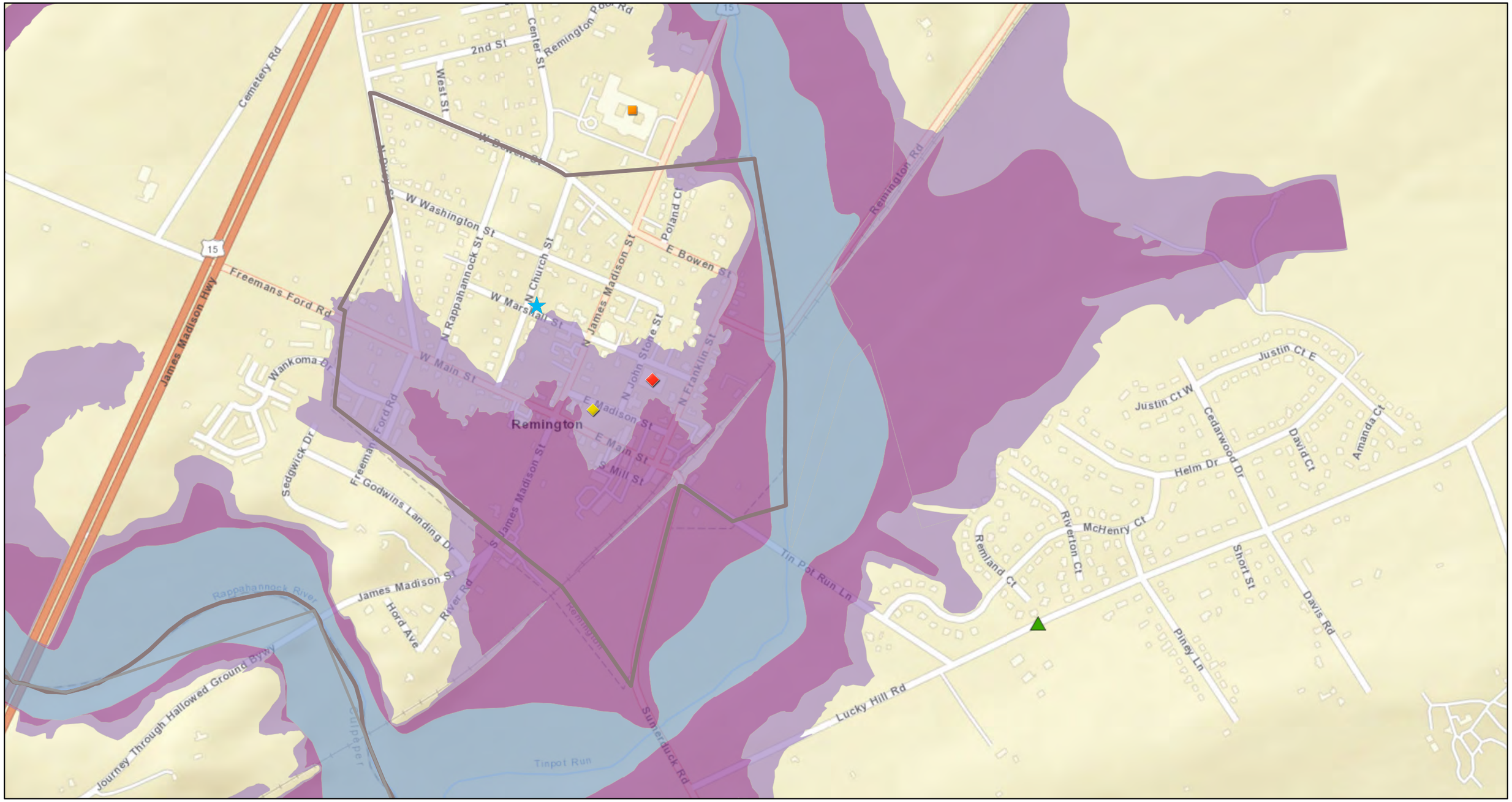
All Places Of Worship
Municipal Boundaries
VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
Fire Stations
Local Law Enforcement Locations
Prison Boundaries
Public Schools
Private Schools
Colleges and Universities
Hospitals
Nursing Homes
Urgent Care Facilities
Wastewater Treatment Plants (FRS)
Major
Minor
Power Plants
FEMA - Flood Hazard (zoom to activate)

Esri, HERE, Garmin, NGA, USGS, NPS

Resilience Analysis and Planning Tool
NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration,

Remington Critical Facilities and SFHAs



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- All Places Of Worship
- Municipal Boundaries
- VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
- Fire Stations
- Local Law Enforcement Locations
- Public Schools

Wastewater Treatment Plants (FRS)

- Major

FEMA - Flood Hazard (zoom to activate)

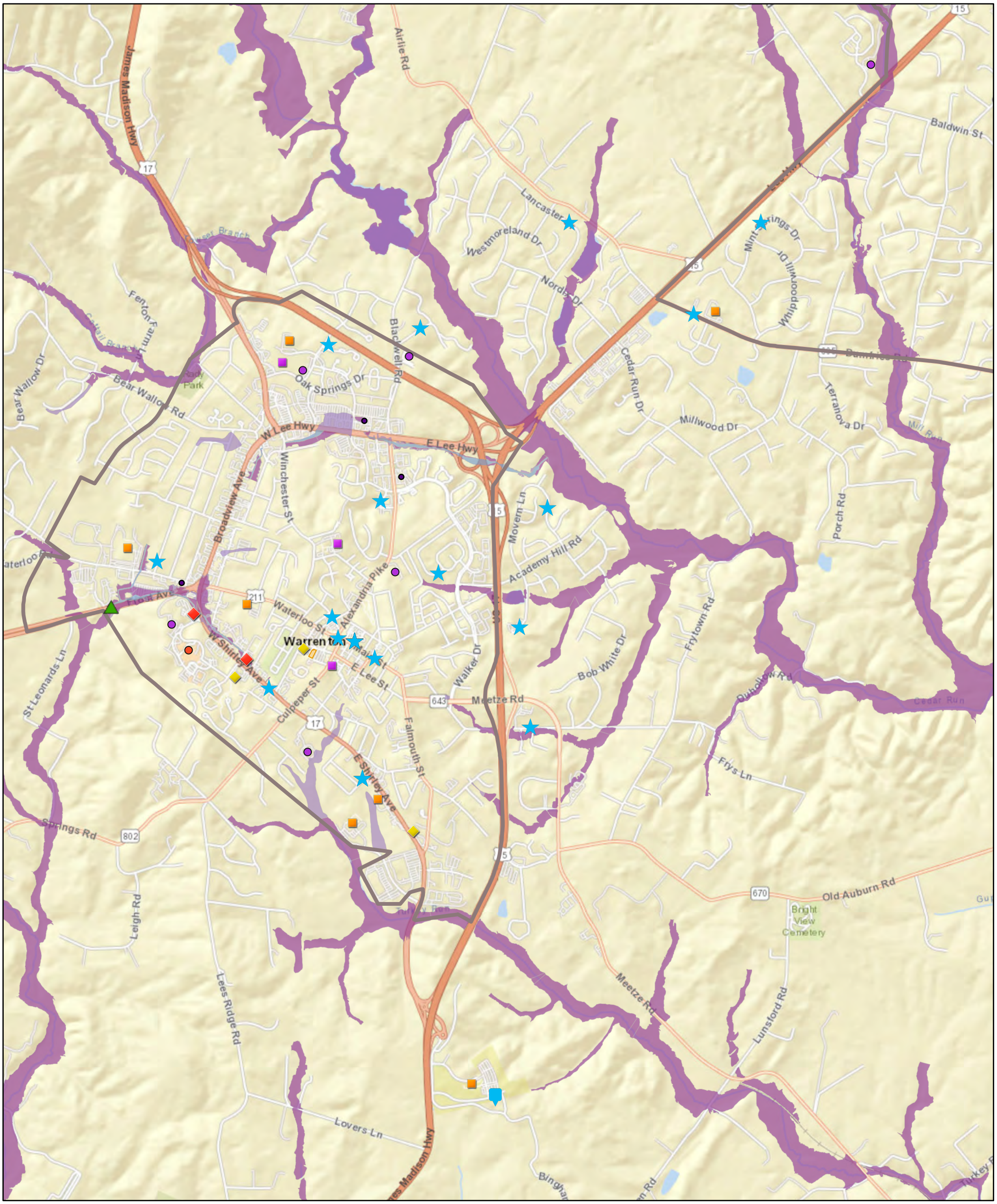
- 0.2% Annual Chance Flood Hazard
- 1% Annual Chance Flood Hazard
- Regulatory Floodway

VITA, Esri, HERE, Garmin, INCREMENT P, NGA, USGS

Resilience Analysis and Planning Tool

NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration, NOAA, National Weather Service, NWS, Weather Prediction Center, WPC | National Oceanic and Atmospheric

Warrenton Critical Facilities and SFHAs



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- All Places Of Worship
- Municipal Boundaries
- VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
- Fire Stations
- Local Law Enforcement Locations
- Prison Boundaries
- Public Schools
- Private Schools
- Hospitals
- Nursing Homes
- Urgent Care Facilities

Wastewater Treatment Plants (FRS)

- Major
- Power Plants

FEMA - Flood Hazard (zoom to activate)

- 0.2% Annual Chance Flood Hazard
- 1% Annual Chance Flood Hazard
- Regulatory Floodway

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VITA, Esri, HERE, Garmin, NGA, USGS, NPS

A-293

NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration, NOAA, National

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Fauquier	Warrenton	Fauquier Hospital	Community Health	Hospital	
Fauquier	Warrenton	Spring Oak	Community Health	Nursing Home	This is now Spring Oak at Warrenton
Fauquier	Fauquier	The Oaks	Community Health	Nursing Home	
Fauquier	Fauquier	Moffett Manor	Community Health	Nursing Home	
Fauquier	Fauquier	Blue Ridge Christian Home	Community Health	Nursing Home	
Fauquier	Warrenton	Brookside Nursing Home	Community Health	Nursing Home	
Fauquier	Warrenton	Fauquier Health and Rehab Center	Community Health	Nursing Home	
Fauquier	Warrenton	Warrenton Manor	Community Health	Nursing Home	
Fauquier	Multiple locations	Fauquier County Schools and Government Building	Gov't Services	Government Building	
Fauquier	Warrenton	Adult Detention Facility	Gov't Services	Government Building	
Fauquier	Warrenton	Fauquier County Courthouse (old)	Gov't Services	Government Building	
Fauquier	Warrenton	Fauquier County Courthouse (new)	Gov't Services	Government Building	
Fauquier	Warrenton	Warren Green Administrative Building	Gov't Services	Government Building	
Fauquier	Warrenton	Parks and Recreation Gym	Gov't Services	Government Building	Warrenton Aquatic Recreation Facility

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Fauquier	Warrenton	Warrenton Town Hall	Gov't Services	Government Building	
Fauquier	Warrenton	Warrenton-Fauquier Joint Communications Center	Gov't Services	Government Building	
Fauquier	Warrenton	Criminal Court	Gov't Services	Public Safety	
Fauquier	Fauquier	Mountainside Montessori	Gov't Services	School	
Fauquier	Fauquier	Lois Atkins Head Start	Gov't Services	School	
Fauquier	Bealeton	Cedar Lee Middle	Gov't Services	School	
Fauquier	Bealeton	Liberty High (Shelter)	Gov't Services	School	
Fauquier	Bealeton	Mary Walter Elementary	Gov't Services	School	
Fauquier	Bealeton	Grace Miller Elementary	Gov't Services	School	
Fauquier	Catlett	H. M. Pearson Elementary	Gov't Services	School	
Fauquier	Marshall	Marshall Middle	Gov't Services	School	
Fauquier	Marshall	W. G. Coleman Elementary	Gov't Services	School	
Fauquier	Marshall	Claude Thompson Elementary	Gov't Services	School	
Fauquier	Middleburg	Montessori School of Middleburg	Gov't Services	School	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Fauquier	Midland	Midland Christian Academy	Gov't Services	School	
Fauquier	Midland	Southeastern Alternative School	Gov't Services	School	
Fauquier	New Baltimore	C. Hunter Ritchie Elementary	Gov't Services	School	
Fauquier	New Baltimore	Kettle Run High School	Gov't Services	School	
Fauquier	New Baltimore	Greenville Elementary School	Gov't Services	School	
Fauquier	New Baltimore	Auburn Middle School (Shelter)	Gov't Services	School	
Fauquier	Remington	Cornerstone Christian Academy	Gov't Services	School	Not there anymore.
Fauquier	Remington	Margaret M. Pierce Elementary	Gov't Services	School	
Fauquier	Remington	M.M. Pierce Elementary	Gov't Services	School	Margaret M Pierce Elementary and MM Pierce are the same school.
Fauquier	The Plains	Wakefield School	Gov't Services	School	
Fauquier	Warrenton	C. M. Bradley Elementary	Gov't Services	School	
Fauquier	Warrenton	Fauquier High	Gov't Services	School	
Fauquier	Warrenton	P. B. Smith Elementary	Gov't Services	School	
Fauquier	Warrenton	W. C. Taylor Middle	Gov't Services	School	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Fauquier	Warrenton	Warrenton Middle School	Gov't Services	School	Taylor Middle was closed for renovations and Warrenton Middle was renamed Taylor until renovations are complete. So, Warrenton Middle should be removed.
Fauquier	Warrenton	Brumfield Elementary	Gov't Services	School	
Fauquier	Warrenton	Highland School	Gov't Services	School	
Fauquier	Warrenton	St. James Episcopal School	Gov't Services	School	
Fauquier	Warrenton	St. John the Evangelist School	Gov't Services	School	
Fauquier	Warrenton	Boxwood Montessori School	Gov't Services	School	
Fauquier	Bealeton	Marsh Run Mobile Home Park	Housing	Residential	
Fauquier	Fauquier	Marsh Run Generation Facility	Infrastructure	Utility	
Fauquier	Remington	Remington Combustion Turbine Station	Infrastructure	Utility	
Fauquier	Warrenton	Wastewater Plant	Infrastructure	Wastewater Plant	
Fauquier	Warrenton	Airlie Water Dam & Reservoir	Infrastructure	Water Supply Facility	
Fauquier	Warrenton	Warrenton Dam & Reservoir	Infrastructure	Water Supply Facility	
Fauquier	Marshall	Marshall Water Plant	Infrastructure	Water Treatment Plant	

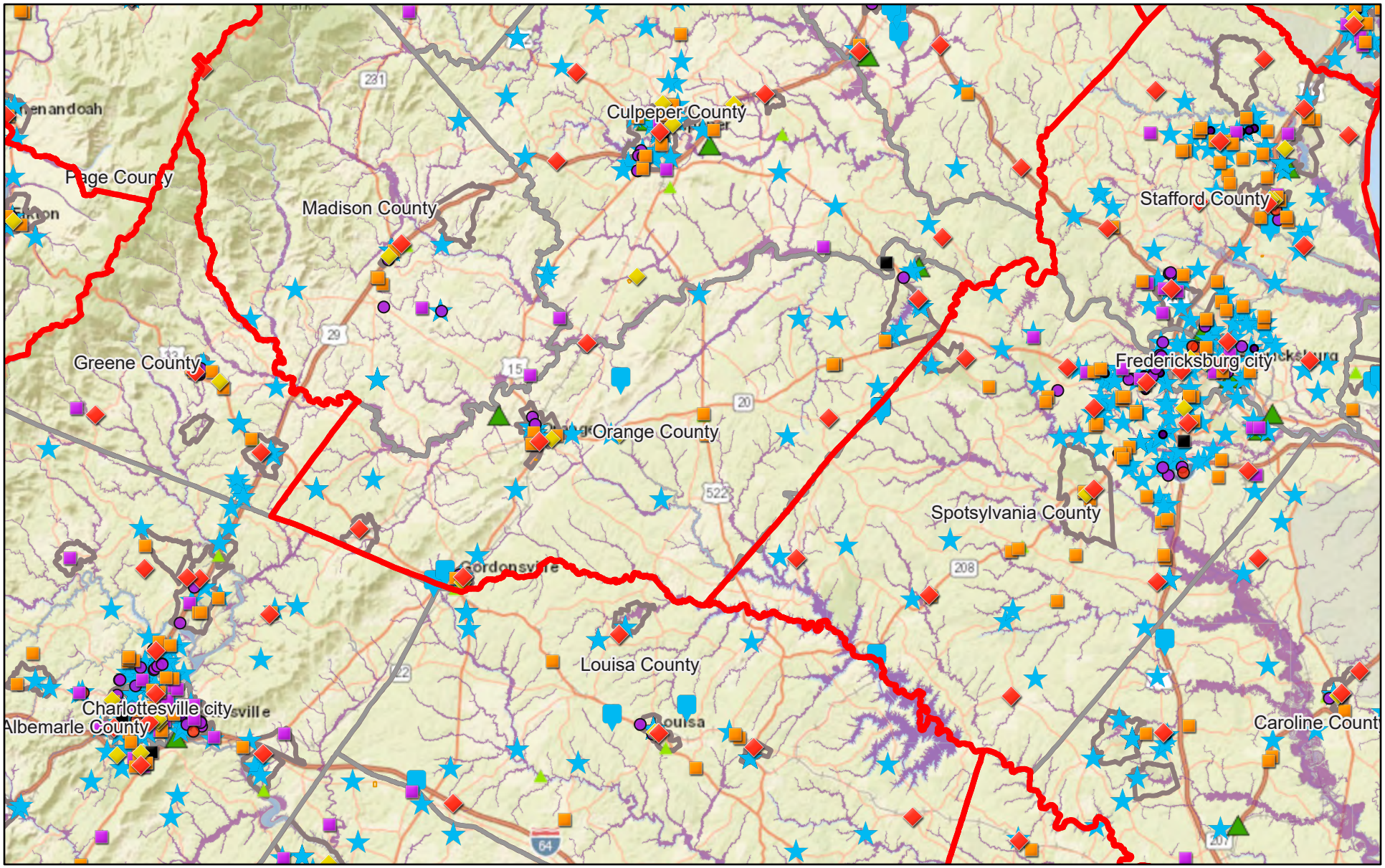
County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Fauquier	Remington	Remington Water Plant	Infrastructure	Water Treatment Plant	
Fauquier	Vint Hill	Vint Hill Water Plant	Infrastructure	Water Treatment Plant	
Fauquier	Warrenton	Warrenton Water Treatment Plant	Infrastructure	Water Treatment Plant	
Fauquier	Fauquier	Morgan Oil	Resources	Fuel Site	
Fauquier	Warrenton	Fauquier County Garage	Resources	Fuel Site	
Fauquier	Warrenton	DFREM Offices	Safety & Emergency Management	Emergency Management	
Fauquier	Broad Run	New Baltimore VFC and Rescue	Safety & Emergency Management	Fire & Rescue	
Fauquier	Remington	Remington VFC and Rescue	Safety & Emergency Management	Fire & Rescue	
Fauquier	The Plains	The Plains VFC and Rescue	Safety & Emergency Management	Fire & Rescue	
Fauquier	Bealeton	Lois Volunteer Fire Dept	Safety & Emergency Management	Fire Department	
Fauquier	Catlett	Cedar Run Volunteer Rescue Squad	Safety & Emergency Management	Fire Department	This company merged with Catlett VFC. The bingo/banquet hall is still utilized by the CO.7 but I believe the bays are rented out to a private ambulance service.
Fauquier	Catlett	Catlett VFC	Safety & Emergency Management	Fire Department	
Fauquier	Goldvein	Goldvein Volunteer Fire Dept	Safety & Emergency Management	Fire Department	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Fauquier	Marshall	Marshall VFC	Safety & Emergency Management	Fire Department	
Fauquier	Orlean	Orlean Volunteer Fire Dept	Safety & Emergency Management	Fire Department	
Fauquier	Upperville	Upperville VFC	Safety & Emergency Management	Fire Department	Upperville VFC no longer exists. Fauquier Fire Rescue station 5
Fauquier	Warrenton	Warrenton VFC	Safety & Emergency Management	Fire Department	
Fauquier	Warrenton	Warrenton Police	Safety & Emergency Management	Police Station	
Fauquier	Warrenton	Sheriff's-Criminal Investigation	Safety & Emergency Management	Police Station	
Fauquier	Warrenton	Fauquier County Sheriff's Office	Safety & Emergency Management	Police Station	
Fauquier	Marshall	Marshall Vol. Rescue Squad	Safety & Emergency Management	Rescue Station	Marshal rescue combined with Marshall Fire.
Fauquier	Warrenton	Warrenton EMS Station 1	Safety & Emergency Management	Rescue Station	Warrenton Rescue Squad combined with Warrenton Fire This is now EMS 1
Fauquier	Warrenton	Poets Walk Memory Care	Social Services	Assisted Living	
Fauquier	Warrenton	White Springs Senior Living	Social Services	Assisted Living	White Springs Senior Living
Fauquier	Warrenton	Meadowbrook Child Development	Social Services	Day Care	
Fauquier	Warrenton	Helena Carter Family Day Home	Social Services	Day Care	
Fauquier	Fauquier	Maplewood Childcare Center	Social Services	Daycare	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Fauquier	Fauquier	Piedmont Child Development Center	Social Services	Daycare	
Fauquier	Fauquier	Walnut Grove Academy	Social Services	Daycare	
Fauquier	Bealeton	Children of America	Social Services	Daycare	
Fauquier	Bealeton	Southern Fauquier Child Development	Social Services	Daycare	
Fauquier	Multiple locations	Fauquier Community Child Care	Social Services	Daycare	
Fauquier	Multiple locations	Walnut Grove Childcare Facility	Social Services	Daycare	
Fauquier	Warrenton	Children of America	Social Services	Daycare	
Fauquier	Warrenton	Jack and Jill	Social Services	Daycare	
Fauquier	Warrenton	Warrenton Baptist Tiny Tot Care Center	Social Services	Daycare	
Fauquier	Midland	Fauquier-Warrenton Airport	Transportation	Airport	
Fauquier	Remington	Remington Solar Facility 11870 Lucky Hill Rd Remington.	Infrastructure	Energey	
Fauquier	Marshall	Fresta Valley Christian School	Government Services	School	
Fauquier	Warrenton	Providence Christian Academy	Government Services	School	
Fauquier	Casanova	ASPCA	Government Services	Animal Shelter	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Fauquier	Vint Hill	OVH Cloud	Infrastructure (IT)	Data Center	There are two additional data centers located on federal property at the Warrenton Training Center. There are 6 data centers in the permitting/approval phase and 3 additional sites being offered/marketed for data centers.
Fauquier	Multiple	Water & Sanitation Authority (WSA)	Infrastructure	Water Storage	Paris Tank, Cannon Ridge Tank, 17/66 Tank, The Plains Tank, Waterloo Tank, Turnbull Tank, Baldwin Ridge Tank, Vint Hill #2, Vint Hill #3, Rouges Road Tank, Catlett Tank, Bealeton Tank.
Fauquier	Multiple	Water & Sanitation Authority (WSA)	Infrastructure	Wastewater treatment	Marshall, Remington, Vint Hill
Fauquier	Multiple	Water & Sanitation Authority (WSA)	Infrastructure	Water Treatment	Bealeton, Vint Hill, Marshall, Opal, Paris
Fauquier	Multiple	Water & Sanitation Authority (WSA)	Infrastructure	Well	48 wells throughout
Fauquier	Warrenton	Laurel Ridge Community Collage	Higher Ed	College	
Fauquier	Vint Hill	FAA Air Traffic Control System Command Center	Transportation	Command Center	

Orange County Critical Facilities and SFHAs



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Esri, HERE, Garmin, NGA, USGS, NPS

A-302

- All Places Of Worship
- Municipal Boundaries
- VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
- Fire Stations
- Local Law Enforcement Locations
- Prison Boundaries
- Public Schools
- Private Schools
- Colleges and Universities
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- Minor
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- FEMA - Flood Hazard (zoom to activate)
- 0.2% Annual Chance Flood Hazard
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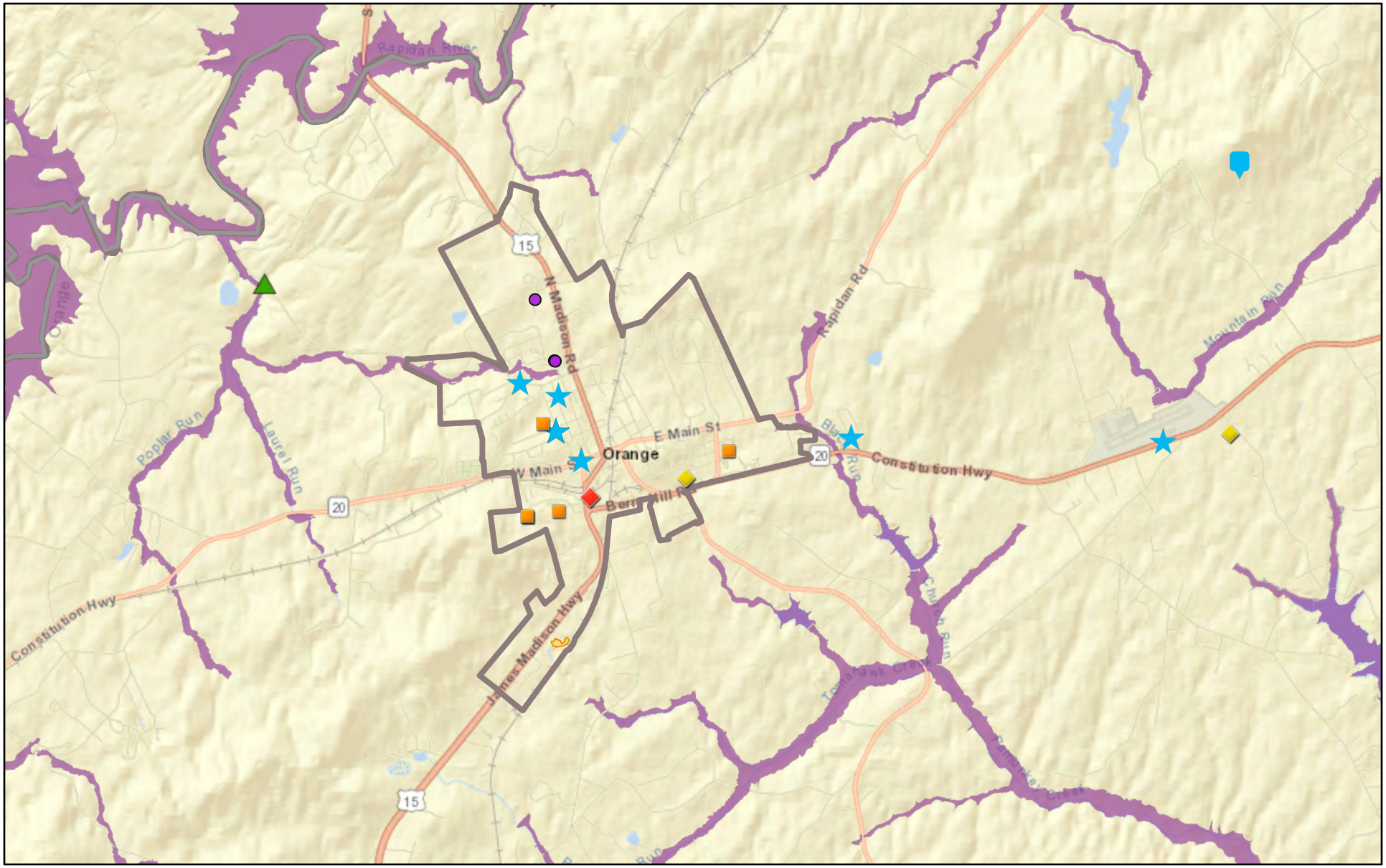
Resilience Analysis and Planning Tool

NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration, NOAA, National Weather Service, NWS, Weather Prediction Center,

Town of Orange Critical Facilities and SFHAs



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All Places Of Worship
Municipal Boundaries
VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
Fire Stations
Local Law Enforcement Locations
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Public Schools
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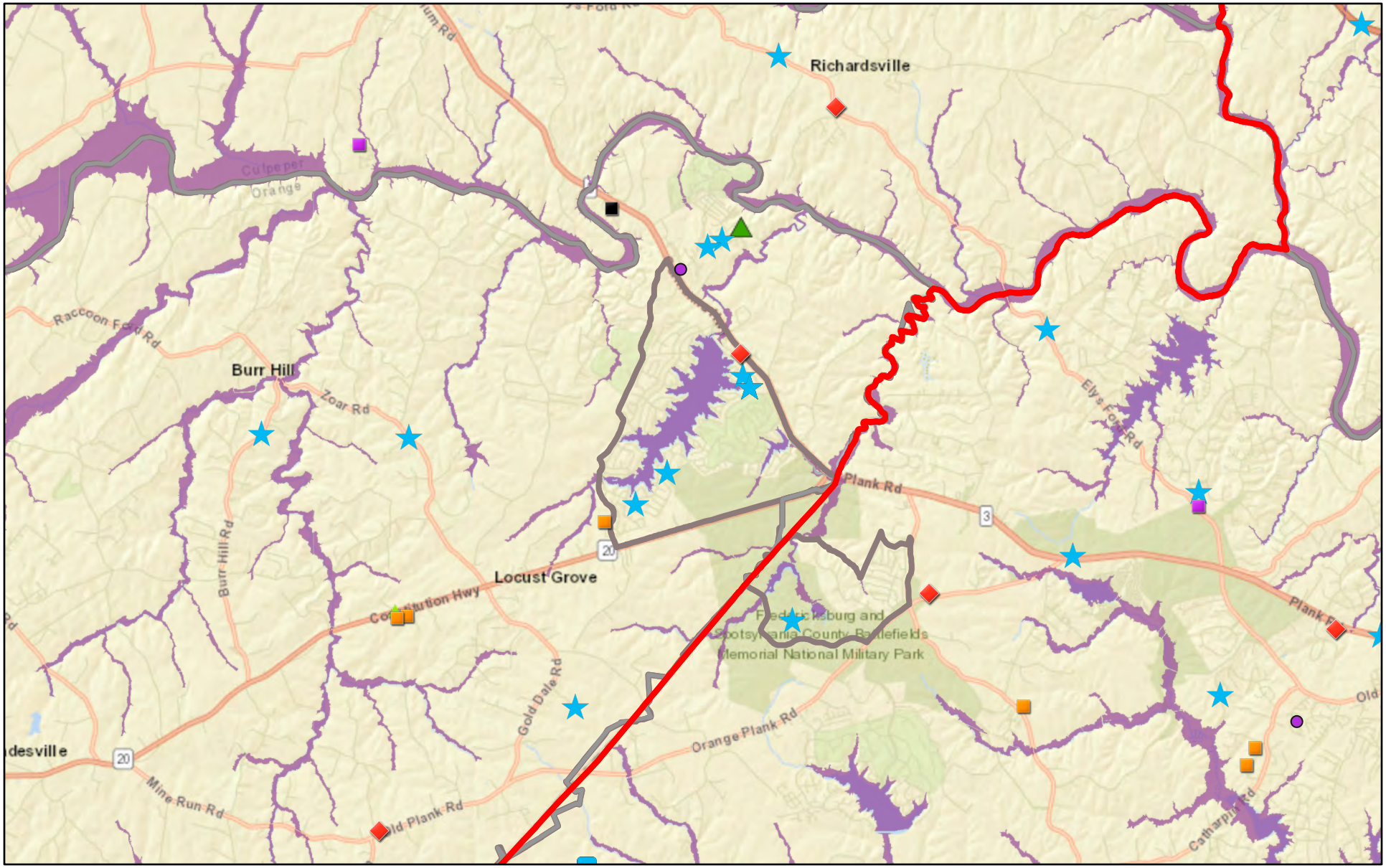
Wastewater Treatment Plants (FRS)
Major
Power Plants
FEMA - Flood Hazard (zoom to activate)

VITA, Esri, HERE, Garmin, NGA, USGS, NPS

Resilience Analysis and Planning Tool

NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration, NOAA, National Weather Service, NWS, Weather Prediction Center,

Lake of the Woods Critical Facilities and SFHAs



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All Places Of Worship
Municipal Boundaries
VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
Fire Stations
Public Schools
Private Schools
Colleges and Universities
Nursing Homes
Wastewater Treatment Plants (FRS)
Major
Minor
Power Plants
FEMA - Flood Hazard (zoom to activate)
1% Annual Chance Flood Hazard
Regulatory Floodway

0 1 2 4 mi
0 1.5 3 6 km

Esri, HERE, Garmin, NGA, USGS, NPS

Resilience Analysis and Planning Tool

NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration, NOAA, National Weather Service, NWS, Weather Prediction Center,

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Orange	Orange	Orange County Airport	Transportation	Airport	
Orange	Gordonsville	Gordonsville Municipal Airport	Transportation	Airport	
Orange	Orange	Orange County E-911 Center	Safety & Emergency Management	Emergency Operations	
Orange	Gordonsville	Gordonsville VFC	Safety & Emergency Management	Fire Station	
Orange	Orange	Orange VFC	Safety & Emergency Management	Fire Station	
Orange	Mine Run	Mine Run VFC	Safety & Emergency Management	Fire Station	
Orange	Barboursville	Barboursville Volunteer Fire	Safety & Emergency Management	Fire Station	
Orange	Orange	Orange County Courthouse	Gov't Services	Government Building	
Orange	Orange	County Administrative Buildings	Gov't Services	Government Building	
Orange	Multiple Locations	County Parks & Recreation Facilities	Gov't Services	Government Building	
Orange	Multiple Locations	County Waste Facilities	Gov't Services	Government Building	
Orange	Gordonsville	Gordonsville Town Hall	Gov't Services	Government Building	
Orange	Orange	Central Virginia Regional Jail	Gov't Services	Government Building	
Orange	Orange	Orange Train Depot	Infrastructure	Other	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Orange	Orange	Town of Orange Water Treatment Plant	Infrastructure	Water Treatment	
Orange	Orange	Rapidan Service Authority Water Treatment Plant	Infrastructure	Water Treatment	
Orange	Orange	Rapidan Service Authority Wastewater Treatment Plant	Infrastructure	Wastewater Treatment	
Orange	Orange	Town of Orange Wastewater Treatment Plant	Infrastructure	Wastewater Treatment	
Orange	Multiple Locations	Power substations (REC, Dominion)	Infrastructure	Utility	
Orange	Orange	Shining Stars Childcare	Social Services	Daycare	
Orange	Orange	Dogwood Village	Community Health	Nursing Home	
Orange	Orange	Lavendar Hills Orange Campus	Community Health	Nursing Home	
Orange	Orange	Paul Stefan Foundation	Community Health	Safe Housing	
Orange	Locust Grove	Germanna Heights Apartments	Community Health	Senior Living	
Orange	Orange	Heritage Hill Apartments	Community Health	Senior Living	
Orange	Orange	Belleview Senior Apartments	Community Health	Senior Living	
Orange	Locust Grove	Trinity Senior Village	Community Health	Assisted Living	
Orange	Town of Orange	Orange Senior Center	Community Health	Senior Daycare	

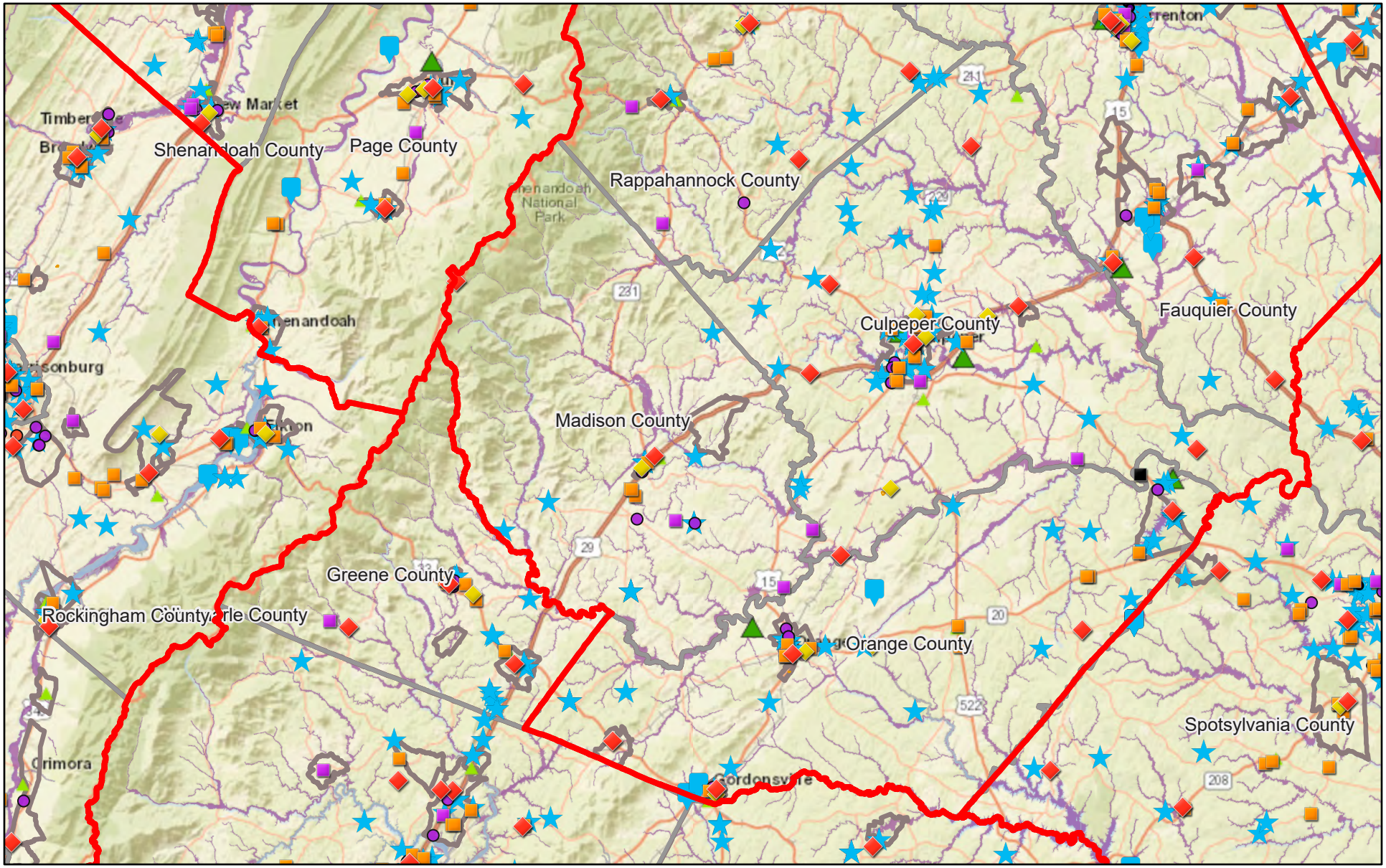
County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Orange	Town of Orange	Tiger Fuel	Infrastructure	Fueling Station	
Orange	Locust Grove	Lake-Woods Fire & Rescue	Safety & Emergency Management	Fire & Rescue	
Orange	Mine Run	COFEMS - Rhoadesville	Safety & Emergency Management	Fire & Rescue	
Orange	Barboursville	COFEMS - Barboursville	Safety & Emergency Management	Fire & Rescue	
Orange	Town of Orange	COFEMS - Orange	Safety & Emergency Management	Fire & Rescue	
Orange	Town of Orange	Orange County Sheriff's Office	Safety & Emergency Management	Police Station	
Orange	Town of Orange	Orange Police	Safety & Emergency Management	Police Station	
Orange	Gordonsville	Gordonsville Police Dept	Safety & Emergency Management	Police Station	
Orange	Orange	Grymes Memorial School	Gov't Services	School	
Orange	Unionville	Faith Christian Academy	Gov't Services	School	
Orange	Unionville	Lightfoot Elementary	Gov't Services	School	
Orange	Orange	Orange County High	Gov't Services	School	
Orange	Orange	Orange Elementary	Gov't Services	School	
Orange	Orange	Prospect Heights Middle	Gov't Services	School	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Orange	Unionville	Unionville Elementary	Gov't Services	School	
Orange	Locust Grove	Locust Grove Elementary	Gov't Services	School	
Orange	Locust Grove	Locust Grove Primary School	Gov't Services	School	
Orange	Gordonsville	Gordon-Barbour Elementary School	Gov't Services	School	
Orange	Locust Grove	Locust Grove Middle School	Gov't Services	School	
Orange	Town of Orange	Taylor Education Administration Complex	Gov't Services	School	
Orange	Town of Orange	Town of Orange Public Works Facilities	Gov't Services	Government Building	
Orange	Town of Orange	Town of Orange Administrative Building	Gov't Services	Government Building	
Orange	Town of Orange	Standpipe & Concrete Reservoir	Infrastructure	Water Supply Facility	
Orange	Multiple Locations	P25 Radio System	Infrastructure	Government	
Orange	Gordonsville	Blossman Gas	Infrastructure	Propane Station	
Orange	Locust Grove	Holcomb Building	Infrastructure	Government Building	
Orange	Locust Grove	Veterans Memorial Dam	Infrastructure	Water Supply	
Orange	Locust Grove	Keaton's Run Dam	Infrastructure	Water Supply	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Orange	Town of Orange	Animal Shelter	Animal Shelter	Government Building	
Orange	Gordonsville	Gordonsville Library	Library	Government Building	
Orange	Orange	Main Library	Library	Government Building	
Orange	Locust Grove	Wilderness Branch Library	Library	Government Building	
Orange	Town of Orange	Department of Social Services	Social Services	Government Building	
Orange	Town of Orange	Virginia Cooperative Extension Office	Government Services	Government Building	
Orange	Town of Orange	Orange County Public Schools Transportation Department	Government Services	School	
Orange	Locust Grove	Lake of the Woods Security	Safety & Emergency Management	Security	
Orange	Orange	Lake Orange Dam	Infrastructure	Water Supply	
Orange	Multiple Locations	Fiberlync	Infrastructure	Government Building	
Orange	Town of Orange	Macon Rd Water Storage Tanks	Infrastructure	Water Supply	
Orange	Town of Orange	N/A	Infrastructure	Raw Water Intake	
Orange	Town of Orange	East Orange Pump Station	Infrastructure	Wastewater Treatment	
Orange	Town of Orange	MPS Pump Station	Infrastructure	Wastewater Treatment	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Orange	Town of Orange	Lee Industrial Park Pump Station	Infrastructure	Wastewater Treatment	
Orange	Town of Orange	CVRJ Pump Station	Infrastructure	Wastewater Treatment	
Orange	Town of Orange	Raw Water Storage Facility	Infrastructure	Wastewater Treatment	

Madison County Critical Facilities and SFHAs



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1:577,792

0 3.75 7.5 15 mi

0 5 10 20 km

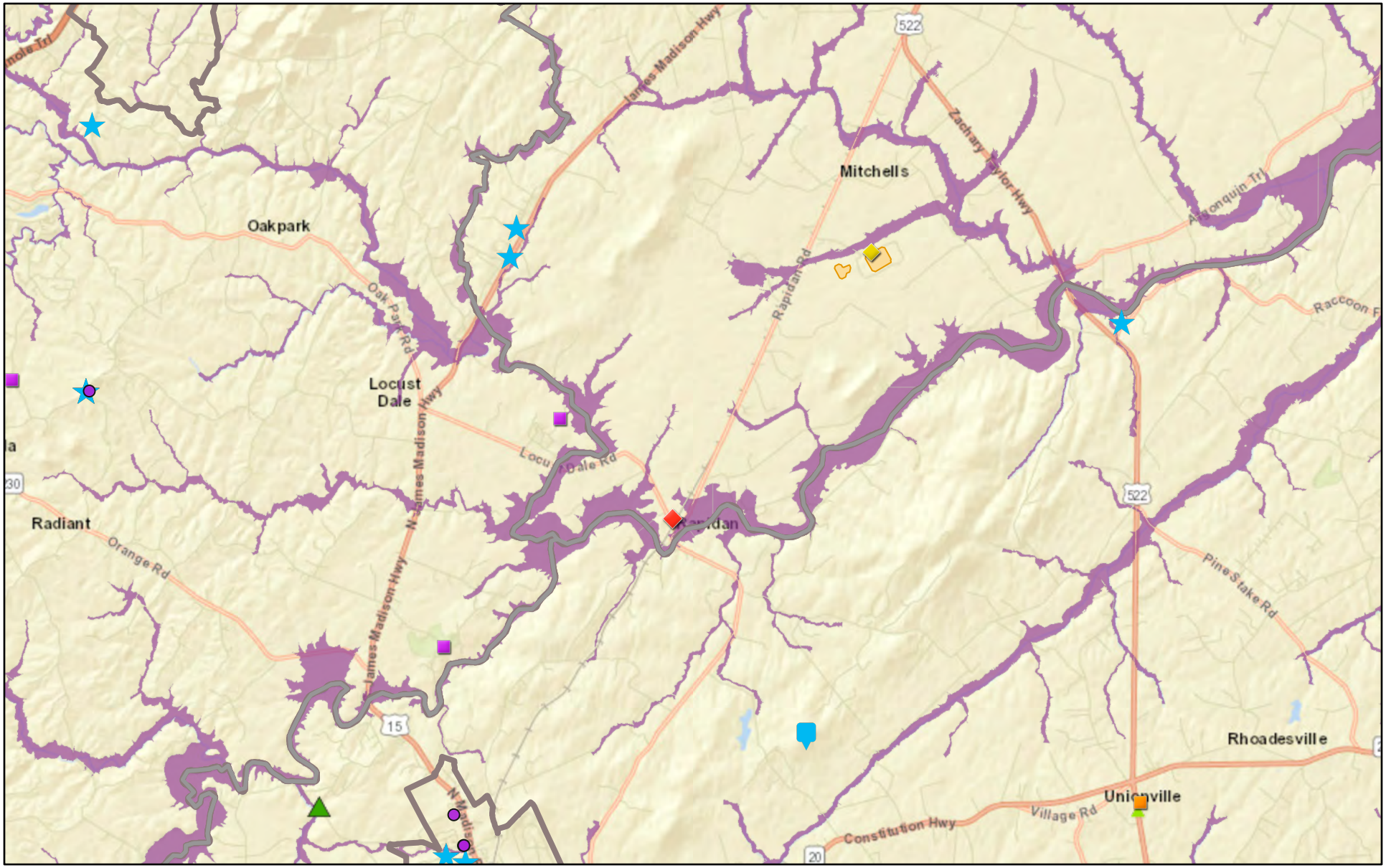
Esri, HERE, Garmin, NGA, USGS, NPS

All Places Of Worship
Municipal Boundaries
VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
Fire Stations
Local Law Enforcement Locations
Prison Boundaries
Public Schools
Private Schools
Colleges and Universities
Hospitals
Nursing Homes
Urgent Care Facilities
Wastewater Treatment Plants (FRS)
Major
Minor
Power Plants
FEMA - Flood Hazard (zoom to activate)
0.2% Annual Chance Flood Hazard
1% Annual Chance Flood Hazard

Resilience Analysis and Planning Tool

NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration, NOAA, National Weather Service, NWS, Weather Prediction Center,

Rapidan and Surrounding Critical Facilities and SFHAs



12/4/2024, 8:59:53 AM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

All Places Of Worship
Municipal Boundaries
VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
Fire Stations
Local Law Enforcement Locations
Prison Boundaries
Public Schools
Private Schools
Nursing Homes
Wastewater Treatment Plants (FRS)
Major
Minor
Power Plants
FEMA - Flood Hazard (zoom to activate)
1% Annual Chance Flood Hazard

Esri, HERE, Garmin, NGA, USGS, NPS

Resilience Analysis and Planning Tool

NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration, NOAA, National Weather Service, NWS, Weather Prediction Center,

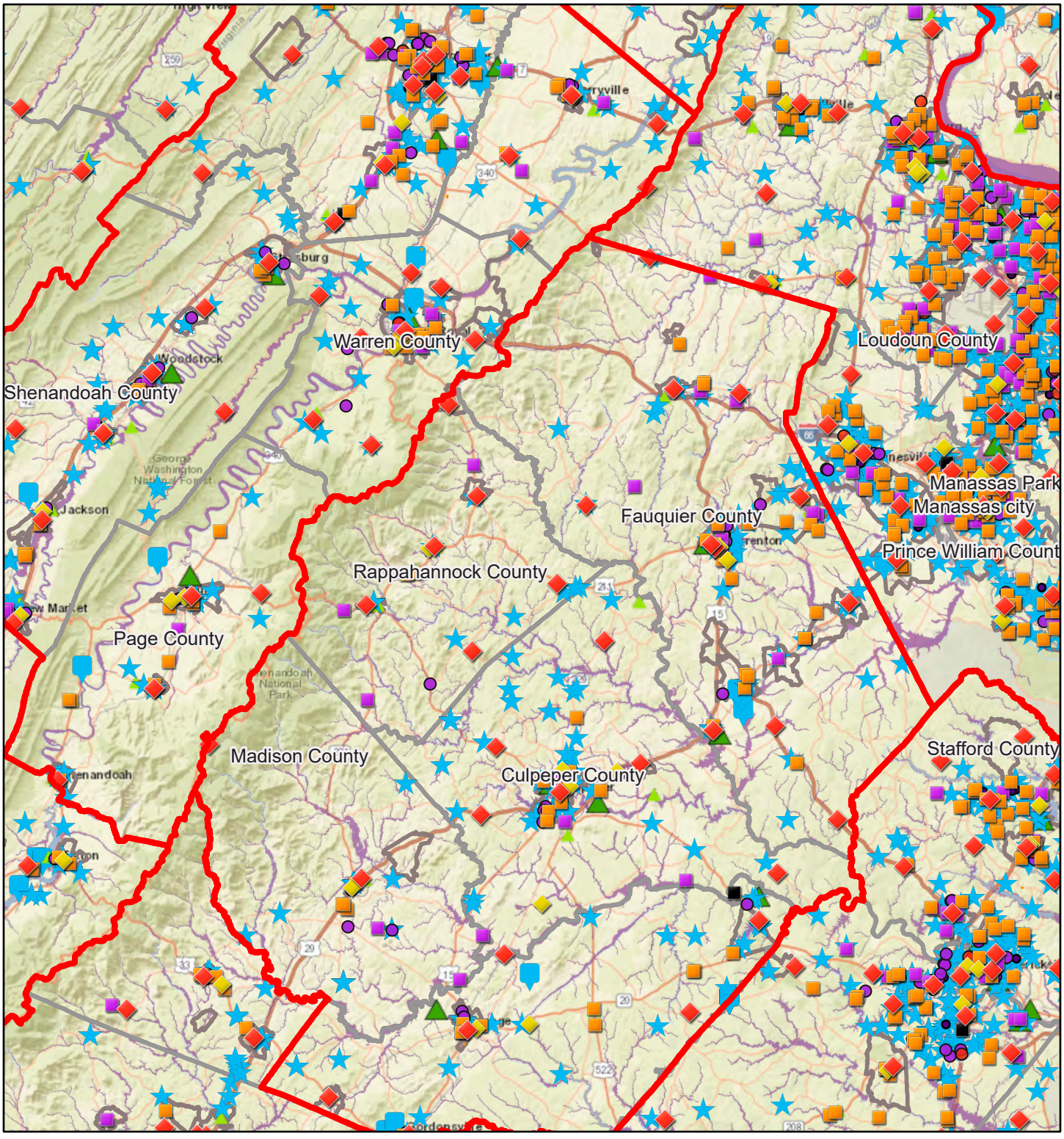
County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Madison	Madison	Madison County Sheriff's Office	Safety & Emergency Management	Police Station	
Madison	Madison	Madison Fire Company	Safety & Emergency Management	Fire and Rescue	
Madison	Madison	Madison Rescue Squad	Safety & Emergency Management	Fire and Rescue	
Madison	Madison	Madison Fire Company	Safety & Emergency Management	Fire and Rescue	
Madison	Madison	Madison Emergency Medical Services	Safety & Emergency Management	Medical Services	
Madison	Madison	School Bus Maintenance Shop	Infrastructure	Mechanical Services	
Madison	Madison	Rapidan Service Authority	Infrastructure	Water Treatment Plant	
Madison	Madison	School Board Offices	Gov't Services	School Offices	
Madison	Aroda	Cornerstone Christian School	Gov't Services	School	
Madison	Woodberry Forest	Woodberry Forest School	Gov't Services	School	
Madison	Aroda	Oak Grove Mennonite School	Gov't Services	School	
Madison	Madison	Madison County High	Gov't Services	School	
Madison	Madison	Madison Primary	Gov't Services	School	
Madison	Madison	Waverly Yowell Elementary	Gov't Services	School	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Madison	Madison	William H. Wetsel Middle	Gov't Services	School	
Madison	Madison	Criglersville Elementary	Gov't Services	School	
Madison	Madison	Early Learning Center	Gov't Services	School	
Madison	Madison	Skyline CAP	Gov't Services	School	
Madison	Town of Madison	First Friends Pre-school	Gov't Services	School	
Madison	Madison	Rainbow Preschool	Gov't Services	Day Care	
Madison	Pratts	Countryside Rest Home	Gov't Services	Nursing Home	
Madison	Novum	Meadowbrook Nursing Home at Novum	Community Health	Nursing Home	
Madison	Brightwood	Morgan's Nursing Home	Community Health	Nursing Home	
Madison	Madison	Autumn Care of Madison	Community Health	Nursing Home	
Madison	Aroda	Mountain View Nursing Home	Community Health	Nursing Home	
Madison	Madison	Sevenoaks Pathwork Center	Community Health	Nursing Home	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Madison	Madison	Madison County Sheriff's Office	Safety & Emergency Management	Police Station	
Madison	Madison	Madison Fire Company	Safety & Emergency Management	Fire and Rescue	
Madison	Madison	Madison Rescue Squad	Safety & Emergency Management	Fire and Rescue	
Madison	Madison	Madison Fire Company	Safety & Emergency Management	Fire and Rescue	
Madison	Madison	Madison Emergency Medical Services	Safety & Emergency Management	Medical Services	
Madison	Madison	School Bus Maintenance Shop	Infrastructure	Mechanical Services	
Madison	Madison	Rapidan Service Authority	Infrastructure	Water Treatment Plant	
Madison	Madison	School Board Offices	Gov't Services	School Offices	
Madison	Aroda	Cornerstone Christian School	Gov't Services	School	
Madison	Woodberry Forest	Woodberry Forest School	Gov't Services	School	
Madison	Aroda	Oak Grove Mennonite School	Gov't Services	School	
Madison	Madison	Madison County High	Gov't Services	School	
Madison	Madison	Madison Primary	Gov't Services	School	
Madison	Madison	Waverly Yowell Elementary	Gov't Services	School	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments

Rappahannock Critical Facilities and SFHAs



12/4/2024, 10:38:26 AM

1:770,389

0 5 10 20 mi

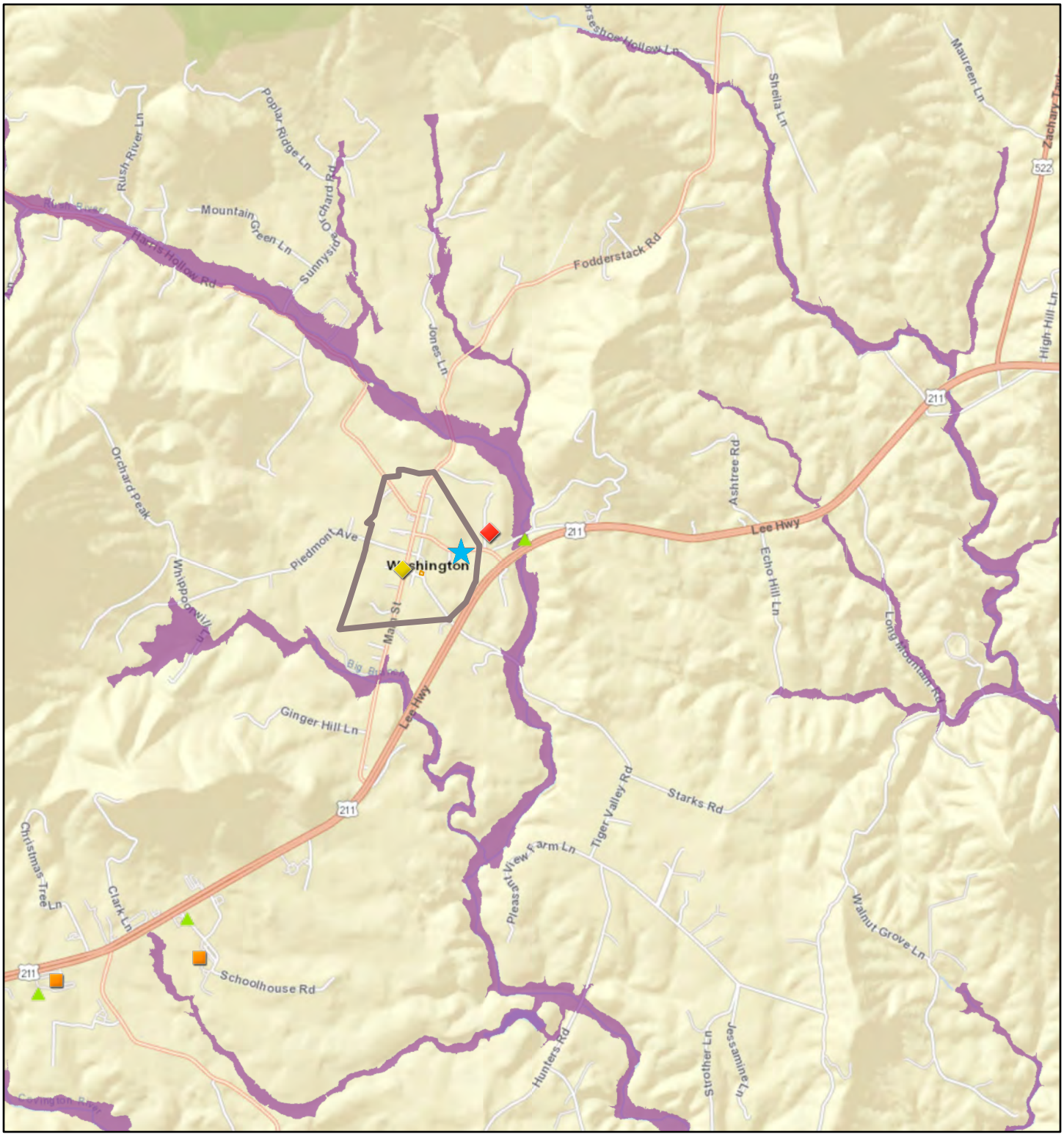
0 5 10 20 km

- All Places Of Worship
- Municipal Boundaries
- VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
- Fire Stations
- Local Law Enforcement Locations
- Prison Boundaries
- Public Schools
- Private Schools
- Colleges and Universities
- Hospitals
- Nursing Homes
- Urgent Care Facilities
- Wastewater Treatment Plants (FRS)
- Major
- Minor
- Power Plants
- FEMA - Flood Hazard (zoom to activate)

Esri, HERE, Garmin, NGA, USGS, NPS

Resilience Analysis and Planning Tool
NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration,

Washington Critical Facilities and SFHAs



12/4/2024, 10:45:57 AM

1:48,149

0 0.33 0.65 1.3 mi

0 0.5 1 2 km

- All Places Of Worship
- Municipal Boundaries
- VDOT PDC Boundaries 2016 - VDOT Planning District Commisions
- Fire Stations
- Local Law Enforcement Locations
- Prison Boundaries
- Public Schools
- Wastewater Treatment Plants (FRS)
- Minor
- FEMA - Flood Hazard (zoom to activate)
- 1% Annual Chance Flood Hazard

VITA, Esri, HERE, Garmin, NGA, USGS, NPS

Resilience Analysis and Planning Tool
NOAA Office for Coastal Management | National Oceanic and Atmospheric Administration, National Weather Service, Storm Predictive Center | National Oceanic and Atmospheric Administration,

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Rappahannock	Washington	Sheriff's Office	Safety & Emergency Management	Police Station	
Rappahannock	Washington	Rappahannock County Courthouse	Gov't Services	Government Building	
Rappahannock	Washington	Rappahannock County Administrative Buildings	Gov't Services	Government Building	
Rappahannock	Washington	Co 1 Fire and Rescue	Safety & Emergency Management	Fire Department	
Rappahannock	Sperryville	Co 2 Fire and Rescue	Safety & Emergency Management	Fire Department	
Rappahannock	Amissville	Co 3 Fire and Rescue	Safety & Emergency Management	Fire Department	
Rappahannock	Flint Hill	Co 4 Fire and Rescue	Safety & Emergency Management	Fire Department	
Rappahannock	Castleton	Co 5 Fire and Rescue	Safety & Emergency Management	Fire Department	
Rappahannock	Sperryville	Co 7 Fire and Rescue	Safety & Emergency Management	Fire Department	
Rappahannock	Chester Gap	Co 9 Fire and Rescue	Safety & Emergency Management	Fire Department	
Rappahannock	Washington	Emergency Management Office	Safety & Emergency Management	Emergency Management	
Rappahannock	Sperryville	Hearthstone School	Social Services	School	
Rappahannock	Washington	Child Care and Learning Center	Social Services	Day Care	
Rappahannock	Washington	Rappahannock County Co-Op	Social Services	Co-Op	

County	Jurisdiction	Facility Name	Category	Facility Type	Comments
Rappahannock	Sperryville	Belle Meade School	Social Services	School	
Rappahannock	Flint Hill	Wakefield Country Day School	Social Services	School	
Rappahannock	Washington	Rappahannock County High	Gov't Services	School	
Rappahannock	Washington	Rappahannock Elementary	Gov't Services	School	
Rappahannock	Amissville	Public Safety Tower	Gov't Services	Government Asset	Used for Fire and Rescue Call Paging
Rappahannock	Sperryville	Public Safety Tower	Gov't Services	Government Asset	Used for Fire and Rescue Call Paging
Rappahannock	Washington	Brightspeed	Public Telephone System	Telephone Central Office	
Rappahannock	Sperryville	Verizon	Public Telephone System	Telephone Central Office	
Rappahannock	Washington	Rappahannock County Public Schools Offices	Gov't Services	School Administration	

Building Damage by Building Type

April 02, 2024

All values are in thousands of square feet

	Average Damage (%) Within Each Damage Range						
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Virginia							
Culpeper							
Concrete	0.0	2.0	1.0	0.0	0.0	0.0	0.0
ManufHousing	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Masonry	7.0	29.0	49.0	15.0	16.0	13.0	24.0
Steel	4.0	13.0	15.0	3.0	4.0	5.0	6.0
Wood	11.0	20.0	36.0	24.0	24.0	20.0	34.0
Total	**22.0**	**64.0**	**101.0**	**42.0**	**44.0**	**38.0**	**64.0**
Fauquier							
Concrete	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ManufHousing	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Masonry	0.0	3.0	9.0	3.0	3.0	0.0	7.0
Steel	0.0	0.0	0.0	0.0	1.0	1.0	0.0
Wood	7.0	13.0	39.0	28.0	21.0	21.0	70.0
Total	**7.0**	**16.0**	**48.0**	**31.0**	**25.0**	**22.0**	**77.0**
Madison							
Concrete	0.0	0.0	1.0	0.0	0.0	0.0	0.0
ManufHousing	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Masonry	11.0	33.0	37.0	9.0	7.0	3.0	0.0

Building Damage by Building Type

	Average Damage (%) Within Each Damage Range						
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Steel	0.0	2.0	4.0	0.0	0.0	0.0	0.0
Wood	12.0	25.0	32.0	10.0	5.0	2.0	0.0
Total	**23.0**	**60.0**	**74.0**	**19.0**	**12.0**	**5.0**	**0.0**
Orange							
Concrete	0.0	1.0	1.0	0.0	0.0	0.0	0.0
ManufHousing	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Masonry	0.0	2.0	5.0	0.0	0.0	0.0	2.0
Steel	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Wood	2.0	2.0	6.0	4.0	1.0	9.0	36.0
Total	**2.0**	**6.0**	**12.0**	**4.0**	**1.0**	**9.0**	**38.0**
Rappahannock							
Concrete	0.0	2.0	2.0	0.0	0.0	0.0	0.0
ManufHousing	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Masonry	2.0	7.0	11.0	2.0	1.0	0.0	0.0
Steel	0.0	6.0	6.0	0.0	0.0	0.0	0.0
Wood	16.0	20.0	33.0	16.0	8.0	3.0	8.0
Total	**18.0**	**35.0**	**52.0**	**18.0**	**9.0**	**3.0**	**8.0**
Total	**72.0**	**181.0**	**287.0**	**114.0**	**91.0**	**77.0**	**187.0**
Scenario Total	**72.0**	**181.0**	**287.0**	**114.0**	**91.0**	**77.0**	**187.0**

Building Damage by Building Type

	Average Damage (%) Within Each Damage Range						
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Building Damage Count by General Building Type

April 02, 2024

	Count of Buildings (#) by Range of Damage (%)							
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Virginia								
Culpeper								
Concrete	0	0	0	0	0	0	0	0
ManufHousing	0	0	0	0	0	0	0	0
Masonry	0	1	4	1	2	0	0	8
Steel	0	0	1	0	0	0	0	1
Wood	1	1	3	2	3	2	3	15
Total	**1**	**2**	**8**	**3**	**5**	**2**	**3**	**24**
Fauquier								
Concrete	0	0	0	0	0	0	0	0
ManufHousing	0	0	0	0	0	0	0	0
Masonry	0	0	0	0	0	0	0	0
Steel	0	0	0	0	0	0	0	0
Wood	0	0	3	2	2	2	9	18
Total	**0**	**0**	**3**	**2**	**2**	**2**	**9**	**18**
Madison								
Concrete	0	0	0	0	0	0	0	0
ManufHousing	0	0	0	0	0	0	0	0

Building Damage Count by General Building Type

	Count of Buildings (#) by Range of Damage (%)							
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Masonry	0	1	1	0	0	0	0	2
Steel	0	0	0	0	0	0	0	0
Wood	0	1	1	0	0	0	0	2
Total	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**4**
Orange								
Concrete	0	0	0	0	0	0	0	0
ManufHousing	0	0	0	0	0	0	0	0
Masonry	0	0	0	0	0	0	0	0
Steel	0	0	0	0	0	0	0	0
Wood	0	0	1	0	0	0	4	5
Total	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**5**
Rappahannock								
Concrete	0	0	0	0	0	0	0	0
ManufHousing	0	0	0	0	0	0	0	0
Masonry	0	0	1	0	0	0	0	1
Steel	0	0	0	0	0	0	0	0
Wood	3	5	7	1	1	0	0	17
Total	**3**	**5**	**8**	**1**	**1**	**0**	**0**	**18**
Total	**4**	**9**	**22**	**6**	**8**	**4**	**16**	**69**
Scenario Total	**4**	**9**	**22**	**6**	**8**	**4**	**16**	**69**

Building Damage Count by General Building Type

	Count of Buildings (#) by Range of Damage (%)							
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total

Special Notice Regarding Building Count:

Unlike the earthquake and hurricane models, the flood model performs its analysis at the census block level. This means that the analysis starts with a small number of buildings within each census block and applies a series of distributions necessary for analyzing the potential damage. The application of these distributions and the small number of buildings make the flood model more sensitive to rounding errors that introduces uncertainty into the building count results. Please use these results with suitable caution.

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Building Damage Count by General Occupancy

April 02, 2024

	Count of Buildings (#) by Range of Damage (%)							
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Virginia								
Culpeper								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	2	3	0	0	0	1	6
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	1	1	4	3	5	2	2	18
Total	**1**	**3**	**7**	**3**	**5**	**2**	**3**	**24**
Fauquier								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	0	0	3	2	2	2	9	18
Total	**0**	**0**	**3**	**2**	**2**	**2**	**9**	**18**

Building Damage Count by General Occupancy

	Count of Buildings (#) by Range of Damage (%)							
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Madison								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	3	3	7	2	1	0	0	16
Total	**3**	**3**	**7**	**2**	**1**	**0**	**0**	**16**
Orange								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	0	0	1	0	0	0	4	5
Total	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**5**
Rappahannock								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0

Building Damage Count by General Occupancy

	Count of Buildings (#) by Range of Damage (%)							
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	3	5	8	1	1	0	0	18
Total	**3**	**5**	**8**	**1**	**1**	**0**	**0**	**18**
Total	**7**	**11**	**26**	**8**	**9**	**4**	**16**	**81**
Scenario Total	**7**	**11**	**26**	**8**	**9**	**4**	**16**	**81**

Special Notice Regarding Building Count:

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Building Damage Count by General Occupancy Post-FIRM

April 02, 2024

	Count of Buildings (#) by Range of Damage (%)							
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Virginia								
Culpeper								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	1	1	2	2	2	1	1	10
Total	**1**	**1**	**2**	**2**	**2**	**1**	**1**	**10**
Fauquier								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	0	0	2	2	2	2	6	14
Total	**0**	**0**	**2**	**2**	**2**	**2**	**6**	**14**

Building Damage Count by General Occupancy Post-FIRM

	Count of Buildings (#) by Range of Damage (%)							
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Madison								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	2	1	1	1	0	0	0	5
Total	**2**	**1**	**1**	**1**	**0**	**0**	**0**	**5**
Orange								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	0	0	1	0	0	0	4	5
Total	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**5**
Rappahannock								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0

Building Damage Count by General Occupancy Post-FIRM

	Count of Buildings (#) by Range of Damage (%)							
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	2	1	1	0	0	0	0	4
Total	**2**	**1**	**1**	**0**	**0**	**0**	**0**	**4**
Total	**5**	**3**	**7**	**5**	**4**	**3**	**11**	**38**
Scenario Total	**5**	**3**	**7**	**5**	**4**	**3**	**11**	**38**

Special Notice Regarding Building Count:

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Building Damage Count by General Occupancy Pre-FIRM

April 02, 2024

	Count of Buildings (#) by Range of Damage (%)							
	< 1	1-10	11-20	21-30	31-40	41-50	Substantial	Total
Virginia								
Culpeper								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	2	3	0	0	0	1	6
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	0	0	2	1	3	1	1	8
Study Region Total	**0**	**2**	**5**	**1**	**3**	**1**	**2**	**14**
Fauquier								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	0	0	1	0	0	0	3	4
Study Region Total	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**4**
Madison								

Building Damage Count by General Occupancy Pre-FIRM

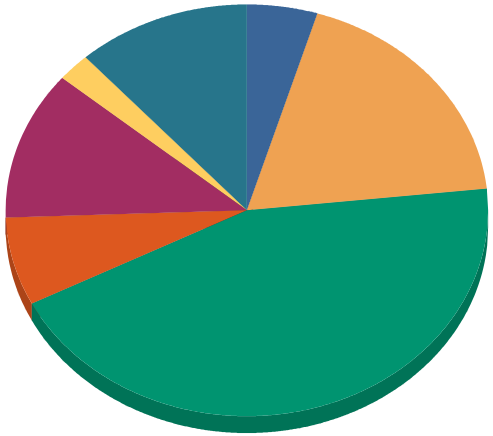
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	1	2	6	1	1	0	0	11
Study Region Total	**1**	**2**	**6**	**1**	**1**	**0**	**0**	**11**
Orange								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	0	0	0	0	0	0	0	0
Study Region Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Rappahannock								
Agriculture	0	0	0	0	0	0	0	0
Commercial	0	0	0	0	0	0	0	0
Education	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0
Residential	1	4	7	1	1	0	0	14
Study Region Total	**1**	**4**	**7**	**1**	**1**	**0**	**0**	**14**

Building Damage Count by General Occupancy Pre-FIRM

Total	**2**	**8**	**19**	**3**	**5**	**1**	**5**	**43**
Scenario Total	**2**	**8**	**19**	**3**	**5**	**1**	**5**	**43**

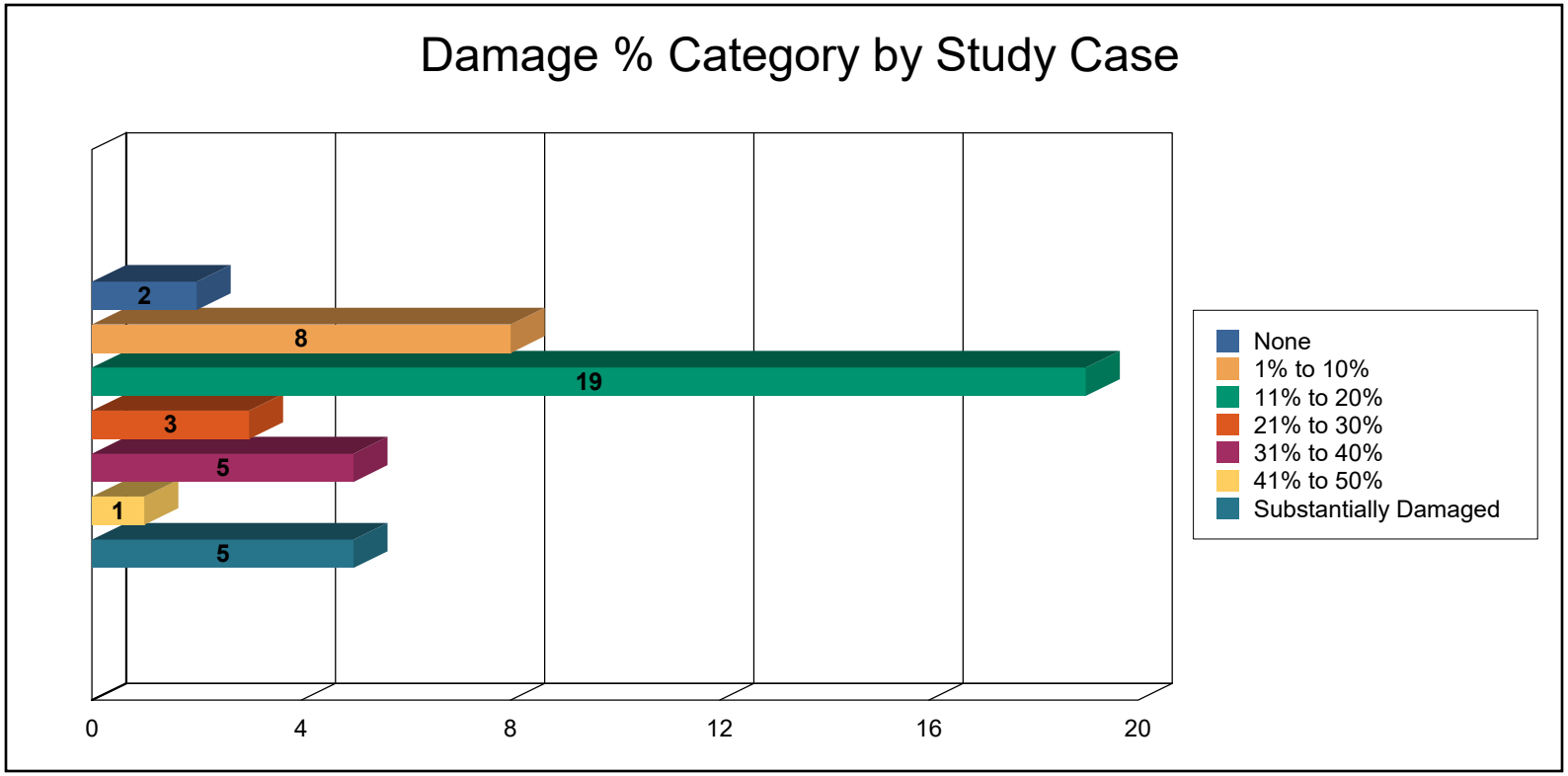
Building Damage Count by General Occupancy Pre-FIRM

Damage % Category by Occupancy



None	4.7%
1% to 10%	18.6%
11% to 20%	44.2%
21% to 30%	7.0%
31% to 40%	11.6%
41% to 50%	2.3%
Substantially Damaged	11.6%
Total:	100.0%

Building Damage Count by General Occupancy Pre-FIRM



Building Damage Count by General Occupancy Pre-FIRM

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HAZUS™ FEMA

Building Damage By General Occupancy

RiskMAP Increasing Resilience Together

April 02, 2024

All values are in thousands of square feet

		Square Footage Distribution by Damage Percent Range						
	Total Dmg Square Footage	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Virginia								
Culpeper								
Agriculture	0.66	0.16	0.09	0.26	0.08	0.02	0.02	0.02
Commercial	237.00	6.08	47.52	68.40	23.12	23.42	22.82	45.65
Education	6.80	1.06	3.36	1.25	0.42	0.70	0.00	0.00
Government	1.07	0.01	0.68	0.30	0.08	0.00	0.00	0.00
Industrial	12.16	1.21	0.40	4.31	1.49	3.34	1.01	0.40
Religion	4.09	1.45	0.88	1.67	0.07	0.01	0.00	0.00
Residential	226.89	22.29	25.73	41.72	32.38	29.23	26.53	49.01
Total	**488.68**	**32.25**	**78.68**	**117.92**	**57.64**	**56.73**	**50.39**	**95.08**
Fauquier								
Agriculture	1.46	0.00	0.03	0.02	0.01	0.10	0.06	1.25
Commercial	37.69	1.29	5.23	11.22	6.28	5.91	1.62	6.13
Education	2.75	0.04	1.33	1.30	0.08	0.00	0.00	0.00
Government	0.48	0.04	0.08	0.28	0.02	0.03	0.01	0.03
Industrial	24.29	0.12	1.72	4.36	3.73	4.54	3.05	6.78
Religion	3.90	0.06	0.22	3.52	0.04	0.04	0.02	0.00
Residential	391.59	19.65	26.61	53.93	49.44	46.88	45.54	149.55
Total	**462.16**	**21.21**	**35.20**	**74.63**	**59.60**	**57.50**	**50.31**	**163.72**

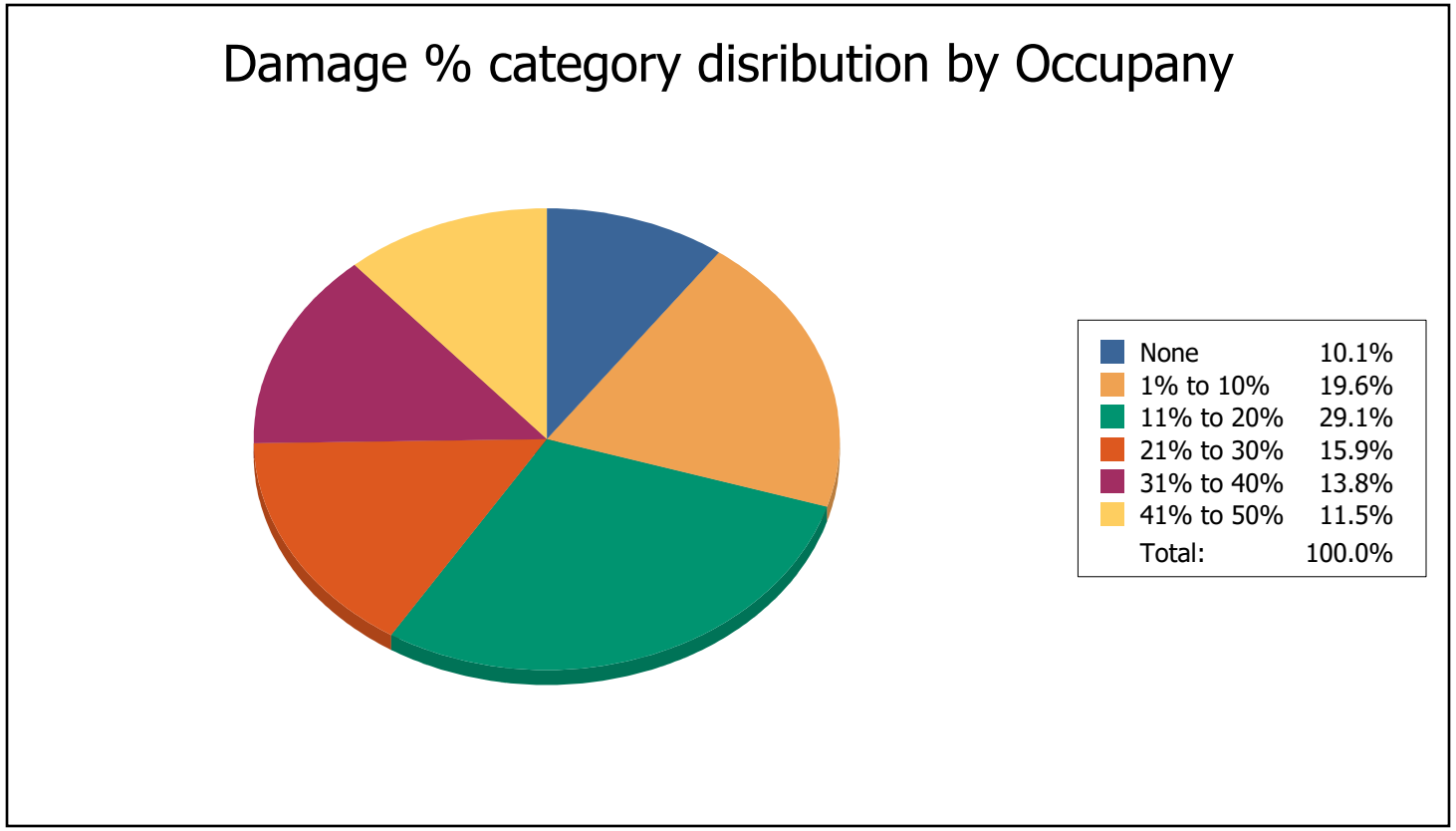
Building Damage By General Occupancy

Madison								
Agriculture	22.09	0.86	10.33	8.69	0.86	1.25	0.01	0.10
Commercial	63.68	2.85	29.15	23.02	4.41	3.49	0.74	0.02
Education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	12.11	1.66	0.26	1.71	2.84	3.46	1.40	0.79
Religion	7.64	3.00	1.53	3.11	0.00	0.00	0.00	0.00
Residential	169.87	29.64	31.94	45.77	25.46	18.68	9.39	9.00
Total	**275.39**	**38.00**	**73.20**	**82.29**	**33.57**	**26.87**	**11.54**	**9.91**
Orange								
Agriculture	0.41	0.00	0.00	0.00	0.27	0.00	0.14	0.00
Commercial	7.44	0.66	2.67	3.48	0.17	0.05	0.06	0.36
Education	6.40	0.00	2.13	4.26	0.00	0.00	0.00	0.00
Government	0.25	0.00	0.00	0.05	0.02	0.00	0.02	0.15
Industrial	0.10	0.00	0.00	0.02	0.02	0.02	0.00	0.03
Religion	1.59	0.36	0.33	0.73	0.16	0.00	0.00	0.00
Residential	105.13	3.51	3.60	11.37	11.18	7.79	13.90	53.77
Total	**121.32**	**4.53**	**8.74**	**19.92**	**11.83**	**7.86**	**14.13**	**54.32**
Rappahannock								
Agriculture	2.42	0.00	0.31	0.80	0.37	0.18	0.24	0.54
Commercial	38.82	1.50	12.42	15.70	3.54	2.13	2.01	1.53
Education	1.56	0.02	0.02	0.00	0.00	0.76	0.38	0.38
Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	0.79	0.01	0.03	0.25	0.10	0.13	0.08	0.18
Religion	2.15	0.39	0.90	0.85	0.00	0.00	0.02	0.00
Residential	196.92	26.83	32.41	46.38	29.26	18.15	12.85	31.04

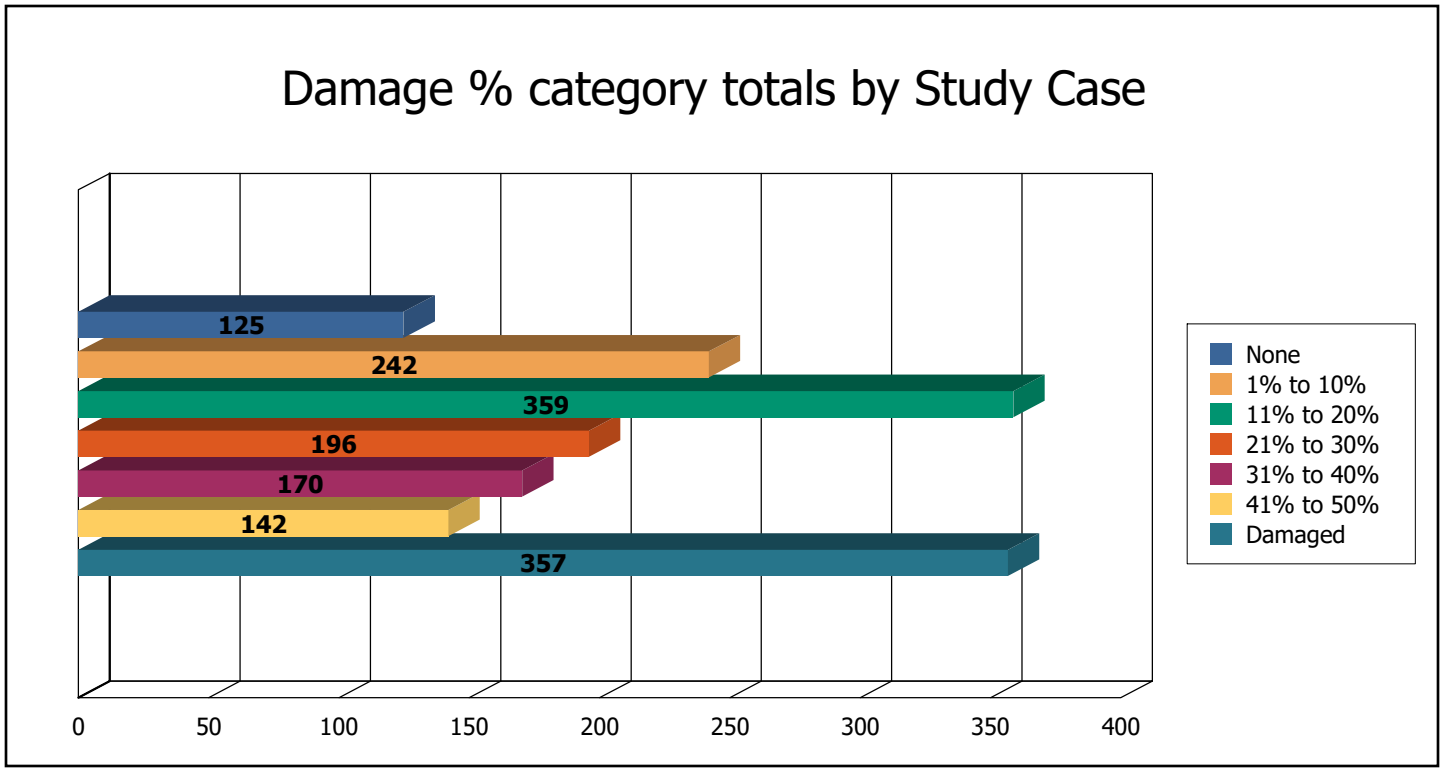
Building Damage By General Occupancy

Total	**242.67**	**28.75**	**46.09**	**63.97**	**33.27**	**21.35**	**15.58**	**33.66**
Total	**1,590.21**	**124.74**	**241.90**	**358.73**	**195.91**	**170.31**	**141.94**	**356.69**
Scenario Total	**1,590.21**	**124.74**	**241.90**	**358.73**	**195.91**	**170.31**	**141.94**	**356.69**

Building Damage By General Occupancy



Building Damage By General Occupancy



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Building Damage By General Occupancy Post-FIRM

April 02, 2024

All values are in thousands of square feet

		Square Footage Distribution by Damage Percent Range						
	Total Dmg Square Footage	< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Virginia								
Culpeper								
Agriculture	0.21	0.01	0.03	0.07	0.04	0.02	0.01	0.01
Commercial	44.78	0.31	4.20	8.10	6.70	5.25	5.34	14.87
Education	0.56	0.27	0.16	0.00	0.08	0.06	0.00	0.00
Government	0.04	0.00	0.00	0.01	0.02	0.00	0.00	0.00
Industrial	1.46	0.04	0.03	0.20	0.21	0.43	0.29	0.27
Religion	0.96	0.38	0.10	0.41	0.05	0.01	0.00	0.00
Residential	113.64	12.80	10.66	20.57	15.73	13.76	12.36	27.75
Total	**161.65**	**13.82**	**15.19**	**29.37**	**22.83**	**19.54**	**18.01**	**42.90**
Fauquier								
Agriculture	0.37	0.00	0.02	0.01	0.01	0.06	0.03	0.23
Commercial	20.77	0.63	3.14	5.95	2.80	2.19	1.02	5.05
Education	0.07	0.02	0.02	0.00	0.03	0.00	0.00	0.00
Government	0.22	0.02	0.04	0.13	0.01	0.01	0.01	0.01
Industrial	14.45	0.10	1.27	1.71	0.90	3.36	2.27	4.84
Religion	2.66	0.04	0.13	2.45	0.03	0.02	0.01	0.00
Residential	210.13	13.49	15.81	26.46	25.62	24.45	24.33	79.96
Total	**248.68**	**14.29**	**20.43**	**36.72**	**29.39**	**30.09**	**27.66**	**90.10**

Building Damage By General Occupancy Post-FIRM

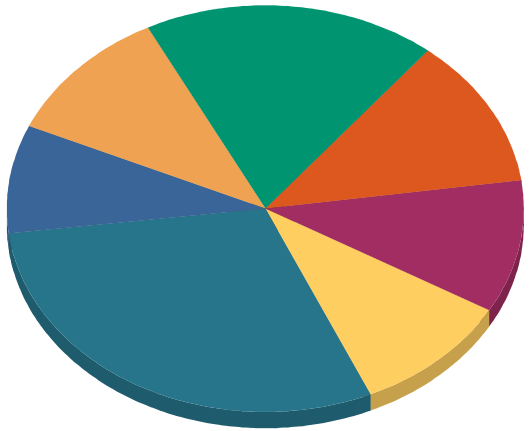
Madison								
Agriculture	0.07	0.01	0.00	0.00	0.00	0.01	0.01	0.05
Commercial	18.51	0.57	8.28	6.57	1.61	1.29	0.18	0.01
Education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	2.18	0.24	0.15	0.46	0.37	0.47	0.22	0.27
Religion	3.19	1.32	0.71	1.16	0.00	0.00	0.00	0.00
Residential	37.62	8.83	6.63	9.25	4.98	3.54	1.97	2.42
Total	**61.57**	**10.96**	**15.77**	**17.45**	**6.96**	**5.30**	**2.38**	**2.75**
Orange								
Agriculture	0.36	0.00	0.00	0.00	0.24	0.00	0.12	0.00
Commercial	3.32	0.10	0.72	1.94	0.11	0.04	0.05	0.35
Education	5.25	0.00	1.75	3.50	0.00	0.00	0.00	0.00
Government	0.25	0.00	0.00	0.05	0.02	0.00	0.02	0.15
Industrial	0.10	0.00	0.00	0.02	0.02	0.02	0.00	0.03
Religion	0.80	0.08	0.17	0.49	0.06	0.00	0.00	0.00
Residential	73.10	2.82	2.60	7.48	6.08	5.00	9.77	39.35
Total	**83.16**	**3.00**	**5.24**	**13.48**	**6.53**	**5.06**	**9.96**	**39.88**
Rappahannock								
Agriculture	0.67	0.00	0.05	0.12	0.19	0.06	0.11	0.15
Commercial	13.04	0.17	4.21	4.63	1.63	0.75	0.81	0.84
Education	0.79	0.01	0.01	0.00	0.00	0.38	0.19	0.19
Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	0.40	0.01	0.01	0.11	0.05	0.07	0.05	0.11
Religion	0.26	0.00	0.05	0.20	0.00	0.00	0.01	0.00

Building Damage By General Occupancy Post-FIRM

Residential	71.56	12.89	9.50	14.14	9.75	6.11	5.38	13.78
Total	**86.72**	**13.08**	**13.83**	**19.20**	**11.61**	**7.37**	**6.56**	**15.07**
Total	**641.78**	**55.15**	**70.46**	**116.23**	**77.32**	**67.35**	**64.57**	**190.70**
Scenario Total	**641.78**	**55.15**	**70.46**	**116.23**	**77.32**	**67.35**	**64.57**	**190.70**

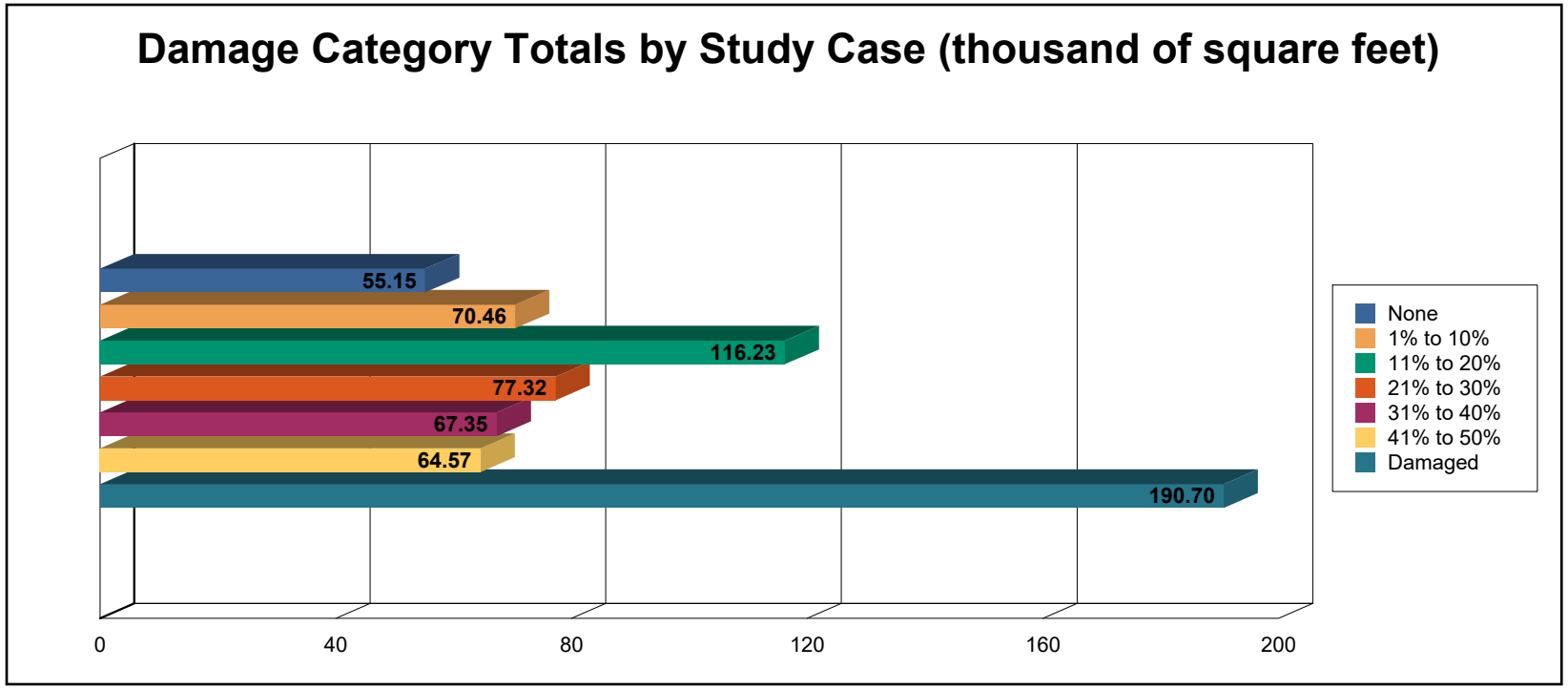
Building Damage By General Occupancy Post-FIRM

Damage Category Totals by Occupancy (thousand of square feet)



None	55.2
1% to 10%	70.5
11% to 20%	116.2
21% to 30%	77.3
31% to 40%	67.3
41% to 50%	64.6
Substantially Damaged	190.7
Total:	641.8

Building Damage By General Occupancy Post-FIRM



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Building Damage By General Occupancy Pre-FIRM

April 02, 2024

All values are in thousands of square feet

	Total Dmg Square Footage	Square Footage Distribution by Damage Percent Range						
		< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Virginia								
Culpeper								
Agriculture	0.45	0.14	0.06	0.19	0.04	0.01	0.00	0.00
Commercial	192.22	5.76	43.32	60.30	16.42	18.17	17.48	30.78
Education	6.24	0.79	3.21	1.25	0.34	0.64	0.00	0.00
Government	1.02	0.01	0.68	0.28	0.05	0.00	0.00	0.00
Industrial	10.70	1.17	0.37	4.12	1.29	2.90	0.72	0.13
Religion	3.13	1.06	0.78	1.26	0.02	0.00	0.00	0.00
Residential	113.25	9.49	15.07	21.15	16.64	15.47	14.17	21.26
Total	**327.02**	**18.43**	**63.49**	**88.55**	**34.81**	**37.20**	**32.38**	**52.17**
Fauquier								
Agriculture	1.09	0.00	0.00	0.01	0.00	0.04	0.02	1.01
Commercial	16.92	0.66	2.09	5.27	3.49	3.73	0.61	1.08
Education	2.68	0.02	1.31	1.29	0.05	0.00	0.00	0.00
Government	0.26	0.02	0.04	0.15	0.01	0.02	0.01	0.02
Industrial	9.84	0.02	0.44	2.65	2.83	1.17	0.78	1.93
Religion	1.24	0.02	0.09	1.07	0.01	0.02	0.01	0.00
Residential	181.46	6.16	10.79	27.46	23.82	22.43	21.22	69.58

Building Damage By General Occupancy Pre-FIRM

	Total Dmg Square Footage	Square Footage Distribution by Damage Percent Range						
		< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Total	**213.48**	**6.91**	**14.77**	**37.90**	**30.22**	**27.41**	**22.65**	**73.62**
Madison								
Agriculture	22.01	0.85	10.33	8.69	0.86	1.24	0.01	0.04
Commercial	45.17	2.28	20.87	16.45	2.81	2.21	0.55	0.01
Education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	9.93	1.42	0.11	1.24	2.47	2.99	1.18	0.53
Religion	4.45	1.68	0.82	1.95	0.00	0.00	0.00	0.00
Residential	132.25	20.81	25.31	36.52	20.48	15.14	7.42	6.58
Total	**213.81**	**27.05**	**57.43**	**64.85**	**26.61**	**21.57**	**9.15**	**7.16**
Orange								
Agriculture	0.05	0.00	0.00	0.00	0.03	0.00	0.02	0.00
Commercial	4.13	0.56	1.95	1.54	0.06	0.01	0.01	0.01
Education	1.15	0.00	0.38	0.77	0.00	0.00	0.00	0.00
Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Religion	0.79	0.29	0.16	0.24	0.10	0.00	0.00	0.00
Residential	32.03	0.68	1.01	3.88	5.10	2.79	4.14	14.43
Total	**38.16**	**1.52**	**3.50**	**6.43**	**5.30**	**2.80**	**4.16**	**14.44**
Rappahannock								
Agriculture	1.75	0.00	0.26	0.68	0.18	0.12	0.12	0.39
Commercial	25.78	1.34	8.21	11.06	1.91	1.39	1.19	0.68

Building Damage By General Occupancy Pre-FIRM

	Total Dmg Square Footage	Square Footage Distribution by Damage Percent Range						
		< 1	1-10	11-20	21-30	31-40	41-50	Substantial
Education	0.78	0.01	0.01	0.00	0.00	0.38	0.19	0.19
Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	0.39	0.01	0.02	0.14	0.06	0.06	0.03	0.07
Religion	1.89	0.39	0.85	0.65	0.00	0.00	0.01	0.00
Residential	125.37	13.94	22.91	32.24	19.52	12.04	7.47	17.26
Total	**155.95**	**15.67**	**32.25**	**44.77**	**21.66**	**13.99**	**9.02**	**18.60**
Total	**948.43**	**69.58**	**171.44**	**242.50**	**118.58**	**102.96**	**77.37**	**165.99**
Scenario Total	**948.43**	**69.58**	**171.44**	**242.50**	**118.58**	**102.96**	**77.37**	**165.99**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

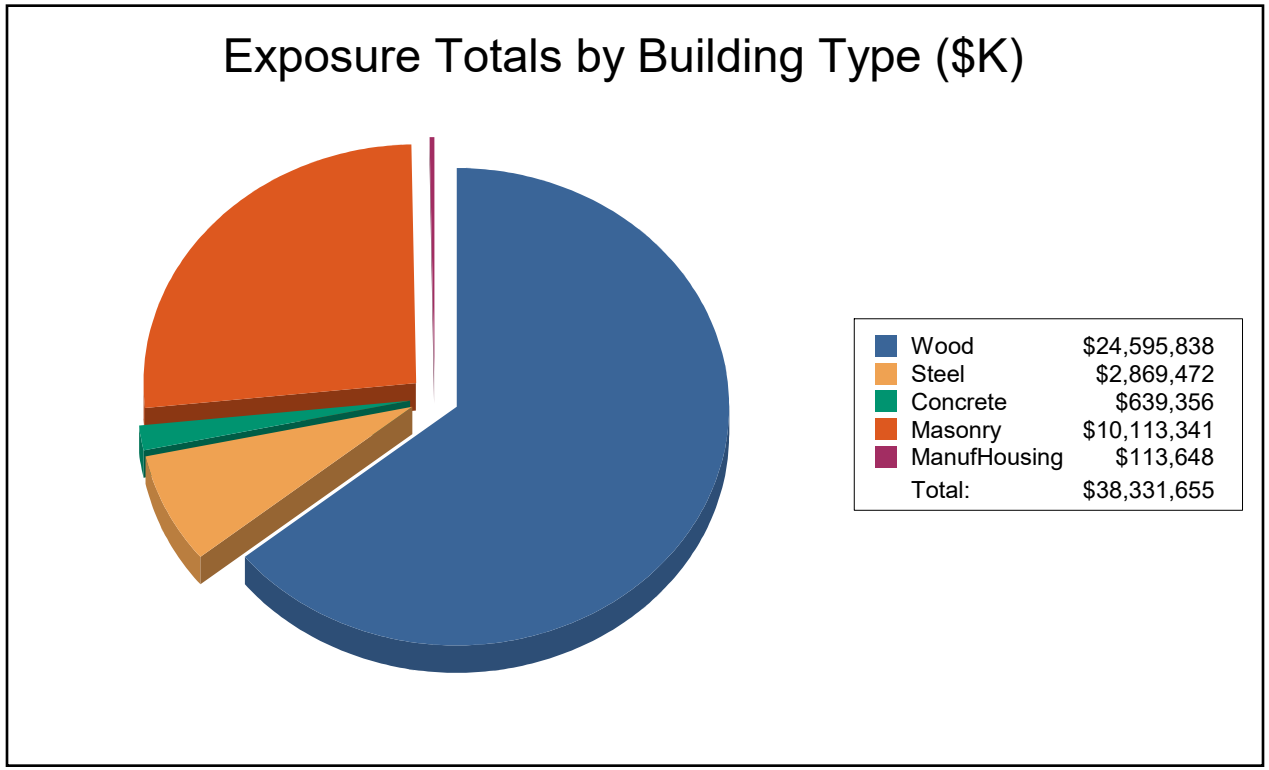
Building Stock Exposure by Building Type

April 02, 2024

All values are in thousands of dollars

	Wood	Steel	Concrete	Masonry	Manuf. Housing	Total
Virginia						
Madison	1,031,191	195,057	68,371	1,021,159	0	2,315,778
Culpeper	6,088,561	758,789	81,376	2,558,879	24,357	9,511,962
Orange	5,415,079	825,997	232,143	1,693,078	11,791	8,178,088
Fauquier	10,981,290	946,281	215,600	4,424,243	71,703	16,639,117
Rappahannock	1,079,717	143,348	41,866	415,982	5,797	1,686,710
Total	**24,595,838**	**2,869,472**	**639,356**	**10,113,341**	**113,648**	**38,331,655**
Study Region Total	**24,595,838**	**2,869,472**	**639,356**	**10,113,341**	**113,648**	**38,331,655**

Building Stock Exposure by Building Type



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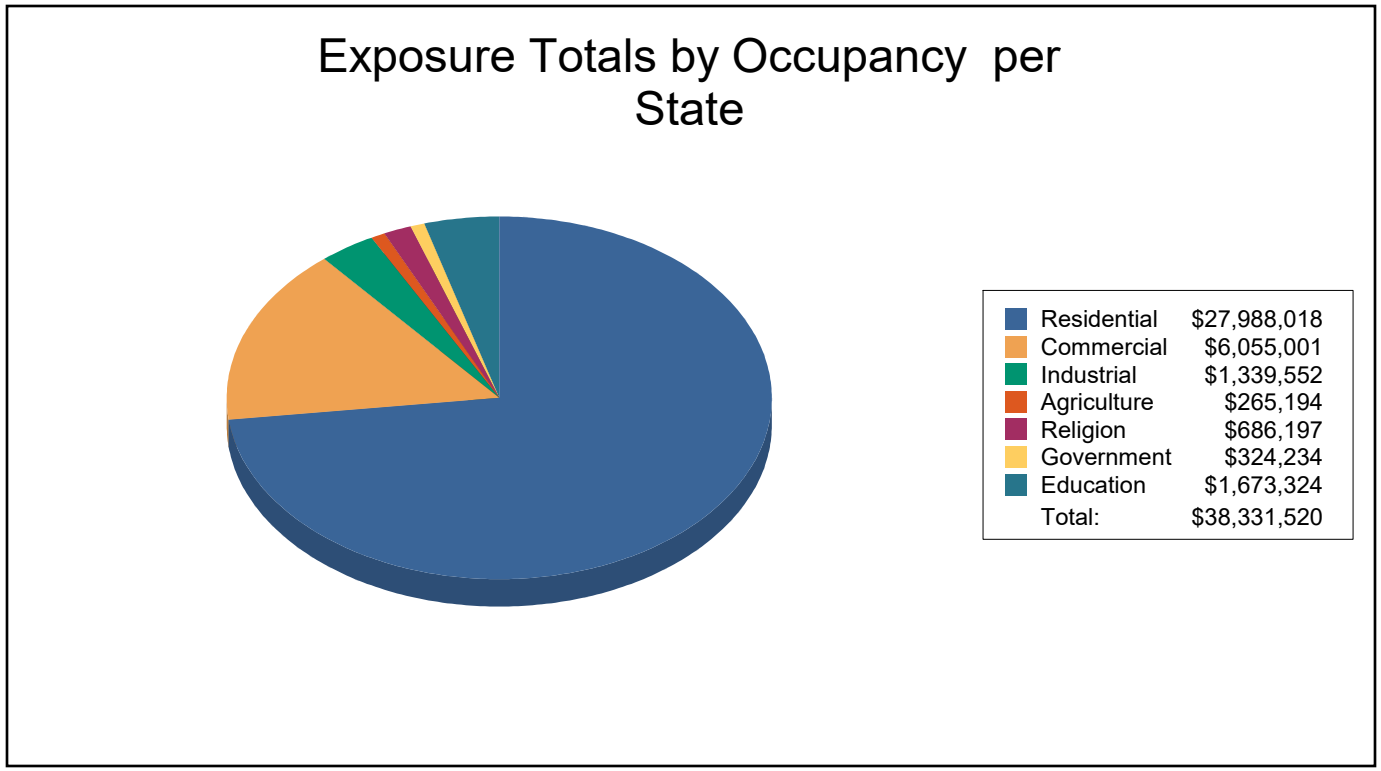
Building Stock Exposure by General Occupancy

April 02, 2024

All values are in thousands of dollars

	Residential	Commercial	Industrial	Agriculture	Religion	Government	Education	Total
Virginia								
Madison	1,499,588	456,737	150,759	16,376	75,775	16,983	99,535	2,315,753
Culpeper	6,446,908	2,035,773	288,799	43,185	214,953	79,021	403,310	9,511,949
Orange	6,050,417	1,171,726	261,241	106,156	103,029	76,213	409,282	8,178,064
Fauquier	12,627,056	2,248,705	590,306	68,626	261,009	139,896	703,462	16,639,060
Rappahannock	1,364,049	142,060	48,447	30,851	31,431	12,121	57,735	1,686,694
Total	**27,988,018**	**6,055,001**	**1,339,552**	**265,194**	**686,197**	**324,234**	**1,673,324**	**38,331,520**
Study Region Total	**27,988,018**	**6,055,001**	**1,339,552**	**265,194**	**686,197**	**324,234**	**1,673,324**	**38,331,520**

Building Stock Exposure by General Occupancy



Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RRRCFlood
Scenario: FloodScen1
Return Period: 100

Combined Wind and Flood Direct Economic Losses for Buildings

April 02, 2024

All values are in thousands of dollars

	Capital Stock Losses				
	Building Loss	Contents Loss	Inventory Loss	Total Loss	Loss Ratio %
Total					

Study Region Total

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RRRCFlood
Scenario: FloodScen1
Return Period: 100

Care Facilities (Hospital) Damage and Functionality

April 02, 2024

Dollar values are in thousands.

	Total # of Beds	Total Building Damage ($)	Total Content Damage ($)	Non-Functional Hospitals	Average Restoration Time
Total					
Total					
Scenario Total					

If this report displays all zeros, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results .

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

HAZUS™

FEMA

Depreciated Direct Economic Losses for Buildings

RiskMAP
Increasing Resilience Together

April 02, 2024

All values are in thousands of dollars

	Capital Stock Losses		
	Building Loss	Contents Loss	Total Loss
Virginia			
Culpeper	12,015	13,949	25,964
Fauquier	18,387	11,914	30,301
Madison	2,994	3,323	6,317
Orange	6,819	4,204	11,023
Rappahannock	4,741	3,523	8,264
Total	**44,956**	**36,913**	**81,869**
Scenario Total	**44,956**	**36,913**	**81,869**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RRRCFlood
Scenario: FloodScen1
Return Period: 100

Direct Economic Annualized Losses for Buildings

April 02, 2024

All values are in thousands of dollars

	Capital Stock Losses				Income Losses				
	Building Loss	Contents Loss	Inventory Loss	Building Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
Virginia									
Culpeper	23,938	27,992	3,651	1.5	7,352	18,459	15,016	5,137	101,545
Fauquier	30,361	20,585	1,240	1.3	5,497	2,507	3,516	1,900	65,606
Madison	6,517	6,971	1,733	1.5	2,739	4,375	2,788	1,256	26,379
Orange	9,420	5,872	108	1.1	1,701	710	1,435	507	19,753
Rappahannock	8,721	6,904	996	1.8	2,637	2,068	2,160	1,019	24,505
Total	**78,957**	**68,324**	**7,728**	**7.2**	**19,926**	**28,119**	**24,915**	**9,819**	**237,788**
Scenario Total	**78,957**	**68,324**	**7,728**	**7.2**	**19,926**	**28,119**	**24,915**	**9,819**	**237,788**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RRRCFlood
Scenario: FloodScen1
Return Period: 100

Direct Economic Losses for Buildings

April 02, 2024

All values are in thousands of dollars

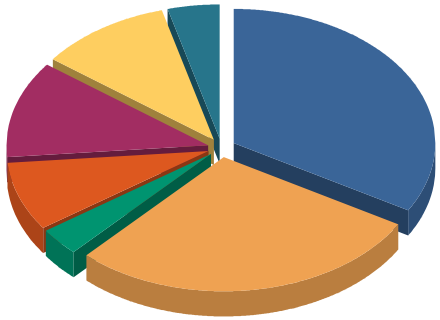
	Capital Stock Losses				Income Losses				
	Building Loss	Contents Loss	Inventory Loss	Building Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
Virginia									
Culpeper	23,938	27,992	3,651	1.50	7,352	18,459	15,016	5,137	101,545
Fauquier	30,361	20,585	1,240	1.30	5,497	2,507	3,516	1,900	65,606
Madison	6,517	6,971	1,733	1.50	2,739	4,375	2,788	1,256	26,379
Orange	9,420	5,872	108	1.10	1,701	710	1,435	507	19,753
Rappahannock	8,721	6,904	996	1.80	2,637	2,068	2,160	1,019	24,505
Total	**78,957**	**68,324**	**7,728**	**1.44**	**19,926**	**28,119**	**24,915**	**9,819**	**237,788**
Scenario Total	**78,957**	**68,324**	**7,728**	**1.44**	**19,926**	**28,119**	**24,915**	**9,819**	**237,788**

Direct Economic Losses for Buildings

April 02, 2024

All values are in thousands of dollars

Total Direct Economic Losses for Buildings ($K)



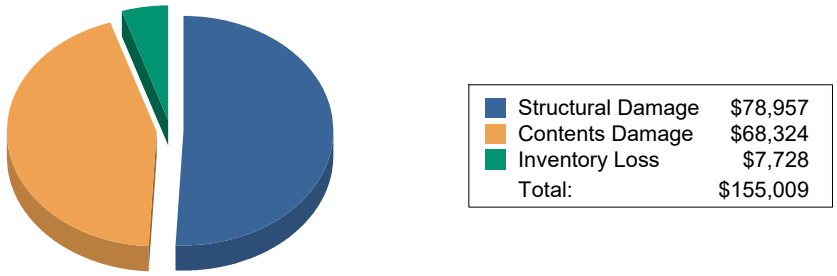
Structural Damage	$78,957
Contents Damage	$68,324
Inventory Loss	$7,728
Relocation Loss	$19,926
Capital related Loss	$28,119
Wage Loss	$24,915
Rental Income Loss	$9,819
Total:	$237,788

Direct Economic Losses for Buildings

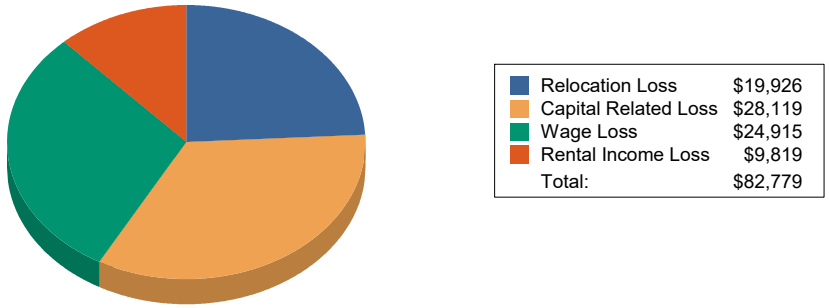
April 02, 2024

All values are in thousands of dollars

Loss by Capital Stock Categories ($K)



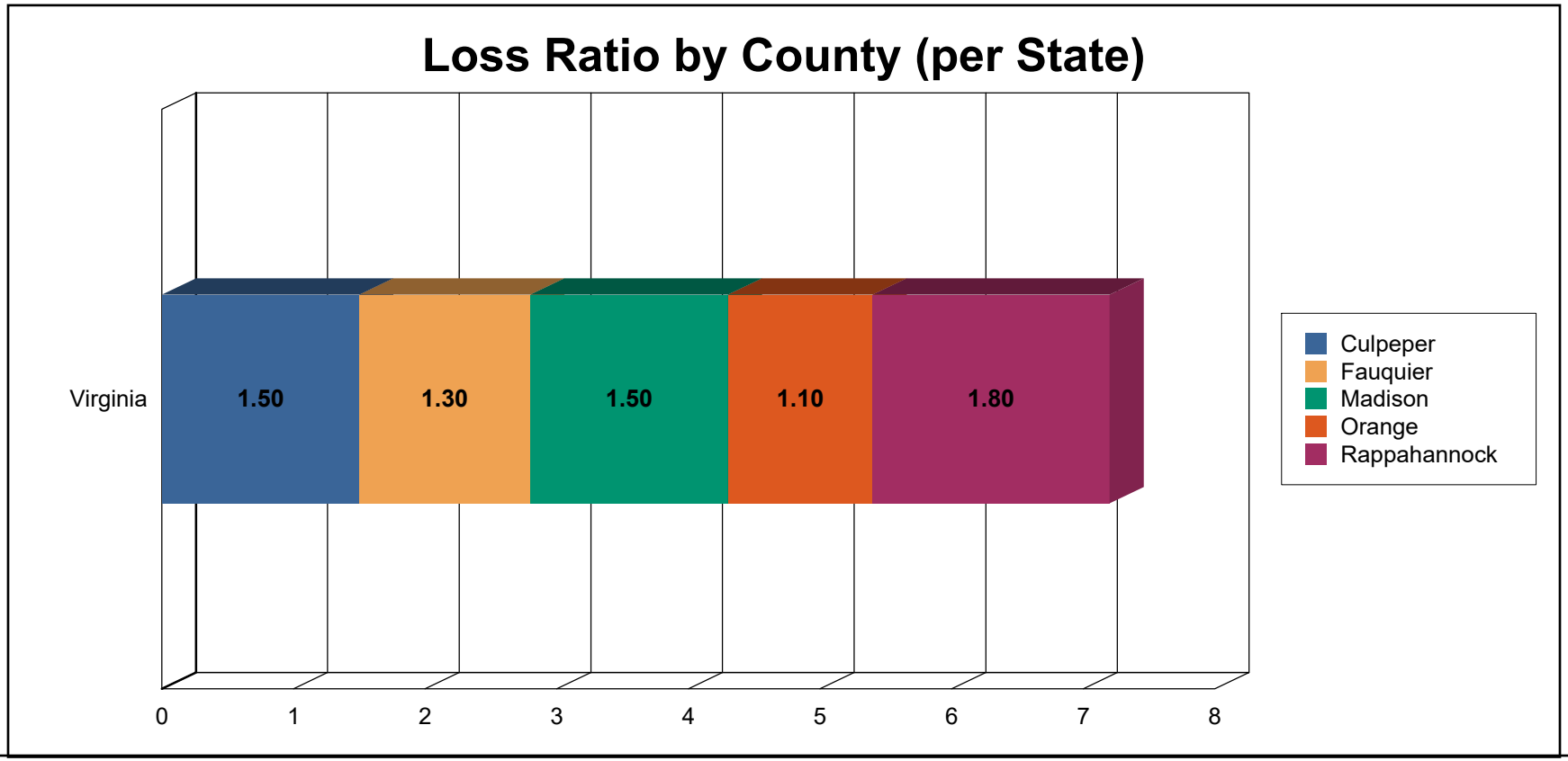
Income Losses by Categories ($K)



Direct Economic Losses for Buildings

April 02, 2024

All values are in thousands of dollars

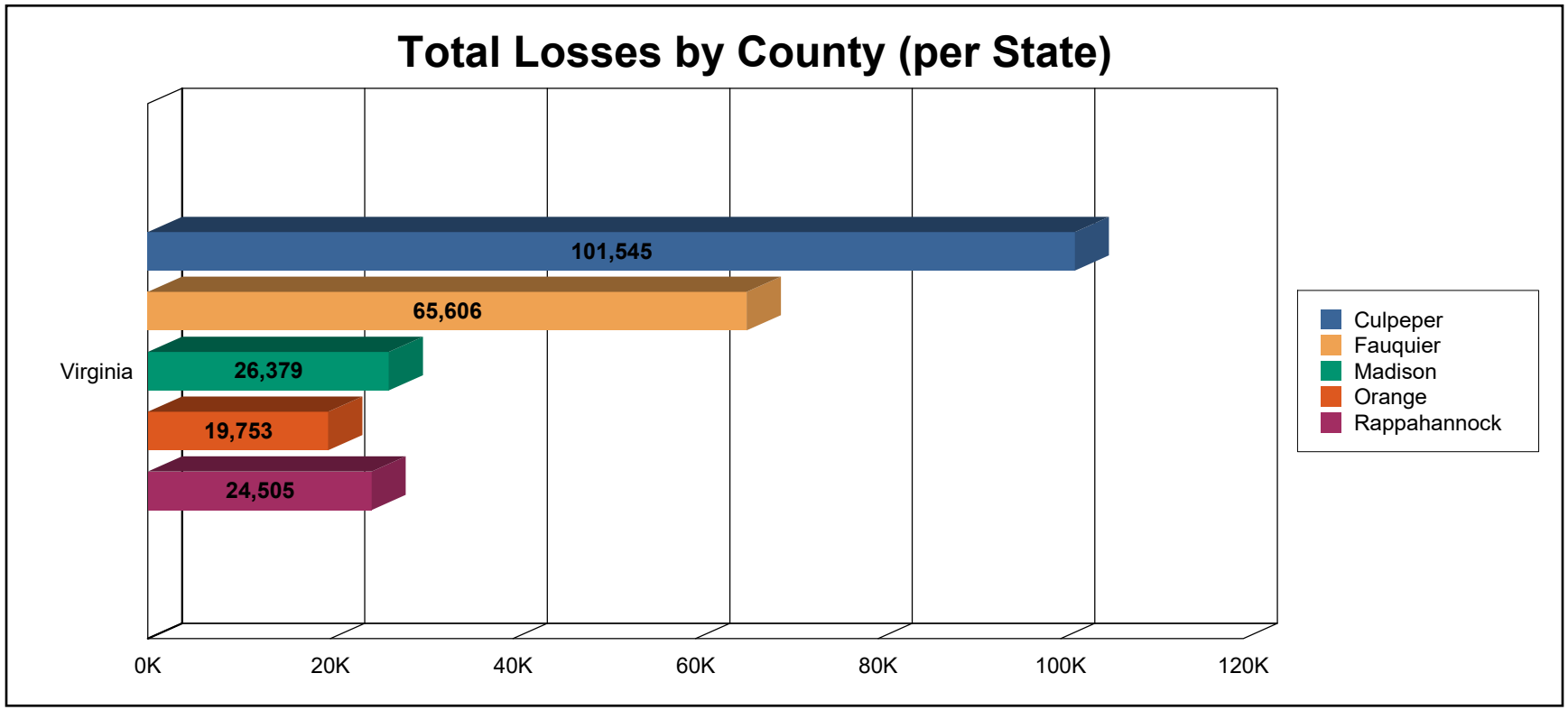


Study Region: RRRCFlood
Scenario: FloodScen1
Return Period: 100

Direct Economic Losses for Buildings

April 02, 2024

All values are in thousands of dollars



Direct Economic Losses for Buildings

April 02, 2024

All values are in thousands of dollars

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Direct Economic Loss For Transportation

April 02, 2024

All values are in thousands of dollars

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Virginia								
Culpeper								
Segments	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Bridges	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Tunnels	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Facilities	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Fauquier								
Segments	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Bridges	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Tunnels	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Facilities	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Madison								
Segments	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Bridges	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Tunnels	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Facilities	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**

Direct Economic Loss For Transportation

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Orange								
Segments	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Bridges	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Tunnels	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Facilities	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Rappahannock								
Segments	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Bridges	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Tunnels	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Facilities	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Total	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
Scenario Total	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Direct Economic Losses for Utilities

April 02, 2024

All values are in thousands of dollars.

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Virginia							
Culpeper							
Facilities	$0.00	$106,374.40	$0.00	$0.00	$0.00	$0.00	$106,374.40
Pipelines	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$106,374.40**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$106,374.40**
Fauquier							
Facilities	$0.00	$74,136.03	$0.00	$0.00	$0.00	$0.00	$74,136.03
Pipelines	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$74,136.03**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$74,136.03**
Madison							
Facilities	$1,304.81	$53,187.20	$0.00	$0.00	$0.00	$0.00	$54,492.01
Pipelines	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$1,304.81**	**$53,187.20**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$54,492.01**
Orange							
Facilities	$0.00	$19,977.38	$0.00	$619.44	$0.00	$0.00	$20,596.82
Pipelines	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$0.00**	**$19,977.38**	**$0.00**	**$619.44**	**$0.00**	**$0.00**	**$20,596.82**
Rappahannock							
Facilities	$1,525.71	$49,959.33	$0.00	$0.00	$0.00	$0.00	$51,485.05
Pipelines	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Direct Economic Losses for Utilities

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Total	**$1,525.71**	**$49,959.33**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$51,485.05**
Total	**$2,830.52**	**$303,634.34**	**$0.00**	**$619.44**	**$0.00**	**$0.00**	**$307,084.31**
Scenario Total	**$2,830.52**	**$303,634.34**	**$0.00**	**$619.44**	**$0.00**	**$0.00**	**$307,084.31**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Direct Economic Losses for User Defined Facilities

Tuesday, April 2, 2024

	Capital Stock Exposure		Capital Stock Losses				Loss Ratio	
	Building Exposure	Contents Exposure	Building Loss	Contents Loss	Inventory Loss	TOTAL Loss	Building s %	Contents %
Specific Occupancy								
Scenario Total								

Totals reflect User Defined Facilities (UDF) within the flood hazard scenario and will reflect the entire county/state only if all UDF for the study region were innundated.

Study Region: RRRCFlood
Scenario: FloodScen1
Return Period: 100

Direct Economic Losses For Vehicles (Day)

April 02, 2024

All values are in dollars.

	Car	Light Truck	Heavy Truck	Total Loss
Total				
Scenario Total				

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RRRCFlood
Scenario: FloodScen1
Return Period: 100

Direct Economic Losses For Vehicles (Night)

April 02, 2024

All values are in dollars.

	Car	Light Truck	Heavy Truck	Total Loss
Total				
Scenario Total				

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

HAZUS™

FEMA

RiskMAP
Increasing Resilience Together

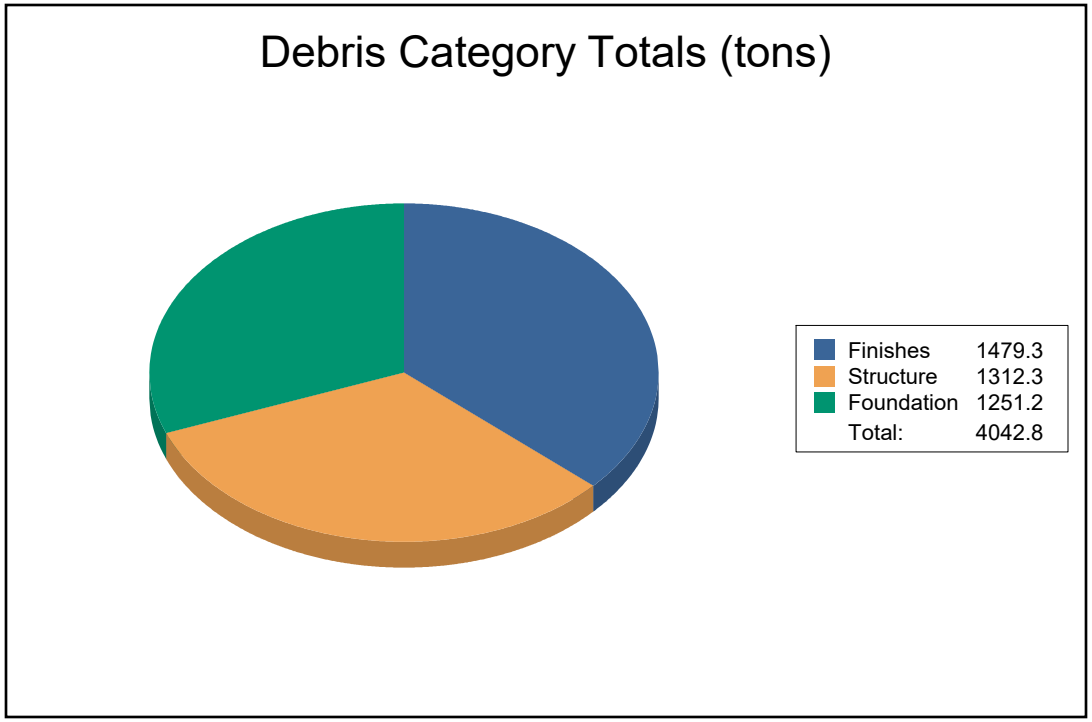
Debris Summary Report

April 02, 2024

All values are in tons.

	Finishes	Structures	Foundations	Total
Virginia				
Culpeper	525	701	614	1,841
Fauquier	463	417	445	1,326
Madison	180	14	13	207
Orange	54	46	53	153
Rappahannock	257	134	125	516
Total	**1,479**	**1,312**	**1,251**	**4,043**
Scenario Total	**1,479**	**1,312**	**1,251**	**4,043**

Debris Summary Report



Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Emergency Operation Center Damage and Functionality

April 02, 2024

Dollar values are in thousands.

	Count of EOCs	Total Building Damage ($)	Total Content Damage ($)	Non-Functional EOCs	Average Restoration Time
Total					
Total					
Scenario Total					

If this report displays all zeros, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results .

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Fire Station Facilities Damage and Functionality

April 02, 2024

Dollar values are in thousands.

	Count of Fire Stations	Total Building Damage ($)	Total Content Damage ($)	Non-Functional Fire Stations	Average Restoration Time
Total					
Total					
Scenario Total					

If this report displays all zeros, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results .

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Hazus: Flood Global Risk Report

Region Name: RRRCFlood

Flood Scenario: FloodScen1

Print Date: Tuesday, April 2, 2024

Disclaimer:

Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific Flood. These results can be improved by using enhanced inventory data and flood hazard information.

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Table of Contents

Section	Page #
General Description of the Region	3
Building Inventory	
General Building Stock	4
Essential Facility Inventory	5
Flood Scenario Parameters	6
Building Damage	
General Building Stock	7
Essential Facilities Damage	9
Induced Flood Damage	10
Debris Generation	
Social Impact	10
Shelter Requirements	
Economic Loss	12
Building-Related Losses	
Appendix A: County Listing for the Region	15
Appendix B: Regional Population and Building Value Data	16

General Description of the Region

Hazus is a regional multi-hazard loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences (NIBS). The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The flood loss estimates provided in this report were based on a region that included 5 county(ies) from the following state(s):

- Virginia

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is approximately 86 square miles and contains 3,908 census blocks. The region contains over 67 thousand households and has a total population of 182,850 people. The distribution of population by State and County for the study region is provided in Appendix B.

There are an estimated 82,408 buildings in the region with a total building replacement value (excluding contents) of 38,332 million dollars. Approximately 90.77% of the buildings (and 73.02% of the building value) are associated with residential housing.

Building Inventory

General Building Stock

Hazus estimates that there are 82,408 buildings in the region which have an aggregate total replacement value of 38,332 million dollars. Table 1 and Table 2 present the relative distribution of the value with respect to the general occupancies by Study Region and Scenario respectively. Appendix B provides a general distribution of the building value by State and County.

Table 1
Building Exposure by Occupancy Type for the Study Region

Occupancy	Exposure ($1000)	Percent of Total
Residential	27,988,018	73.0%
Commercial	6,055,001	15.8%
Industrial	1,339,552	3.5%
Agricultural	265,194	0.7%
Religion	686,197	1.8%
Government	324,234	0.8%
Education	1,673,324	4.4%
Total	**38,331,520**	**100%**

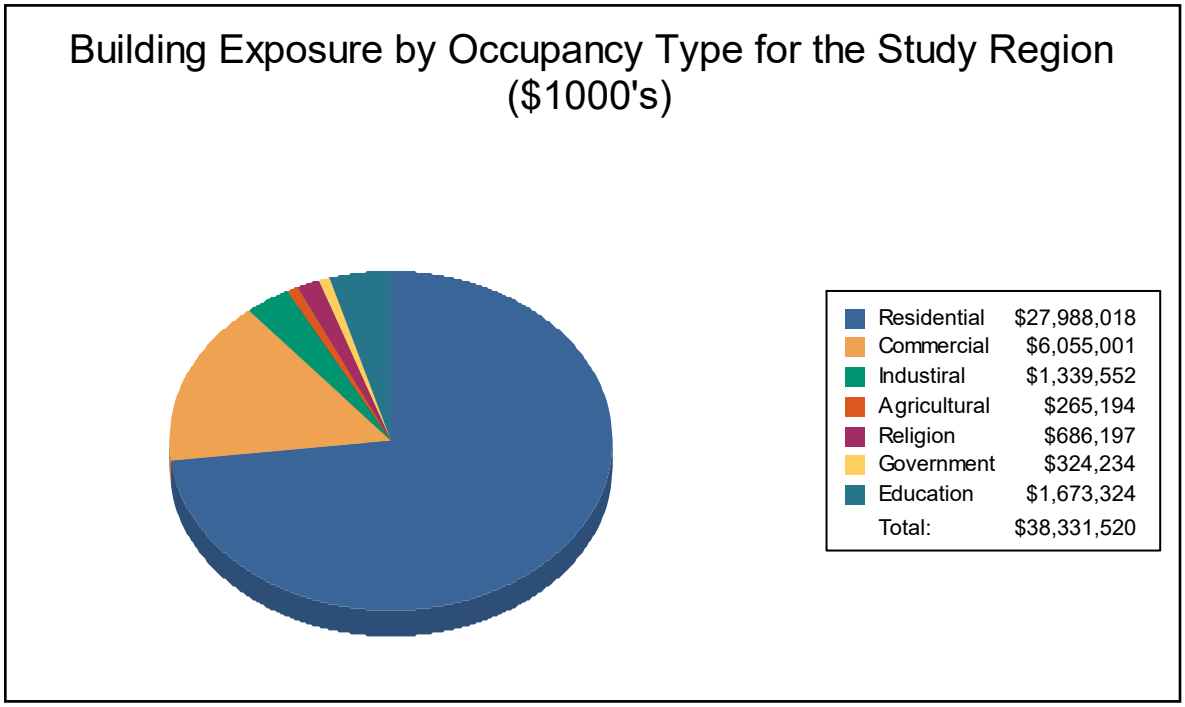
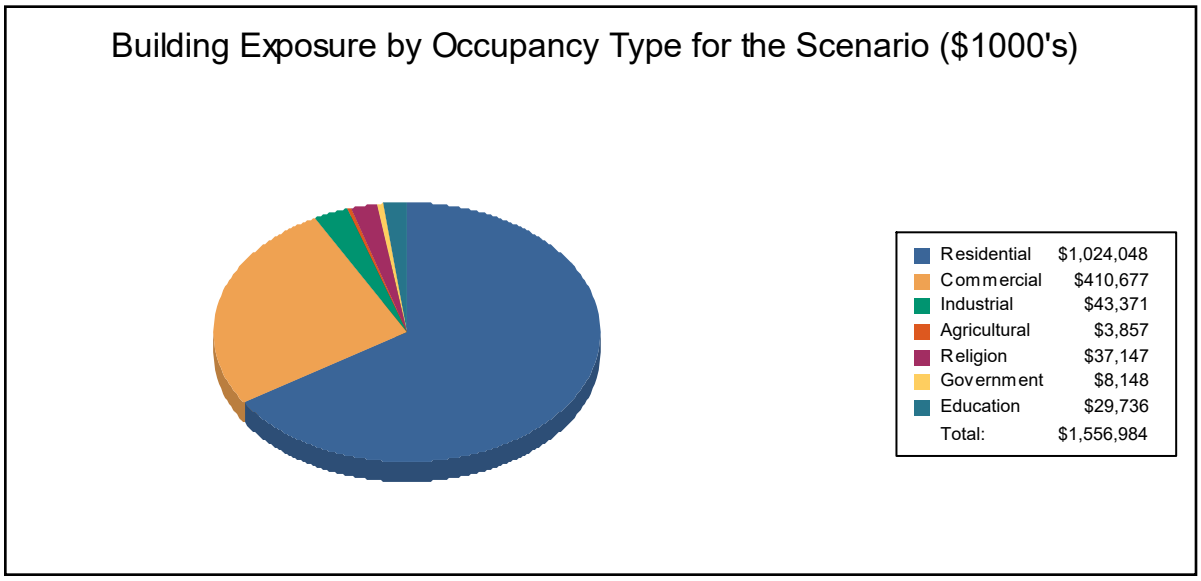


Table 2
Building Exposure by Occupancy Type for the Scenario

Occupancy	Exposure ($1000)	Percent of Total
Residential	4,228,433	75.4%
Commercial	743,388	13.2%
Industrial	174,938	3.1%
Agricultural	24,947	0.4%
Religion	80,450	1.4%
Government	13,781	0.2%
Education	345,539	6.2%
Total	**5,611,476**	**100%**



Essential Facility Inventory

For essential facilities, there are 2 hospitals in the region with a total bed capacity of 167 beds.
There are 71 schools, 33 fire stations, 15 police stations and 6 emergency operation centers.

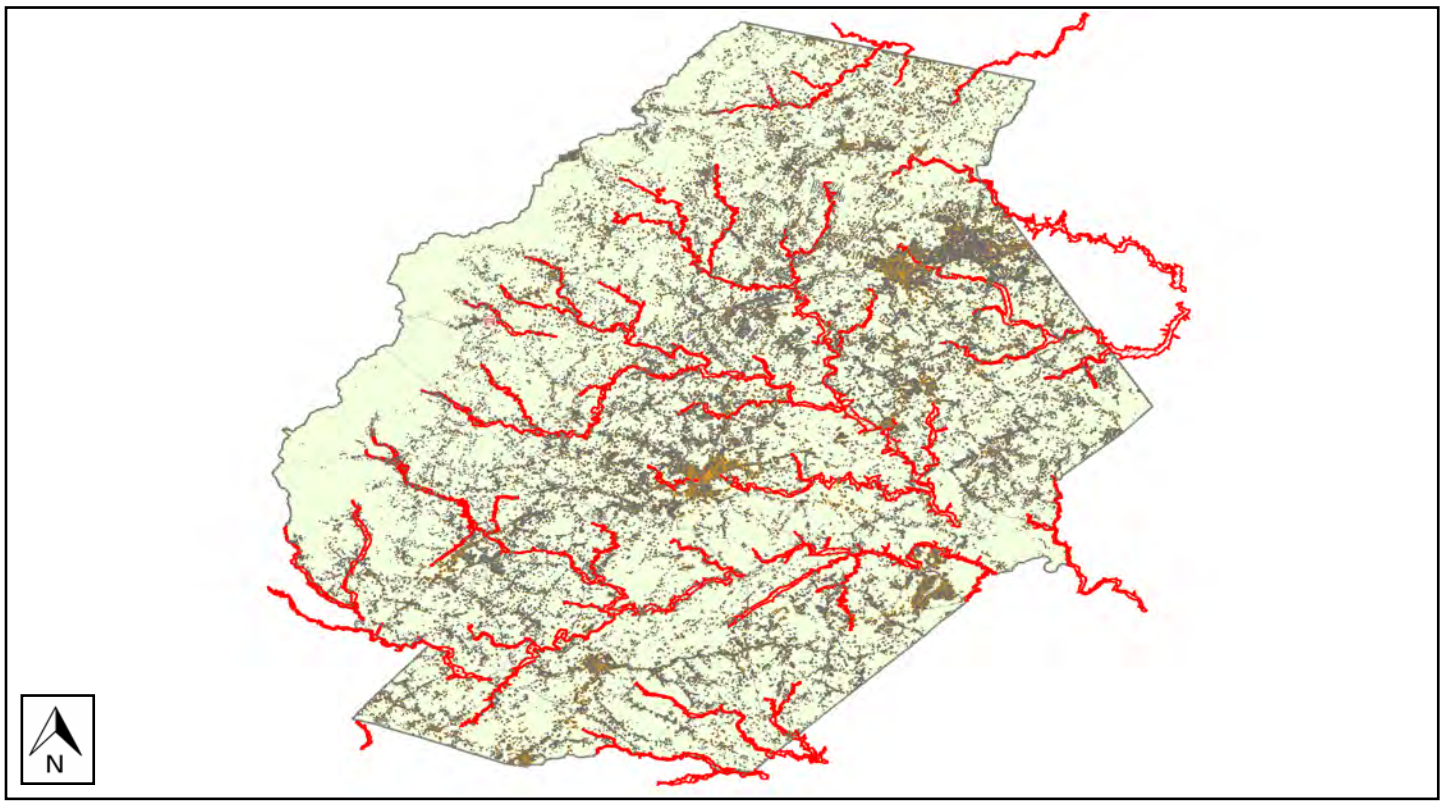
Flood Scenario Parameters

Hazus used the following set of information to define the flood parameters for the flood loss estimate provided in this report.

Study Region Name:	RRRCFlood
Scenario Name:	FloodScen1
Return Period Analyzed:	100
Analysis Options Analyzed:	No What-Ifs

Study Region Overview Map

Illustrating scenario flood extent, as well as exposed essential facilities and total exposure



Building Damage

General Building Stock Damage

Hazus estimates that about 63 buildings will be at least moderately damaged. This is over 56% of the total number of buildings in the scenario. There are an estimated 16 buildings that will be completely destroyed. The definition of the 'damage states' is provided in the Hazus Flood Technical Manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 summarizes the expected damage by general building type.

Total Economic Loss (1 dot = $300K) Overview Map

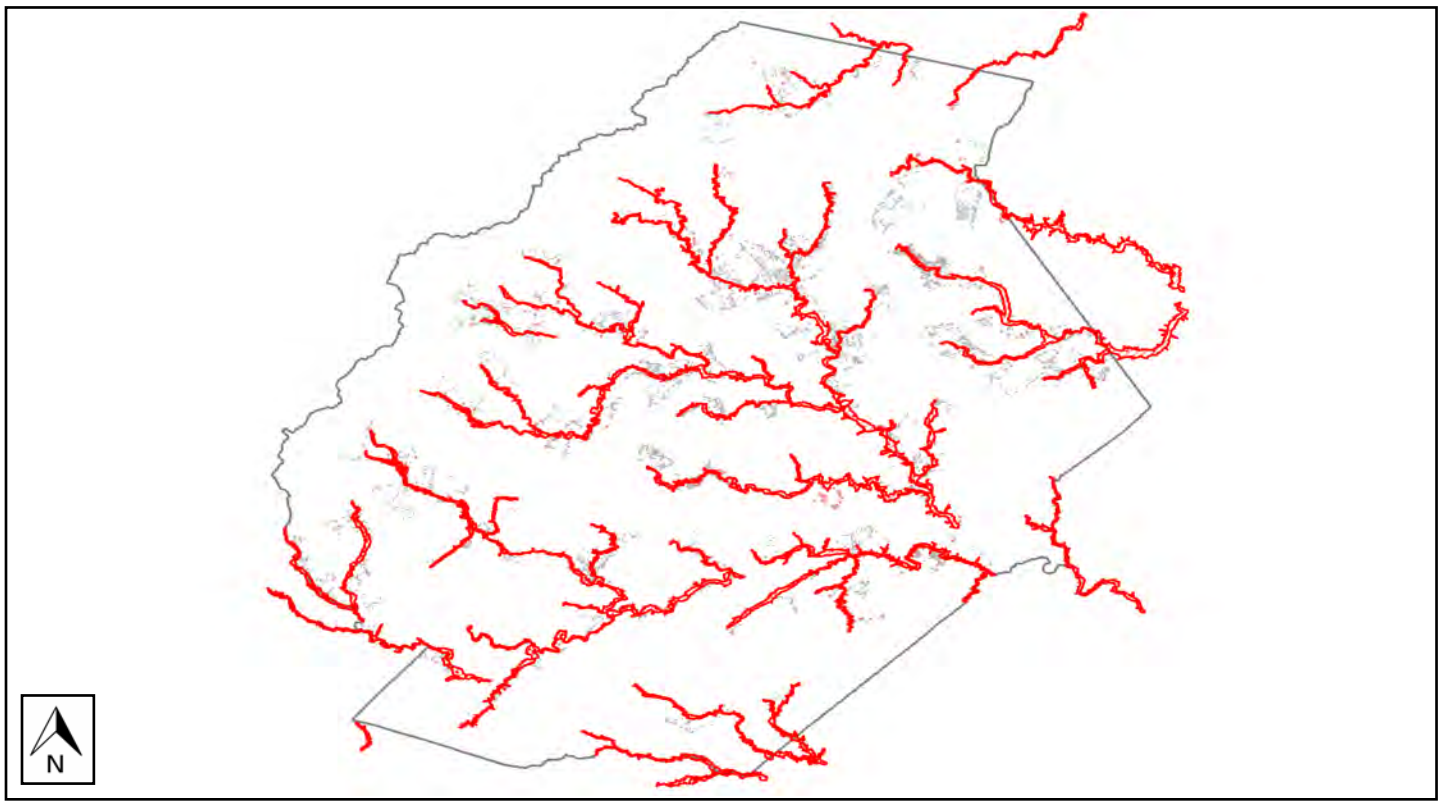


Table 3: Expected Building Damage by Occupancy

	1-10		11-20		21-30		31-40		41-50		>50	
Occupancy	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**	**Count**	**(%)**
Agriculture	0	0	0	0	0	0	0	0	0	0	0	0
Commercial	2	33	3	50	0	0	0	0	0	0	1	17
Education	0	0	0	0	0	0	0	0	0	0	0	0
Government	0	0	0	0	0	0	0	0	0	0	0	0
Industrial	0	0	0	0	0	0	0	0	0	0	0	0
Religion	0	0	0	0	0	0	0	0	0	0	0	0
Residential	9	13	23	34	8	12	9	13	4	6	15	22
Total	**11**		**26**		**8**		**9**		**4**		**16**	

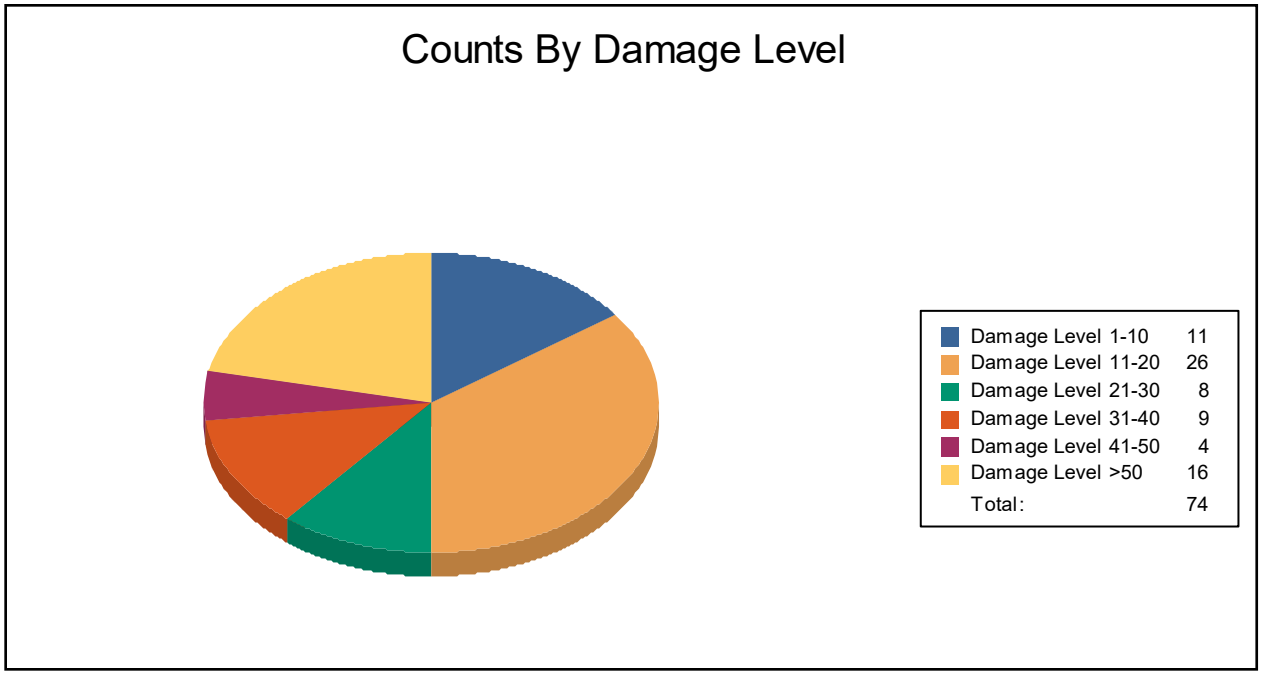


Table 4: Expected Building Damage by Building Type

Building Type	1-10		11-20		21-30		31-40		41-50		>50	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Concrete	0	0	0	0	0	0	0	0	0	0	0	0
ManufHousing	0	0	0	0	0	0	0	0	0	0	0	0
Masonry	2	18	6	55	1	9	2	18	0	0	0	0
Steel	0	0	1	100	0	0	0	0	0	0	0	0
Wood	7	13	15	28	5	9	6	11	4	8	16	30

Essential Facility Damage

Before the flood analyzed in this scenario, the region had 167 hospital beds available for use. On the day of the scenario flood event, the model estimates that 167 hospital beds are available in the region.

Table 5: Expected Damage to Essential Facilities

		# Facilities		
Classification	Total	At Least Moderate	At Least Substantial	Loss of Use
Emergency Operation Centers	6	0	0	0
Fire Stations	33	0	0	0
Hospitals	2	0	0	0
Police Stations	15	0	0	0
Schools	71	1	0	1

If this report displays all zeros or is blank, two possibilities can explain this.

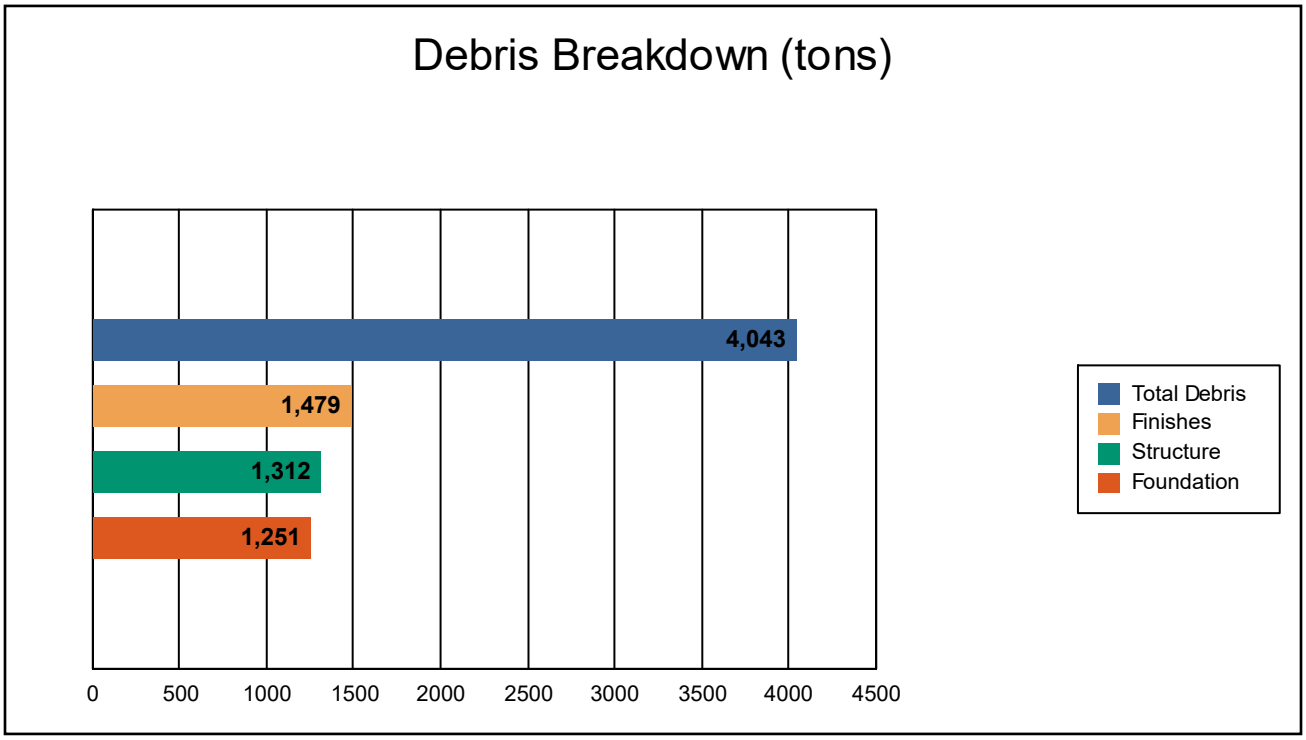
(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results.

Induced Flood Damage

Debris Generation

Hazus estimates the amount of debris that will be generated by the flood. The model breaks debris into three general categories: 1) Finishes (dry wall, insulation, etc.), 2) Structural (wood, brick, etc.) and 3) Foundations (concrete slab, concrete block, rebar, etc.). This distinction is made because of the different types of material handling equipment required to handle the debris.

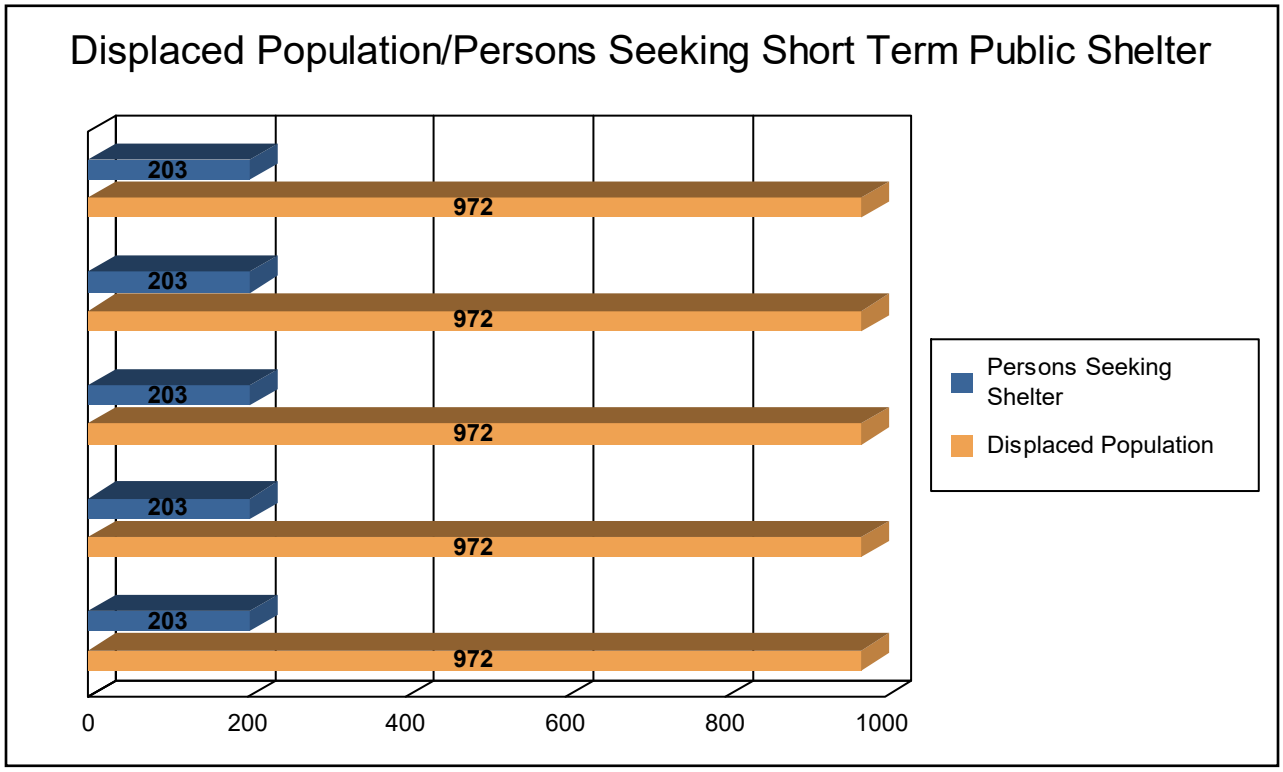


The model estimates that a total of 4,043 tons of debris will be generated. Of the total amount, Finishes comprises 37% of the total, Structure comprises 32% of the total, and Foundation comprises 31%. If the debris tonnage is converted into an estimated number of truckloads, it will require 162 truckloads (@25 tons/truck) to remove the debris generated by the flood.

Social Impact

Shelter Requirements

Hazus estimates the number of households that are expected to be displaced from their homes due to the flood and the associated potential evacuation. Hazus also estimates those displaced people that will require accommodations in temporary public shelters. The model estimates 324 households (or 972 of people) will be displaced due to the flood. Displacement includes households evacuated from within or very near to the inundated area. Of these, 203 people (out of a total population of 182,850) will seek temporary shelter in public shelters.



Economic Loss

The total economic loss estimated for the flood is 237.79 million dollars, which represents 4.24 % of the total replacement value of the scenario buildings.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the flood. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the flood.

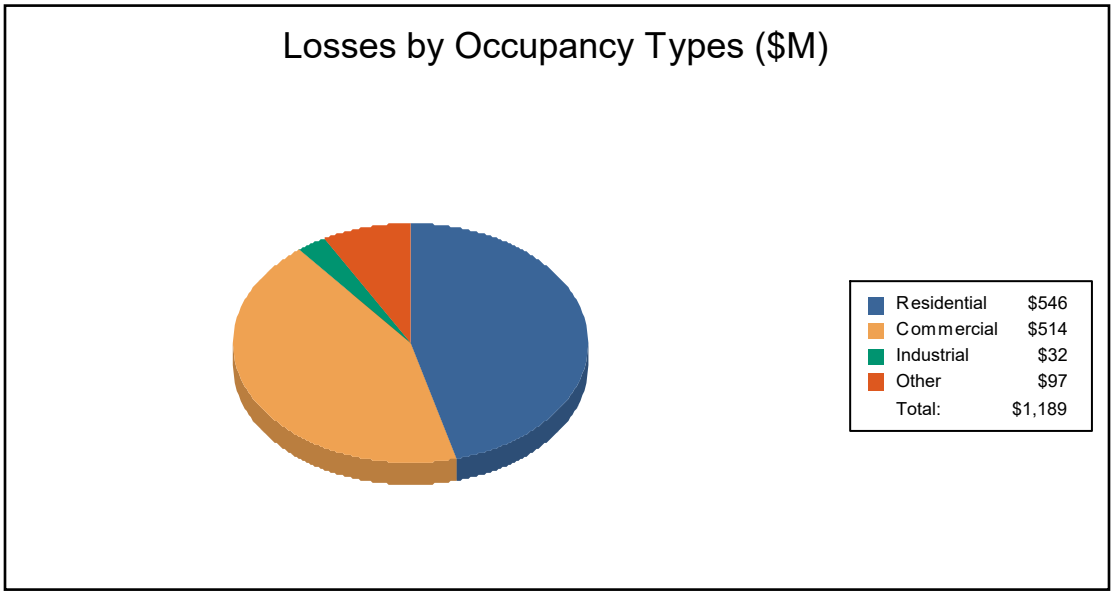
The total building-related losses were 155.01 million dollars. 35% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 45.94% of the total loss. Table 6 below provides a summary of the losses associated with the building damage.

HAZUS™

Table 6: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss						
	Building	300.81	76.89	9.75	7.34	394.79
	Content	152.51	139.16	18.01	31.95	341.62
	Inventory	0.00	28.41	2.56	7.67	38.64
	Subtotal	**453.32**	**244.46**	**30.32**	**46.95**	**775.05**
Business Interruption						
	Income	2.97	126.13	0.47	11.03	140.60
	Relocation	60.15	34.39	0.35	4.75	99.63
	Rental Income	22.70	26.10	0.03	0.28	49.10
	Wage	7.05	83.04	0.75	33.74	124.58
	Subtotal	**92.86**	**269.65**	**1.60**	**49.79**	**413.90**
ALL	**Total**	**546.18**	**514.11**	**31.92**	**96.74**	**1,188.94**



Appendix A: County Listing for the Region

Virginia

- Culpeper
- Fauquier
- Madison
- Orange
- Rappahannock

Appendix B: Regional Population and Building Value Data

	Population	Building Value (thousands of dollars)		
		Residential	Non-Residential	Total
Virginia				
Madison	13,837	1,499,588	816,165	2,315,753
Culpeper	52,534	6,446,908	3,065,041	9,511,949
Orange	36,205	6,050,417	2,127,647	8,178,064
Fauquier	72,947	12,627,056	4,012,004	16,639,060
Rappahannock	7,327	1,364,049	322,645	1,686,694
Total	**182,850**	**27,988,018**	**10,343,502**	**38,331,520**
Total Study Region	**182,850**	**27,988,018**	**10,343,502**	**38,331,520**

Highway Bridge Damage and Functionality

April 02, 2024

Dollar values are in thousands.

	# of Bridges	Average Damage (%)	Total Loss ($)	Count-Non-Functional
Total				
Scenario Total				

If this report displays all zeros, two possibilities can explain this.
(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results .

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RRRCFlood
Scenario: FloodScen1
Return Period: 100

Light Rail Bridge Damage and Functionality

April 02, 2024

Dollar values are in thousands.

	# of Bridges	Average Damage (%)	Total Loss ($)	Count-Non-Functional
Total				

Scenario Total

If this report displays all zeros, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results .

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Police Station Facilities Damage and Functionality

April 02, 2024

Dollar values are in thousands.

	Count of Police Stations	Total Building Damage ($)	Total Content Damage ($)	Non-Functional Police Stations	Average Restoration Time
Total					
Total					
Scenario Total					

If this report displays all zeros, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.
(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results .

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Potable Water System Facility Damage

April 02, 2024

Dollar values are in thousands.

	# of Facilities	Average Damage (%)	Total Loss ($)	Non-Functional Facilities
Virginia				
Madison	1	4.2	1,305	0
Rappahannock	1	4.9	1,526	0
Total	**2**	**9.1**	**2,831**	**0**
Scenario Total	**2**	**9.1**	**2,831**	**0**

If this report displays all zeros, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results .

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Quick Assessment Report

April 2, 2024

Study Region : RRRCFlood
Scenario : FloodScen1
Return Period: 100
Analysis Option: 0

Regional Statistics

Area (Square Miles)	86
Number of Census Blocks	3,908
Number of Buildings	
Residential	74,803
Total	82,408
Number of People in the Region (x 1000)	183
Building Exposure ($ Millions)	
Residential	27,988
Total	38,332

Scenario Results

Shelter Requirements	
Displaced Population (# Households)	324
Short Term Shelter (# People)	
Economic Loss	
Residential Property (Capital Stock) Losses ($ Millions)	91
Total Property (Capital Stock) Losses ($ Millions)	155
Business Interruption (Income) Losses ($ Millions)	83

Disclaimer:

Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific flood. These results can be improved by using enhanced inventory data and flood hazard information.

Railroad Bridge Damage and Functionality

April 02, 2024

Dollar values are in thousands.

	# of Bridges	Average Damage (%)	Total Loss ($)	Count-Non-Functional
Total				
Scenario Total				

If this report displays all zeros, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results .

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

School Damage and Functionality

April 02, 2024

Dollar values are in thousands.

	Count of Schools	Total Building Damage ($)	Total Content Damage ($)	Non-Functional Schools	Average Restoration Time
Virginia					
Rappahannock					
Grade Schools (Primary and High Schools)	1	21.28	131.05	1	480
Total	**1**	**21.28**	**131.05**	**1**	**480**
Total	**1**	**21.28**	**131.05**	**1**	**480**
Scenario Total	**1**	**21.28**	**131.05**	**1**	**480**

If this report displays all zeros, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

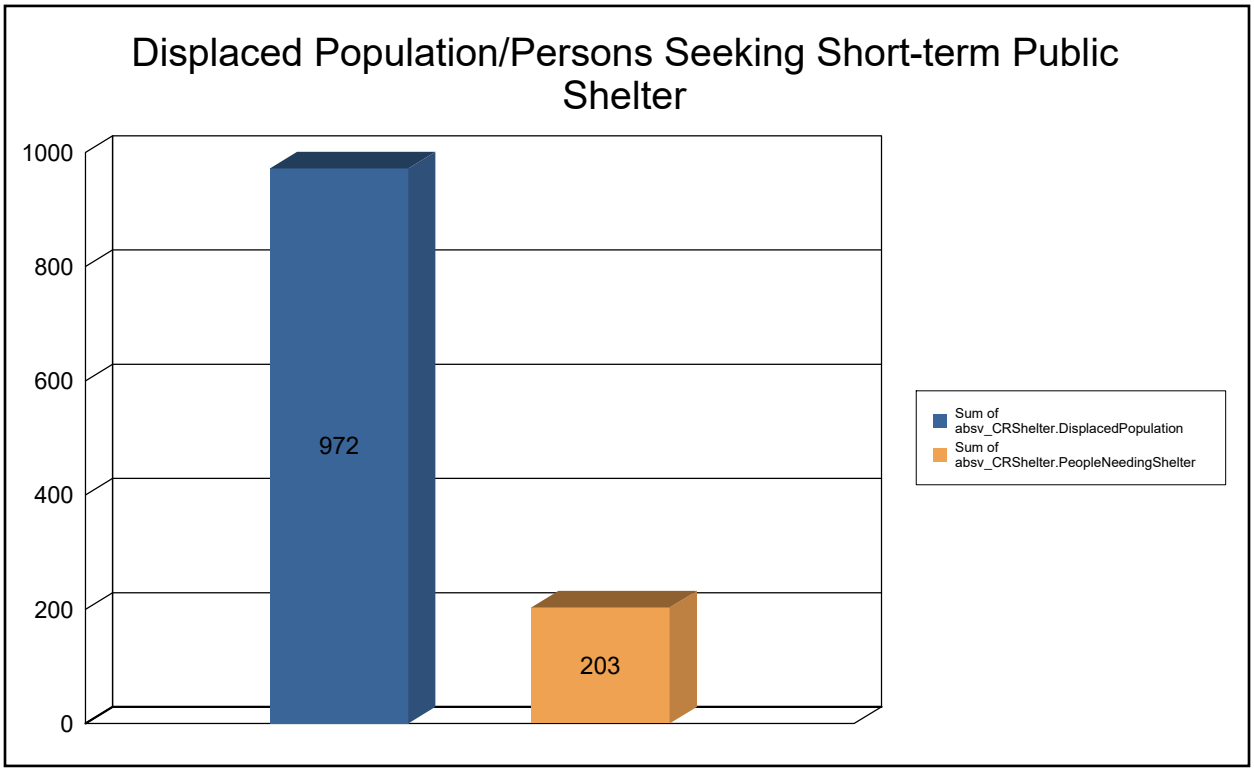
(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results .

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Shelter Summary Report

April 02, 2024

	# of Displaced People	# of People Needing Short Term Shelter
Virginia		
Culpeper	230	71
Fauquier	356	77
Madison	161	24
Orange	69	8
Rappahannock	156	23
Total	**972**	**203**
Scenario Total	**972**	**203**



Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RRRCFlood
Scenario: FloodScen1
Return Period: 100

Transportation System Dollar Exposure

April 02, 2024

All values are in thousands of dollars

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Virginia								
Culpeper								
Segments	630,468	77,885	0	0	0	0	6,395	714,748
Bridges	203,698	70,400	0	0	0	0	0	274,098
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	2,663	0	0	0	0	5,300	7,963
Total	**834,166**	**150,948**	**0**	**0**	**0**	**0**	**11,695**	**996,809**
Fauquier								
Segments	1,051,904	159,086	0	0	0	0	6,664	1,217,654
Bridges	328,899	171,600	0	0	0	0	0	500,499
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	2,663	0	0	0	0	5,300	7,963
Total	**1,380,803**	**333,349**	**0**	**0**	**0**	**0**	**11,964**	**1,726,116**
Madison								
Segments	499,099	0	0	0	0	0	0	499,099
Bridges	66,719	0	0	0	0	0	0	66,719
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	0	0	0	0	0	0	0

Transportation System Dollar Exposure

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	**565,818**	**0**	**0**	**0**	**0**	**0**	**0**	**565,818**
Orange								
Segments	395,043	105,007	0	0	0	0	4,076	504,126
Bridges	64,325	83,600	0	0	0	0	0	147,925
Tunnels	0	0	0	0	0	0	0	0
Facilities	0	0	0	0	0	0	10,600	10,600
Total	**459,367**	**188,607**	**0**	**0**	**0**	**0**	**14,676**	**662,650**
Rappahannock								
Segments	366,410	0	0	0	0	0	0	366,410
Bridges	47,090	0	0	0	0	0	0	47,090
Tunnels	7,365	0	0	0	0	0	0	7,365
Facilities	0	0	0	0	0	0	0	0
Total	**420,865**	**0**	**0**	**0**	**0**	**0**	**0**	**420,865**
Total	**3,661,020**	**150,948**	**0**	**0**	**0**	**0**	**11,695**	**996,809**
Study Region Total	**3,661,020**	**672,904**	**0**	**0**	**0**	**0**	**38,335**	**4,372,258**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Utility System Dollar Exposure

April 02, 2024

All values are in thousands of dollars.

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Virginia							
Culpeper							
Facilities	30,969	664,840	0	0	6,807	186	702,802
Pipelines	0	0	0	290,179	0	0	290,179
Total	**30,969**	**664,840**	**0**	**290,179**	**6,807**	**186**	**992,982**
Fauquier							
Facilities	30,969	797,808	0	50,096	1,224,053	558	2,103,483
Pipelines	0	0	0	358,611	0	0	358,611
Total	**30,969**	**797,808**	**0**	**408,706**	**1,224,053**	**558**	**2,462,094**
Madison							
Facilities	30,969	265,936	0	0	0	0	296,905
Pipelines	0	0	0	157,455	0	0	157,455
Total	**30,969**	**265,936**	**0**	**157,455**	**0**	**0**	**454,360**
Orange							

Utility System Dollar Exposure

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Facilities	30,969	664,840	93	122,608	0	279	818,789
Pipelines	0	0	0	243,097	0	0	243,097
Total Rappahannock	**30,969**	**664,840**	**93**	**365,705**	**0**	**279**	**1,061,886**
Facilities	30,969	531,872	0	0	0	0	562,841
Pipelines	0	0	0	0	0	0	0
Total	**30,969**	**531,872**	**0**	**0**	**0**	**0**	**562,841**
Total	**154,845**	**2,925,296**	**93**	**1,222,045**	**1,230,860**	**1,023**	**5,534,163**
Study Region Total	**154,845**	**2,925,296**	**93**	**1,222,045**	**1,230,860**	**1,023**	**5,534,163**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Vehicle Dollar Exposure (Day)

April 02, 2024

All values are in dollars.

	Cars	Light Trucks	Heavy Trucks	Total
Total				
Study Region Total				

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Study Region: RRRCFlood
Scenario: FloodScen1
Return Period: 100

Waste Water Facility Damage

April 02, 2024

Dollar values are in thousands.

	# of Facilities	Average Damage (%)	Total Loss ($)	Non-Functional Facilities
Virginia				
Culpeper	2	40.0	106,374	2
Fauquier	2	27.9	74,136	1
Madison	1	40.0	53,187	1
Orange	1	15.0	19,977	0
Rappahannock	2	18.8	49,959	1
Total	**8**	**141.7**	**303,634**	**5**
Scenario Total	**8**	**141.7**	**303,634**	**5**

If this report displays all zeros, two possibilities can explain this.

(1) None of your facilities were flooded. This can be checked by mapping the inventory data on the depth grid.

(2) The analysis was not run. This can be tested by checking the run box on the Analysis Menu and seeing if a message box asks you to replace the existing results .

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/state were selected at the time of study region creation.

Local Floodplain Ordinances

Local Floodplain Regulations

Locality	Floodplain Ordinance	Link
Culpeper County	Floodplain Overlay District	https://library.municode.com/va/culpeper_county/codes/code_of_ordinances?nodeId=CD_ORD_APXAZOOR_ART8AFLOVDIFP
Town of Culpeper	Flood Hazard Areas	https://library.municode.com/va/culpeper/codes/code_of_ordinances?nodeId=PTIITHCO_CH27ZO_ARTIVFLHAAR
Fauquier County	Floodplain Overlay District	https://www.fauquiercounty.gov/home/showpublisheddocument/606/638603672594630000
Town of Warrenton	Floodplain District	https://www.warrentonva.gov/DocumentCenter/View/2450/Article-3---Zoning-Districts-PDF
Town of Remington	Floodplain Districts	https://cms5.revize.com/revize/remington/Town%20of%20Remington%20Zoning%20Ordinance.pdf
Orange County	Floodplain Management	https://orangecountyva.municipalcodeonline.com/book?type=ordinances#name=Division_70-IV-15_Floodplain_Overlay_Districts
Town of Gordonsville	Floodplain Overlay District	https://www.townofgordonsville.org/document_center/Planning%20&%20Zoning/Floodplain%20Management%20Ordinance%20(amended%20March%2021,%202022).pdf
Town of Orange	Floodplain Management	https://www.townoforangeva.gov/DocumentCenter/View/1229/Article-15---Floodplain-Management-Ordinance

Madison County	Floodplain Protection Ordinance	https://library.municode.com/va/madison_county/codes/code_of_ordinances?nodeId=CD_ORD_APX1ZO_ART11FLPR
Rappahannock County	Floodplain Management	https://ecode360.com/8808273

Local Floodplain Administrators

Culpeper County	Planning and Zoning Director
Town of Culpeper	Director of Planning and Community Development
Fauquier County	Chief of Zoning and Development Services
Town of Warrenton	Director of Community Development
Town of Remington	Town Administrator
Orange County	Planning and Zoning Services Manager
Town of Gordonsville	Town Manager
Town of Orange	Director of Development Services
Madison County	Building Official
Rappahannock County	Zoning Administrator

NFIP Data and ISAA for the Rappahannock-Rapidan Regional Commission: 2023

Community Name	Occupancy Type	NFIP Repetitive Loss	NFIP Severe Repetitive Loss	FMA Repetitive Loss	FMA Severe Repetitive Loss
Culpeper County	Business – Non-residential	Yes	No	No	No
Culpeper County	Single Family Residential	Yes	No	No	No
Town of Culpeper	Business – Non-residential	Yes	Yes	Yes	Yes
Fauquier County	Other – Non-residential	Yes	No	No	No
Madison County	Business – Non-residential	Yes	No	No	No
Madison County	Other – Non-residential	Yes	No	No	No
Orange County	Single Family Residential	Yes	No	No	No

Critical Facility Hazard Vulnerability Assessment Methodology

As part of the 2025 update to the Rappahannock-Rapidan Regional Commission (RRRC) Hazard Mitigation Plan, a region-wide preliminary assessment of critical facilities was conducted to evaluate their vulnerability to a range of natural hazards. This assessment supports local governments in identifying and prioritizing mitigation efforts that protect essential public services and reduce community risk.

Purpose and Scope

Critical facilities include hospitals, nursing homes, fire and rescue stations, law enforcement buildings, emergency operations centers, public and private schools, water and wastewater utilities, communications infrastructure, airports, and places of worship. These assets are vital to emergency response, recovery operations, and continuity of essential services. This analysis assigns a hazard risk score to each critical facility for the following natural hazards:

- Flooding (including riverine and flash flooding)
- Hurricane/Tropical Storms
- Wildfire
- Drought
- Dam Inundation
- Earthquake
- Erosion
- Heat Wave

Scoring Methodology

Each facility was assigned a risk score ranging from 1 (very low risk) to 5 (very high risk) for each hazard. These scores reflect both the facility's physical exposure and its functional vulnerability. The scoring process integrated quantitative hazard mapping with qualitative judgment based on the facility's role in public safety, infrastructure, and population vulnerability.

1. Data Sources Used

Hazard exposure and facility locations were analyzed using the following publicly available datasets:

- FEMA National Flood Hazard Layer (NFHL): Used to identify if facilities fall within the Special Flood Hazard Area (SFHA).

- FEMA National Risk Index (NRI, 2020): Provided hazard-specific loss estimates for hurricanes, earthquakes, and drought at the census tract level.
- Virginia DCR Dam Safety Program: Used to identify critical facilities located within mapped dam inundation zones.
- Virginia Department of Forestry Wildfire Risk Zones: Used to assess wildfire exposure based on surrounding land cover and documented hazard zones.
- USGS Seismic Hazard Maps: Provided baseline earthquake probability for each locality.
- Local and regional hazard mitigation plans (2018–2025): Supplemented exposure analysis with qualitative input from local staff and previous planning efforts.
- Facility-specific risk from extreme heat was evaluated using the FEMA National Risk Index (NRI) heat wave exposure data at the census tract level.

2. Hazard-Specific Scoring Criteria

Score	Definition
1 – Very Low	No known exposure; facility is located on high ground and outside mapped hazard areas.
2 – Low	Minor exposure; facility is near but not within a hazard zone, or in a well-prepared/retrofitted structure.
3 – Moderate	Facility is adjacent to a mapped hazard area or affected during moderate events; limited redundancy.
4 – High	Facility is within a mapped hazard zone or has experienced past disruption or damage.
5 – Very High	Facility is highly exposed, mission-critical, and has no redundancy or history of repeated impacts.

Where applicable, hurricane scores were aligned with flood scores unless facility-specific vulnerabilities (e.g., power dependence, wind-exposed infrastructure) warranted differentiation.

3. Facility Types Considered

The analysis included over 100 critical facilities across the region, categorized as follows:

- Emergency Services: Fire, EMS, police, and EOCs
- Healthcare & Social Services: Hospitals, nursing homes, assisted living facilities
- Educational Institutions: Public and private schools, Head Start centers, community colleges
- Utilities: Water and wastewater treatment plants, electric substations, communications facilities
- Transportation: Airports, key road access points
- Government and Civic Facilities: Courthouses, town halls, libraries, churches, and community shelters

Outcome and Application

This facility-specific risk scoring provides localities with a clear, consistent, and comparative understanding of where their most critical vulnerabilities lie. These scores inform:

- Mitigation project prioritization
- Funding applications (e.g., HMGP, VACFPF)
- Emergency preparedness and continuity planning
- Resilience-focused capital improvement planning

The critical facility vulnerability assessment should be updated on a regular basis in coordination with FEMA-approved hazard mapping and local GIS datasets to reflect changes in infrastructure, land use, and hazard profiles.

This effort aligns with state and federal climate adaptation priorities and ensures that extreme heat is addressed with the same rigor as flooding, wildfire, and other major hazards.

Fauquier County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam Inundation	Earthquake	Erosion	Extreme Heat
Fauquier Hospital	Hospital	2	2	1	1	2	2	1	5
Spring Oak at Warrenton	Nursing Home	2	2	1	1	2	2	1	5
Warrenton Manor	Nursing Home	2	2	1	1	2	2	1	5
Brookside Nursing Home	Nursing Home	2	2	1	1	2	2	1	5
Fauquier Health & Rehab Center	Nursing Home	2	2	1	1	2	2	1	5
Warrenton–Fauquier Airport	Airport	1	1	1	1	2	2	1	3
Laurel Ridge Community College	College	2	2	1	1	2	2	1	2
Warrenton–Fauquier Comm. Center	Emergency Coord.	1	1	1	1	2	2	1	2
Warrenton Town Hall	Government	1	1	1	1	2	2	1	2
Warrenton Police Station	Police Station	1	1	1	1	2	2	1	3
Fauquier County Sheriff's Office	Police Station	1	1	1	1	2	2	1	3

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam Inundation	Earthquake	Erosion	Extreme Heat
Remington VFC & Rescue	Fire Station	3	3	2	1	3	2	2	2
Marshall VFC	Fire Station	1	1	2	1	2	2	1	2
The Plains VFC & Rescue	Fire Station	1	1	2	1	2	2	1	2
Meadowbrook Childcare Center	School	2	2	2	1	2	2	1	4
St. James Episcopal School	School	2	2	2	1	2	2	1	4
Wakefield School	School	2	2	2	1	2	2	1	4
Fresta Valley Christian School	School	2	2	2	1	2	2	1	4
Providence Christian Academy	School	2	2	2	1	2	2	1	4
Cornerstone Christian Academy	School	2	2	2	1	2	2	1	4
Margaret M. Pierce Elementary	School	2	2	2	1	2	2	1	4
Warrenton Middle School	School	2	2	2	1	2	2	1	4
Liberty High (Shelter)	School	2	2	2	1	2	2	1	4
Montessori Schools (multiple)	School	2	2	2	1	2	2	1	4
Multiple Childcare Facilities	School	2	2	2	1	2	2	1	4
Remington Water Plant	Water Utility	3	3	1	1	3	2	2	3
Vint Hill Water Plant	Water Utility	2	2	1	1	2	2	1	3
Marshall Water Plant	Water Utility	1	1	1	1	2	2	1	3
Warrenton Dam & Reservoir	Water Utility	3	3	1	1	3	2	2	3
Fauquier County Garage (Fuel site)	Fuel Utility	2	2	1	1	2	2	1	3
Remington Combustion Turbine	Electric Utility	3	3	1	1	3	2	1	3
WSA Wells / Water Treatment	Water Utility	2	2	1	1	2	2	1	3

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam Inundation	Earthquake	Erosion	Extreme Heat
Poets Walk Memory Care	Nursing Home	2	2	1	1	2	2	1	5
White Springs Senior Living	Nursing Home	2	2	1	1	2	2	1	5
DFREM Offices	Emergency Mgmnt	1	1	1	1	2	2	1	2

Culpeper County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Culpeper Regional Hospital	Hospital	2	2	1	1	2	2	1	5
Culpeper Regional Airport	Airport	1	1	1	1	2	2	1	2
Culpeper EMS Building	Emergency Coord.	3	3	1	1	3	2	2	3
Emergency Operations Center	Emergency Coord.	3	3	1	1	3	2	2	3
Reva Volunteer Fire & Rescue	Fire Station	2	2	2	1	2	2	1	2
Brandy Volunteer Fire Dept	Fire Station	2	2	2	1	2	2	1	2
Salem Volunteer Fire & Rescue	Fire Station	2	2	2	1	2	2	1	2
Culpeper Police Dept	Police Station	2	2	1	1	2	2	1	3
Sheriff's Office	Police Station	2	2	1	1	2	2	1	3

Culpeper County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Culpeper County High School	School	2	2	2	1	2	2	1	4
Eastern View High School	School	2	2	2	1	2	2	1	4
Culpeper County Middle School	School	2	2	2	1	2	2	1	4
A.G. Richardson Elementary	School	2	2	2	1	2	2	1	4
Farmington Elementary	School	2	2	2	1	2	2	1	4
Pearl Sample Elementary	School	2	2	2	1	2	2	1	4
Sycamore Park Elementary	School	2	2	2	1	2	2	1	4
Culpeper Christian School	School	2	2	2	1	2	2	1	4

Culpeper County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Epiphany Catholic School	School	2	2	2	1	2	2	1	4
Emerald Hill Elementary	School	2	2	2	1	2	2	1	4
G.W. Carver Piedmont Tech Ed Center	School	2	2	2	1	2	2	1	4
Germanna Community College	College	2	2	1	1	2	2	1	2
Town Water Pollution Control Facility	Water Utility	3	3	1	1	3	2	2	3
Town Water Treatment Plant	Water Utility	3	3	1	1	3	2	2	3
Town Light & Power	Electric Utility	2	2	1	1	2	2	1	3
Equinix Facility	Communi cations	2	2	1	1	2	2	1	2
Clevengers Water Plant	Water Utility	3	3	1	1	3	2	2	3
Clevengers Sewer Plant	Water Utility	3	3	1	1	3	2	2	3
Airpark Water Plant	Water Utility	3	3	1	1	3	2	2	3
Airpark Sewer Plant	Water Utility	3	3	1	1	3	2	2	3
Solid Waste Transfer Station	Public Works	2	2	1	1	2	2	1	2

Culpeper County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Culpeper County Animal Shelter	Animal Shelter	2	2	1	1	2	2	1	2
Early Headstart #1	Day Care	2	2	1	1	2	2	1	4
Early Headstart #2	Day Care	2	2	1	1	2	2	1	4
Field House	Gym/Classrooms	2	2	1	1	2	2	1	3
Culpeper County Library	Library	1	1	1	1	1	2	1	2
Coffeewood Correctional Facility	Prison	2	2	1	1	2	2	1	3

Orange County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Orange County Airport	Airport	1	1	1	1	2	2	1	2
Gordonsville Municipal Airport	Airport	1	1	1	1	2	2	1	2
Orange County E-911 Center	Emergency Coord.	2	2	1	1	2	2	1	3
Gordonsville VFC	Fire Station	2	2	2	1	2	2	1	2
Orange VFC	Fire Station	2	2	2	1	2	2	1	2
Mine Run VFC	Fire Station	2	2	2	1	2	2	1	2
Barboursville Volunteer Fire	Fire Station	2	2	2	1	2	2	1	2
Orange County Courthouse	Government	2	2	1	1	2	2	1	3
Orange County Administrative Buildings	Government	2	2	1	1	2	2	1	3
Town of Gordonsville Town Hall	Government	2	2	1	1	2	2	1	3

Orange County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Central VA Regional Jail	Government	2	2	1	1	2	2	1	3
Town of Orange Water Treatment Plant	Water Utility	3	3	1	1	3	2	2	3
Rapidan Service Authority WWTP	Wastewater	3	3	1	1	3	2	2	3
Town of Orange Wastewater Treatment Plant	Wastewater	3	3	1	1	3	2	2	3
Power Substations (REC, Dominion)	Electric Utility	2	2	1	1	2	2	1	3
Shining Stars Childcare	Daycare	2	2	1	1	2	2	1	4
Dogwood Village Nursing Home	Nursing Home	2	2	1	1	2	2	1	5

Orange County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Lavendar Hills – Orange Campus	Nursing Home	2	2	1	1	2	2	1	5
Paul Stefan Foundation (Safe Housing)	Shelter	2	2	1	1	2	2	1	4
Germanna Heights Apartments	Senior Housing	2	2	1	1	2	2	1	4
Heritage Hill Apartments	Senior Housing	2	2	1	1	2	2	1	4
Belleview Senior Apartments	Senior Housing	2	2	1	1	2	2	1	4
Trinity Senior Village	Assisted Living	2	2	1	1	2	2	1	5
Orange Police Department	Police Station	2	2	1	1	2	2	1	3
Orange County Sheriff's Office	Police Station	2	2	1	1	2	2	1	3
Gordonsville Police Department	Police Station	2	2	1	1	2	2	1	3
Grymes Memorial School	School	2	2	2	1	2	2	1	4

Orange County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Faith Christian Academy	School	2	2	2	1	2	2	1	4
Lightfoot Elementary	School	2	2	2	1	2	2	1	4
Orange County High School	School	2	2	2	1	2	2	1	4
Orange Elementary	School	2	2	2	1	2	2	1	4
Prospect Heights Middle	School	2	2	2	1	2	2	1	4
Unionville Elementary	School	2	2	2	1	2	2	1	4
Locust Grove Elementary	School	2	2	2	1	2	2	1	4
Locust Grove Primary	School	2	2	2	1	2	2	1	4
Gordon-Barbour Elementary	School	2	2	2	1	2	2	1	4
Locust Grove Middle School	School	2	2	2	1	2	2	1	4

Madison County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Madison County Sheriff's Office	Police Station	2	2	1	1	2	2	1	3
Madison Fire Company	Fire Station	2	2	2	1	2	2	1	2
Madison Rescue Squad	Fire Station	2	2	2	1	2	2	1	2
Madison Emergency Medical Services	Emergency Coord.	2	2	1	1	2	2	1	3
School Bus Maintenance Shop	Public Works	2	2	1	1	2	2	1	2
Rapidan Service Authority – Water Plant	Water Utility	3	3	1	1	3	2	2	3
School Board Offices	Government	2	2	1	1	2	2	1	3
Cornerstone Christian School	School	2	2	2	1	2	2	1	4

Madison County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Woodberry Forest School	School	2	2	2	1	2	2	1	4
Oak Grove Mennonite School	School	2	2	2	1	2	2	1	4
Madison County High	School	2	2	2	1	2	2	1	4
Madison Primary	School	2	2	2	1	2	2	1	4
Waverly Yowell Elementary	School	2	2	2	1	2	2	1	4
William H. Wetsel Middle	School	2	2	2	1	2	2	1	4
Criglersville Elementary	School (Vacant)	2	2	2	1	2	2	1	3
Early Learning Center	Preschool	2	2	1	1	2	2	1	4
Skyline CAP	School Program	2	2	1	1	2	2	1	4
First Friends Pre-School	Preschool	2	2	1	1	2	2	1	4
Rainbow Preschool	Preschool	2	2	1	1	2	2	1	4
Countryside Rest Home	Nursing Home	2	2	1	1	2	2	1	5

Madison County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Meadowbrook Nursing Home at Novum	Nursing Home	2	2	1	1	2	2	1	5
Morgan's Nursing Home (Brightwood)	Nursing Home	2	2	1	1	2	2	1	5
Autumn Care of Madison	Nursing Home	2	2	1	1	2	2	1	5
Mountain View Nursing Home	Nursing Home	2	2	1	1	2	2	1	5
Sevenoaks Pathwork Center	Nursing Home	2	2	1	1	2	2	1	5

Rappahannock County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Sheriff's Office	Police Station	1	1	1	1	2	2	1	3
Rappahannock County Courthouse	Government	1	1	1	1	2	2	1	3
Administrative Buildings	Government	1	1	1	1	2	2	1	3
Co 1 Fire and Rescue (Washington)	Fire Station	2	2	2	1	2	2	1	2
Co 2 Fire and Rescue (Sperryville)	Fire Station	2	2	2	1	2	2	1	2
Co 3 Fire and Rescue (Amissville)	Fire Station	2	2	2	1	2	2	1	2
Co 4 Fire and Rescue (Flint Hill)	Fire Station	2	2	2	1	2	2	1	2
Co 5 Fire and Rescue (Castleton)	Fire Station	2	2	2	1	2	2	1	2

Rappahannock County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Co 7 Fire and Rescue (Sperryville)	Fire Station	2	2	2	1	2	2	1	2
Co 9 Fire and Rescue (Chester Gap)	Fire Station	2	2	2	1	2	2	1	2
Emergency Management Office (Washington)	Emergency Coord.	1	1	1	1	2	2	1	3
Hearthstone School (Sperryville)	School	2	2	2	1	2	2	1	4
Belle Meade School (Sperryville)	School	2	2	2	1	2	2	1	4
Wakefield Country Day School (Flint Hill)	School	2	2	2	1	2	2	1	4
Rappahannock County High	School	2	2	2	1	2	2	1	4
Rappahannock Elementary	School	2	2	2	1	2	2	1	4
Public Safety Tower (Amissville)	Gov. Asset	2	2	1	1	2	2	1	2

Rappahannock County and Towns

Facility Name	Type	Flood	Hurricane	Wildfire	Drought	Dam	Quake	Erosion	Extreme Heat
Public Safety Tower (Sperryville)	Gov. Asset	2	2	1	1	2	2	1	2
Brightspeed Central Office (Washington)	Communications	1	1	1	1	2	2	1	2
Verizon Central Office (Sperryville)	Communications	1	1	1	1	2	2	1	2
School Administration Offices	Government	1	1	1	1	2	2	1	3
Rappahannock County Co-Op	Social Services	1	1	1	1	2	2	1	2
Child Care and Learning Center	Childcare	2	2	1	1	2	2	1	4
Rappahannock WSA (Water/Sewer Assets)	Water Utility	2	2	1	1	2	2	1	3
Washington Baptist Church	Church	2	2	2	1	2	2	1	3