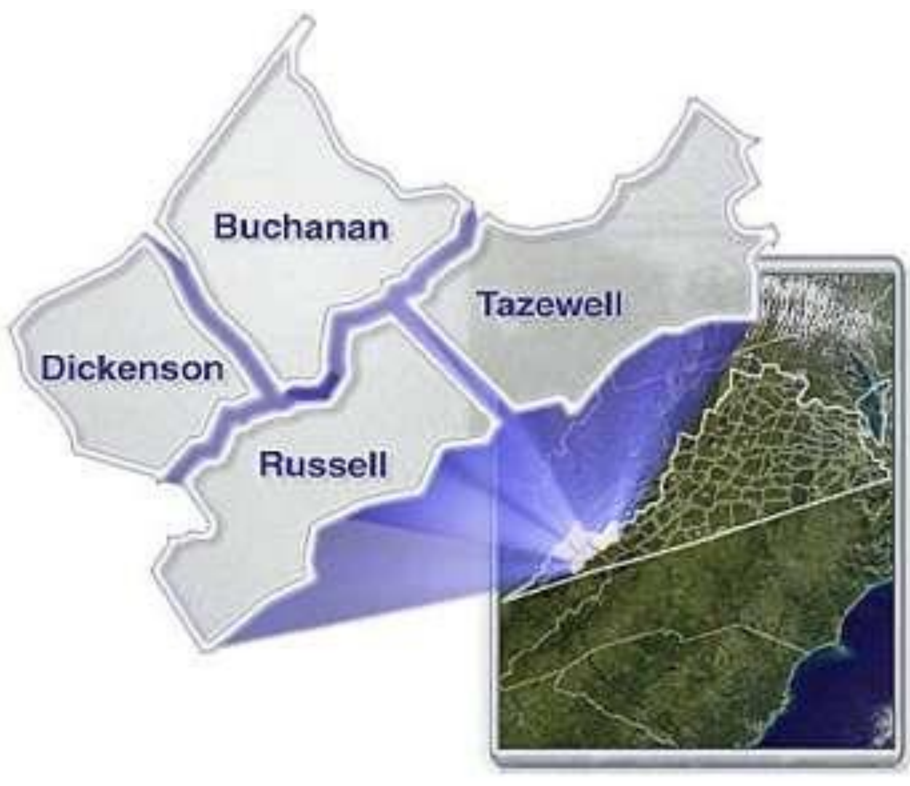
Cumberland Plateau
Planning District Commission

Hazard Mitigation Plan Update

September 2018



Cumberland Plateau Planning District Commission
Hazard Mitigation Plan

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SECTION I. EXECUTIVE SUMMARY

For the purposes of this Hazard Mitigation Plan, the Cumberland Plateau Planning District is comprised of the counties of Buchanan, Dickenson, Russell and Tazewell and the towns of Grundy, Clinchco, Clintwood, Haysi, Cleveland, Honaker, Lebanon, Bluefield, Cedar Bluff, Pocahontas, Richlands and Tazewell. Hereinafter and throughout the document, the area will be referred to as the Cumberland Plateau Planning District. The area is vulnerable to many types of natural hazards — including floods, tornadoes, winter storms, earthquakes, and severe thunderstorms — and has experienced the effects of each of these at some point in its history.

The last few decades of growth within the Cumberland Plateau Planning District have placed more development than ever in harm's way, increasing the potential for severe economic and social consequences if a major disaster or other catastrophic event were to occur today. Such an event could have the potential to cost the local governments, residents, and businesses millions of dollars in damages to public buildings and infrastructure, lost tax revenues, unemployment, homelessness, and emotional and physical suffering for many years to come.

A multi-hazard mitigation plan has been prepared for the Cumberland Plateau Planning District in accordance with the requirements of the Disaster Mitigation Act of 2000. Having the mitigation plan in place will help the area to:

- Better understand local hazards and risks;
- Build support for mitigation activities;
- Develop more effective community hazard-reduction policies and integrate mitigation concepts into other community processes;
- Incorporate mitigation into post-disaster recovery activities; and
- Obtain disaster-related grants in the aftermath of a disaster.

Hazard Identification and Risk Assessment

Prioritizing the potential hazards that can impact the Cumberland Plateau Planning District was based on the probability that a potential hazard will affect the area and the potential impacts on it for a given disaster event. Values were assigned to each hazard type, based on the hazard's highest potential hazard level. These hazard level categories represent the likelihood of a hazard event, which could significantly affect the Cumberland Plateau Planning District. These categories are based on the classifications used in the Hazard Identification portion of this document and are ***High, Medium,*** and ***Low.*** In order to focus on the most significant hazards, only those assigned a level of **High** or **Medium** have been included for analysis in the risk assessment.

Table I-1 summarizes the results of this analysis, which is explained more fully in Section V of this plan.

Table I-1 — Hazard Identification Results

Hazard Type	Hazard Level
Flooding	High
Severe Winter Storms	Medium
Wildfire	Medium
Landslides	Medium
Severe Wind	Medium
Severe Thunderstorms/Hail Storms	Medium
Earthquake	Medium
Dam/Levee Failure	Medium
Drought	Medium
Domestic Fire	Medium
Algae Bloom	Medium
Abandoned Mine Fire/Flood	Medium
Tornado	Low
Extreme Heat	Low
Karst	Low

The Mitigation Strategy

During the presentation of findings for the Hazard Identification and Risk Assessment workshop, the Mitigation Advisory Committee (MAC) was asked to provide comments and suggestions on actions and policies, which could lessen the area's vulnerability to the identified hazards. The MAC supported the following preliminary comments below:

- Top priorities for the area were public safety, public education, and reduction of potential economic impacts of disasters.
- Alternatives should consider the impacts on the Cumberland Plateau Planning District as a whole.
- Alternatives must not conflict with other local government programs.
- Outreach and other efforts should be attempted to repetitive loss properties, including those designated by FEMA.
- Past experiences from disasters should be built upon.
- The success of past mitigation projects should be considered in developing alternatives.

The following overarching goal and six specific goals were developed by the MAC to guide the area's future hazard mitigation activities.

OVERARCHING COMMUNITY GOAL:

"To develop and maintain disaster resistant communities that are less vulnerable to the economic and physical devastation associated with natural hazard events."

- **GOAL1:**
  Enhance the safety of residents and businesses by protecting new and existing development from the effects of hazards.
- **GOAL 2:**
  Protect new and existing public and private infrastructure and facilities from the effects of hazards.
- **GOAL 3:**
  Increase the area's floodplain management activities and participation in the National Flood Insurance Program.
- **GOAL 4:**
  Ensure hazard awareness and risk reduction principles are institutionalized into each local jurisdiction's daily activities, processes, and functions by incorporating them into policy documents and initiatives.
- **GOAL 5:**
  Enhance community-wide understanding and awareness of Cumberland Plateau Planning District hazards.
- **GOAL 6:**
  Publicize mitigation activities to reduce the area's vulnerability to the identified hazards.

Conclusion

This plan symbolizes the Cumberland Plateau Planning District's continued commitment and dedication to enhance the safety of its residents and businesses by taking actions before a disaster strikes. While each jurisdiction cannot necessarily prevent natural hazard events from occurring, they can minimize the disruption and devastation that so often accompanies these disasters.

SECTION II. INTRODUCTION

Mitigation

Mitigation is commonly defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Hazard mitigation focuses attention and resources on community policies and actions that will produce successive benefits over time. A mitigation plan states the aspirations and specific courses of action that a community intends to follow to reduce vulnerability and exposure to future hazard events. These plans are formulated through a systematic process centered on the participation of citizens, businesses, public officials and other community stakeholders.

A local mitigation plan is the physical representation of a jurisdiction's commitment to reduce risks from natural hazards. Local officials can refer to the plan in their day-to-day activities and decisions regarding regulations and ordinances, granting permits, and in funding capital improvements and other community initiatives. Additionally, these local plans will serve as the basis for states to prioritize future grant funding as it becomes available.

It is hoped that the Cumberland Plateau Planning District's hazard mitigation plan will be a tool for all community stakeholders to use by increasing public awareness about local hazards and risks, while at the same time providing information about options and resources available to reduce those risks. Teaching the public about potential hazards will help each of the area's jurisdictions protect themselves against the effects of the hazards, and will enable informed decision making on where to live, purchase property, or locate businesses.

The Local Mitigation Planning Impetus

On October 30, 2000, the President signed into law the Disaster Mitigation Act of 2000 (DMA 2000), which established a national disaster hazard mitigation grant program that would help to reduce loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters.

DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act and added a new section, §322 Mitigation Planning. Section 322 requires local governments to prepare and adopt jurisdiction-wide hazard mitigation plans for disasters declared after November 1, 2003, (subsequently revised to November 1, 2004) as a condition of receiving Hazard Mitigation Grant Program (HMGP) project grants and other forms of non-emergency disaster assistance. Local governments must review and if necessary, update the mitigation plan every five years from the original date of the plan to continue program eligibility.

Interim Final Rule Planning Criteria

As part of the process of implementing DMA 2000, The Federal Emergency Management Agency (FEMA) prepared an Interim Final Rule (the Rule) to define the mitigation planning criteria for States and communities. Published in the *Federal Register* on February 26, 2002, at 44 CFR Part 201, the Rule serves as the governing document for DMA 2000 planning implementation.

Organization of the Plan

This planning document has been organized in a format that follows the process enumerated in the Rule.

Section III - Planning Process describes the Cumberland Plateau Planning District's stakeholder involvement and defines the processes followed throughout the creation of this plan.

Section IV - Community Profile provides a physical and demographic profile of the Cumberland Plateau Planning District looking at such things as geography, hydrography, development, people and land uses within the three-county area.

Section V - Hazard Identification and Risk Assessment evaluates the natural hazards likely to affect the Cumberland Plateau Planning District, and quantifies whom, what, where, and how local jurisdictions may be vulnerable to future hazard events.

Section VI - Capability Assessment analyzes each of the four local jurisdiction's policies, programs, plans, resources, and capability to reduce exposure to hazards in the community.

Section VII - Mitigation Strategy addresses the Cumberland Plateau Planning District's issues and concerns for hazards by establishing a framework for loss-reduction activities and policies. The strategy includes future vision statements, goals, objectives, and a range of actions to achieve the goals.

Section VIII - Plan Maintenance Procedures specifies how the plan will be monitored, evaluated, and updated, including a process for continuing stakeholder involvement once the plan is completed.

Section IX - Appendices is the last section of the plan, and includes supplemental reference materials and more detailed calculations and methodologies used in the planning process. The Appendices also include commonly used mitigation terms and an acronym list.

SECTION III. PLANNING PROCESS

In 2003, the counties of Buchanan, Dickenson, Russell and Tazewell, Virginia, as members of the Cumberland Plateau Planning District, (referred to hereinafter as the Planning District) collaborated with the Virginia Department of Emergency Management to undertake a multi-jurisdictional natural hazards planning initiative. To facilitate the planning process, a Mitigation Advisory Committee (MAC) was established to 1) provide leadership and guidance for the planning initiative, and 2) develop a beginning set of goals to guide the development of a natural hazards mitigation plan. Currently this document is an update to that original plan with the addition of hazards that have effected the Planning District from 2011-partial 2018.

These goals were based on the principles of hazard awareness and disaster prevention. These goals included:

- Ensure that the Planning District has sustainable communities and businesses resistant to the human and economic costs of disasters;
- Maintain and enhance the economic stability, public health, and safety to the communities of the area;
- Ensure that the Planning District's cultural richness and environmental quality are not jeopardized by the occurrence of a disaster; and
- Recognize the potential impact of natural or manmade hazards on public and private buildings and facilities, and the utility and transportation systems that serve them.

Beginning in March 2011, the MAC held regular meetings and commenced work to identify and update the area's natural hazards. They coordinated and consulted with other entities and stakeholders to identify and delineate natural and manmade hazards within the four local jurisdictions and to assess the risks and vulnerability of public and private buildings, facilities, utilities, communications, transportation systems, and other vulnerable infrastructure. New FEMA Digital Flood Insurance Rate Maps were incorporated into the plan update. Neighboring counties adjacent to the planning district were contacted by the MAC as the planning process began. However, no response was received.

In addition, the MAC initially contacted all incorporated towns within the Planning District to solicit interest and input concerning participation in the development of a multi-jurisdiction hazard mitigation plan. Representatives from the towns participated in committee meetings throughout the process to again solicit their input for the inclusion of mitigation actions from each community into the mitigation strategy portion of the plan and to request adoption of the plan upon completion, as well. The communities' responses are incorporated into the final plan. Table III-1 provides more information on the individual MAC meetings.

Table III-1 — Mitigation Planning Workgroup Meetings	
CUMBERLAND PLATEAU PLANNING DISTRICT COMMISSION Steering Committee Participation	
Meeting Dates	Meeting Purpose
4/20/18	Kick-off Meeting
9/2018	Mitigation Strategy Development Meeting
10/2018	Second Mitigation Strategy Development Meeting
08/2019	Draft of Plan made available for public commentary
11/2019	Public Meeting

In September 2018, Cumberland Plateau Planning District Commission (Planning District) began to update the multi-hazard mitigation plan including a Hazard Identification and Risk Assessment (HIRA) and mitigation strategies. The Planning District worked with the stakeholders throughout the Planning District localities updating the past Hazard Mitigation plan to ensure that potential stakeholders participated in the process and would have opportunities for input in the draft and final phases of the plan update.

The Mitigation Advisory Committee and Mitigation Management Team

A Mitigation Advisory Committee (MAC) and Mitigation Management Team (MMT) comprised of public representatives, private citizens, businesses, and organizations worked with the Planning District and provided input on each section of the plan, including hazards addressed, mitigation actions, and prioritization. Efforts to involve county departments and community organizations that might have a role in the implementation of the mitigation actions or policies included invitations to attend meetings and serve on the MAC, e-mails of minutes and updates, strategy development workshops, and outreach through local government meetings and public libraries, plus opportunities for input and comment on all draft deliverables.

The Planning District would like to thank and acknowledge the following persons who served on the MAC, MMT and their representative departments and organizations throughout the plan update process:

Table III-2 — Cumberland Plateau Planning District Commission Mitigation Advisory Committee Members	
Robert Craig Horn	Buchanan County Board of Supervisors, Administrator
Dave Moore	Dickenson County Board of Supervisors, Administrator
Lonzo Lester	Russell County Board of Supervisors, Administrator
Eric Young	Tazewell County Board of Supervisors, Administrator
Tim Potter	Town of Grundy IDA, Director
James McGlothlin	Town of Cedar Bluff, Town Manager
Tim Taylor	Town of Richlands, Town Manager
Dr. Sue Cantrell	Cumberland Plateau Health District, Director
Keith Viers	Cumberland Plateau Regional Housing Authority, Director
Greg McClanahan	Buchanan County PSA, Director
Ron Phillips	Dickenson County PSA, Director
Edna Vance	Russell County PSA, Chairman
Dahmon Ball	Tazewell County PSA, Director
Steve Givens	Russell County Medical Center
Conrad Hill	VDOT
Steve Dye	Russell County Sheriff's Department
Richard Thacker	Dickenson County Emergency Services
Dr. Tommy Wright	Southwest Virginia Community College
Patty Tauscher	American Red Cross
Jess Powers	Russell County, Emergency & Hazardous Material Coordinator
Matt Slemp	Dickenson County, 911 Coordinator
Dave White	Tazewell County, Emergency & Hazardous Material Coordinator
Ricky Bailey	Buchanan County, 911 Coordinator
Mike Watson	Town of Bluefield, Manager
Terry McReynolds	Russell County Assessor
Robert Brandon	Southwest Virginia CC
Rick Chitwood	Thompson & Litton Engineering
Henry Stinson	Russell County Highway & Safety Commission
James Baker	Thompson & Litton Engineering
Matt Anderson	Tazewell County, Planner/Engineer
Shane Farmer	Cumberland Plateau PDC

Cumberland Plateau Planning District Commission Hazard Mitigation Plan Update	
Table III-2 — Cumberland Plateau Planning District Commission Mitigation Advisory Committee Members	
Susan Mullins	Dickenson County Schools
Darrell Johnson	Castlewood Water & Sewage Authority Chairman
Jarvis Deel	Town of Clinchco, Mayor
C. H. Wallace	Town of Honaker, Mayor
Mark Mitchell	Town of Lebanon, Town Manager
Larry Yates	Town of Haysi, Mayor
Jennifer Chumbley	Town of Cleveland, Mayor
Benjamin Gibson	Town of Pocahontas, Mayor
Todd Day	Town of Tazewell, Town Manager
Mickey Rhea	Russell County Building Official
Roger Sword	Russell County IDA
George Brown	Tazewell County Schools
Gary Jackson	Tazewell County Building Official
Dr. Greg Brown	Russell County Schools, Superintendent
Susan Reeves	Tazewell County Planning Commission, Chairman
Brian Hieatt	Tazewell County Sheriff's Department
Ray Foster	Buchanan County Sheriff's Department
Don Layne	Buchanan County Planning Commission, Chairman
Melanie Hibbitts	Buchanan County Schools, Superintendent
Chris Rakes	Dickenson County Building Official
Ginger Senter	Dickenson County IDA
Scott Stanley	Dickenson County Sheriff's Department
Peter Mulkey	Clinch Valley Medical Center, CEO
Robert Ruchti	Buchanan General Hospital, CEO
Angela Beavers	Cumberland Plateau PDC
Donald Baker	Town of Clintwood, Mayor

Cumberland Plateau Planning District Commission Hazard Mitigation Plan Update	
Table III-3 — Cumberland Plateau Planning District Commission Hazardous Mitigation Management Team	
Richard Thacker	Dickenson County Emergency Services
Jess Powers	Russell County, 911 Coordinator
Matt Slemp	Dickenson County, 911 Coordinator
Derrick Ruble	Tazewell County, 911 Coordinator
Ricky Bailey	Buchanan County, 911 Coordinator
David White	Tazewell County Emergency Services
Jess Powers	Russell County Emergency & Hazardous Material Coordinator
Shane Farmer	Cumberland Plateau PDC
Jerry Ward	Buchanan County Asst. Emergency Coordinator
Angela Beavers	Cumberland Plateau PDC

Public Participation and Citizen Input

Several opportunities were provided to the public for input and participation throughout the planning process. Drafts of the Hazard Identification and Risk Assessment and Mitigation Strategies were made available via the project team website. The planning process was discussed on a regular basis at the Cumberland Plateau Planning District Commission board meetings, which includes representation of all counties and towns in the planning district. Additionally, the plan was discussed at Board of Supervisor meetings in the participating counties.

In August 2019, a copy of the Draft Hazard Mitigation Plan was made available online for public comments, with any interested parties encouraged to contact CPPDC for a hard copy of the plan at their request. Copies of the announcements notifying the public of the availability of the draft plan for review is included in Appendix D. There were no comments offered by the public on the draft copy.

The Emergency Managers of the four counties were contacted for their input and to schedule a meeting in October 2018. A copy of the email to these Emergency Managers is available in Appendix D.

In addition, an open public meeting was held in November 2019 at 11:00 a.m. at the Southwest Virginia Community College in Richlands to provide an overview to the public of the planning process and the results of the hazard identification and mitigation strategy. The meeting date was advertised in the local papers. Also, draft copies of the complete plan are also available on the Cumberland Plateau PDC website at www.cppdc.org for review and comment by the public.

Communities Participating in the National Flood Program

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
510161#	BLUEFIELD, TOWN OF	TAZEWELL COUNTY	8/9/1974	7/17/1978	2/18/2011	7/17/1978	No
510024#	BUCHANAN COUNTY*	BUCHANAN COUNTY*	7/7/1978	9/16/1988	8/19/1997	9/16/1988	No
510162#	CEDAR BLUFF, TOWN OF	TAZEWELL COUNTY	5/10/1974	4/4/1983	2/18/2011	4/4/1983	No
515522	CLEVELAND, TOWN OF	RUSSELL COUNTY	7/1/1970	5/14/1976	9/29/2010	2/19/1971	No
510384#	CLINCHCO, TOWN OF	DICKENSON COUNTY		9/29/2010	9/29/2010	11/8/2011	No
510253#	DICKENSON COUNTY *	DICKENSON COUNTY	6/2/1978	2/6/1991	9/29/2010	2/6/1991	No
510025#	GRUNDY, TOWN OF	BUCHANAN COUNTY	5/24/1974	8/16/1982	8/19/1997	8/16/1982	No
510046#	HAYSI, TOWN OF	DICKENSON COUNTY	5/31/1974	1/17/1979	9/29/2010	1/17/1979	No
510321#	HONAKER, TOWN OF	RUSSELL COUNTY	5/10/1974	4/5/1988	9/29/2010	4/5/1988	No
510222#	LEBANON, TOWN OF	RUSSELL COUNTY	5/10/1974	1/16/1987	9/29/2010	1/16/1987	No
510337#	POCAHONTAS, TOWN OF	TAZEWELL COUNTY	9/14/1983	9/14/1983	2/18/2011	9/14/1983	No
510163#	RICHLANDS, TOWN OF	TAZEWELL COUNTY	6/18/1976	4/4/1983	2/18/2011	4/4/1983	No
510317#	RUSSELL COUNTY*	RUSSELL COUNTY	9/16/1977	3/16/1988	9/29/2010	3/16/1988	No
515530#	ST. PAUL, TOWN OF	RUSSELL COUNTY	6/16/1970	7/23/1976	2/18/2011	12/4/1970	No
510160#	TAZEWELL COUNTY *	TAZEWELL COUNTY	6/2/1978	9/1/1983	2/18/2011	9/1/1983	No
510164#	TAZEWELL, TOWN OF	TAZEWELL COUNTY	5/17/1974	8/15/1983	2/18/2011	8/15/1983	No

Communities Not in the National Flood Program

CID	Community Name	County	Init FHBM Identified	Init FIRM Identified	Curr Eff Map Date	Sanction Date	Tribal
510045#	CLINTWOOD, TOWN OF	DICKENSON COUNTY	3/4/1977	2/6/1991	9/29/2010	3/4/1978	No

Adoption

Participating jurisdictions must formally adopt the hazard mitigation plan in order for it to be approved by the State of Virginia and the Federal Emergency Management Agency. This plan was adopted by the Counties of Buchanan, Dickenson, Russell and Tazewell and the towns of Grundy, Clinchco, Haysi, Cleveland, Honaker, Lebanon, Bluefield, Cedar Bluff, Pocahontas, Richlands and Tazewell. The town of Clintwood did not participate in the flood program. Copies of the adoption language for each community is included in Appendix E.

SECTION IV. COMMUNITY PROFILE

Introduction

The Cumberland Plateau Planning District Commission was created to promote regional cooperation and coordinate regional activities and policies. Since 1968, the CPPDC has initiated and operated many programs designed to improve the quality of life for Southwest Virginians through job creation, technical assistance grantsmanship, management services, GIS services, public works, waste management, transportation planning, shell building construction, industrial park management and development financing. This profile is based largely on information directly from the Cumberland Plateau Planning District Commission's website at http://www.cppdc.org/index.htm.

Geography

The Cumberland Plateau Planning District is 67 miles long and 40 miles wide and covers approximately 1,848 square miles as shown in Figure IV-1. It borders West Virginia on the north and Kentucky on the northeast. Wise, Scott, Washington, Smyth and Bland Counties in Virginia form the boundaries on the west, south and east. The District is divided into two physiographically distinct regions, both lying in the Appalachian Highlands. The counties of Buchanan and Dickenson, along with the northern portions of Russell and Tazewell Counties, lie in the Cumberland Plateau which is, in turn, a part of the Appalachian Plateau. This area has a uniformly mountainous surface characterized by many small streams separated by sharply rising ridges, steep slopes, and narrow valleys. The remaining region of the District, comprising the greater portion of Russell and Tazewell Counties, lies in the Valley and Ridge Province of the Appalachian Highlands. This belt, consisting of alternate valleys and ridges is bordered on the south by the Clinch Mountains and on the north by the Cumberland Plateau. Elevations vary from 845 feet above sea level to 4,705 feet above sea level.

Figure IV-1 — Cumberland Plateau Planning District Commission

http://www.cppdc.org/index.htm

Climate

The Cumberland Planning District is located in the northeastern Appalachian region of the United States and enjoys a seasonal climate, with an average high temperature of 75.2 degrees Fahrenheit and an average low temperature of 35.9 degrees Fahrenheit. Virginia's climate results from global-scale weather patterns that are modified by the diverse landscape of the Commonwealth. The state's landscape provides local controls primarily in three ways. First, the Atlantic Ocean and its "river" of warm water, commonly called the Gulf Stream, play a dominant role in differentiating Virginia's precipitation climate. Winter storms generally move or "track" from west to east and, in the vicinity of the east coast, move northeastward paralleling the coast and the Gulf Stream. This shift to a northeast track results in part from the tendency of the storm to follow the boundary between the cold land and the warm Gulf Stream waters. These storms grow rapidly as they cross the coast; and as they move northeastward, moisture-laden air from the storm crosses Virginia from the east and northeast. The eastern slopes and foothills of the Blue Ridge Mountains are the prime recipients of this moisture. The great coastal storms of 1962, which are remembered primarily because of the high surf and storm surges along Virginia's coast, also produced record snowfalls along the northern section of the Blue Ridge Mountains.

The high relief of the Appalachian and Blue Ridge mountain systems also helps to control Virginia's climate. The influence here originates with the well-developed rainfall pattern that is evident along the great mountains of the western margin of North America. Great quantities of rain fall on these western slopes as moist air from the Pacific Ocean flows eastward, rises, condenses, and precipitates. As the air flows down over the eastern slopes, however, little rain falls and a "rain shadow" pattern results. Along the Appalachian and Blue Ridge Mountains of western Virginia, this airflow is sometimes from the west and sometimes from the east. When the flow is from the west, the New River and Shenandoah River valleys are in the rain shadow of the Appalachian Mountains; when the airflow is from the east, they are in the shadow of the Blue Ridge Mountains. As a result, both the New River and the Shenandoah River valleys are the driest portions of the state. Regions of equally low rainfall are rare in the eastern United States (although common along the eastern margins of the great plains of the central United States).

The third important local control on climate is the state's complex pattern of rivers and streams, which drain the precipitation that falls and modify the pattern of moist airflow from which the precipitation falls. These river systems drain the Commonwealth's terrain in all four geographical directions. In far southwestern Virginia, the Clinch and Holston rivers drain south into North Carolina and Tennessee. The New River drains westward into the Ohio River, while the Shenandoah River drains northward into the Potomac. Finally, the Roanoke, James, York, and Rappahannock rivers drain eastward through the Piedmont and into the Tidewater area. The air that flows across Virginia flows either up these river valleys or over the crests of the mountains and down into the valleys. With a southerly flow of air, for example, moist air would move up the Holston River drainage, and rainfall would increase up valley with increasing elevation. However, this same southerly airflow would be downhill into the New River drainage, and on toward the Ohio River basin. This downward flow of air is not conducive to rainfall.

Weather Systems

Much of Virginia's rainfall results from storms associated with warm and cold fronts. As already noted, these storms generally move from west to east and, in the vicinity of the east coast, move northeastward. While a very large number of specific storm histories and storm tracks can occur and a great diversity of precipitation patterns can result, not all are equally common. Storms are most frequently observed to move parallel to the Appalachian or the Blue Ridge Mountains, the coastal zone, and the Gulf Stream, all of which have a northeast trend, or to move parallel to the Great Lakes and the Ohio River Valley. When storms cross the east coast well to the south of Virginia and move offshore, the heaviest rain usually falls in southeastern Virginia. When these storms become very intense or when they closely skirt the coastline, the strong up-slope winds result in heavy rainfalls on the Blue Ridge. Frequently, frontal storms tracking along the Ohio Valley move across southern Pennsylvania and off the New Jersey coast; as such storms approach the coast, great quantities of moist air flow inland and then southward into Virginia.

When sufficient cold air invades Virginia from the west and northwest, frontal storms may cause heavy snowfalls. Two of the state's most dramatic frontal snowstorms of recent years occurred during the Christmas holidays of 1966 and 1969. In both cases, the storm tracked along the Gulf and the east coasts and crossed over Tidewater Virginia; a strong east and northeast flow brought moist air across the state, overriding cold air from the west. While heavy snows are common in the Piedmont region, the average winter does not have a major coastal snowstorm, and heavy winter snows usually are confined to the mountainous areas of the state. As remarkable as it may seem, some of the heaviest snowfalls in the eastern United States occur in the Appalachians of West Virginia, just a few miles west of Highland County, Virginia. More than 2,500 millimeters (100 inches) fall annually in this area; but Virginia, being in West Virginia's snow shadow, receives only a fraction of this amount.

While heavy snowfalls usually result from frontal storms, hurricanes are created by a different weather pattern. Hurricanes and tropical storms are intense cyclones formed within the deep, moist layers of air over warm, tropical waters. Unlike frontal storms, which derive much of their energy from the great temperature contrasts on either side of fronts, hurricanes and tropical storms derive most of their energy from the warm ocean surface. Tropical storms over the low-latitude oceans generally move from east to west. As they move westward, they are displaced farther and farther to the north. Eventually, they enter the westerly airstreams of the mid-latitudes, and then recurve north and eastward. In the vicinity of Virginia, these tropical storms move in a general northeasterly track, like frontal storms: and as they move along this route, they intensify. Those storms that reach an intensity indicated by sustained winds of at least seventy-four miles an hour are classified as hurricanes.

Thunderstorms, which occur in all months of the year, are most common in the deep, moist, warm air of tropical origin that is typical of summer. In Virginia, days with thunderstorms are recorded at commercial and military airports. Over the last two decades the state has averaged one thunder-storm day a decade in January, compared with nine thunderstorm days a month in July. Thunderstorm days are most frequent in southern Virginia, particularly in the far southwestern section, while northern Virginia experiences the least number of such storms. Thunderstorms also are most likely to occur during the warmest part of the day, with 4:00 p.m. the most probable time of occurrence. In Roanoke, for example, thunderstorms occur ten times more frequently at 4:00 p.m. than at 10:00 a.m. and five times more frequently at 4:30 p.m. than at 7:00 p.m. At Norfolk, thunderstorms are also most frequent at 4:00 p.m., remaining common there until about midnight. Thunderstorms produce complex patterns of rainfall, such that areas of heavy rain may be next to areas with little or no rain.

Population

Almost 108,681 people live in the Cumberland Plateau Planning District. The population is spread out over 1,830 square miles resulting in a 59.39 people per square mile density. Tazewell County's density (82.50 people per square mile) is quite a bit higher than the planning area as a whole.

According to the Census Bureau the population of the Cumberland Plateau Planning District has been declining since the 1980s after experiencing high rates of growths in the previous decade. This decline slowed between 1990 and 2000. Table IV-1 shows the Census 2010 population for the planning area, estimates of the 2015 population, and the growth rates since 1970.

Table IV-1 — Population and Growth Rates for Cumberland Plateau

	CPPDC	Buchanan	Dickenson	Russell	Tazewell
2015 Estimates*					
Total	108,681	22,776	15,115	27,891	42,899
Census 2010 Population					
Total	113,976	24,098	15,903	28,897	45,078
Change					
2011-2015*	-4.64%	-5.48%	-4.95%	-3.48%	-4.83%
2000-2010	-3.64%	-10.67%	-3.0%	-4.65%	1.07%
1990-2000	-2.87%	-8.7%	-3.6%	3.5%	-2.6%
1980-1990	n/a	-17.4%	-10.9%	-9.6%	-8.9%
1970-1980	n/a	18.5%	23.2%	29.5%	26.9%

***2011-2015 estimates based on US Census Bureau American Community Survey**

According to the 2010 American Community Survey collected for the United States Census Bureau, almost 70% of the planning area's population lived in the same home between 1995 and 2010. This indicates that residents tend not to be residentially mobile and may be more familiar with their surroundings and the associated natural hazards.

According to the 2011-2015 Census estimates, Cumberland Plateau's population is balanced between the genders with 50% of the population being male. A breakdown of the population by race can be found in Table IV-2.

Table IV-2: Cumberland Plateau Planning District - Racial Composition*	
White persons, percent, 2010	**96.23%**
Black or African American persons, percent, 2010	**1.95%**
Asian persons, percent, 2010	**0.36%**
Persons of Hispanic or Latino origin, percent, 2010	**0.66%**
2011-2015 Estimates by U.S.Census Bureau	
White persons, 2015 estimate	**97.60%**
Black of African American persons, 2015 estimate	**2.1%**
Asian persons, 2015 estimate	**0.3%**
Persons of Hispanic or Latino origin, 2015 estimate	**0.8%**

2011-2015 US Census American Community Survey data also reveals insights into potential special needs populations such as minors and seniors. Within the planning district, more than 5% of the population is under 5 years, 22% is under 18 years, and 18% is over 65 years old. In addition, about 27% of the population over the age of 5 years has a disability as defined by the 2010 U.S. Census. The 2010 Census American Community Survey data shows that language barrier issues may not be of concern for the Cumberland Plateau Planning District. Less than 2% of the population speaks a language other than English at home and less than one percent are foreign-born.

Almost 69% of residents graduate from high school but less than 11% percent hold bachelor's degrees or higher. These numbers, coupled with the population characteristics described in the previous paragraph are important to keep in mind when developing public outreach programs. The content and delivery of public outreach programs should be consistent with the audiences' needs and ability to understand complex information.

The average per capita household income of $20,233 is about 56% of the state per capita income of $36,206. About 17% of residents within the Cumberland Plateau planning area live below the poverty line. This rate is significantly higher than the national rate of 12.7% and the state rate of 8.20%. These numbers may indicate that a large portion of the population will not have the resources available to them to undertake mitigation projects that require self-funding.

Housing

There are over 53,025 housing units within the planning area. Approximately 5.0% are multi-family units. In Buchanan County, only 4.1% of the units are in multi-family dwellings while 7.2% of Tazewell County's units are in multi-family units. Over 77.4% of residents own their own homes, significantly higher than the national average of 66.6.% or the state average of 68.9%. The housing characteristics are broken down by jurisdiction in Table IV-3.

Table IV-3 — Housing Characteristics*

	Buchanan County	Dickenson County	Russell County	Tazewell County	Total/Average
Housing units, Census ACS 2012-2016	11,443	7,517	13,409	20,656	53,025 total 13,256 avg.
Median value of owner-occupied housing units, ACS 2012 - 2016	$70,500	$72,700	$94,100	$94,400	$82,925
Homeownership rate, 2012-16 Census Bureau Est.	78.9%	76%	77.9%	768%	77.4%
Housing units in multi-unit structures, percent, 2011-2015 ACS	4.1%	5%	3.8%	7.2%	5%

**All data is US Census Bureau American Community Survey Estimates, unless otherwise noted*

Labor and Industry

The three main industries in the CPPDC planning area are the coal, natural gas and the customer contact (telecenters) industries. The top five employers in each county are:

- ♦ Buchanan County
  - Buchanan Minerals LLC
  - Buchanan County School Board
  - Sykes Enterprises
  - Rapoca Energy Company
  - Keen Mountain Correctional Institute
- ♦ Dickenson County
  - Paramont Coal Company
  - Dickenson County School Board
  - Serco Inc.
  - County of Dickenson
  - Enervest Employee Services, LLC

♦ Russell County

- Russell County School Board
- Samuel Son Co USA Inc
- Wal-Mart
- County of Russell
- CGI Federal Inc

♦ Tazewell County

- Tazewell County School Board
- Wal-Mart
- Clinch Valley Community Hospital
- Cumberland Mountain Community Services
- Revelation Energy LLC

Natural Resources

Coal remains the most abundant resource. Based on the Static Reserve Index (Reserves current annual production) the reserves would be depleted in 36 years. According to the Virginia Center for Coal and Energy Research there are less than 2,160 million tons, which would be mined out in less than 45 years. The Virginia Division of Mineral Resources gives a range of recoverable reserves of 1,995 to 4,393 million tons, which would last 44 to 98 years. Whether the coal resources will be depleted in 36 or 98 years, coal mining will remain a major economic activity for the foreseeable future. Additionally, a major portion of the known gas fields in Virginia are located in the Cumberland Plateau Planning District and most of the area is either covered by or suitable for hardwood forest growth.

Transportation

The District is served by three major U.S. highways (U.S. 19, U.S. 460, and U.S. 58), nine primary state highways, and numerous state secondary roads. No interstate highways pass directly through the planning area, though I-81 is easily accessible via U.S. 19 and U.S. 16.

CSX Transportation and Norfolk Southern provide industrial rail service to the district. These rail lines are used primarily to transport coal to power plants in the Southeast and to shipping nodes in Norfolk, Virginia.

The planning district is served by four commercial airports: Tri-Cities Airport (Tennessee), Roanoke Regional Airport, and Mercer County Airport. In addition, a general aviation facility is located near Richlands.

SECTION V. HAZARD IDENTIFICATION & RISK ASSESSMENT

The Hazard Identification and Risk Assessment (HIRA) serves as a guide to all communities in the Cumberland Plateau planning area when assessing potential vulnerabilities to natural hazards. When developing this plan, every effort was made to gather input from all aspects of the project area communities to assure that the results of this analysis will be as accurate as possible.

The planning area for this study includes Buchanan County, Dickenson County, Russell County, and Tazewell County. All jurisdictions located throughout these counties also have been included in this portion of the study, as this analysis has been completed on a regional basis.

The purpose of this HIRA is to:

1) Identify all the natural hazards that could affect the Cumberland Plateau planning area;
2) Assess the extent to which the area is vulnerable to the effects of these hazards; and
3) Prioritize the potential risks to the community.

The first step, identifying hazards, will assess and rank all the potential natural hazards, in terms of probability of occurrence and potential impacts. It will also identify those hazards with the highest likelihood of significantly impacting the community. This section will be completed based on a detailed review of the Cumberland Plateau planning area's hazard history. The hazards determined to be of the highest risk will be analyzed further to determine the magnitude of potential events, and to characterize the location, type, and extent of potential impacts. This will include an assessment of what types of development are at risk, including critical facilities and community infrastructure.

Hazard Identification

While there are many different natural hazards that could potentially affect the communities within the Cumberland Plateau Planning District, some hazards are more likely to cause significant impacts and damages than others. Although reducing the community's vulnerabilities to all hazards is ideal, the highest level of consideration must be given to those hazards which pose the greatest possible risk. This analysis will attempt to quantify these potential impacts for all possible hazard events, and identify those which could most significantly impact the communities involved. Once these hazards have been identified, further analysis will be conducted to profile potential hazard events and to assess vulnerability to such events.

Types of Hazards

While nearly all disasters are possible for any given area in the United States, the most likely hazards (based on local official knowledge and professional judgment) that could potentially affect the communities in the Cumberland Plateau Planning District generally include:

- Dam Failures
- Drought
- Earthquake
- Flooding
- Landslides
- Karst Topography
- Extreme Heat
- Abandoned Mine Fire/Flood
- Severe Thunderstorms
- Severe Wind
- Severe Winter Storms
- Tornadoes
- Wildfires
- Domestic Fires
- Algae Blooms

Depending on the severity, location, and timing of the specific events, each of these hazards could have devastating effects on homes, business, agricultural lands, infrastructure and ultimately citizens.

In order to gain a full understanding of the hazards, an extensive search of historic hazard data was completed. This data collection effort utilized meetings with local community officials, existing reports and studies, state and national data sets, and other sources. A comprehensive list of sources utilized for this plan can be found at the conclusion of this document.

Unfortunately, extensive local historical data is not currently available for many of the potential hazards. In some cases, the precise number of events that have affected the Planning District and the subsequent level of impact to the local communities are not known. In these cases, state and regional hazard information was collected and referenced whenever possible.

Probability of Hazards

The historical data collected includes accounts of all the hazard types listed above. However, some hazards have occurred much more frequently than others with a wide range of impacts. By analyzing the historical frequency of each hazard, along with the associated impacts, the hazards that pose the most significant risks to the Cumberland Plateau Planning District can be identified. This analysis will allow the local communities to focus the Mitigation Strategy of those hazards that are most likely to cause significant impacts.

Prioritizing the potential hazards that can threaten the Planning District will be based on two separate factors:

- The probability that a potential hazard will affect the community, and
- The potential impacts on the community in the event such a hazard occurs.

The probability of a hazard event occurring is largely based on the historical recurrence interval of the hazard. For instance, if flood damage occurs every 5 years versus an earthquake event causing damage every 50 years, the flood probability would score higher than the earthquake.

The hazard's impact on the community is made up of three separate factors: the extent of the potentially affected geographic area, the primary impacts of the hazard event, and any related secondary impacts. While primary impacts are a direct result of the hazard, secondary impacts can only arise subsequent to a primary impact. For example, a primary impact of a flood event may be road closures due to submerged pavement. A possible secondary impact in these circumstances would be restricted access of emergency vehicles to citizens in a portion of the community due to the road closure.

Level of Hazard

A formula has been developed to assign a value for probability and impact for each of the hazards considered. A *Hazard Analysis Worksheet,* as well as a detailed description of all the calculations and formulas utilized, is included as Appendix A of this document. As a result of this analysis, the hazards were broken down into four distinct categories which represent the level of consideration they will receive throughout the planning process. These categories are *High, Medium,* and *Low.*

In order to focus on the most critical hazards that may affect the Planning District communities, the hazards assigned a level of *High* will receive the most extensive attention in the remainder of this analysis, while those with a *Medium* planning level will be discussed in more general terms. Those hazards with a planning level of *Low* have not been addressed in this plan. The level of *Low* should be interpreted as not being critical enough to warrant further evaluation; however, these hazards should not be interpreted as having zero probability or impact. Table V-1 summarizes the results of the hazard level analysis.

Table V-1 — Hazard Identification Results	
Hazard Type	**Hazard Level**
Flooding	High
Severe Winter Storms	Medium
Wildfire	Medium
Landslides	Medium
Severe Wind	Medium
Severe Thunderstorms/Hail Storms	Medium
Earthquake	Medium
Dam/Levee Failure	Medium
Drought	Medium
Domestic Fire	Medium
Algae Bloom	Medium

Table V-1 — Hazard Identification Results

Abandoned Mine Fire/Flood	Medium
Tornado	Low
Extreme Heat	Low

Because the types of the hazards discussed above are similar, some hazards will be discussed simultaneously later in this analysis. For instance, the analysis of severe wind encompasses severe thunderstorms, hurricanes, and tornadoes. In addition, the impacts of a dam/levee failure are covered by the flood analysis. A detailed discussion of the potential hazards that have been identified as high and medium-high level events will be addressed.

Extreme heat was identified in the hazard identification as a "low" level of concern for the Planning District. Generally, extreme heat is defined as temperatures that are 10 degrees or more above the average high temperature for the region during summer months, last for a prolonged period of time, and often are accompanied by high humidity levels. Given the probability and likely limited impacts of this hazard, it was ranked a "low" level for planning consideration. Detailed analysis was not considered needed.

In addition, Karst topography was also identified as a "low" level of concern for the planning district. Karst is a distinctive landscape topography largely formed by the dissolving of carbonate bedrocks such as limestone, dolomite, or marble by water. Karst topography causes unusual surface conditions such as sinkholes, caves, disappearing streams, springs, and vertical shafts. Although Karst topography is present throughout the Planning District, historic losses and damages have been low. Much of the Karst areas throughout the region have been identified, and its presence limits future development in some areas, it does not pose a significant threat for damages and loss of life.

Flooding

The most significant and frequent natural hazard to effect the Cumberland Plateau Planning District (CPPD) is flooding. The Planning District is a mountainous region with steep ridges and pronounced valleys, with three major watersheds, the Clinch River Basin, which flows through Tazewell and Russell Counties, the Levisa and Russell Forks of the Big Sandy River, which flow through Buchanan and Dickenson Counties and the Bluestone River Basin, which flows through Tazewell County. A number of smaller steams and tributaries are located within these watersheds. Watersheds in the Planning District that have minimal impact and flooding information, and therefore, are not part of this study are: the Tug Fork watershed, located in the northern portion; the Wolf Creek watershed located in the eastern portion; and the headwaters of the Holston River watershed, located in the southeastern portion of the Planning District.

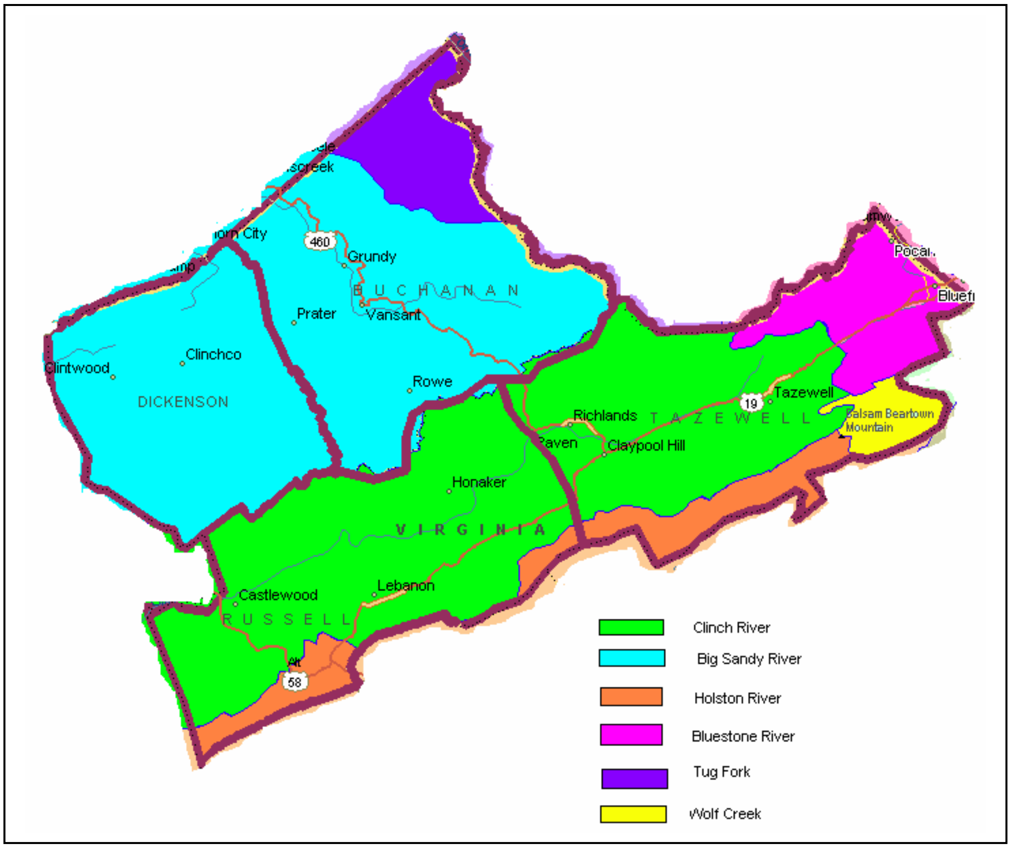


Figure V-1 — Cumberland Plateau Watersheds

Hazard History

The following sections include a description of the known flood history by major watershed. Because a majority of the flood history and flood data available for the area is organized by watershed (as opposed to by county), the discussion of flood characteristics for the CPPD also have been organized by watershed.

A list of repetitive loss properties in the Planning District are as follows in the chart below:

Community	Total # of Repetitive Loss Properties	# Residential	# Commercial
Bluefield	12	5	7
Buchanan County	6	5	1
Buchanan Town	6	2	4
Dickenson County	2		2
Tazewell County	15	13	2
Tazewell Town	2		8
Grundy Town	10	2	1
Richlands Town	11	10	1
Pocahontas Town	1		1
Haysi Town	1		1

Clinch River Basin

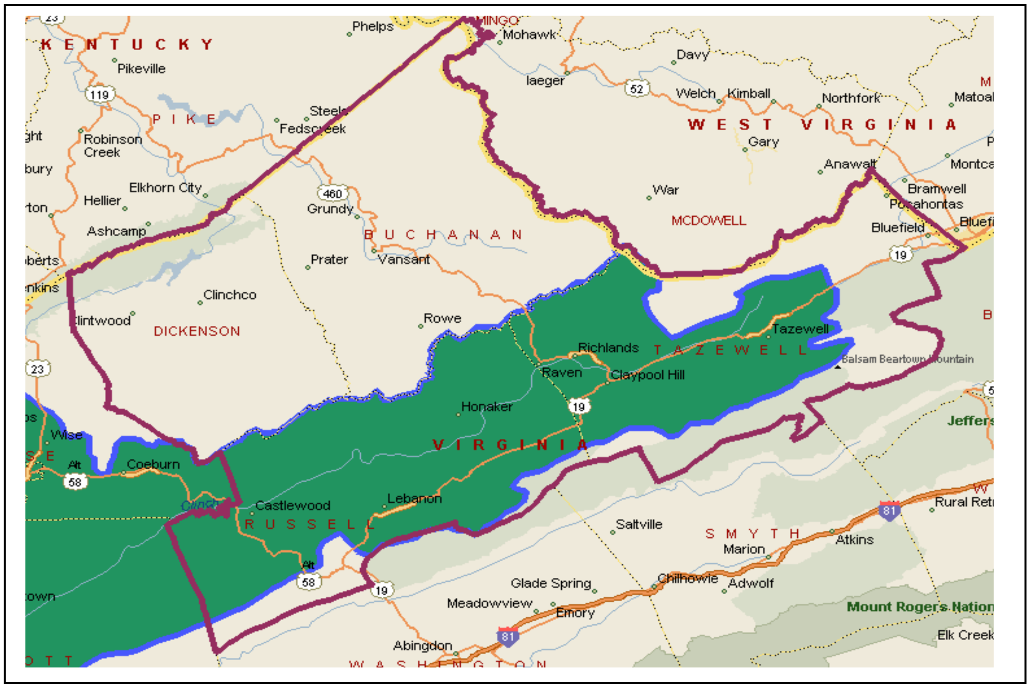


Figure V-2 — Clinch River Basin

The Clinch River is a major river located in Russell and Tazewell Counties, with a drainage area of approximately 670 square miles. The Clinch River is fed by numerous tributaries, originating from the high mountain ridges throughout the drainage area. The primary tributaries to the Clinch are the Guest River, flowing from the northwestern portion (Wise County) of the watershed and the Little River, flowing from the east near the headwaters of the watershed in Tazewell County. Due to steep mountainous terrain in the area, the potential for rapid flooding following a moderate to significant rain event or spring snowmelt is high.

Records of historic events in the Planning District are numerous; floods on the Clinch and its tributaries have been well documented.

The determined flood stage for the Clinch is 16 feet at Cleveland in Russell County. There have been approximately 29 recorded floods since 1862 that have crested above this level on the Clinch. The two largest recorded floods occurred in April, 1977 and January, 1957 with the river cresting at approximately 26.4 feet at Cleveland. As for most floods in this area, much information is not available regarding damages due to these events. A Tennessee Valley Authority report produced in 1964 provides much information of previous floods and compares all floods to the January 30, 1957 flood. Records from this event indicate that several buildings were inundated with floodwaters, and roadways were blocked. Velocities of water in the 1957 flood ranged from 7 feet per second in the river channel and up to 4 feet per second on the flood plain in the Cleveland vicinity. During a Maximum Probable Flood the crest would be 12 to 16 feet higher than the 1957 flood, velocities in the channel would range up to 12 feet per second and up to 8 feet per second in the flood plain.

The most recent flood event on the Clinch River occurred February 16, 2003. A strong but slow moving, storm system developed in the lower Mississippi Valley the morning of February 13, 2003 and moved northeast toward the southern Appalachian region. Several inches of snow had fallen across region earlier in the week, with snow pack depths varying with terrain and location. It was estimated on the 13th that up to 10 inches of snow still lay on the ground on the higher ridges and mountains, especially across southwest Virginia in the Holston, Clinch, and Powell river headwater areas. By the morning of the 16th, the ground across the southern Appalachian region was fully saturated, with small streams everywhere flowing out of their banks, and larger streams and rivers starting to show either significant rises or flooding. While no rivers reached new record levels, the widespread nature of the event, the number of people affected in a significant way, and the dollar amount of damage combined to make this flood event memorable (NOAA).

Table V-2 includes flood heights for events on the Clinch River compiled from a study completed by the TVA report of 1964 and 1977, and from USGS gauge data (TVA, USGS). The events shown are those with crest levels higher than 16 feet, the flood stage on the Clinch. It should be noted that gauge readings prior to 1957 have been adjusted to the present gage location, and from personal accounts and high water marks.

Table V-2 — Historical Flooding on the Clinch River
TVA 1964 and 1977, USGS

OCCURANCE	LOCATION	Height at Cleveland Gage (Zero = 1500.24 FT)	DETAILS
March, 1826	Clinton, Tennessee		Greatest known flood on the Clinch River. No information obtained about flood. Probably a great flood occurred in upper reaches of the river in the Planning District.
February 22, 1862	Clinch River Area	1523.0 ft.	Highest known flood over most of the Clinch River area.
March, 1867	Dungannon		No records, but residents say that flood was exceeded only by the flood of 1862
March 31, 1886	Clinton, Tennessee		Only minor flooding in the Planning District
April 1, 1896	Speers Ferry		First known flood reported in the records at Speers Ferry. Not a major flood up stream
February 22, 1897	Clinch River Area		Minor flooding, no high water marks found.
June 22, 1901	Entire river		Intense storms in the head water area caused great damage and loss of life in the Richlands area.
March 1, 1902	Clinch River Area	1520.5 ft.	One of the largest known floods in the area. Washouts and slides occurred on the Clinch Valley Division of the Norfolk and Western

Table V-2 — Historical Flooding on the Clinch TVA 1964 and 1977, USGS

OCCURANCE	LOCATION	Height at Cleveland Gage (Zero = 1500.24 FT)	DETAILS
			Railway.
November 20, 1906	Clinch River Area		Minor flooding reported. Railroad traffic delayed.
June 14, 1907	Clinch River Valley	1520.5 ft.	Extensive crop damage. Widely remembered flood.
April 3, 1912	Clinch River Area		Minor flooding
April 1, 1913	Clinch River Area		Minor flooding
March 5, 1917	Lower Clinch area		Major flooding in the lower reaches of the Clinch River. Only minor flooding in the upper reaches.
January 29, 1918	Clinch River	1520.1 ft.	Known as the "ice tide" Two to three inches of rain fell on snow covered frozen ground causing major flooding. Schools flooded at Dante
February 3 and June 13, 1923	Clinch River	1517.4 ft.	Two floods caused some damage to the Clinch Valley Division of the Norfolk and Western Railway
December 22, 1926	Clinch River Area	1520.3 ft.	Prolonged period of rain in the lower Clinch Basin. Many washouts occurred on the smaller streams
August 14, 1940	Clinch River Basin	1520.8 ft.	Tropical storm produced two to four inches of rain caused heavy flow in the upper reaches of the river
August 14, 1940	Clinch River Basin	1520.8 ft.	Tropical storm produced two to four inches of rain caused heavy flow in the upper reaches of the river
1940 to 1957	Clinch River Area		Seven minor floods occurred that caused no particular damage
January 30, 1957	Clinch River	1524.4 ft.	Highest known flood of its time. $180,000 flood damages in St. Paul and $60,350 damages in Russell County.
May 7, 1958	Clinch River	1515.8 ft.	Minor flood
March 12, 1963	Clinch River	1522.9 ft.	Over 100 families force to be evacuated in Richlands with two bridges in the Brooklyn area and one in the Hill Creek section were washed away or damages. Two houses in the Doran/Raven area were washed away.
March 17, 1973	Clinch River	1520.2 ft.	No record of flood damage
April , 1977	Clinch River Area	1526.6 ft.	Flood of record. $9.5 million in damages, heavy agricultural damages
January 26, 1978	Clinch River	1521.1 ft.	No record of flood damage
February 16, 2003	Clinch River Area		Rain fall on up to 10" of snow with rising temperatures caused flooding

Recurrence intervals of floods can be estimated using the number of flood occurrences over a period of time. Using the data from the USGS gauge at Cleveland and the 1964 TVA Report, there have been 29 recorded events that have exceeded the flood stage on the Clinch in the past 141 years; for a flood recurrence interval of approximately once every 4.7 years. According to the flood profiles included in the FIS, the 100-year flood elevation at the USGS gauge is 1534 (NGVD 29), which corresponds to a flood crest of 33.76 feet, about 5.4 feet higher than the highest recorded flood level.

Levisa Fork and Russell Fork Basin

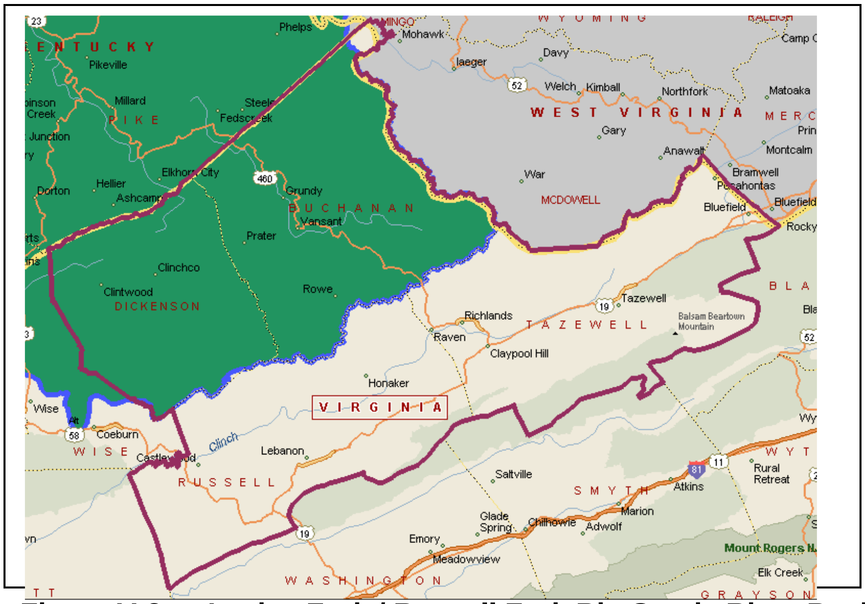


Figure V-3 — Levisa Fork / Russell Fork Big Sandy River Basin

The Levisa Fork and Russell Fork of the Big Sandy River are major rivers located in Buchanan and Dickenson Counties. The Levisa Fork located in Buchanan County, has a drainage area of approximately 300 square miles. The Levisa Fork is fed by numerous tributaries, originating from high mountain ridges throughout the drainage area. The primary tributaries to the Levisa Fork are Slate Creek, Big Prater Creek, Dismal Creek and Garden Creek. Russell Fork, located in Dickenson, is fed by numerous tributaries. The primary tributaries to the Russell Fork are Pound River, McClure River, and Cranes Nest River. Due to steep mountainous terrain in the area, the potential for rapid flooding following a moderate to significant rain event or spring snowmelt is high.

Records of historic events in the Planning District are numerous; floods on the Levisa Fork and its tributaries have been well documented.

The determined flood stage for the Levisa Fork is 12 feet near Big Rock in Buchanan County. There have been approximately 24 recorded floods since 1929 that have crested above this level on the Levisa Fork. The two largest recorded floods occurred in April, 1977 and January, 1957 with the river cresting at approximately 27.38 at Big Rock and 24.8 feet at Grundy. As for most floods in this area, much information is not available regarding damages due to these events. A Corps of Engineers report produced in 1971 provides information of previous floods and compares all floods to the January 29, 1957 flood. Records from this event indicate that several buildings were inundated with floodwaters, and roadways were blocked. During a Maximum Probable

Flood, the crest would be 19 feet higher than the 1957 flood, velocities in the channel would range up to 22 feet per second and up to 18 feet per second in the flood plain.

Table V-3 includes flood heights for events on the Levisa Fork compiled from a study completed by the Corps of Engineers report of 1971, Virginia State Water Control Board report of 1977, and from USGS gauge data located near Grundy from 1929 to 1967 and from Big Rock from 1968 to present (USGS). The events shown are those with crest levels higher than 12 feet, the flood stage on the Levisa Fork.

Table V-3 — Historical Flooding on Levisa Fork / Russell Fork
Corps of Engineers 1971 and USGS

OCCURANCE	LOCATION	Height at Grundy Gage (Zero = 988.5 FT)	DETAILS
March 1, 1929	Grundy	1005.4 ft.	
February 17, 1944	Grundy	1002.1 ft.	
February 17, 1945	Grundy	1001.4 ft.	
January 7, 1946	Grundy	1003.0 ft.	
May 19, 1953	Grundy	1000.7 ft.	
February 27, 1955	Grundy	1001.1 ft.	
January 29, 1957	Grundy	1010.4 ft	Up to 7' of rainfall. Bridge near power substation washed out taking out power and telephone service to the area. Several homes were washed away on Garden Creek and roads were impassable.
August 25, 1958	Grundy	1003.1 ft.	
March 12, 1963	Grundy	1006.7 ft.	3" to 4" of rainfall in less than 24 hours. Area declared a disaster by the Virginia Governor. Over $41 million damage.
March 7, 1967	Grundy	1005.2 ft.	
April 5, 1977	Grundy		Over 5' of water. Business and homes hard hit $20 million damage.
OCCURANCE	**LOCATION**	**Gage Height at Big Rock (Zero = 866.37 FT)**	**DETAILS**
January 21, 1972	Big Rock	881.8 ft.	
January 11, 1974	Big Rock	882.3 ft.	
March 30, 1975	Big Rock	882.1 ft.	
April 5, 1977	Big Rock	893.8 ft.	
January 26, 1978	Big Rock	883.9 ft.	
May 7, 1984	Big Rock	887.1 ft.	
OCCURANCE	**LOCATION**	**Gage Height at Haysi (Zero = 1237.61 FT)**	**DETAILS**
March 23, 1929	Haysi	1256.11 ft.	
February 3, 1939	Haysi	1254.56 ft.	
February 17, 1944	Haysi	1253.07 ft.	
January 29, 1957	Haysi	1261.32 ft.	$5.5 million damages
March 12, 1963	Haysi	1258.71 ft.	$4.5 million damages
March 7, 1967	Haysi	1257.95 ft.	

Table V-3 — Historical Flooding on Levisa Fork / Russell Fork
Corps of Engineers 1971 and USGS

April 28, 1970	Haysi	1253.32 ft.	
March 16, 1973	Haysi	1254.88 ft.	
January 11, 1974	Haysi	1253.82 ft.	
March 30, 1975	Haysi	1255.64 ft.	
April 5, 1977	Haysi	1265.85 ft.	9' of water in homes and businesses. $8 million damages.
January 6, 1978	Haysi	1256.73 ft.	
May 7, 1984	Haysi	1259.69 ft.	
March 28, 1994	Haysi	1253.86 ft.	
April 17, 1998	Haysi	1254.82 ft.	

Recurrence intervals can be estimated using the number of flood occurrences over a period of time. Using the data from the USGS gage at Big Rock and Grundy (The 1971 COR Report), there have been 24 recorded events that have exceeded the flood stage on the Levisa Fork in the past 74 years, for a recurrence interval of approximately once every 2.8 years. According to the flood profiles included in the FIS, the 100 year flood elevation at the USGS gauge is 900.2 (NGVD 29), which corresponds to a flood crest of 33.83 feet, over 6.45 feet higher than the highest recorded flood.

Bluestone River Basin

The Bluestone River is a major river located in the eastern Tazewell County area near Bluefield, with a drainage area of approximately 39.9 square miles. The Bluestone is fed by numerous tributaries, originating from the high mountain ridges throughout the drainage area. The three major tributaries are Wrights Valley Creek, Beaver Pond Creek, and Laurel Fork. Due to steep mountainous terrain in the area, the potential for rapid flooding following a moderate to significant rain event or spring snowmelt is high. The Bluestone River flows into in West Virginia into the New River.

Records of historic events in the Planning District are numerous; floods on the Bluestone and its tributaries have been well documented.

The determined flood stage for the Bluestone is 5.42 feet. There have been approximately 8 recorded floods since 1955 that have crested above this level on the Bluestone. The two largest recorded floods occurred in August, 1964 and January, 1957 with the river cresting over 10 feet near Bluefield. As for most floods in this area, much information is not available regarding damages due to these events. A Virginia State Water Control Board report produced in 1974 provides much information of previous floods. Records from these events indicate that several buildings were inundated with floodwaters, and roadways were blocked.

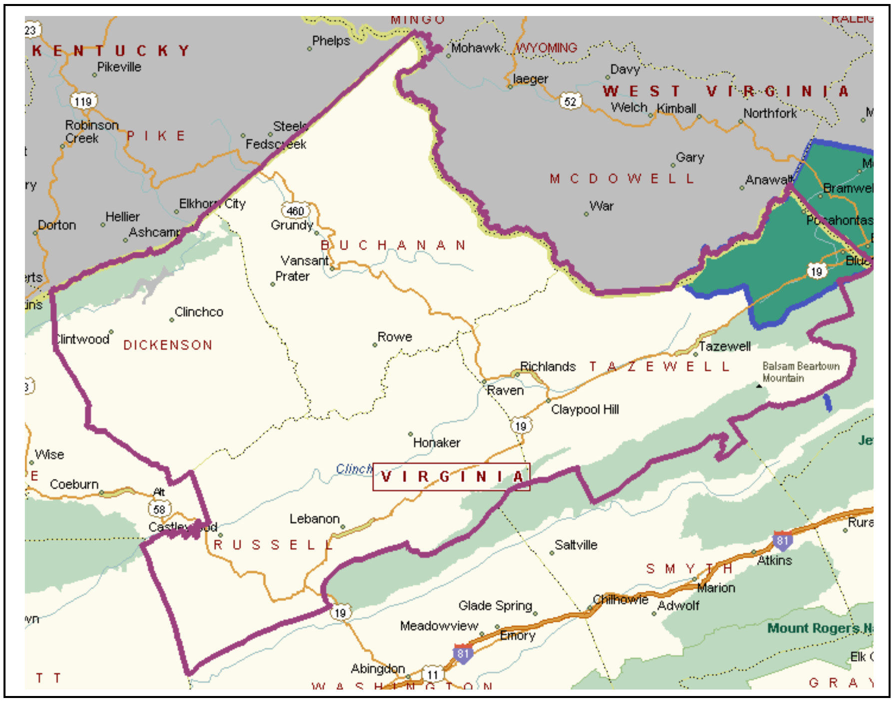


Figure V-4 — Bluestone River Basin

Table V-4 includes flood heights for events on the Bluestone River compiled from a study completed by the Corp of Engineers (State Water Control Board, 1974), and from USGS gauge data (USGS). The events shown are those with crest levels higher than 5.42 feet, the flood stage on the Bluestone. It should be noted that gauge readings prior to 1965, when the gauge was installed at this location, have been estimated from personal accounts, newspaper articles, and high water marks.

Table V-4 — Historical Flooding on the Bluestone River USGS, 1974			
OCCURANCE	**LOCATION**	**Height at Bluefield Gage (Zero = 2350 FT)**	**DETAILS**
March, 1955	Bluefield		4.47" rainfall
January 29, 1957	Bluefield	2360.6 ft.	3.14"' of rainfall. 1,000 person displaced; over $100,000 in damage
March 12, 1963	Bluefield		2.33" rainfall in 24 hours. $7,000 damages to roads
August 28, 1964	Bluefield	2361.4 ft.	2.14" rainfall in 3 hours. $20,000 to $25,000 damages
March 7, 1967	Bluefield	2356.3 ft.	
December 30, 1969	Bluefield	2356.1 ft.	
May 6, 1971	Bluefield	2356.24 ft.	
April1 4, 1972	Bluefield	2357.0 ft.	

Recurrence intervals can be estimated using the number of flood occurrences over a period of time. Using the data from the USGS gage near Bluefield, there have been 8 recorded events that have exceeded the flood stage on the Bluestone from 1955 to 1972, for a recurrence interval of approximately once every 2.1 years. According to flood profiles, the 100 year flood elevation at the USGS gauge is 2,356.8 (NGVD 27), which corresponds to a flood crest of 9.58 feet, over 4.6 feet lower than the highest recorded flood.

Hazard Profile

The majority of the flooding in the Cumberland Plateau Planning District is flash flooding that occurs following a period of intense or sustained rainfall. The highly mountainous terrain and associated steep slopes cause rainwater to runoff rapidly, quickly filling streambeds following an event. Flood-producing storms can occur throughout the year; however, historically the most common months for significantly flooding have been January, February, and March. These months, along with April and May, have the highest average precipitation and the highest frequency of intense rain events. In addition, although snowfall amounts in the area are minimal, flood events can be exacerbated by rapidly melting snow during the winter months.

Because of the mountainous terrain of the drainage area, flooding occurs rapidly, often occurring before the rain event has passed, and flow passes very quickly through the smaller tributaries of the area into the larger streams. The combined effect of these smaller tributaries can create extremely fast-moving floodwaters that greatly exceed the capacity of the larger streams. These fast-moving floodwaters allow little time for residents in the floodplain to evacuate themselves or protect their property, and the force of such rapidly flowing waters increase the potential of damage and loss of life. The duration of these flood events vary depending on the specific characteristics of the rain event. Floodwaters generally recede rapidly once the rain event has ended, but can last from a few hours to a few days.

Warning System

Because flash floods occur rapidly and allow very little warning time, the only potential warning to an upcoming flood event comes through the ability to forecast a heavy rain event prior to its occurrence. The National Weather Service (NWS) issues flood watches and warnings when heavy rains or severe storms threaten the area. These warnings are carried to local residents through local media outlets such as television and radio stations. In addition, the NWS, in conjunction with the National Oceanic and Atmospheric Administration (NOAA), operates the NOAA Weather Radio System. This nationwide network of radio transmitters broadcasts severe weather data to relatively inexpensive special receivers that can be purchased by the public. When a severe weather alert is issued, the transmitter will switch to alert mode, notifying residents of the potential risk. Although not extensive, the measures provide residents and citizens located in a flood-prone area some warning time to prepare for a potential flood.

Secondary Effects

If a significant flood event occurs, there is a potential for a variety of secondary impacts. Some of the most common secondary effects of flooding are impacts to infrastructure and utilities such as roadways, water service, and wastewater treatment. Many of the roadways in the Planning District are vulnerable to damage due to floodwaters. The effect of flood damages to roadways can limit access to areas, cutting off some residents from emergency services as well as other essential services.

Since a major heating source in the area is propane gas, many of the properties in the floodplains have above-ground fuel storage tanks. Field observations revealed that the majority of the tanks in the floodplain are not secured or strapped down. If these tanks were to be damaged or dislodged during a flood event, the resulting gas leaks could present serious explosion risks. Tanks can also become floating projectiles in quickly moving floodwaters, causing serious damage to property and danger to individuals in their path.

Hazard Areas

The portions of the Planning District most susceptible to flooding are those directly adjacent to the areas major waterways, however, flooding can occur along the smaller tributaries throughout the area. Due to the mountainous terrain in the area and the associated steep slopes, the majority of development in the Planning District is located in the valleys along these rivers. Development generally consists of residential and agricultural uses, with commercial districts typically limited within the incorporated towns. A significant amount of the development in the Planning District is located in the floodplain.

FEMA, through the National Flood Insurance Program (NFIP), has developed Flood Insurance Rate Maps (FIRMs) that identify flood zones through detailed hydrologic and hydraulic studies. These flood zones represent the areas susceptible to the 1% annual chance flood, or 100-year flood. Whenever possible, FEMA will also determine a Base Flood Elevation (BFE) for the 100-year floodplain, which is the calculated elevation of flooding during this event. The BFE is a commonly used standard level for determining flood risk, and managing potential floodplain development. Although each specific flood event is different, these maps provide a more definitive representation of the highest flood risks in the communities. The specific flood hazard areas in each of the major watersheds are described below.

Clinch River Basin

The sections of the Clinch River area most susceptible to flooding are those directly adjacent to the Clinch River and Little River, however flooding can occur along the smaller tributaries throughout the area. The majority of development is located in the valleys along the Clinch River and Little River and their tributaries. Development in this area consists of residential and agricultural uses. A significant amount of this development is in the Clinch River floodplain.

The Clinch River, and Little River have been studied in detail as part of the FEMA Flood Insurance Study, and BFE's have been determined for the 100-year flood. The 100-year floodplains along these rivers vary from 100 feet wide in some locations to over 1000 feet wide in others, depending on local topography. For areas along other small streams and creeks throughout the Clinch River area, where minimal development is present and the potential for damages is low, approximate methods were used to determine the extent of the floodplain, and no BFE's were determined.

As noted in the hazard history section, a 100-year flood has not been exceeded on the Clinch River. This does not preclude the occurrence of a 100-year event in the future. As stated previously virtually all of the Clinch River watershed located within the CPPDC area is located within Russell County. The effective date for the FIRM in Russell County is March 16, 1988. Watershed changes that have taken place since that date have not been accounted for but should be minimal due to the rural nature of the area.

Levisa Fork and Russell Fork Basin

The sections of the Levisa Fork area most susceptible to flooding are those directly adjacent to the stream and its tributaries. The majority of development is located in the valleys along the Levisa Fork and its tributaries. Development in this area consists of residential and agricultural uses. A significant amount of this development is in the Levisa Fork floodplain.

The Levisa Fork, Slate Creek, Big Prater Creek, Dismal Creek, and Garden Creek have all been studied in detail as part of the FEMA Flood Insurance Study, and BFE's have been determined for the 100 year flood. The 100 year floodplains along these rivers vary from 50 feet wide in some locations to over 500 feet wide in others, depending on local topography. For areas along other small streams and creeks throughout the Levisa Fork area, where minimal development is present and the potential for damages is low, approximate methods were used to determine the extent of the floodplain, and no BFE's were determined.

As noted in the hazard history section, a 100-year flood has not been exceeded on the Levisa Fork. This does not preclude the occurrence of a 100-year event in the future. The areas of the Levisa Fork and Russell Fork watershed located within the CPPDC area are primarily located within Dickenson and Buchanan Counties. The effective date for the Buchanan County FIRM is August 19, 1997, while the effective date for the Dickenson County FIRM is February 6, 1991. Watershed changes that have taken place since that date have not been accounted for but should be minimal due to the rural nature of the area.

Bluestone River Basin

The sections of the Bluestone River area most susceptible to flooding are those directly adjacent to the Bluestone River, Wrights Valley Creek and Beaver Pond Creek, however flooding can occur along the smaller tributaries throughout the area. The majority of development is located in the valleys along the Bluestone River and its tributaries. Development in this area consists of residential and commercial uses.

The Bluestone River, Wrights Valley Creek and Beaver Pond Creek have all been studied in detail as part of the FEMA Flood Insurance Study, and BFE's have been determined for the 100-year flood. The 100-year floodplains along these rivers vary from 50 feet wide in some locations to over 600 feet wide in others, depending on local topography. For areas along other small streams and creeks throughout the Bluestone River area, where minimal development is present and the potential for damages is low, approximate methods were used to determine the extent of the floodplain, and no BFE's were determined.

As noted in the hazard history section, a 100-year flood has been exceeded on the Bluestone River. This does not preclude the occurrence of another 100-year event in the future, as history has proven in many other places. A majority of the Bluestone River watershed located within the CPPDC area is located within the Town of Bluefield, while portions are also located in unincorporated areas of Tazewell County. The effective date for the FIRM for the Town of Bluefield is August 2, 1994, while the effective date for the Tazewell County FIRM is March 4, 1991. Watershed changes that have taken place since that date have not been accounted for, but should be minimal due to the rural nature of the area.

Flood Maps

Historically, FEMA FIRMs have only been available as hard copy maps and not in digital format. However, in recent years FEMA has developed digital versions of the FIRMs. The maps have been incorporated into a GIS and can be found at the end of this section.

Vulnerability Analysis

In the previous sections of this analysis, specific areas susceptible to flooding in the Planning District were identified. The next step in a Hazard Identification and Risk Assessment is to identify what is vulnerable to the effects of potential flooding. Flooding impacts a community to the degree it affects the lives of its citizens and the community functions overall. Therefore, the most vulnerable areas of a community will be those most affected by floodwaters in terms of potential loss of life, damages to homes and businesses, and disruption of community services and utilities. For example, an area with a highly developed floodplain is significantly more vulnerable to the impacts of flooding than a rural or undeveloped floodplain where potential floodwaters would have little impact on the community.

A number of factors contribute to the relative vulnerabilities of certain areas in the floodplain. Development, or the presence of people and property in the hazardous areas, is a critical factor in determining vulnerability to flooding. Additional factors that contribute to flood vulnerability range from specific characteristics of the floodplain to characteristics of the structures located within the floodplain. The following is a brief discussion of some of these factors and how they may relate to the area.

- **Flood depth:** The greater the depth of flooding, the higher the potential for significant damages. Flood depths have been estimated for the maximum probable event for this area by various TVA and Corps of Engineers studies. Flood heights and rise rates in Figure V-4 are based on the Maximum Probable Flood.
- **Flood duration:** The longer duration of time that floodwaters are in contact with building components such as structural members, interior finishes, and mechanical equipment, the greater the potential for damage. As stated previously, because of the steep topography of the area, floodwaters tend to recede quickly following and event, but may remain longer in localized areas. Flood durations in Figure V-4 are based on the Maximum Probable Flood.

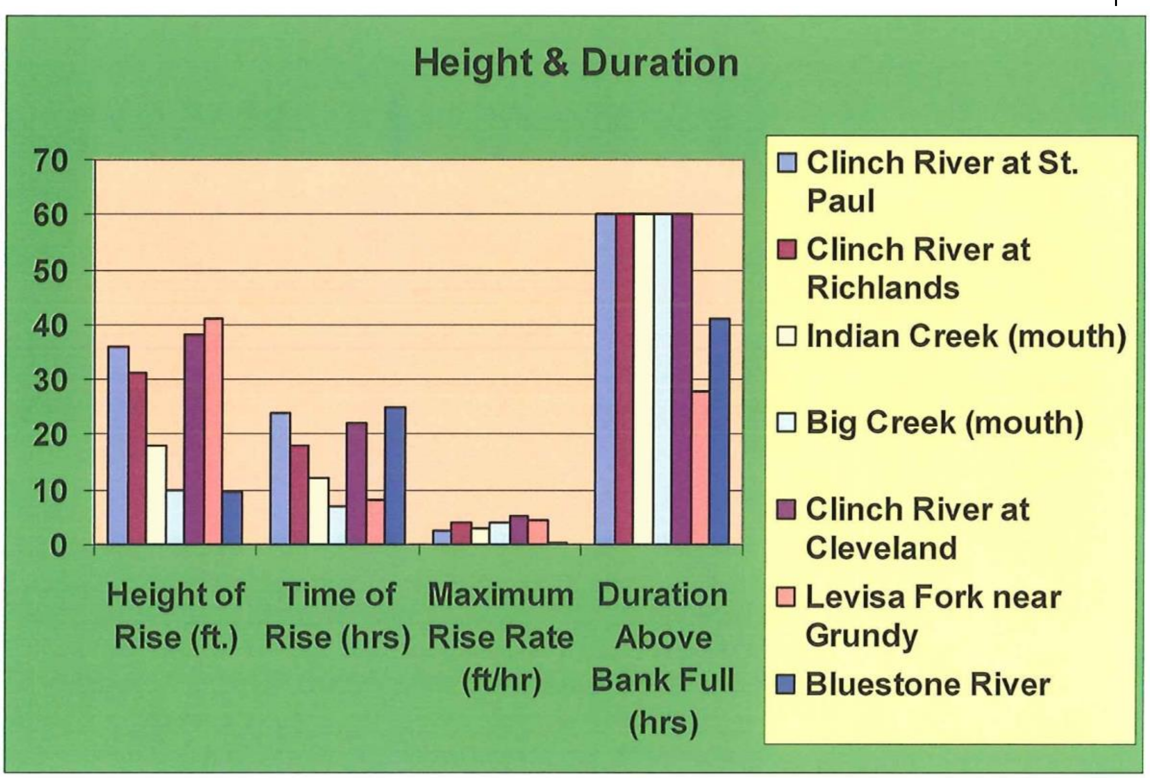


Figure V-4 — River Basin Flood Heights and Duration

- **Velocity:** Flowing water exerts forces on the structural members of a building, increasing the likelihood of significant damage. A one-foot depth of water, flowing at a velocity of 5 feet per second or greater, can knock an adult over and cause significant scour around structures and roadways (FEMA 259). The relatively high velocity of floodwaters in the area will increase damages throughout the Planning District. Flood velocities in Figure V-5 are based on the Maximum Probable Flood.

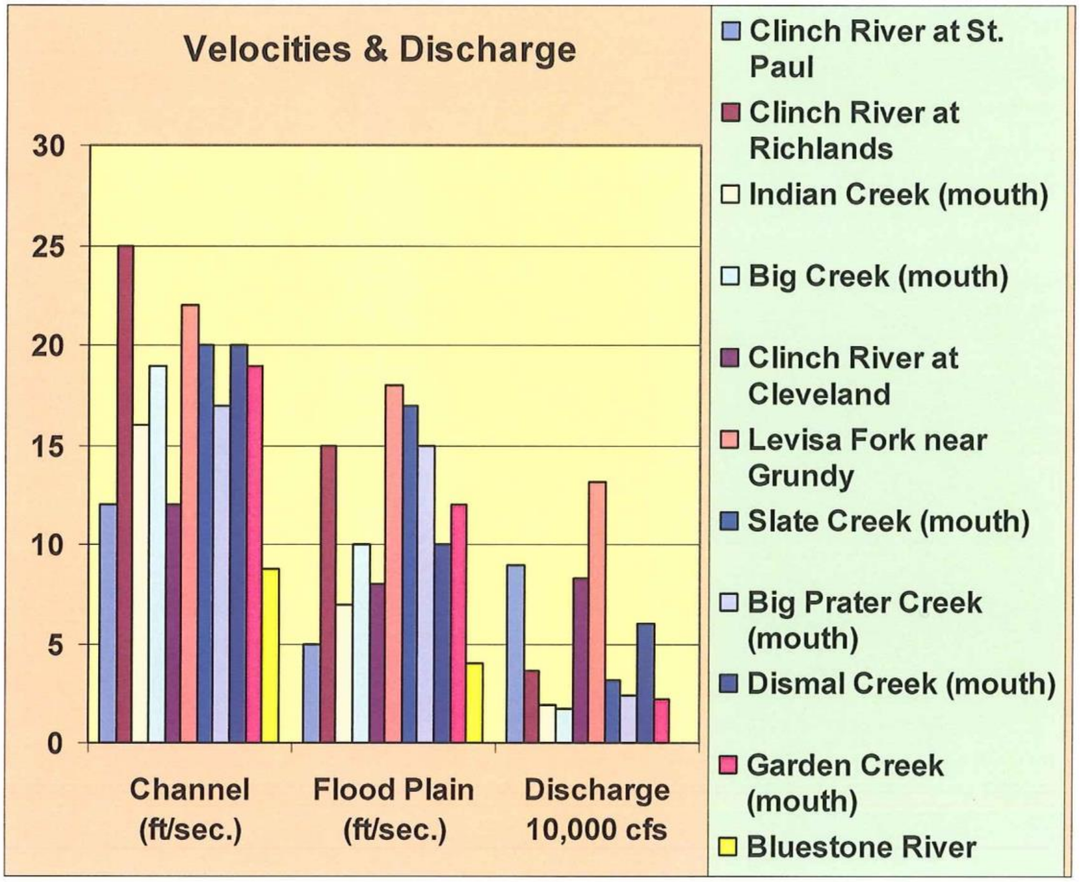


Table V-5 — River Basin Flood Velocities

- **Elevation:** The lowest possible point where floodwaters may enter a structure is the most significant factor contributing to its vulnerability to damage due to flooding. Entry point elevations of structures throughout the Planning District area vary greatly relative to the BFE. Data on the specific elevations of these structures have not been compiled for use in this analysis.

- **Construction Type:** Certain types of construction are more resistant to the effects of floodwaters than others. Masonry buildings, constructed of brick or concrete blocks, are typically the most resistant to flood damages simply because masonry materials can be in contact with limited depths of flooding without sustaining significant damage. Wood frame structures are more susceptible to flood damage because the construction materials used are easily damaged when inundated with water. The type of construction throughout the

Planning District varies from area to area. Specific building types will be discussed in the specific flood area descriptions below.

Structures at Risk

In order to assess the Planning District's potential vulnerability to flooding, specific data regarding structures located in the floodplain was collected as a part of this analysis. Structures potentially in the floodplain were identified by comparing the floodplain areas from the FEMA FIRMs with each County's existing building data. Specific data on these structures was collected during a 'windshield survey' and included the structures' occupancy type, building material type, number of stories, area, value per square foot, total value, and flooding source. Using the type, occupancy, and use of these structures, estimated building values were developed. For the purpose of this analysis, comparable buildings with the same uses, approximate age and general conditions were identified in the Planning District. Tax appraisal values for these buildings (minus land value) and R. S. Means Square Foot Costs were used to develop a square foot value for each building type, which was applied to the properties located in the flood plain to estimate a structure value. Typical per square foot costs for building construction were considered in analyzing the relative accuracy numbers developed for this analysis and some adjustments were made for certain properties in the field based on visual analysis (e.g., decreases in value for blighted or damaged buildings).

Data including the location of existing structures in all four counties located within the Planning District is available in a GIS format, however, detailed data regarding the structures is limited. A vast majority of the existing structures are classified as an unidentified building type. Additional data does vary from county to county but, in general, the location of existing hospitals, police stations, schools, fire stations, and government buildings are known. Therefore using the digital flood data described above, a count of the number of structures located within the floodplain was generated and total value at risk approximated.

From the data collected, a total of 6,045 structures were located in the floodplain, with an estimated total value of over $290 million dollars. This number is based on estimated values for each of the building types described above. Because the structure type for many of the structures is listed as unknown, the cost of the average residential structure was utilized.

Tables V-5 through V-8 include a summary of the number, value, and predominant use of the structures located in the floodplain of all FEMA recognized flood sources. A more detailed discussion of the vulnerability of each flood source follows these tables.

Table V-5: Structures at Risk by Flooding Source Buchanan County		
Flood Source	Number of Structures	Total Value
Big Sandy River	3,219	$150,964,600
Tug Fork	989	$55,051,000

Table V-6: Structures at Risk by Flooding Source		
Flood Source	Number of Structures	Total Value
Big Sandy River	322	$12,979,400

Table V-7: Structures at Risk by Flooding Source Russell County		
Flood Source	Number of Structures	Total Value
Clinch River	691	$31,190,250

Table V-8: Structures at Risk by Flooding Source Tazewell County		
Flood Source	Number of Structures	Total Value
County-wide	824	$40,533,400

The vast majority of structures located in the floodplain of the Cumberland Plateau planning area are residential. The most common type of structure in the flood plain is single-family homes or mobile homes. Mobile homes tend to be more vulnerable than other residential types due to their poor structural stability and flood-prone construction materials as well as the reduced means these residents have to protect themselves from potential flood damage.

Critical Facilities

The impacts of floodwaters on critical facilities, such as police and fire stations, hospitals, and water or wastewater treatment facilities, can greatly increase the overall effect of a flood event on a community. Some of these facilities in the Planning District are located in areas with a high risk to flooding. As stated previously, the location of some of these types of structures are known throughout the Planning Area. Using this data, a list of these facilities located in the floodplain has been generated, and is included in Table V-9. It should be noted that these facilities have been determined to be in the floodplain using a planning level analysis, and should be used only as a planning tool. In order to accurately determine if a structure is actually located in the floodplain, site-specific information must be available.

Table V-9 — Known Critical Facilities in the Floodplain

Jurisdiction	Type	Facility
Buchanan County	Fire and Rescue	Knox Creek Volunteer Fire
	Fire and Rescue	Grundy Volunteer Fire
	Fire and Rescue	Quality Care Ambulance Service
	Fire and Rescue	Dismal River Volunteer Rescue
	Fire and Rescue	Council Volunteer Fire
	Government Building	Buchanan County Courthouse
	School	Hurley Combined School
	School	Vansant Elementary School
	Hospital	Buchanan General Hospital
Dickenson County	Fire and Rescue	McClure River Volunteer Fire Department
	School	Sandlick Elementary School
	Government Building	Haysi Police Dept / Town Hall
	Fire and Rescue	Haysi Rescue Squad
	Fire and Rescue	Clinchco Fire Department
Russell County	Government Building	Lebanon Town Hall
	Treatment Plant	Central Shop STP
	Treatment Plant	Cleveland STP
	Treatment Plant	Cleveland Water Treatment Plant
	Treatment Plant	Dante Wastewater Treatment Plant
	Treatment Plant	Lebanon Water/Wastewater Plant
	Treatment Plant	Honaker STP
Tazewell County	Police	Richlands Police
	Police / Government Bldg.	Pocahontas Police Dept / Town Offices
	School	Raven Elementary School
	Fire and Rescue	Bandy Fire Department
	Fire and Rescue	Bluefield Fire Department
	Fire and Rescue	Clear Fork Fire Department
	Fire and Rescue	Pocahontas Fire Department
	School	North Tazewell Elementary
	School	Tazewell Elementary
	School	Tazewell Middle School
	School	Tazewell High School
	Treatment Plant	Bluefield Water Treatment Plant
	Treatment Plant	Bluefield Wastewater Treatment Plant
	Treatment Plant	Falls Mills Wastewater Treatment Plant
	Treatment Plant	Richlands Water Treatment Plant
	Treatment Plant	Richlands Wastewater Treatment Plant
	Treatment Plant	Pocahontas Water Treatment Plant
	Treatment Plant	Tazewell Wastewater Treatment Plant
	Treatment Plant	Wardell Wastewater Treatment Plant
	Treatment Plant	Misc. Wastewater Lift Stations
	Community Services	AASC Adult Day Care – Falls Mills
	Community Services	Clinch Valley Community Action
	Electrical Infrastructure	AEP Power Substations
	Communications	Verizon Phone Services
	Communications	Sunset Digital Fiber Optic Systems
	Community Access	Bridge – Sage Hill Road
	Community Access	Bridge- Mountain Road
	Community Access	Bridge – Fincastle Farms Road

Special needs populations are those that require additional attention during a flood event, are not as able to protect themselves prior to an event, or are not able to understand potential risks. These can include non-English populations, elderly populations, or those in a lower socioeconomic group. Special needs populations in the Planning District area are primarily lower income and elderly individuals, living in a flood-prone area, without the resources to take actions to protect themselves.

Future Land Use Trends

Due to existing development and very steep topography outside of the river valleys, developable land in the Planning District is scarce. For that reason, one of the dominant development trends in the area is redevelopment. Older, lower value structures are being destroyed and replaced by newer construction with significantly higher dollar values. This is especially true with older mobile homes that are being replaced by new pre-fabricated modular homes. Many of these structures are located in the floodplain, where this redevelopment trend is increasing the value of structures at risk to damages due to flooding in the Planning District.

A complete list of events from 2012-partial 2018 can be found at the end of this document.

Winter Storms

Severe winter storms and blizzards are extra-tropical cyclones that originate as mid-latitude depressions (FEMA, 1997). Snowstorms, blizzards, and ice storms are the most common examples. These storms can bring heavy snowfall, high winds, ice, and extreme cold with them. Historically, winter storms in Southwest Virginia have produced significant amounts of snowfall, sleet, and freezing rain.

Recent Snowstorm History

Between January 20 and 22, 1985, an arctic cold front swept across the state, ushering in extreme cold and high winds. Wind chill temperatures plunged well below zero. Winds knocked out power compounding the effects of the cold. Pipes froze and burst. Fresh snowfall of 4 inches helped temperatures across the entire state fall below zero. New records were set at several locations in the state.

During the winter of 1993-1994, Virginia was struck by a series of ice storms. Although ice storms are not an uncommon event in the valleys and foothills of the Appalachian Mountains, and the region had been overdue for an ice storm, it was unprecedented to have several occur in succession.

The most significant winter storm to affect the Cumberland Plateau Planning District was the "Super Storm of March '93", also known as "The Storm of the Century". Occurring between March 12 and 15, 1993, this storm affected 26 states throughout the central and eastern portions of the United States. The storm resulted in a Federal disaster declaration. Throughout the region, the snowfall amounts ranged from 12 inches to over 48 inches depending on elevation. Extreme southwest Virginia saw 30 to 42 inches of snow from the storm (the most snow in more than 25 years). Some roofs collapsed under the weight of the snow. Winds produced blizzard conditions over portions of the west with snow drifts up to 12 feet. Interstates were shut down. Shelters were opened for nearly 4,000 stranded travelers, and those that left were without heat and electricity. Virginia called out its National Guard to help with emergency transports and critical snow removal.

During the February 10 and 11, 1994 ice storm, some areas of southern Virginia received a devastating 3 inches of ice, causing tremendous tree damage and power outages for up to a week. The "Blizzard of '96" or the "Great Furlough Storm" began late on Saturday, January 6. As much as 30 to 36 inches of snow fell over the western mountains.

On December 18, 2009 the area was hit by a heavy snowstorm that moved out of the eastern Gulf of Mexico. The heavy snow event was declared a state of emergency by Governor Kain. Multiple homes were damaged and electricity was out for many days. In some locations the snow was above 2 feet.

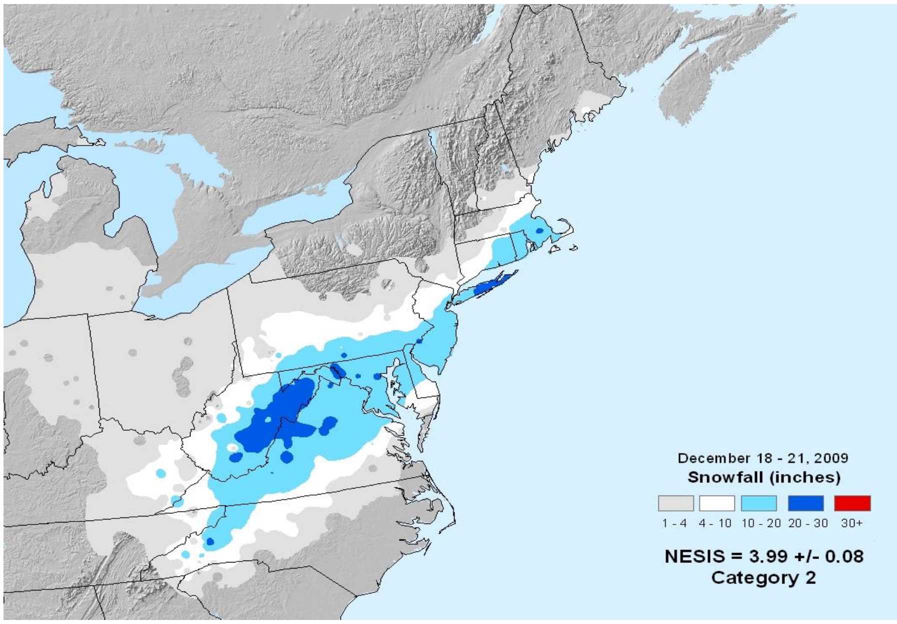


Figure V-6 — Snowfall Totals from 2009 Blizzard

Table V-10 includes ranges of snowfall for select historic events in Southwest Virginia. This table is not inclusive of all historic snowfall events.

Table V-10 — Historic Snow Fall Amounts

Date	Amount
February 12 -March 10, 1960	65 inches
December 10 - 12, 1960	4 - 13 inches
January 20 - 22, 1985	4 inches
March 13-14, 1993	30 - 42 inches
January 6-13, 1996	30 - 36 inches
January 27-28, 1998	12 - 24 inches
December 18-21 , 2009	10-20 inches
February 16-17, 2015	10-12 inches
December 9-10, 2018	10-24 inches

Hazard Profile

Although the Commonwealth of Virginia is not generally associated with severe winter storms, the mountainous area in the southwestern portion of the state regularly experiences several snow storms each year. These storms can produce between 4 and 12 inches of snow from each event. Total average annual snowfall within the Planning District varies from county to county. Buchanan County has an average annual snowfall of 23" per year, Dickenson County is 15" per year, Russell County 21" per year, and Tazewell County 40" per year as illustrated in Figure V-7. However, as Table V-10 illustrates, storms producing higher snowfall amounts are possible.

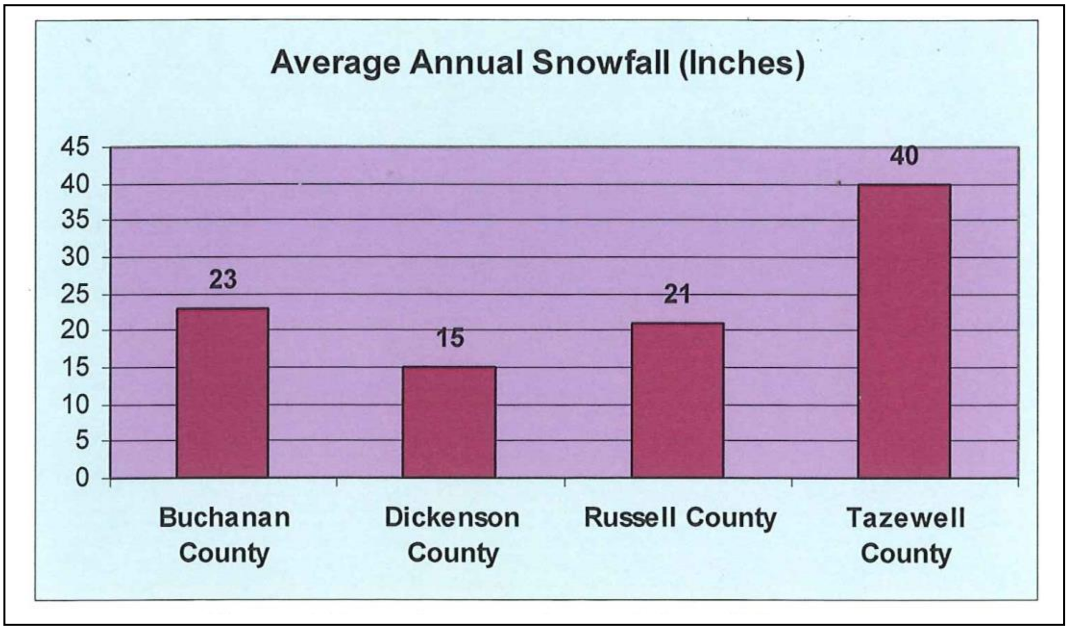


Figure V-7 — Average Annual Snowfalls

In addition to snow, winter storms can also bring sleet and freezing rain to the area. Sleet is generally described as frozen water particles that fall in the form of ice, while freezing rain falls as super cooled water which can freeze on impact with the ground, trees, or roadways. In its most severe form, freezing rain can fall as part of an ice storm that can coat the area with a layer of ice up to 3" thick. Ice storms can cause significant damage by snapping tree limbs and bending trees to the ground. These fallen limbs and trees can completely block roadways, cut access to certain areas of the Planning District for days, and interfere with and destroy overhead utility lines.

Predictability and Frequency

The National Weather Service tracks winter storms by radar. Based on this radar information as well as models, the National Weather Service provides up-to-date weather information and issues winter storm watches to indicate when conditions are favorable for a winter storm, and winter storm warnings if a storm is actually occurring or detected by radar. On average, southwestern Virginia will experience between one and two severe winter storms in a given year. Snowfalls amounts for these storms can vary from a few inches to up to a foot of snow in extreme cases. The higher elevations of the Planning District can experience several feet of snow in a severe winter storm.

Vulnerability Analysis

Winter storms can disrupt lives for periods of a few hours or up to several days, depending upon the severity of the storm. Transportation systems are usually among the first and hardest hit sectors of a community. Snow and ice can block primary and secondary roads, and treacherous conditions make driving difficult; some motorists may be stranded during a storm, and emergency vehicles may not be able to access all areas. The steep slopes found throughout the Planning District exacerbate the situation, making some of the secondary roads impassible during even a minor winter weather event.

Utility infrastructure also can be adversely affected by winter storms. Heavy snow and ice can cause power lines to snap, leaving citizens without power and, in some cases, heat for hours or even days. Likewise, telephone lines can also snap, disabling communication within portions of a community. Frozen water pipes can rupture in people's homes, and water and sewer mains can also freeze and leak or rupture if not properly maintained. These ruptures can lead to flooding and property damage.

People's health can also be adversely affected by severe winter weather. People who lose heat in their homes and do not seek alternate shelter, people who get stuck in snowdrifts while driving, or people working and playing outdoors can suffer from hypothermia and frostbite. Since winter weather hazards generally affect the entire Planning District and vary in intensity and form, it is not possible to quantify primary effects or specific damages.

Secondary effects

Secondary effects of winter storms are broad. Treacherous driving conditions can result in automobile accidents in which passengers may be injured and property damages may occur. Deliveries of heating fuel can be delayed by impassible roads. Impassable roads also can result in schools being closed because buses are not able to access their routes and bring children to school. The costs of salting and sanding roads and of snow removal can be staggering to communities both large and small. The costs to repair roads after spring thaws also can be significant.

After a significant snowfall, the resulting thaw that occurs when the temperature rises above freezing can cause flooding in some areas. As noted in the flood portion of this document, January through March are the months with the highest occurrences of flooding. The rainy season coincides with snowfall and subsequent melting. Because of the mountainous terrain in this area, flood events tend to occur rapidly and with little warning.

The local economy can also suffer if businesses close due to inclement winter weather. The impact could be significant in a larger event. In addition, disabled transportation systems may mean that shipments of goods and services are delayed, which may result in decreased inventory for retailers and increased inventory for industrial and commercial suppliers.

A complete list of events from 2011-2018 can be found at the end of this document.

Wildfire

"A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures" (FEMA 386-2, 2001) and may originate from a variety of ignition sources. The risk of wildfires, though not as high as it is in the western U.S., is a genuine concern for the Commonwealth of Virginia. Each year, about 1,600 wildfires consume a total of 8,000 to 10,000 acres of forest and grassland in the Commonwealth. During the fall drought of 2001, Virginia lost more than 13,000 acres to wildfires (Virginia Department of Forestry website)

Hazard History

Most of Virginia's wildfires were caused either intentionally or unintentionally by humans. Due to the growth of the population of the Commonwealth, there has been an increase in people living in the urban-wildland interface, as well as an increase in use of the forest for recreational purposes. Historical records of wildfire events specific to the Cumberland Plateau Planning District are limited, and not all wildfires are reported. Based on the data obtained from the VDOF WRA, between 1995 and 2008 there have been over of 973 wildfire incidents in the Cumberland Plateau Planning District. These incidents are shown graphically on a map prepared by VDOF, *"Cumberland Plateau, Wildfire Incidents From 1995 to 2008",* included at the end of this section. As shown on the map, there have been a higher number of incidents in the northwestern portion of the planning district. The numbers of incidents, per county per year, are listed in Table V-11.

Table V-11 — Wildfire Incidents per year per County					
Fire Year	County				Total
	Buchanan	Dickenson	Russell	Tazewell	
1995	43	20	18	No data	81
1996	22	10	10	14	56
1997	20	11	9	10	50
1998	23	9	12	17	61
1999	40	16	21	14	91
2000	37	26	24	17	104
2001	71	20	19	17	127
2002	15	12	18	14	59
2003	24	7	7	6	44
2004	19	8	16	6	49
2005	12	13	10	7	42
2006	26	13	20	6	65
2007	32	20	16	9	77
2008	25	15	18	9	67
Total	409	200	218	146	973

Buchanan County

Based on the 1995 to 2008 recorded data in Table V-11, there were 409 wildfire incidents, which have burned more than 18,140 acres and caused an estimated amount of $15,224,440 worth of damage. Of these incidents, only eight (9) are known to have been caused naturally (by lightning). The rest have been caused by human activities such as debris burning (121 fires) and other incendiary causes (279 fires).

Dickenson County

Between 1995 and 2008, there have been 200 recorded incidences of wildfire, which have burned more than 3,046 acres and caused an estimated amount of $2,080,082 worth of damage. Of these incidents, only one (3) is known to have been caused naturally (by lightning). The rest have been caused by human activities such as debris burning (47 fires) and other incendiary causes (150 fires).

Russell County

Between 1995 and 2008, there have been 218 recorded incidences of wildfire, which have burned more than 2,221 acres and caused an estimated amount of $1,335,550 worth of damage. Of these incidents, only three (3) are known to have been caused naturally (by lightning). The rest have been caused by human activities such as debris burning (71fires) and other incendiary causes (144 fires).

Tazewell County

Between 1995 and 2008, there have been 146 recorded incidences of wildfire, which have burned more than 1,382 acres and caused an estimated amount of $378,709 worth of damage. Of these incidents, none are known to have been caused naturally. They have been caused by human activities such as debris burning (71fires) and other incendiary causes (75 fires).

Hazard Profile

Wildfires can be classified as either a wildland fire or an urban-wildland interface (UWI) fire. The former involves situations where wildfire occurs in an area that is relatively undeveloped except for the possible existence of basic infrastructure such as roads and power lines. An urban-wildland interface fire includes situations in which a wildfire enters an area that is developed with structures and other human developments. In UWI fires, the fire is fueled by both naturally occurring vegetation and the urban structural elements themselves. According to the National Fire Plan issued by the U.S. Departments of Agriculture and Interior, the urban-wildland interface is defined as "...the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildlands or vegetative fuels."

A wildfire hazard profile is necessary to assess the probability of risk for specific areas. Certain conditions must be present for a wildfire hazard to occur. A large source of fuel must be present; the weather must be conducive (generally hot, dry, and windy); and fire suppression sources must not be able to easily suppress and control the fire. Once a fire starts, topography, fuel, and weather are the principal factors that influence wildfire behavior. There are several factors that influence an area's risk to the occurrence of wildfires. These include, but are not limited to:

- Historical Wildfire Data
- Land Cover

- Percent Slope of Topography
- Slope Orientation
- Population Density
- Distance to Roads
- Railroad Buffer
- Road Density and Developed Areas

Historical Wildfire Data - It is generally accepted that areas where wildfires have historically been relatively prevalent (or absent) will remain similar in the future. As stated above, there are numerous portions of the Cumberland Plateau Planning District that have high numbers of historic wildfires. Therefore, it can be assumed that the conditions that contribute to a wildfire occurrence are present in these areas, increasing the likelihood that additional fires will occur in these areas.

Land Cover - Wildfire fuels (e.g., grasses, crops, forest, and urban development) determine the ease of ignition, as well as the burn intensity and advancement opportunities. Because of the rural nature of the Cumberland Plateau Planning District, a large portion of the area is forested. These forested areas serve as a readily available fuel source, which also increases the risk of wildfire incidents and of widespread and larger events.

Percent Slope of Topography - Through convective pre-heating, wildfires generally advance uphill. In general, the steeper the slope, the greater the ease of wildfire ignition. The mountainous terrain (i.e., steep slopes) of the planning district is conducive to the ignition and advancement of wildfires. In addition, the steep slopes are a detriment to fire fighting efforts because of the difficulty in accessing and transporting firefighting equipment to wildfire sites.

Slope Orientation - Slopes that generally face south receive more direct sunlight, thereby drying fuels and creating conditions more conducive to wildfire ignition. There are numerous south-facing slopes in the planning district, creating a greater potential for wildfire occurrence.

Population Density - An overwhelming majority of wildfires in the Commonwealth are intentionally or unintentionally ignited by humans. As population increases, the more opportunities for wildfire ignition exist. Therefore, although large portions of the Cumberland Plateau Planning District posses many of the other factors that contribute to the occurrence of wildfires, the rural characteristic of these areas decrease the risk of potential wildfires.

Distance to Roads - Travel corridors increase the probability of human presence, which in turn can result in increased potential for wildfire ignition. Hence, areas of the planning district that are in close proximity to roadways have a higher probability of wildfire. Approximately 21% of the fires reported in the planning district were caused by people in cars.

<u>Railroad Buffer</u> - Railroad operations can produce sparks that may ignite a wildfire. Numerous railroads run through the Cumberland Plateau Planning District; however, this risk is low, with only about 1.5% of wildfires occurring in the planning district having been reported as ignited from railroad use.

<u>Road Density and Developed Areas</u> - Areas that contain a large percentage of developed land and roadway networks generally feature low amounts of wildland fuels, which are typically fragmented to such a degree to minimize the risk of a wildfire. This is the case in many of the towns and villages throughout the Cumberland Plateau Planning District, thereby lowering the overall risk to the most densely populated portions of the area.

Fire Seasons

The Virginia wildfire season is normally in the spring (March and April) and then again in the fall (October and November). During these months, the relative humidity is usually lower and the winds tend to be higher. In addition, the hardwood leaves are on the ground, providing more fuel and allowing the sunlight to directly reach the forest floor, warming and drying the surface fuels.

As fire activity fluctuates during the year from month to month, it also varies from year to year. Historically extended periods of drought and hot weather can increase the risk of wildfire. Some years with adequate rain and snowfall amounts keep fire occurrences low; while other years with extended periods of warm, dry, windy, days exhibit increased fire activity.

Long-term climate trends as well as short term weather patterns play a major role in the risk of wildfires occurring (as shown in Table 5.1 for the years 2000 and 2001.) For instance, short term heat waves along with periods of low humidity can also increase the risk of fire, while high winds directed at a fire can cause it to spread rapidly.

Secondary Effects

There are numerous secondary effects that could impact the Cumberland Plateau Planning District due to wildfires. These include a negative impact on tourism, and thus the local economy, through activities such as camping, hiking, hunting, and fishing. Additional secondary impacts due to wildfire include a degradation of air and water quality, as well as a threat to wildlife habitat including endangered species. Also, areas that have been burned due to wildfire have an increased risk of flooding and landslides in the event of heavy rains.

Hazard Areas

VDOF used GIS to develop a statewide spatial Wildfire Risk Assessment model to identify areas where conditions are more conducive and favorable to wildfire occurrence and advancement. This model incorporated the factors listed in the Hazard Profile section and weighted them on the scale of 0 to 10, with 10 representing the characteristic of each factor that has the highest wildfire risk. With this model VDOF identified areas of the Cumberland Plateau Planning District as having a wildfire risk level of High, Medium, or Low. The results are shown on the map prepared by VDOF, *"Cumberland Plateau, Virginia Fire Risk Zones",* included at the end of this section. As indicated on the map, only a small area within Russell and Tazewell Counties has a low fire risk zone. The Cumberland Plateau Planning District is mostly a high risk area. This high risk is most likely due to the topography (steep slopes) and the inaccessibility of the area, particularly in Buchanan and Dickenson Counties.

Vulnerability Analysis

As stated in the section above, according the VDOF Wildfire Risk Assessment large portions of the Cumberland Plateau Planning District are at high risk for wildfire occurrence. Although these high risk areas tend to be located in the more rural and mountainous portions of the planning district, higher density areas have also been classified as having a high risk. Because these high risk areas are so vast, many of the residents of the planning area live or work in or near a high risk area. Therefore, the most significant threat to the Cumberland Plateau Planning District is that to human life and safety. Many residents in the area live within the urban-wildlife interface and are at the greatest risk from potential wildfires. A commonly found scenario in the Cumberland Plateau Planning District is the 'stacking' of structures up a ridge with one-way access and flammable fuels in between the structures. These circumstances can greatly increase the risk of loss from wildfire and is hazardous to firefighters trying to protect the structures.

Structures at Risk

As stated in the previous section, large portions of the Cumberland Plateau Planning District have been designated as having a high risk to wildfires as determined by VDOF. In an attempt to quantify the potential vulnerability in the areas, the approximate number structures located in these areas have been estimated. As mentioned in earlier sections of this report, the counties included in the CPPDC have a comprehensive GIS system which includes an inventory of building locations and building type. With this data available, and because the VDOF Risk Assessment is also readily available in GIS format, determining the number of structures located in each Risk Wildfire zone was relatively simple. Table V-12 below includes the results of this analysis.

Table V-12 — Structures in Wildfire Risk

Jurisdiction	High Risk	Medium Risk Zone	Low Risk Zone	Percent Structures in High Risk Zone
Buchanan	22,903	660	484	95%
Dickenson	16,999	1,575	45	91%
Tazewell	27,268	13,113	865	66%
Russell	19,556	14,888	317	56%

A complete list of events from 2011-2018 can be found at the end of this document.

Landslides

A landslide is an occurrence of ground movement in which soil, rock, or debris move outward and downward along a slope. Types of landslides can include rock falls, deep-seated failures of slopes, shallow debris slides, and mudslides. The difference in these types of slides depends on the type of movement, as well as the type of material. Landslides can occur suddenly and dramatically or can occur slowly over a period of time. The exact location and timing of a landslide cannot be predicted. Landslides are common throughout the Appalachian Mountain region because of the extremely steep slopes present in the area.

Hazard History

Historically, numerous landslides have occurred throughout the Cumberland Planning District. In some cases, slide locations are still visibly apparent, however, detailed historic records of the location and extent of landslides have not been kept. Because a majority of landslide occurrences have occurred adjacent to existing roadways, or around a roadway under construction, the best resource for obtaining landslide data are the local offices of the Virginia Department of Transportation (VDOT). Therefore, VDOT representatives were specifically contacted in an attempt to gather as much information on historic landslides as possible. The following section includes a description of the landslide data by county.

Buchanan County

VDOT reported six individual locations throughout Buchanan County where historic landslide activity has been documented. The reported landslides documented by VDOT occur at various locations in the county. These locations include:

- Route 672, along Copperhead Branch in the southern portion of the county
- Route 83 at Lover's Gap
- Route 648 and 460 at Dismal Creek
- Route 700 at Big Rock
- Route 643 in the northern portion of the county at Guesses Fork
- Route 697 north of Kelsa

These location can also be found on the *"Buchanan County, Virginia Landslide Locations"* map, included at the end of this section.

Dickenson County

In Dickenson County, VDOT has documented historic landslides occurring at 27 different locations throughout the County. These locations can also be found on the *"Dickenson County, Virginia Landslide Locations"* map included at the end of this section.

Russell County

VDOT has identified seven primary landslide locations throughout Russell County, a majority of which are located along major roadways throughout the county. In addition to the location of the slides, VDOT also provided additional data regarding the characteristics of some of the historic slides.

- Route 63 between Sun and Dante. Fairly stable. Monitoring for movement.
- Route 58 across from Route 71 in western portion of county.
- Route 19 near Washington County line. Southbound lane settles periodically.
- Route 19. Northbound exit ramp at Coal Tipple Hollow. Periodic cleanup and monitoring.
- Route 19. Huffman Hill. Has been stable for some time.
- Route 19 near Souls Harbor Church.
- Route 80 at Doubles Branch.
- Route 80 on Big A Mountain.
- Route 71 below Lebanon Town limits

These locations can also be found on the *"Russell County, Virginia Landslide Locations"* map included at the end of this section.

Tazewell County

In Tazewell County, VDOT has documented historic landslides occurring at 14 different locations throughout the County a majority of which are located along major roadways throughout the county. These include:

- Route 19 at several locations.
- Route 460 in the city of Cedar Bluff.
- Several locations along roadways in the Jefferson National Forest.
- Route 637 at The Jumps and the intersection with Route 626.

These locations, as well as the others can also be found on the *"Tazewell County, Virginia* Landslide *Locations"* map included at the end of this section.

It should be noted that this locations do not represent all of the historic slide locations in the Cumberland Plateau Planning District. Many small landslides that do not directly impact the public are not reported or recorded. These landslides have typically been located along smaller roadways throughout the area, and numbers of slides and potential damage amounts are unknown.

Hazard Profile

Where and when landslides occur is based on number of natural factors but can be exacerbated by conditions created by man. The most prominent natural factors affecting susceptibility to landslides are topography, geology, and precipitation. No single factor alone will cause a landslide to occur, but a combination of factors will. Topography plays an obvious role in the occurrence of landslides. The steeper a slope, the greater the forces of gravity that are acting on the rocks or soils on that slope, which increase the potential for failure. Geology is an important factor as well, as the strength of the rock, soil, or debris to resist the forces of gravity greatly affects the likelihood of a landslide. Therefore, the type and sequence of rock and soil types and layers greatly affect slope stability. The potential for landslides on slopes with the combination of steep terrain and loose or weak soil can be exacerbated by high levels of precipitation. Precipitation is a key catalyst for the occurrence of a landslide. Water can seep into the voids between soil and rock particles, decreasing the strength of the slope, and increasing the potential for landslides. As a result, landslides are most common during or following heavy periods or rain.

Other factors that increase the potential of a landslide include erosion, undercutting, and slope loading. When the base of a slope is eroded or undercut, the strength of the entire slope can be compromised. In mountainous regions such as the Cumberland Planning District, this commonly occurs along existing roadways, or during the construction of new roadways. Slope loading can also increase the potential for landslides. The construction of structures or roadways on a steep slope can increase the strain on the material, thus increasing the potential of a slide. The amount of ground cover and vegetation on a slope also can play a role in a slopes susceptibility to landslides, as dense cover can secure an otherwise unstable slope.

Landslides can be triggered by other natural hazards. The effect of extreme precipitation including flooding has been discussed above. In addition, ground shaking associated with an earthquake can trigger landslides on unstable slopes. Thin surface soils and steep topography throughout the Cumberland Planning District create conditions favorable to erosion and landslides. Widespread construction of roads, clearing of lands, and preparation of development sites on very steep slopes exacerbate the problem.

Predictability

The exact time or location that a landslide will occur cannot be predicted. As previously discussed, landslides can be caused by a combination of many different factors. In some instances, the potential for a landslide to occur at a particular location can be identified based not only on topographical and geologic factors, but also on other physical indicators. The United States Geological Survey (USGS) has developed a landslide overview map for the United States that combines susceptibility to landslides as well as the history of past landslide incidences in the area. The map ranks the susceptibility of and area and the past incidence on a level of high, moderate, and low. A level of high incidence was given to areas where more than 15% of the land had been involved in land sliding, and a level of high susceptibility was given to areas where more than 15% of the land area was determined to be susceptible to landslides based on geologic and topographic factors. Virtually the entire Cumberland Plateau Planning District is located within an area of both high susceptibility and high incidence, indicating the highest possible national risk level.

Hazard Areas

Because of the physical characteristics of the area, virtually the entire Cumberland Plateau Planning District is located in an area that has a high risk to the effects of landslides. As stated previously, due to the many factors that contribute to when and where a landslide will occur, it is extremely difficult to indicate precise locations that are at a greater risk of being affected by a landslide than other areas. However, one of the best indicators of where a landslide may occur is the locations of past landslide activity. These areas have demonstrated susceptibility to landslide occurrence, making additional landslides at these locations likely.

Historic landslide problem areas are indicated in the landslide location maps included at the end of this section. As noted previously, these maps do not depict all areas within the planning district where historic landslides have occurred, or where they may be a problem in the future. Historically, detailed records have not been maintained by local or county governments, therefore the data required to identify all known high landslide risk areas located within the planning district is not available.

Vulnerability Assessment

Because the conditions that cause a landslide are extremely site specific, the impacts of an individual landslide can vary greatly. Landslides can damage or potentially destroy anything in the path of the slide including homes, businesses, roads, and utilities. Landslide debris can also partially or fully block rivers, in which case the potential for significant flooding exists. The precise impacts of a landslide will depend on the specific characteristics of the slide, as well as the level of development in the slide area.

Due to the extreme steep slopes throughout the Cumberland Plateau Planning District, virtually all of the development in the area is at high risk to the effects of landslides. The vulnerability of specific structures and assets can only be determined by a detailed investigation of the site characteristics, primarily the proximity to at-risk slopes. A majority of the more densely developed areas of the planning district are located in areas with more gradual slopes. Therefore, the risk of widespread damages due to landslides in the densely developed areas is limited. However, a majority of the unincorporated areas throughout the planning district have extremely steep slopes. The potential for landslide damage to structures in these areas could be high.

Based on past occurrences, the most vulnerable assets located within the Cumberland Plateau Planning District are its roadways. Many of the roads in the area traverse steep slopes increasing the vulnerability to damage. The damage to a roadway affected by a landslide can vary from partial blockage to total destruction. In addition to the damage to the road itself, more significant economic and safety impacts may be felt by the community due the loss of function of the roadway. Many of the roadways throughout the planning district provide the only direct access from one community to another, or potentially the only access certain remote areas. This reduction in access can increase the response time of emergency vehicles, creating a potentially serious threat to public safety in these areas.

A complete list of events from 2011-2018 can be found at the end of this document.

Wind Events

Wind can be one of the most destructive forces of nature. Strong winds can erode mountains and shorelines, topple trees and buildings, and destroy a community's critical utilities and infrastructure. Primarily, damaging winds that affect the Cumberland Plateau Planning District are associated with severe thunderstorms, or the remnants of a tropical storm or hurricane. Winds from a severe thunderstorm can reach over 60 mph in the southwest Virginia region. These storms generally develop along a cold front and can extend for hundreds of miles.

Although rare, tornadoes can occur in the Planning District. If a tornado were to impact the Planning District, the level of damages sustained would depend most on the strength of the tornado, measured by the Fujita Scale, along with the type and number of facilities and resources impacted. Table V-13 includes the corresponding wind speeds for the Fujita Scale, and typical damage descriptions for each level.

FUJITA SCALE			DERIVED EF SCALE		**OPERATIONAL EF SCALE**	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	**EF Number**	**3 Second Gust (mph)**
0	40-72	45-78	0	65-85	**0**	**65-85**
1	73-112	79-117	1	86-109	**1**	**86-110**
2	113-157	118-161	2	110-137	**2**	**111-135**
3	158-207	162-209	3	138-167	**3**	**136-165**
4	208-260	210-261	4	168-199	**4**	**166-200**
5	261-318	262-317	5	200-234	**5**	**Over 200**

Hazard History

Records of the impacts of high wind events in the Cumberland Plateau Planning District are limited. The relatively large distance between the Planning District and the Atlantic Coast limit the impacts of the winds associated with hurricanes and tropical storms. Because the highest winds speeds associated with a hurricane or tropical storm are typically located to the east of the storm's eye, and the path of most of these storms are to the east of the Planning District, extremely high winds from these events are rare. Damaging winds from severe thunderstorms have occurred throughout Southwest Virginia on a regular basis. Wind damages have typically been localized throughout the region and have included broken tree limbs, blown down trees, damage to power lines, and moderate building damage.

Due to the mountainous terrain, tornado occurrences in the area have been rare, although they are possible. Table V-14 includes historical tornado occurrences in the counties within the Planning District.

Table V-14 — Tornadoes from 1950-2011	
County	# **of Tornadoes**
Buchanan	**1**
Dickenson	**2**
Russell	**6**
Tazewell	**2**

Wind Zones

The Planning District is not classified as an area with a higher than average base wind speed nationally. According to the Virginia Uniform Statewide Building Code (BOCA, 1996), the minimum design wind speed for the Planning District area is 70 mph.

High wind events, primarily severe thunderstorms, have occurred in every portion of the Planning District. There are no proven indicators to predict specifically where high winds may occur, and these events can be expansive enough to affect the entire area. Although localized geography, such as mountain ranges and gorges, can contribute to potential damages caused by these events, no specific locations within the Planning District have been identified due to these conditions. Therefore, the entire Planning District is considered to have an equal risk of being impacted by a high wind event.

Vulnerability Analysis

Depending on the type of wind event, the damage sustained can range from extremely localized to widespread, and from moderate to devastating. The potential impacts of a severe wind event to the Planning District depend on the specific characteristics of the event but can include broken tree branches and uprooted trees; snapped power, cable, and telephone lines; damaged radio, television, and communication towers; damaged and torn off roofs; blown out walls and garage doors; overturned vehicles; totally destroyed homes and businesses; and serious injury and loss of life. Downed trees and power lines can fall across roadways and block key access routes, as well as cause extended power outages to portions of the Planning District.

The extent and degree of damages from a high wind event are primarily related to the intensity of the event, measured in terms of wind speed. Sustained high winds can be the most damaging, although a concentrated gust can also cause significant damage. As wind speeds increase, the extent of damage varies depending on a number of site-specific characteristics that will be discussed later in this section.

Although no specific areas of the Planning District can be designated as having a higher risk of being affected by a severe wind event, there are a number of factors that contribute to a particular area's vulnerability to damages if a high wind event should occur. Certain characteristics of an area or of a structure increase its resistance to damages then others. Many of these factors are extremely specific to the particular location, or the particular structure in question. However, each factor's affects on vulnerability can be discussed in general. The following is a list of these factors and a description of how they relate to vulnerability, particularly in the Planning District.

Design Wind Pressures

Buildings must be designed to withstand both external and internal wind pressures on the structural framing and exterior elements. The level to which these structures are designed, as expected, directly correlates with their ability to resist damages due to high winds. The State's building code dictates to what design wind speed a structure must be designed to. When stipulating the design wind load of residential and commercial structures, the Virginia Uniform Statewide Building Code refers to the standards developed in BOCA, 1996. As described in the previous section, the design wind speed for the Planning District is determined to be 70 mph. For some building types, those structures constructed subsequent to the adoption of the building code are the most likely to be the most resistant to damages from wind. However, the resistance to wind damage based on these code requirements is only effective to the level the requirements are enforced, and no comprehensive data on the date built for these structures exists for the Planning District.

Building Types

The type of building construction will have a significant impact on potential damages from high wind events. A summary of basic building types - listed in order of decreasing vulnerability (from most to least vulnerable) - is provided below.

- **Manufactured:** This building type includes manufactured buildings that are produced in large numbers of identical or smaller units. These structures typically include light metal structures or mobile homes.
- **Non-Engineered Wood:** Wood buildings that have not been specifically engineered during design. These structures may include single and multi-family residences, some one or two story apartment units, and small commercial buildings.
- **Non-Engineered Masonry:** Masonry buildings that have not been specifically engineered during design. These structures may include single and multi-family residences, some one or two story apartment units, and some small commercial buildings.
- **Lightly Engineered:** Structures of this type may combine masonry, light steel framing, open-web steel joists, wood framing, and wood rafters. Some portions of these buildings have been engineered attention while others have not. Examples of these structures include motels, commercial, and light industrial buildings.
- **Fully Engineered:** These buildings typically have been designed for a specific location, and have been fully engineered during design. Examples include high-rise office buildings, hotels, hospitals, and most public buildings.

The Planning District includes a variety of building types. Residential construction is primarily wood framed, varying from single story to multiple stories, although some masonry residential properties are present as well. As mentioned in the list above, non-engineered wood framed structures are among the most susceptible to potential damage. With this type of construction being the most prevalent for residential properties in the Planning District, a majority of residential structures in the area could be classified to have a high level of vulnerability to damages should a high wind event occur.

Other types of structures found throughout the Planning District that are vulnerable to damages during high wind events are metal framed buildings, primarily associated with light industrial buildings, as well as some agricultural buildings.

According to the Virginia Uniform Statewide Building Code, agricultural buildings, such as barns and silos, are required to meet minimum requirements and be constructed in accordance with the state building code. Although the potential for human losses in these structures may be lower, the potential for high amounts of damages are significant.

Other building related factors that impact the potential for damage include height, shape, and the integrity of the building envelope. Taller buildings and those with complex shapes and complicated roofs are subject to higher wind pressures than those with simple configurations. The building envelope is composed of exterior building components and cladding elements including doors and windows, exterior siding, roof coverings, and roof sheathing. Any failure or breach of the building envelope can lead to increased pressures on the interior of the structure, further damage to contents and framing, and possible collapse.

Critical Facilities

The vulnerability of critical facilities such as police and fire stations, hospitals, shelters, and utility services varies greatly depending on the factors described in the sections above. In order to accurately assess the relative vulnerability of these structures, data regarding the vulnerability factors would be required. Generalizations based on the vulnerability factors can be made in certain instances. Due to the high level of importance to the community, the ability of these structures to resist the forces of high wind events greatly affects the community's overall vulnerability to these hazards.

Estimating Losses

Due to the varying characteristics of the potential wind events that can affect the Planning District, preparing loss estimation for a particular event is not a simple task. Severe thunderstorms or straight line wind events could bring severe winds to the entire Planning District, although damages may only occur in localized areas. However, potential wind damages can be estimated on various structure types based on the potential wind speeds and building types described in the sections above.

The FEMA Benefit Cost module, used for estimating the benefits of potential wind mitigation projects, contains a wind damage function based on building type and potential wind speed. This wind damage function expresses the potential damage to a building as a percentage of the building's replacement value, and potential damages to a building's contents as a percentage of the value of its contents. For use in this module, FEMA separates structures according to the building types described in the Vulnerability Analysis section.

Using these building types, and the potential wind speeds for the Cumberland Plateau Planning District, potential damages can be expressed in terms of a percentage of the building and contents values. ASCE 7 categorizes the southwest Virginia area as a 90-mph wind zone, based on a 50-year recurrence interval. Based on ASCE 7, the potential wind speed for an event with a 100-year recurrence interval was estimated to be 107% of the 50-year wind speed, or 96.3 mph. Table V-15 includes estimates of potential damage of the specific building types in the four-county area for the 50- and 100-year interval wind event. It should be noted that the 100-year wind speed assumed corresponds with an F1 category tornado on the Fujita scale. Damages from the impact of a tornado stronger than an F1 could greatly exceed these estimates.

Table V-15: Potential Wind Damage by Building Type

	50-Year Event (90 mph)	100-Year Event (96.3 mph)

Building Type	Building Damage	Contents Damage	Building Damage	Contents Damage
Manufactured	25%	40%	50%	100%
Light Engineered	5%	2.5%	15%	15%
Non-Engineered Wood	7.5%	5%	20%	20%
Non-Engineered Masonry	5%	2.5%	15%	15%
Fully Engineered	2.5%	2.5%	5%	15%

A complete list of events from 2011-2018 can be found at the end of this document.

Earthquakes

The earth surface is composed of a series of tectonic plates, which are constantly moving and shifting against one another. The movement of these plates causes stress to develop along plate boundaries, and along fault lines. When the stress along one of these boundaries or fault lines exceeds the strength of the adjacent rock and earth, a slip or fracture occurs, releasing the built up energy as waves. Energy waves travel through the earth's crust up to the ground surface, causing the shaking that is associated with an earthquake.

Earthquakes in the United States occur most frequently along the West Coast, due to the close proximity to the North American plate boundary. Earthquakes can also occur along the East Coast of the United States, but the mechanisms causing these earthquakes are as not well understood, as these earthquakes occur within the plate rather than at plate boundaries (USGS, 2003).

The Commonwealth of Virginia is subject to earthquakes occurring in two primary areas of seismic activity. The Eastern Tennessee Seismic Zone extends from Charleston, South Carolina through western North Carolina and eastern Tennessee into central Virginia. The New Madrid Seismic Zone is located in southern Missouri. Both zones have the potential to affect the Cumberland Plateau Planning District. Although these faults have not produced a significant earthquake in recent years, both have a history and the potential to produce severely damaging earthquakes in the future.

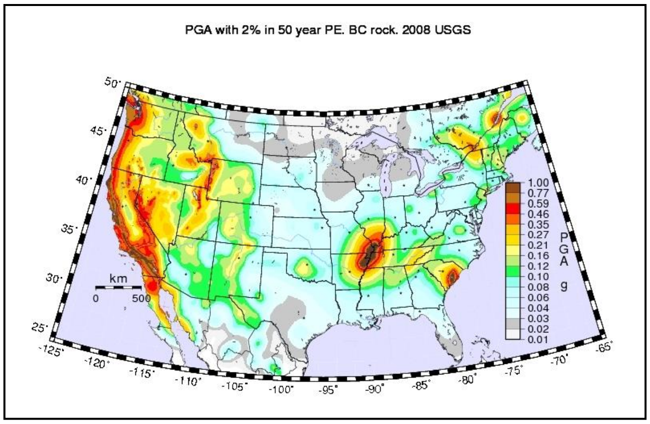


Figure V-9 — Earthquake Probability Map

When earthquakes occur, the shaking motion is measured on an instrument called a seismograph. The wave peaks on a seismograph indicate the strength of the shaking motion of the earthquake. The magnitude of an earthquake depends on how much energy is released and is used to measure the size of an earthquake's source (USGS, 2003). The magnitude is expressed in terms of the Richter scale, which is a logarithmic mathematical formula based on the amplitude of the waves measured by the seismograph. The Richter scale uses whole numbers and decimals to measure earthquake magnitudes.

In addition to magnitude, an earthquake also can be measured in terms of intensity. The intensity of an earthquake is the effect of the earthquake on the earth's surface. In the United States, the intensity is commonly measured with the Modified Mercalli Intensity Scale (MMI). This scale assigns an intensity level to an earthquake depending on the effects of an earthquake felt at a particular location, such as chimneys damaged, people awakened, and levels of building damage. Because this scale is based on the actual effects of an event, the intensity of a particular earthquake will vary by location, generally decreasing in intensity the farther the location is from the epicenter (the source of the earthquake).

The following table includes the levels for both the MMI scale and the Richter scale, as well as the associated levels of damages.

Table V-16 — Modified Mercalli Intensity Scale

Scale	Intensity	Description of Effects	Maximum Acceleration (mm/sec)	Corresponding Richter Scale
1	Instrumental	Detected only on seismographs	<10	
II	Feeble	Some people feel it	<25	**<4.2**
III	Slight	Felt by people resting; like a truck rumbling by	<50	

Table V-16 — Modified Mercalli Intensity Scale				Corresponding Richter Scale
Scale	Intensity	Description of Effects	Maximum Acceleration (mm/sec)	
IV	Moderate	Felt by people walking	<100	
V	Slightly Strong	Sleepers awake; church bells ring	<250	<4.8
VI	Strong	Trees sway; suspended objects swing, objects fall off shelves	<500	<5.4
VII	Very Strong	Mild alarm; walls crack; plaster falls	<1000	<6.1
VIII	Destructive	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged	<2500	
IX	Ruinous	Some houses collapse; ground cracks; pipes break open	<5000	<6.9
X	Disastrous	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread	<7500	<7.3
XI	Very Disastrous	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards	<9800	<8.1
XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves	>9800	>8.1

Hazard History

The largest recorded earthquake to occur along the East Coast of the United States occurred in Charleston, South Carolina on September 1, 1886. This earthquake is estimated to have been magnitude 7.3 on the Richter scale and was felt as far away as Boston, Massachusetts and Milwaukee, Wisconsin. Overall, this earthquake resulted in 60 lives lost and an estimated $5 - $6 million in damages.

The largest historic earthquake to occur within the Commonwealth of Virginia occurred in Giles County on May 31, 1897. There were other seismic events preceding the earthquake, as tremors on May 3, 1897 caused damage in the areas around Pulaski, Radford, and Roanoke. In addition, loud rumblings were reported near the epicenter between May 3 and May 31. The event of May 31 was felt from Georgia to Pennsylvania and as far west as Indiana and Kentucky, encompassing a 280,000 square mile area. In Pearisburg, Virginia, walls of old brick houses cracked, bricks were thrown from chimney tops, springs were muddied, and some earth fissures appeared. Minor aftershocks continued through June 6, 1897, and other shocks were observed on June 28, September 3, and October 21. On February 5, 1898, Pulaski reported additional chimney damage and people rushed into the street during a tremor.

The Cumberland Plateau Planning District was also impacted by the 1811-1812 earthquakes that occurred along the New Madrid fault in Missouri. This earthquake had an approximate magnitude of 7.2 at its epicenter and had an intensity of VI throughout the Planning District. Although powerful, damages associated with this earthquake were limited due to the relatively low population density throughout the region at the time of the event.

The following table includes a list of recorded earthquakes that have either occurred in the Commonwealth of Virginia, or have occurred in neighboring states that have affected Virginia, based on the most complete data available. The intensity and magnitude of all these events are not known, and in some cases damages may have occurred but were not recorded. This table is not intended to represent earthquakes affecting the Planning District, but to provide an overview of the seismic history of Virginia.

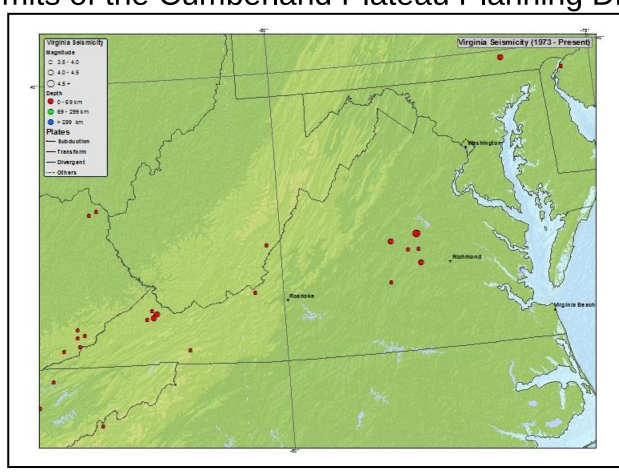
Table V-17 — Historic Earthquakes affecting Virginia

Date	Location	Magnitude Intensity	Description
February 21, 1774	Virginia/NC	Unknown	Shock felt throughout area
December 1811 February 1812	New Madrid, MO	Intensity: VI Magnitude: 7.1-7.2	Small amount of damage due to low population density
March 9, 1828	Southwestern Virginia	Intensity: V	Shaking felt throughout State
August 27, 1833	Richmond, VA	Intensity: V	Two miners killed in Dover Mills near Richmond
April 29, 1852	Wytheville, VA	Intensity: VI	Chimney damage, windows rattled
August 31, 1861	Southwestern Virginia	Intensity: VI	Chimney damage *(note: occurred during Civil War so details sketchy)*
December 22, 1875	Manakin, VA	Intensity: VII	Chimneys broken, shingles shaken off, glass broken
May 3, 1807	Pulaski, VA	Intensity: VI	Loud rumblings
May 31, 1897	Giles County, VA	Intensity: VII	Brick walls cracked, bricks thrown from chimney tops, springs muddied, earth fissures appeared
June 28, 1897	Giles County, VA	Intensity: I	Aftershock
September 3, 1897	Giles County, VA	Intensity: I	Aftershock
October 21, 1897	Giles County, VA	Intensity: I	Aftershock
February 5, 1898	Pulaski	Intensity: VI	Chimney damage, people rushed into streets
February 11, 1907	Arvonia, VA	Intensity: VI	Minor damage, small area affected
August 23, 1908	Arvonia, VA	Intensity: II	Aftershock

Table V-17 — Historic Earthquakes affecting Virginia			
Date	Location	Magnitude Intensity	Description
May 8, 1910	Arvonia, VA	Intensity: II	Aftershock
April 9, 1918	Luray, VA	Intensity: VI	Broken windows in Washington DC
September 5, 1919	Front Royal, VA	Intensity: VI	Chimney damage, springs & streams muddied
December 26, 1929	Charlottesville, VA	Intensity: VI	Bricks thrown from chimneys
April 23, 1959	Giles County	Intensity: VI	Chimney damage, plaster cracked, pictures fell
May 5, 2003	Goochland County, VA	Magnitude: 3.9	Rumblings, no damage
Dec. 9,2003	Nelson County, VA	Magnitude 4.5	Slight Damage
August 23, 2011	Louisa County, VA	Intensity: VII Magnitude 5.8	Moderately heavy damage

TVA 1957 USGS

The map included in Figure V-10, prepared by the National Earthquake Information Center, displays the locations of historic earthquakes in the Commonwealth of Virginia, along with the different topographic regions of the state. The greatest concentration of earthquakes have occurred in the western portion of the state, throughout the Blue Ridge mountains, and several in the Commonwealth of Kentucky. No earthquakes have originated within the limits of the Cumberland Plateau Planning District.



NOAA: (http://neic.usgs.gov/neis/states/virginia/virginia_seismicity.html)
Figure V-10 — Seismicity of Virginia 1973 to Present

Hazard Profile

Depending on the location, magnitude, and intensity of an earthquake, the damages and associated impacts to the community can vary greatly. As described in Table V-16, the impacts can be as mild as light shaking barely noticeable to citizens, to as large as totally destroyed building and infrastructure.

In an attempt to quantify the risk of damages due to an earthquake throughout the United States, the USGS, through the Earthquake Hazard Program, has developed maps displaying likely levels of ground motion due to future earthquakes. When developing these maps, USGS considered the potential magnitude and locations of future earthquakes based on historical data and geological information on the recurrence intervals of fault ruptures. Using this data, the extent of potential ground shaking with a 10 percent, 5 percent, and 2 percent chance of being exceeded in a 50-year period has been calculated, and contour lines have been interpolated are delineated on hazard maps.

The most commonly used method to quantify potential ground motion is in terms of peak ground acceleration (pga). During an earthquake, particles on the earth move in response to the energy waves released at the epicenter. How quickly these particles accelerate directly proportionate to the anticipated level of damages due to an earthquake, with the higher levels of acceleration causing the most significant damage. Peak ground acceleration is expressed as a percentage of a known acceleration, the acceleration of gravity ($9.8m/s^2$), and is commonly referred to as "%g".

Figure V-11 displays the peak acceleration for the Commonwealth of Virginia with a 2 percent chance of being exceeded in a 50-year period. As can be seen in the figure, the virtually all of the Cumberland Plateau Planning District is located between the 16% of g contour and the 20% of g contour, with some portions having a value slightly greater than 20% of g.

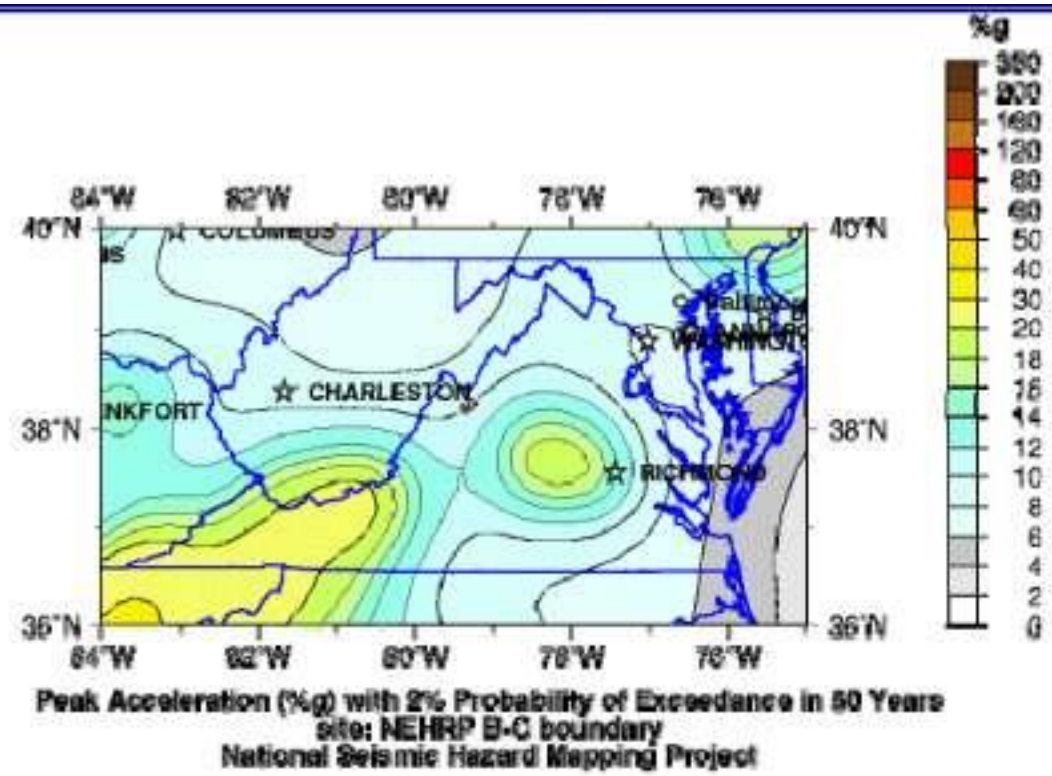


Figure V-11 — Peak Acceleration Probability Map of Virginia

Using the scale provided in Table V-16 this level of ground shaking is slightly greater to that associated with a level VII (MMI) intensity earthquake or between 6.1 and 6.9 on the Richter scale. Typical damages associated with this earthquake include cars moving uncontrollablely, masonry walls and building fracturing, and poorly constructed buildings being damaged. It should be noted that this is not the highest intensity earthquake that could affect the Planning District. Earthquakes of greater and lesser intensities can occur, and have lower and higher probability levels, respectively.

Hazard Areas

Because of the large area affected by most earthquakes, as well as the vast diversity of the locations and intensities of historic earthquakes that have and can affect southwestern Virginia, no specific areas of the Cumberland Plateau Planning District can be identified as having a higher risk of being affected by an earthquake. However, this same distinction also indicates that the entire Planning District is at a similar risk to earthquake.

Some slightly elevated hazards may be experienced in those areas subjected to deep mining. The presence of mine portals and shafts in the subterrain provide the rock strata with a void in which to settle following a seismic event. The settlement of earth into these voids can cause fissures or sinkholes on the surface, which could cause significant damage to buildings and other infrastructure on the surface, even following a minor seismic event.

Vulnerability Analysis

The effects of earthquakes are wide-ranging, from little or no effect, to major structural damage. The degree of damage largely depends on the location of the epicenter relative to the community and the magnitude of the event. As stated previously, these factors can not be controlled or predicted. Other factors such as the level of seismic design, the type of construction, and other site specific characteristics also play a role in the level of damages sustained during an earth quake.

The municipalities within the Cumberland Plateau Planning District currently utilize the Virginia Uniform Building Code. The Code, which references the seismic design level from BOCA 96, requires varying levels of seismic design, which depend on an importance factor determined by the structures use and nature of occupancy. The higher levels of seismic design are assigned to those structures where the risk of injury or loss of life is highest, or those whose function is most critical to the community should an event occur. Examples of these structures include a schools, health care facilities, power generating facilities, water and wastewater treatment facilities, police stations, and fire stations. Although these structures are required to be designed to resist higher levels of seismic activity, they also represent the highest vulnerability to earthquake losses within the Planning District.

When assessing vulnerability, a discussion of the probability of earthquake activity is necessary. As noted in earlier sections, there are two distinct seismic zones affecting the Planning District - the New Madrid Seismic Zone and the East Tennessee Seismic Zone.

Table V-18 —Periodicity of Earthquakes for the New Madrid Seismic Zone

Magnitude	Recurrence	$PROB_{15}$	PROB50
>8.0	550-1200	0.3-1	2.7-4.0
7.0	255-500	5-9	19-29
6.0	70-90	40-63	86-97
5.0	10-12	~100	~100
4.0	14 months	~100	~100

http://www. uky. edu/ArtsSciences/Geology/webdogs/virtky/

From the above chart, it is apparent that there is a great chance that a magnitude 6 earthquake will strike the New Madrid Seismic Zone before the year 2040. This translates into the potential for property destruction when the event occurs. It has been estimated that if an earthquake similar to that of December 16, 1811, were to strike today, thousands of deaths would result at the epicenter, as well as billions of dollars in damage. Within the Cumberland Plateau Planning District, an Intensity Level of VI could be anticipated, meaning potential for chimney damage, plaster walls cracking, and some glass breakage.

Primary and Secondary Impacts

As listed in Table V-161, the primary impact of an earthquake can range from toppled chimneys and broken windows, to crack walls and roadways, to complete collapse of structures and bridges. Depending on the magnitude and location of the earthquake, the overall effects on the community can range from minimal to catastrophic. In larger events, loss of life and injuries can be extensive and the cost of damages can be massive. As stated previously, although historically moderate earthquakes have affected the Planning District, the potential for a higher magnitude earthquake does exist, due mainly to the proximity of the two key seismic zones.

In some cases, the secondary impacts from an earthquake can be as damaging and disruptive to a community and its citizens. The most significant potential secondary effect of an earthquake to the Planning District is the potential for landslides. Ground shaking during an earthquake can cause previously weakened steep slopes to fail, as well as otherwise stable slopes. The specific impacts of landslides are discussed further in other sections of this plan.

In addition to landslides other secondary effects can include disruption of critical services such as water, electrical, and telephone services. Damage to police stations, fire stations, and other emergency service facilities can weaken a community's ability to respond in the crucial hours and days following an event.

A complete list of events from 2011-2018 can be found at the end of this document.

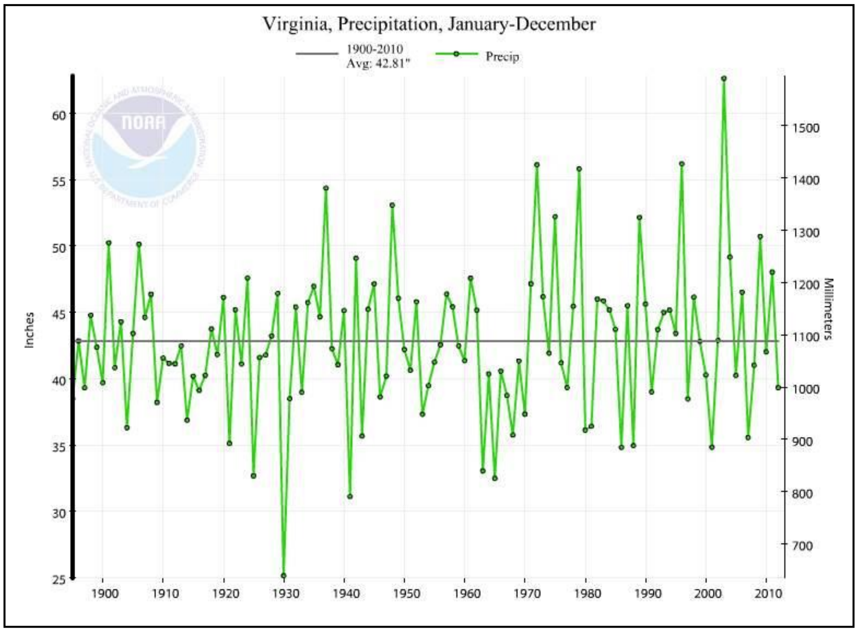
Drought

"Drought is a condition of moisture deficit sufficient to have an adverse effect on vegetation, animals, and man over a sizeable area" (USGS, 2000). Three significant types of drought can affect the Cumberland Plateau Planning District, which are meteorological, agricultural, or hydrologic drought. Meteorological drought is simply a departure from a normal precipitation amount, and is reliant on no other factors. Agricultural drought describes a soil moisture deficiency to the extent it effects the needs of plant life, primarily crops. Hydrologic drought is defined in terms of shortfall of water levels of lakes and reservoirs, and stream flow in rivers, streams, and soils (Multi Hazard Risk Assessment, 2000). Drought is a natural part of most climatic areas, but the severity of droughts differs based on duration, geographic extent, and intensity.

Hazard History

There have been a number of significant droughts recorded in Virginia since 1900. The most recent drought extended over a period of one year, from 2007 to 2008. This period saw rainfall levels well below normal and caused many communities throughout the region to institute water restrictions.

Although meteorologists have attempted to predict long term changes and trends in weather patterns, the onset of a significant drought cannot be predicted. Extended periods of dry weather have occurred many times from over the past 100 years.



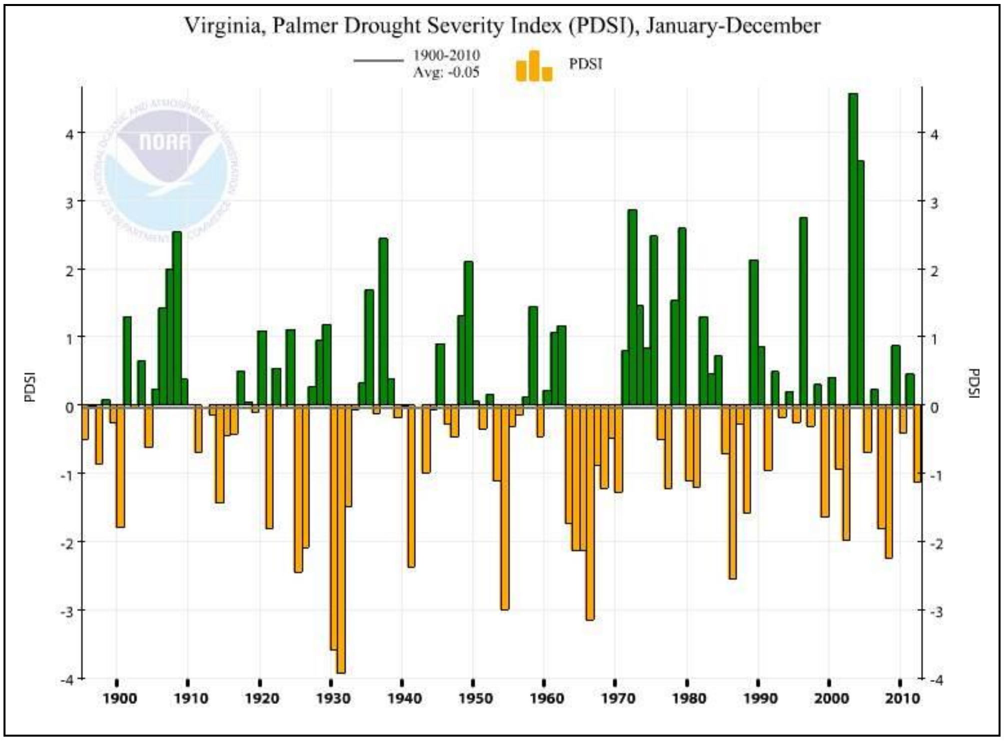
V-12 — Virginia Statewide Precipitation, January 1900-2010

Hazard Profile

Just as there are multiple types of drought, there are multiple methods to indicate when a drought is occurring, as well as the severity of the drought. The multiple indices are based on a variety of data including precipitation amounts, stream flows, soil moisture, snow pack, as well as other water storage data. Commonly, the drought indices used depends on the type of drought being measured. It is important to note that not all types of drought must be occurring simultaneously. In some cases an area can be affected by one form of drought, while levels measuring another form of drought are normal.

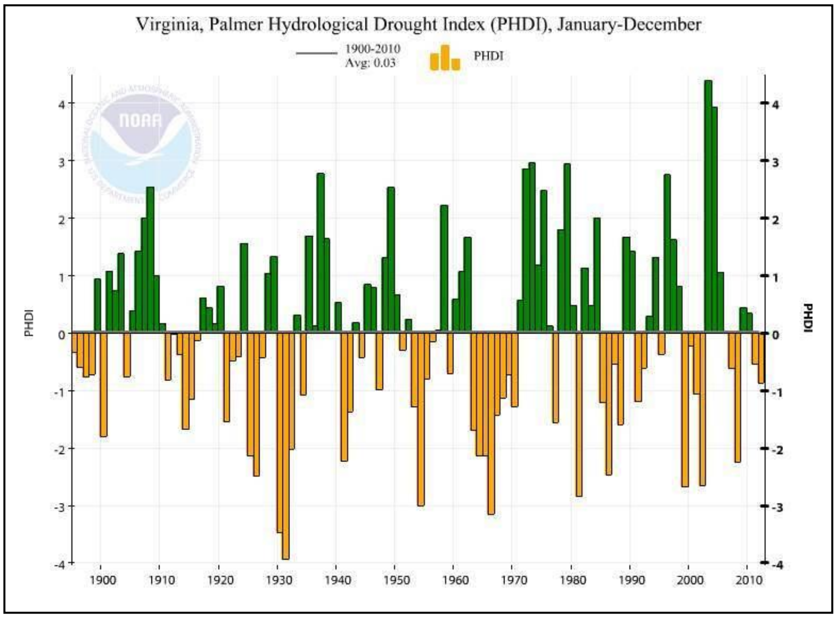
The most commonly used drought indicator is the Palmer Drought Index. This index was developed in the 1960s by the National Oceanic and Atmospheric Administration, and uses temperature and rainfall data to determine dryness. Negative numbers indicate drought, while positive numbers indicate surplus rainfall. Minus two is considered a moderate drought, minus three is severe drought, and minus four is extreme drought. Likewise, positive two is considered a moderate rainfall, positive three a severe rainfall, and positive four, an extreme rainfall. In addition to the Palmer Index, the Standard Precipitation Index (SPI) and the Crop Moisture Index (CMI) also are used to measure drought. The SPI relates the deficit in precipitation compared to normal levels to varying degrees of time. Because the duration of lower than average precipitation levels has varying effects on stream flows, water storage levels, and soil moisture content, the SPI attempts to measure drought based on the long term deficit in precipitation. The CMI measures short term moisture conditions across predominate crop producing regions. It is based on the temperature and precipitation levels for a given week as well as the CMI value for the previous week (http://www.drought.unl.edu/whatis/indices.htm).

The Virginia State Climatology Office uses the Palmer Drought Severity Index (PDSI) to measure long-term moisture status. A reading of -3.0 is considered to be a "severe drought.".Shown below is the PDSI history for Virginia from 1900 through December 1, 2010. .



Virginia State Climatology Office

Figure V-13 —Virginia Palmer Drought Severity Index



V-14 — Virginia Statewide Palmer Hydrological Drought Index, January 1900 - December 2010

Vulnerability Analysis

If a significant drought event were to occur, it could bring extensive economic, social, and environmental impacts to the Planning District. Commonly one of the most significant economic effects to a community is the agricultural impacts. Other economic effects could be felt by businesses that rely on adequate water levels for their day to day business such as carwashes and laundromats.

Drought also can create conditions that promote the occurrence of other natural hazards such as wildfires and wind erosion. The likelihood of flash flooding is increased if a period of severe drought is followed by a period of extreme precipitation. Low-flow conditions also decrease the quantity and pressure of water available to firefighters to fight fires, while the dry conditions increase the likelihood fires will occur.

Environmental drought impacts include those on both human and animal habitats and hydrologic units. During periods of drought, the amount of available water decreases in lakes, streams, aquifers, soil, wetlands, springs, and other surface and subsurface water sources. This decrease in water availability can affect water quality such as salinity, bacteria, turbidity, and temperature increase and pH changes. Changes in any of these levels can have a significant effect on the aquatic habitat of a numerous plants and animals found throughout the Planning District. Low water flow can result in decreased sewage flows and subsequent increases in contaminants in the water supply. Decrease in the availability of water also decreases drinking water supply and the food supply as food sources become scarcer. This disruption can work its way up the food chain within a habitat. Loss of biodiversity and increases in mortality can lead to increases in disease and endangered species.

A complete list of events from 2011-2018 can be found at the end of this document.

Severe Thunderstorms & Hail

Thunderstorms arise from atmospheric turbulence caused by unstable warm air rising rapidly into the atmosphere, enough moisture to form clouds and rain and an upward lift of air currents caused by colliding warm and cold weather fronts, sea breezes or mountains.

Thunderstorms are always accompanied by lightning, but they may also be associated with heavy rains, hail and violent thunderstorm winds. Thunderstorms occur most often during the spring and summer months and can occur throughout the region. Nationwide the average storm is 15 miles wide and generally last less than 30 minutes at any given location. Some storm systems have been known to travel more than 600 miles.

Thunderstorms in the Cumberland Plateau region present a threat especially due to their association with other major hazards in the area. Thunderstorms bringing heavy rain can cause flooding, the primary hazard to the Cumberland Plateau; they can also cause wildfires and even potentially domestic fires, which are a growing threat to the region. Heavy rainfall can result in landslides in areas where soil is not secure, and hail presents the chance of crop damage in agricultural communities—though there are very few, if any reports in the CPPDC area from hail causing crop damage. While hail is an infrequent occurrence in the CPPDC region, it does occur, and can result in property damage in severe cases.

Dam Failure

There are a number of dams throughout the CPPDC region; many are privately-owned dams on farm lands with relatively little information on record. Several coal slurry and fly ash impoundment dams exist in the region, which could present major impacts to both human life and the environment were they to fail. Virginia's Department of Conservation and Recreation (DCR) operates the Dam Safety and Floodplain Management program (DSFPM) and categorizes 8 dams in the region as *High* in Hazard Class: John W. Flannagan Dam (Dickenson Co), White Oak Creek Dam (Dickenson), Laurel Bed Dam (Russell), Clinch River Fly Ash Dam #2 (Russell), Upper Clinch River Dam #8 (Tazewell), Falls Mills Dam (Tazewell), and Upper Clinch Valley Dam #1B (Tazewell).

Dam failure presents itself as an especially prominent threat in regard to the John W Flannagan Dam in Dickenson County. While there is little to no evidence to suggest a potential dam failure at this location, which is well-maintained by the US Army Corps of Engineers, a dam failure here would be catastrophic for a bevy of reasons. Flannagan Reservoir is the primary source of public water for most of Dickenson County as well as significant portions of neighboring Buchanan County. A dam failure would immediately pose a threat to public water services. Numerous properties are also located downstream from the John W Flannagan Dam, and a dam failure on a large scale would cause millions of dollars in property damage and present a severe threat to life downstream.

Domestic Fire

Domestic Fire has been a growing threat to the CPPDC region, especially so in the last decade. The majority of homes in the area were built prior to 1980, and as an area with economic struggles, many residents do not possess the capital necessary to ensure their home is kept up to date with modern electrical wiring or heating.

Due to aging homes and little fiscal capability to update those homes, there has been a surge in domestic fires in the area in recent years. Russell County has been especially effected by this surge, with as many as 100 or more domestic fires in the county each year. The number of domestic fires tends to increase during the Fall and Winter months as residents are more heavily reliant on electricity or wood stoves to keep their homes warm during cold months. As the region’s homes continue to age, the number of domestic fires are expected to continue to increase, potentially resulting in an increased threat level of ‘High’ in future Hazard Mitigation Plan updates.

Algae Bloom

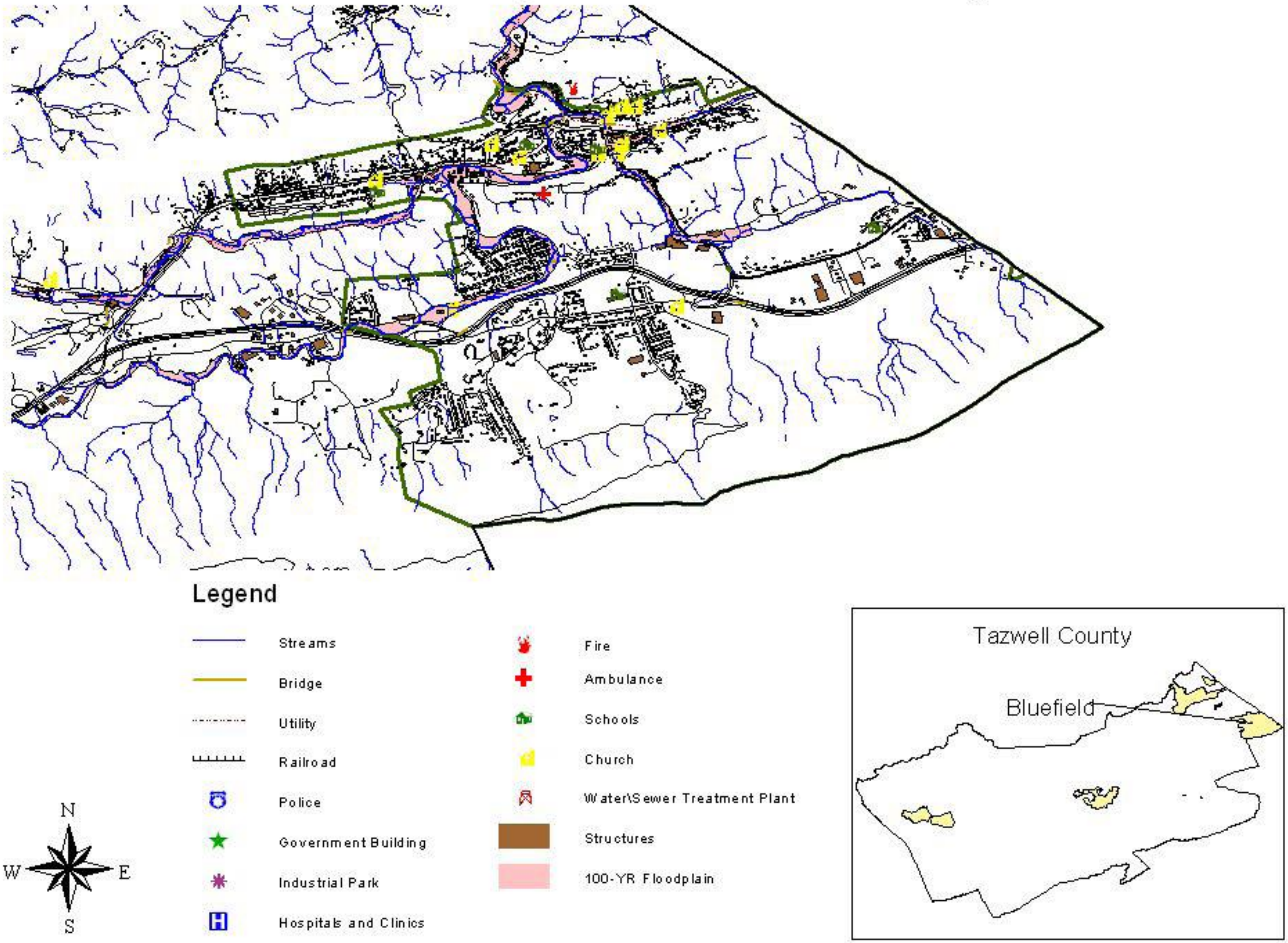
Algae Blooms are a very recently-added threat to the region and primarily affect the residents in Dickenson and Buchanan Counties. In 2018, the first major Algae Bloom in the region occurred at John W Flannagan Dam in Dickenson County. This occurrence has been attributed to temperature variations in the region due to global climate change. In 2019, a second bloom occurred, and thus algae blooms are expected to become a more frequent occurrence in the future.

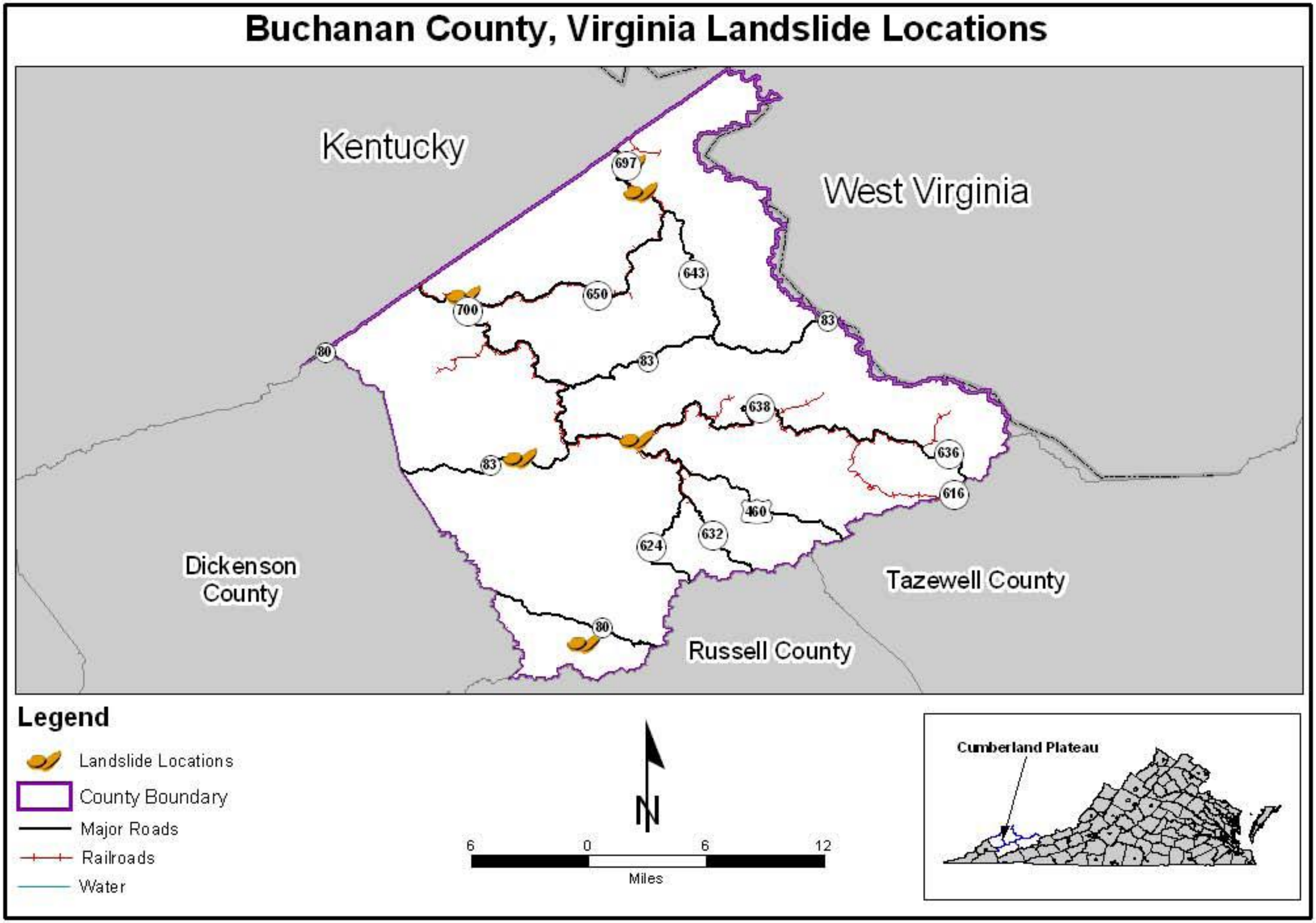
Algae Blooms present a threat both recreational activities in the John W Flannagan Dam reservoir – animals, especially pets, which are exposed to the algae can become sick or die as a result of ingesting the algae. But a major concern presents itself to residents as well. Since John W Flannagan Dam’s reservoir provides public water to both Dickenson and Buchanan Counties, more frequent blooms can potentially impact public water services in the future. Several government organizations have begun studies on the algae blooms at the reservoir and will monitor the situation closely moving forward.

Abandoned Mine Fire/Flood

Another threat to the region comes in the form of abandoned mine fires and floods. Thousands of currently-operating and abandoned coal mines throughout the region present a threat to public safety if a fire were to break out or a mine seal to break, allowing water inside to escape. While abandoned mine fires are relatively infrequent, they can severely impact a region if they are not rapidly controlled, as seen in Centralia, Pennsylvania, where an entire town was required to be evacuated. Abandoned mine fires can result in toxic gas erupting from the ground, heavily-increased temperatures in surface soil, and even suddenly-forming sinkholes that threaten both homes and residents. Mine floods have become a threat as well, as many older mines in the area can potentially have water escape, threatening the property & lives of communities.

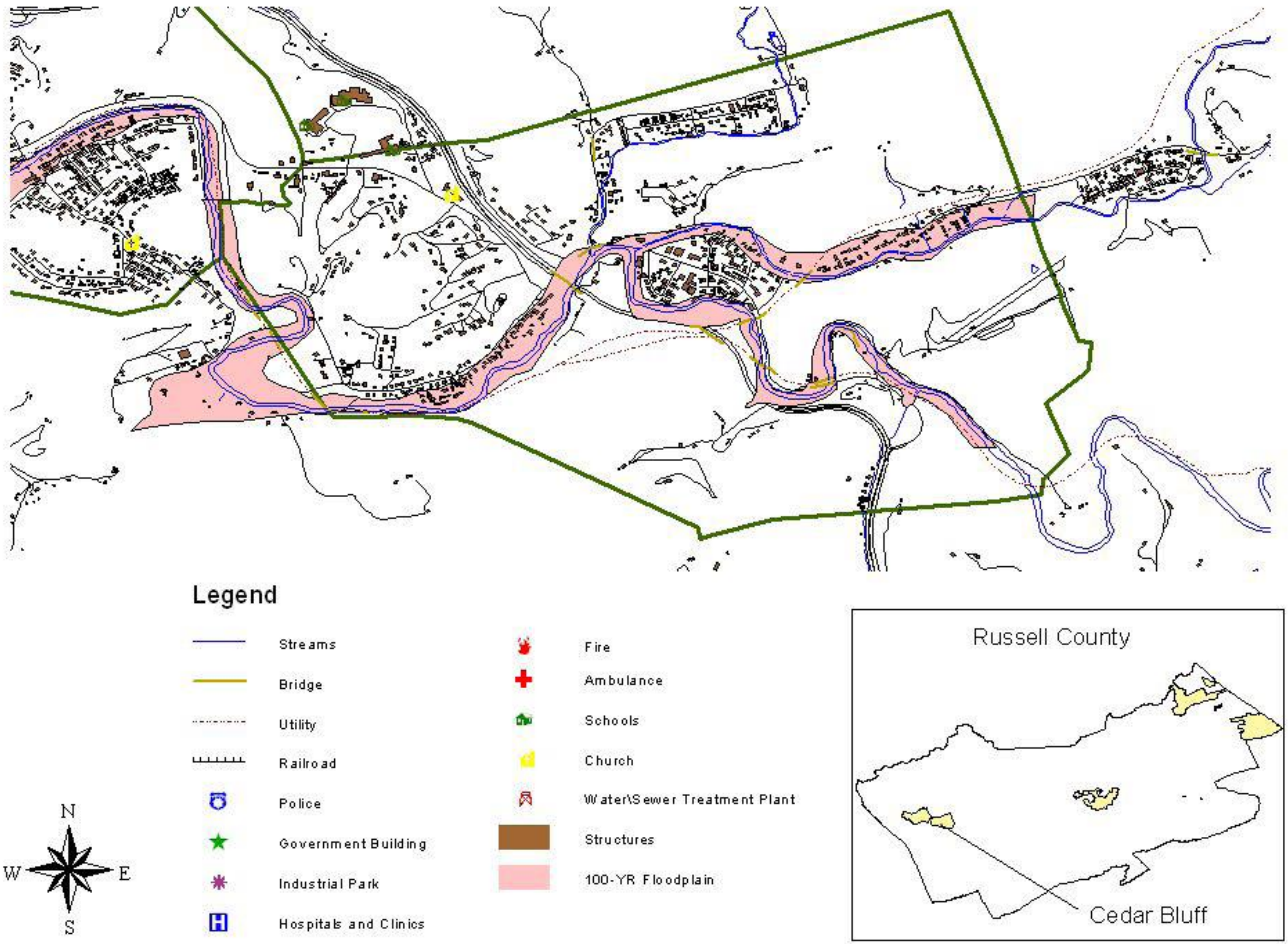
Bluefield, Virginia 100-YR Floodplain



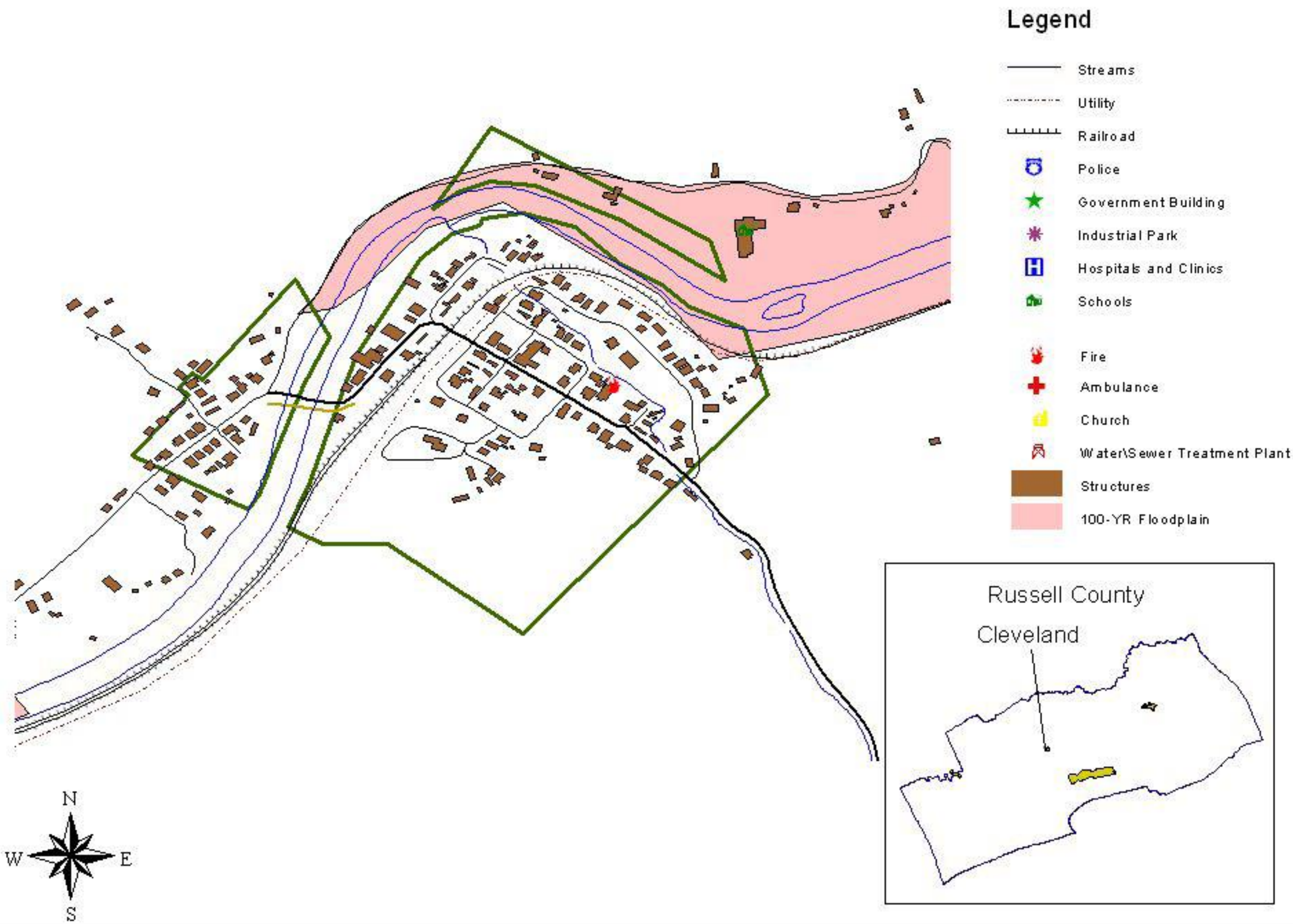


Buchanan County, Virginia Landslide Locations
Kentucky
West Virginia
Dickenson County
Tazewell County
Russell County
697
643
650
700
83
80
638
636
616
460
632
624
Legend
Landslide Locations
County Boundary
Major Roads
Railroads
Water
N
6
0
6
12
Miles
Cumberland Plateau

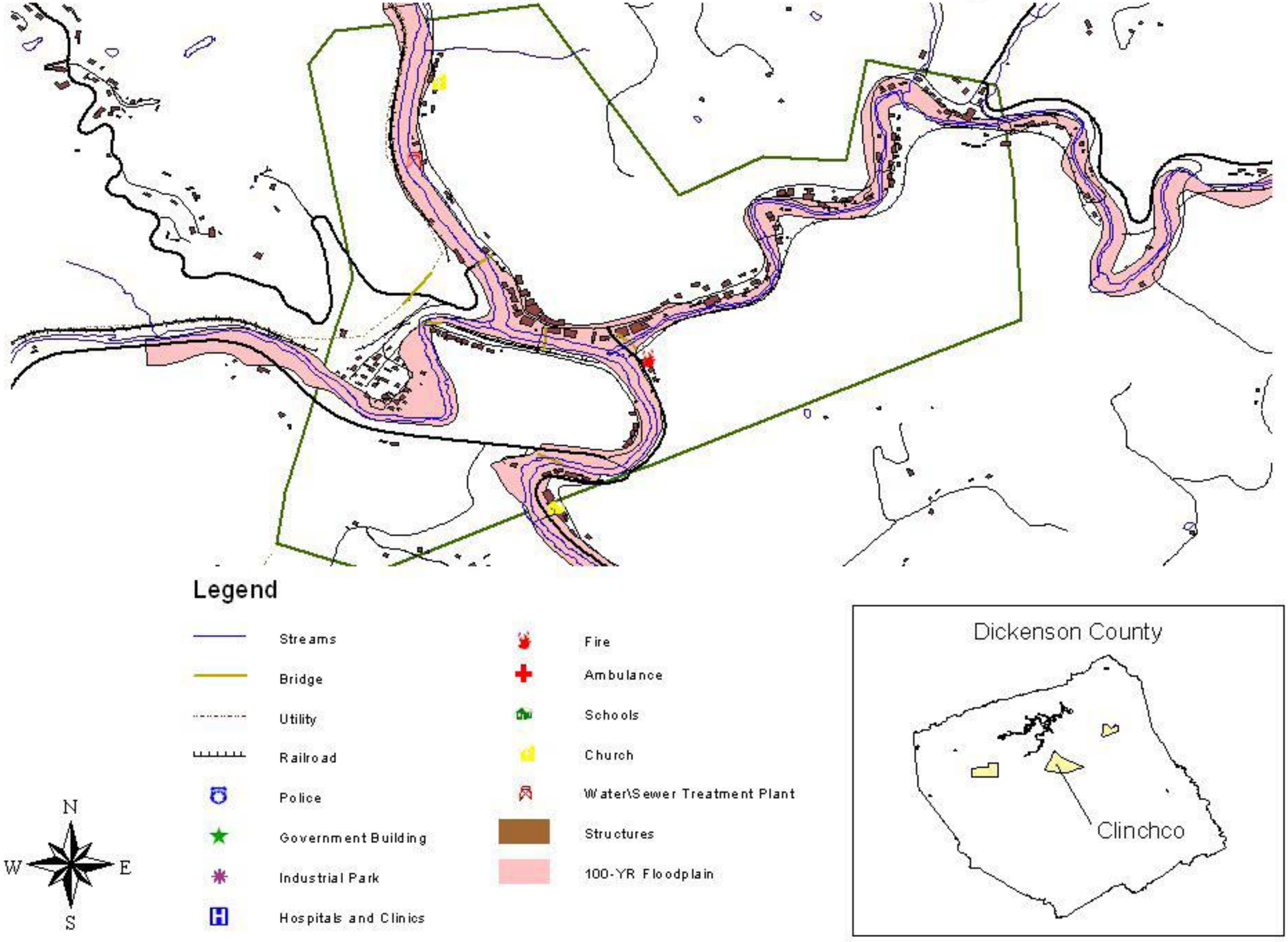
Cedar Bluff, Virginia 100-YR Floodplain

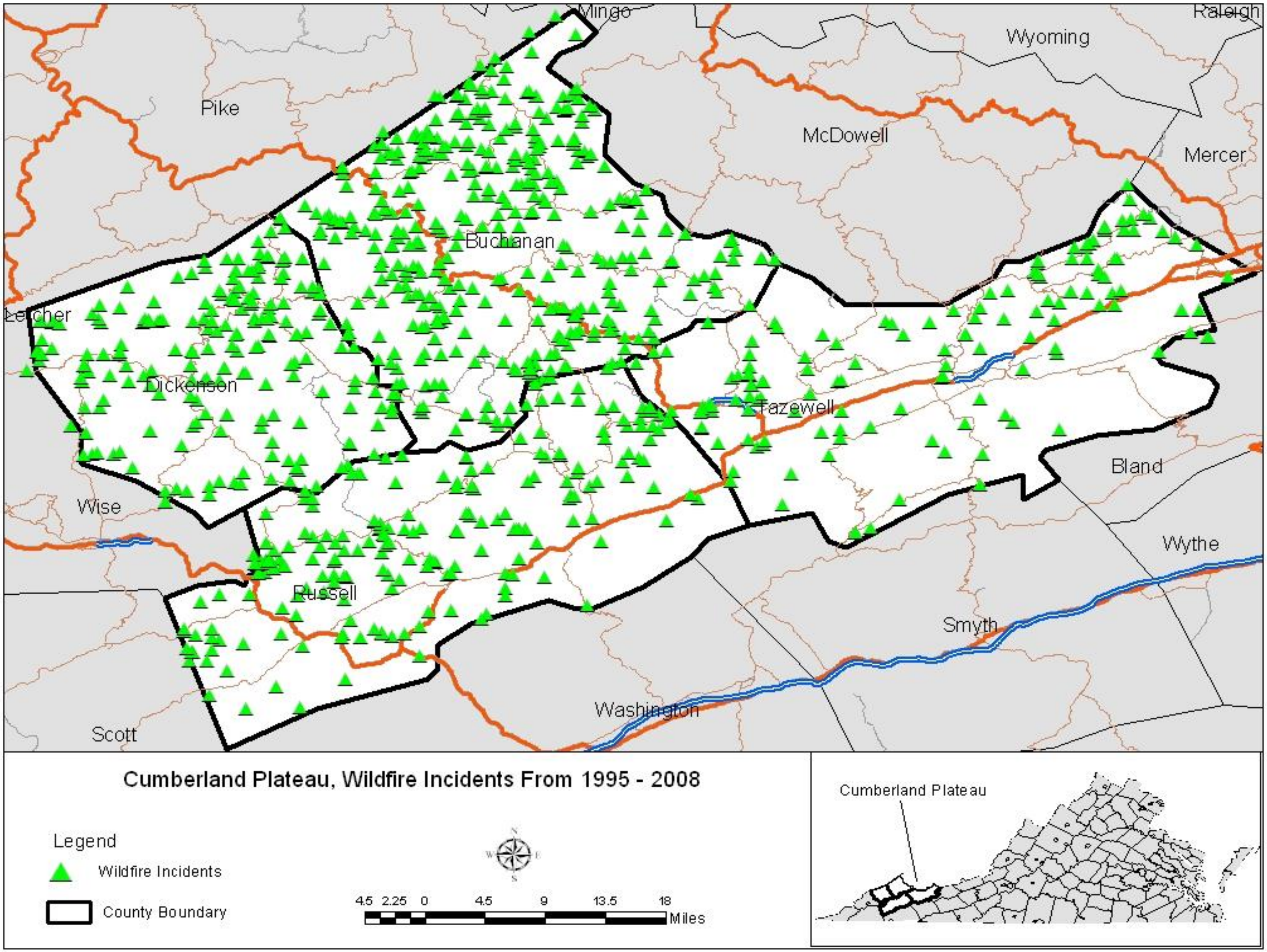


Cleveland, Virginia 100-YR Floodplain

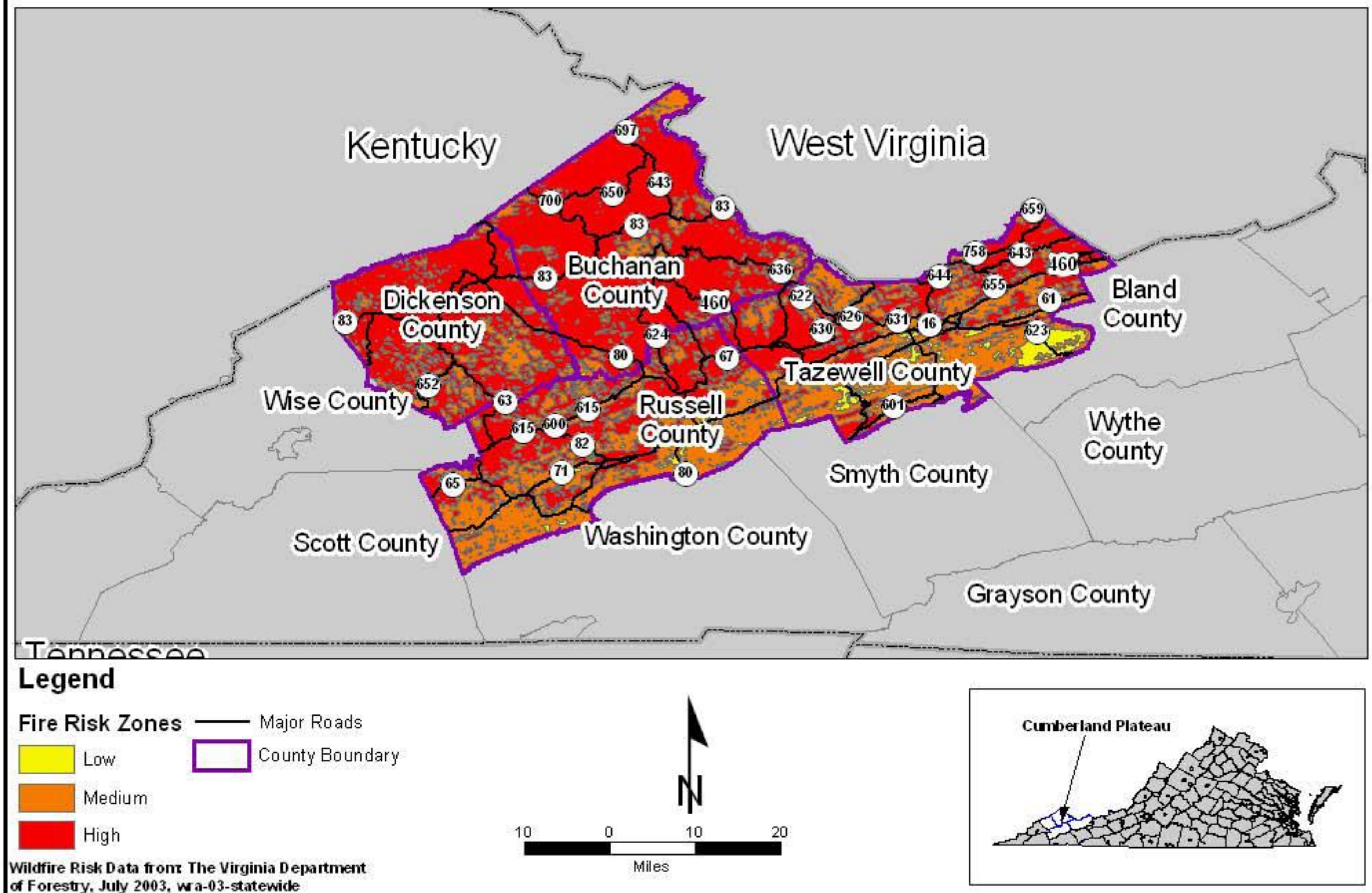


Clinchco, Virginia 100-YR Floodplain



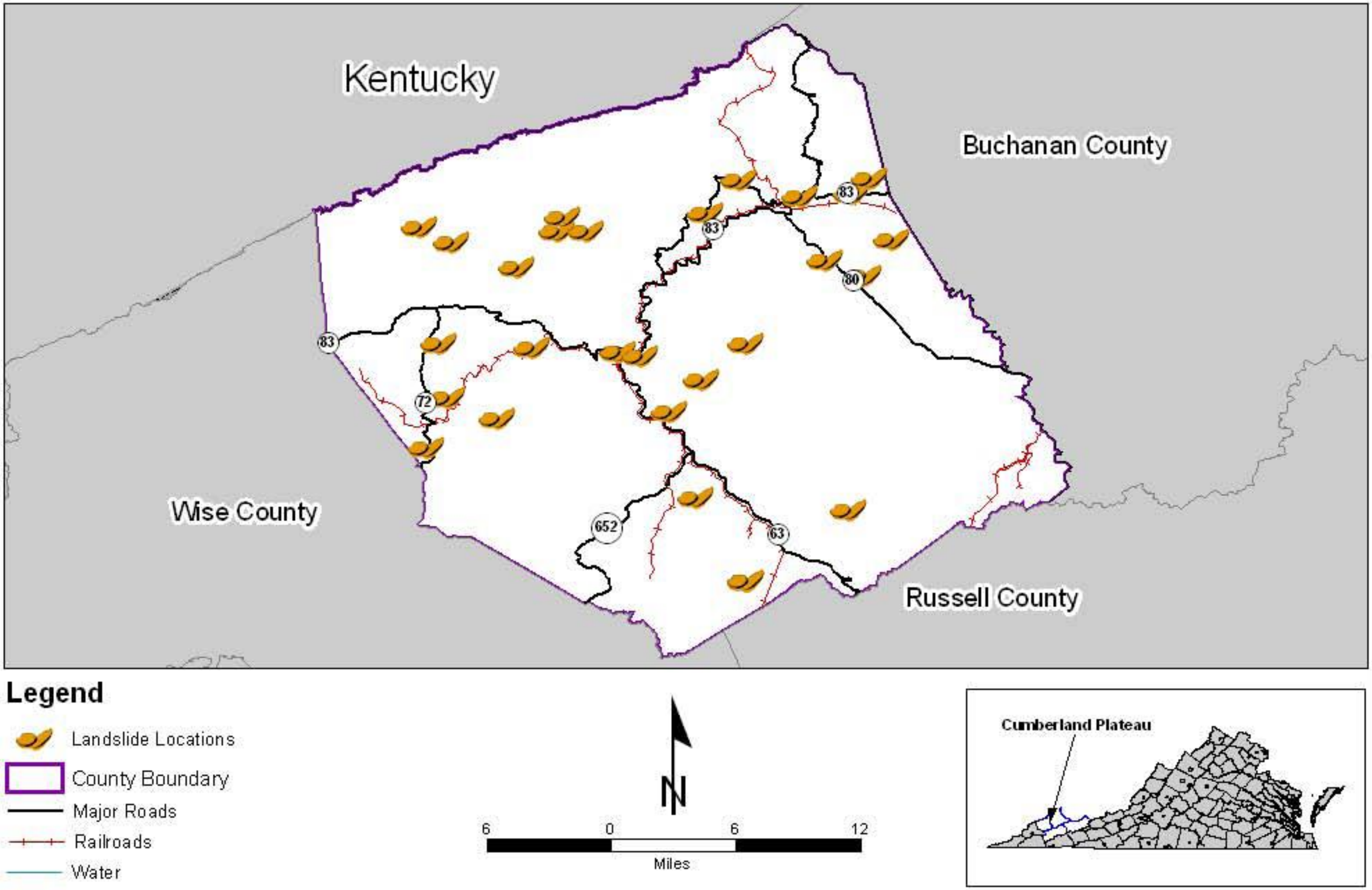

Mingo
Raleigh
Wyoming
Pike
McDowell
Mercer
Buchanan
Letcher
Dickenson
Tazewell
Bland
Wise
Wythe
Russell
Smyth
Washington
Scott
Cumberland Plateau, Wildfire Incidents From 1995 - 2008
Legend
Wildfire Incidents
County Boundary
4.5 2.25 0 4.5 9 13.5 18
Miles
Cumberland Plateau

Cumberland Plateau, Virginia Fire Risk Zones

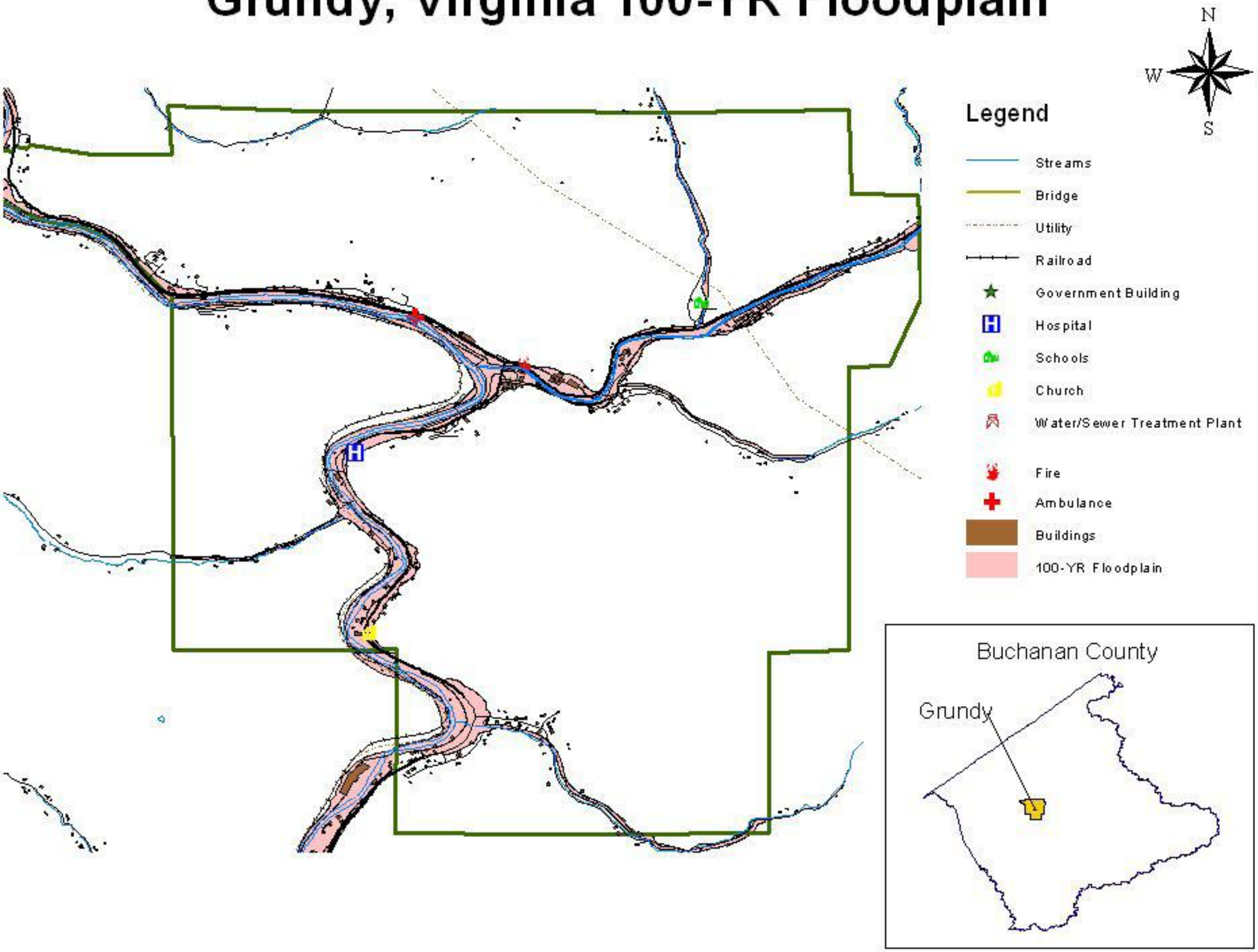


Wildfire Risk Data from: The Virginia Department of Forestry, July 2003, wra-03-statewide

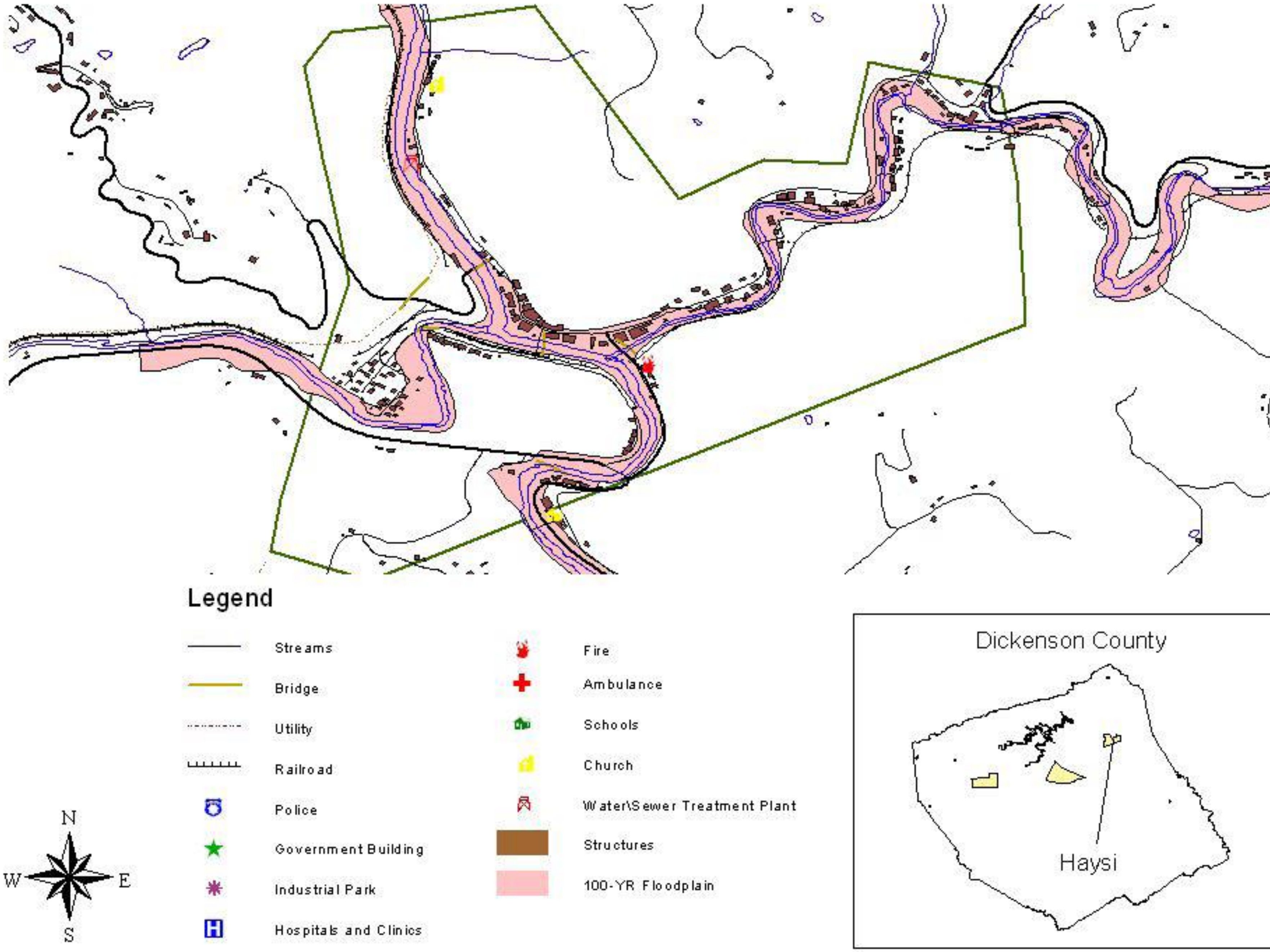
Dickenson County, Virginia Landslide Locations

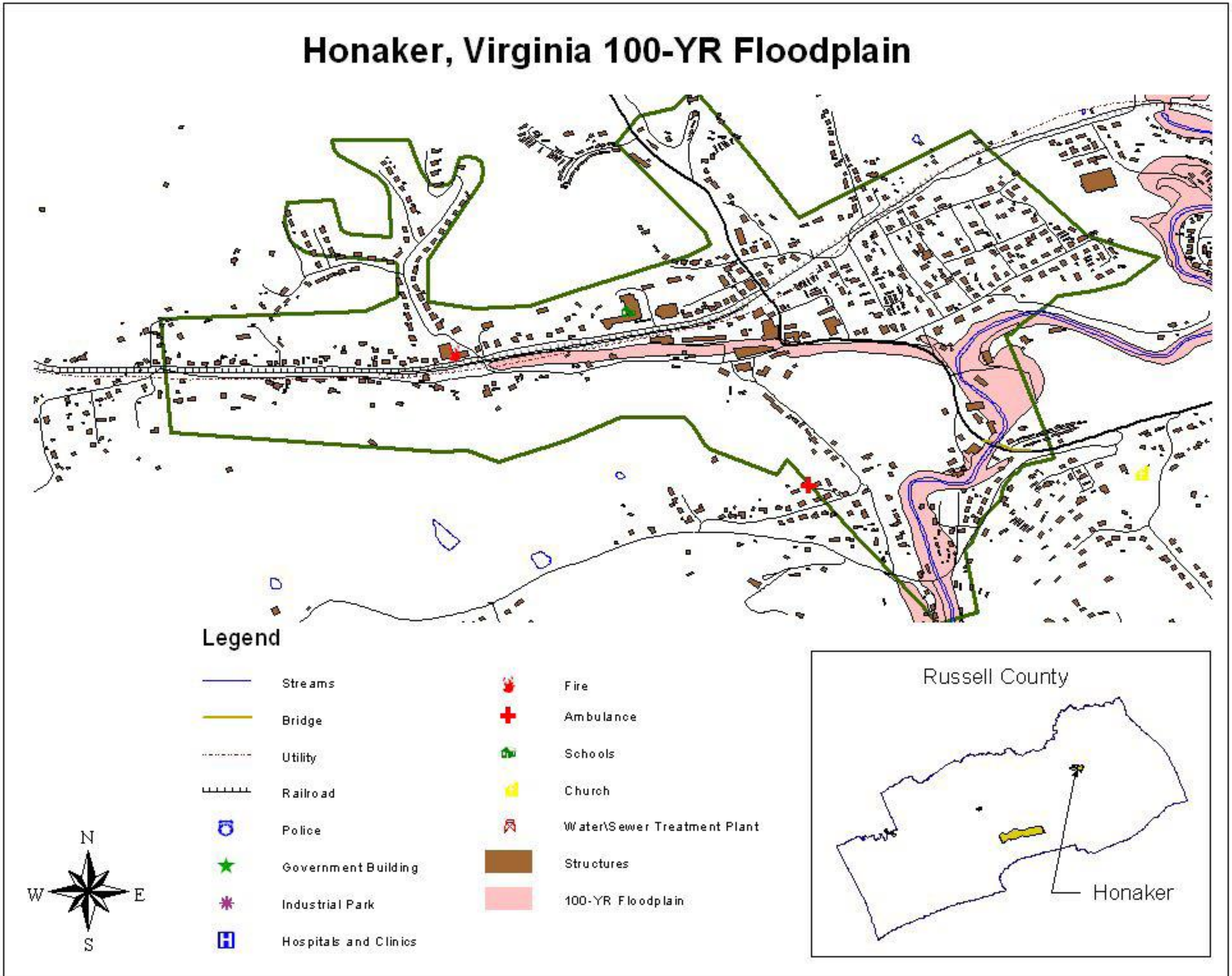


Grundy, Virginia 100-YR Floodplain

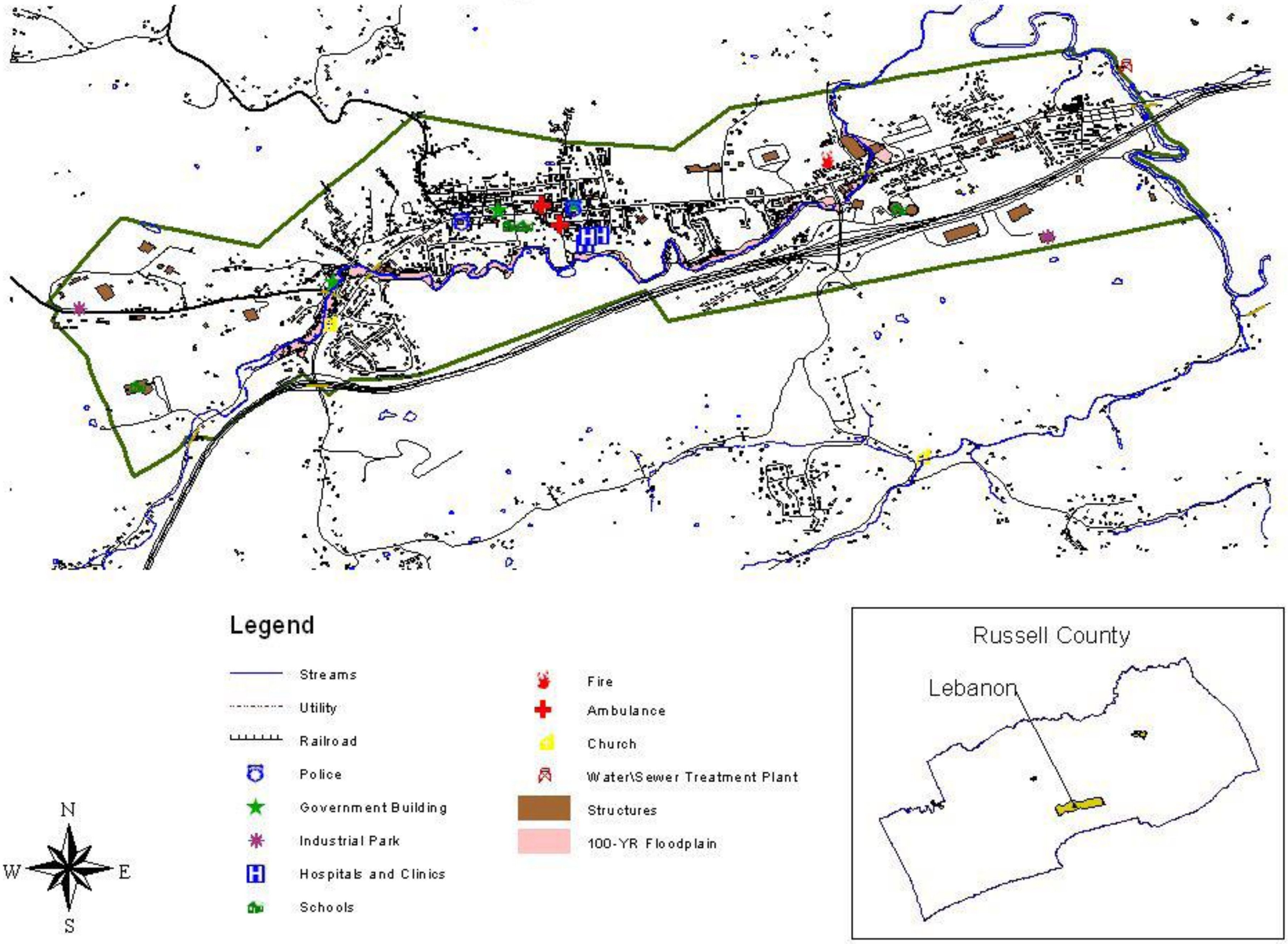


Haysi, Virginia 100-YR Floodplain

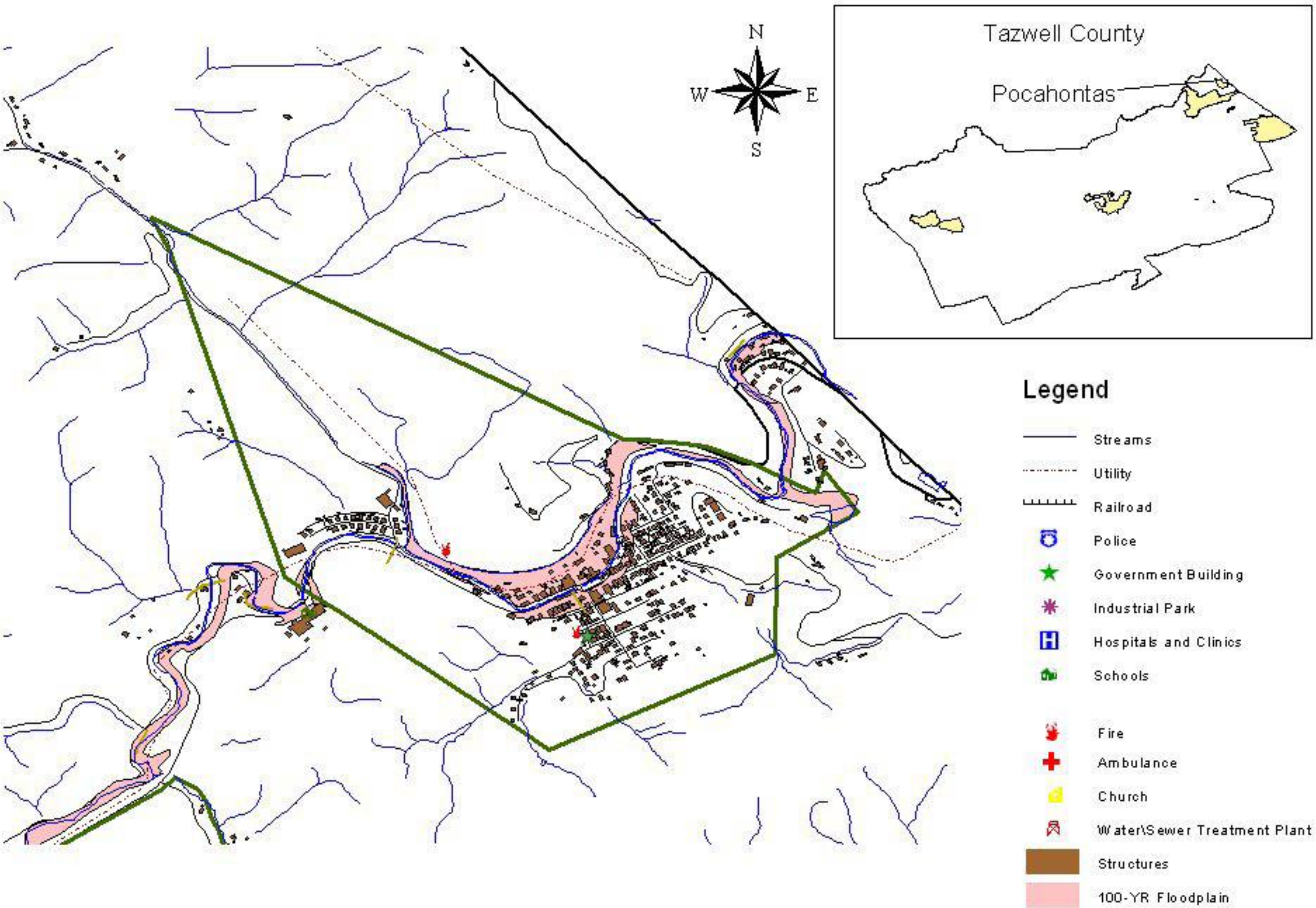



Honaker, Virginia 100-YR Floodplain
Legend
Streams
Bridge
Utility
Railroad
Police
Government Building
Industrial Park
Hospitals and Clinics
Fire
Ambulance
Schools
Church
Water\Sewer Treatment Plant
Structures
100-YR Floodplain
Russell County
Honaker
N
S
W
E

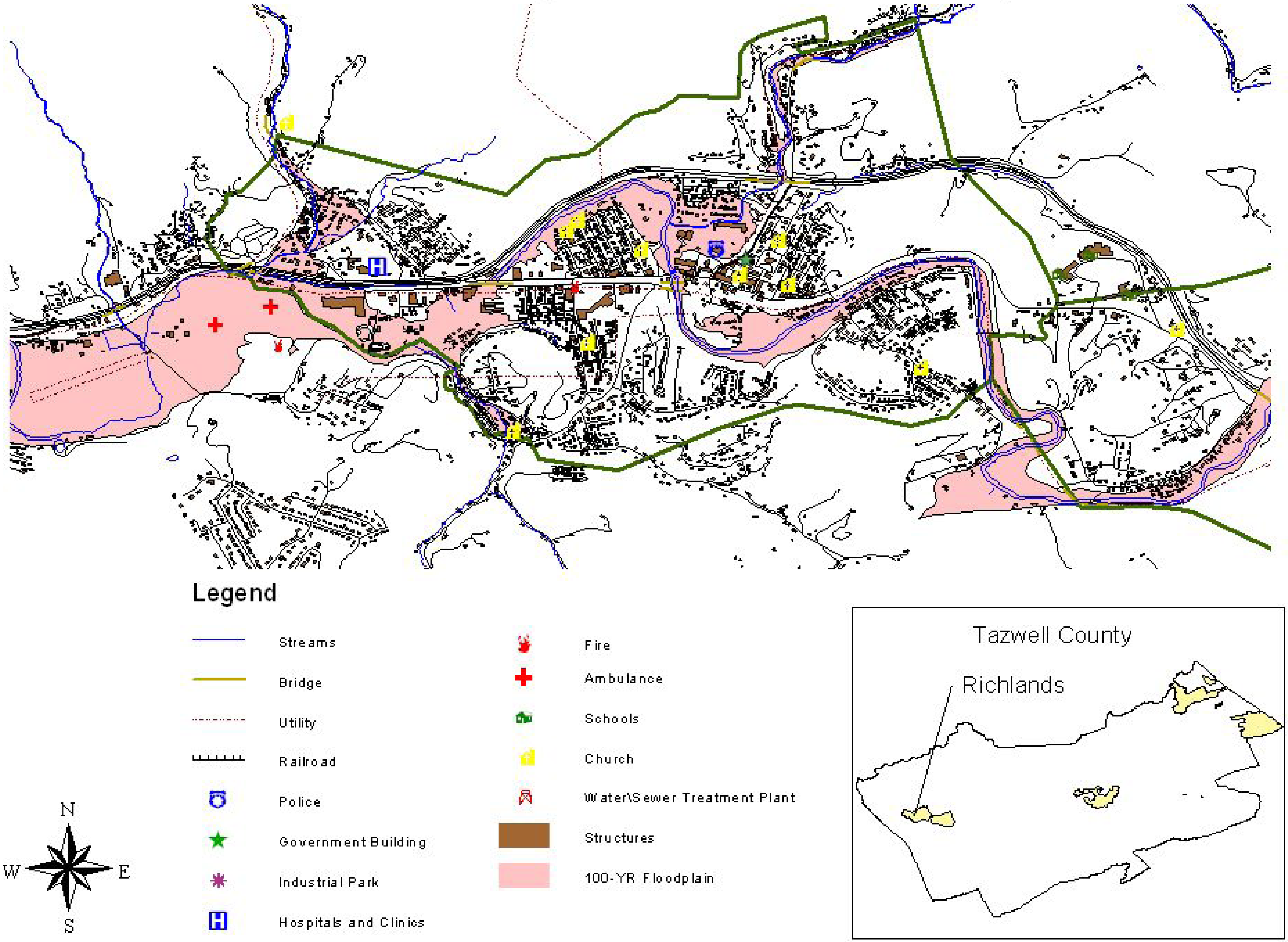
Lebanon, Virginia 100-YR Floodplain

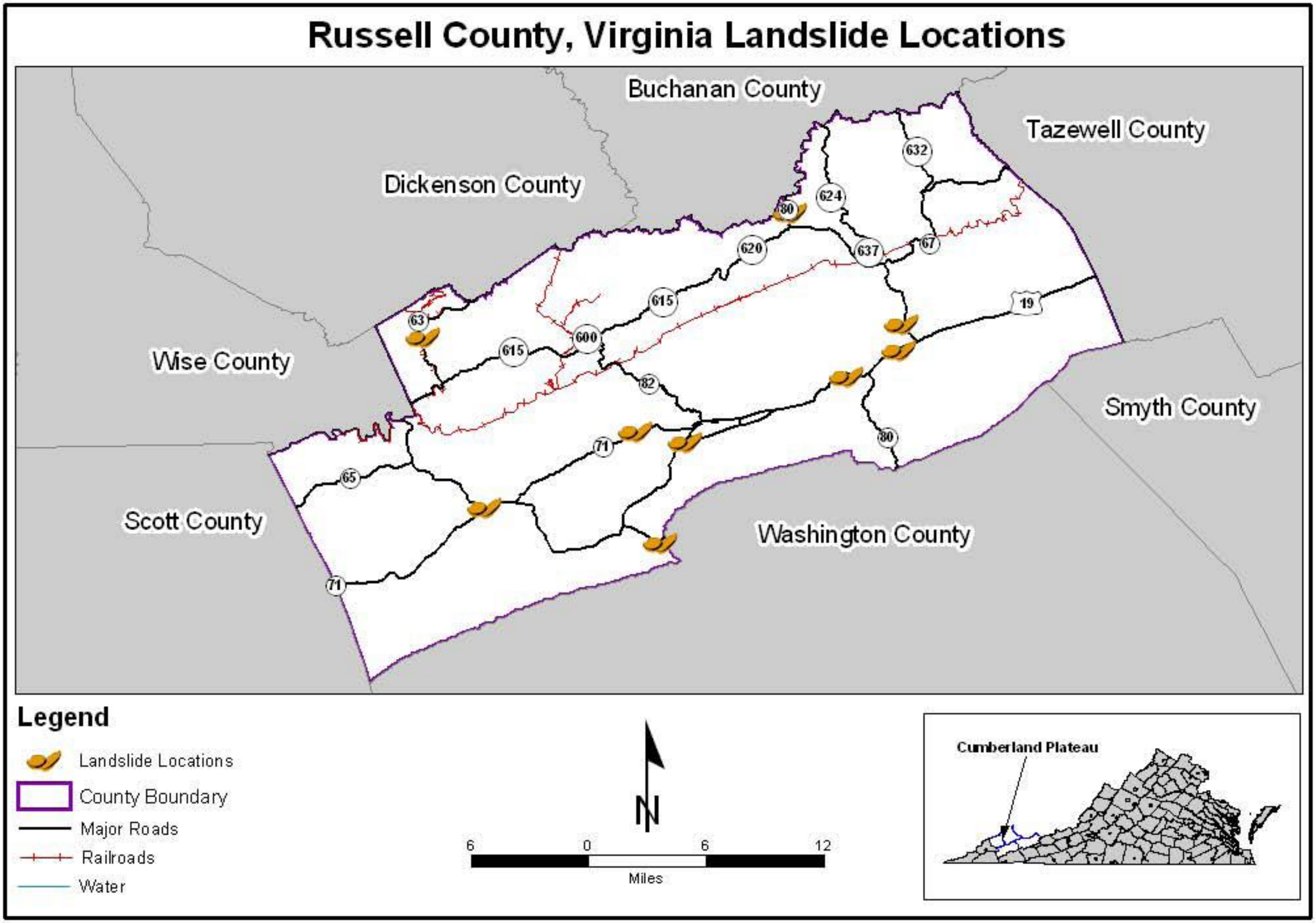


Pocahontas, Virginia 100-YR Floodplain

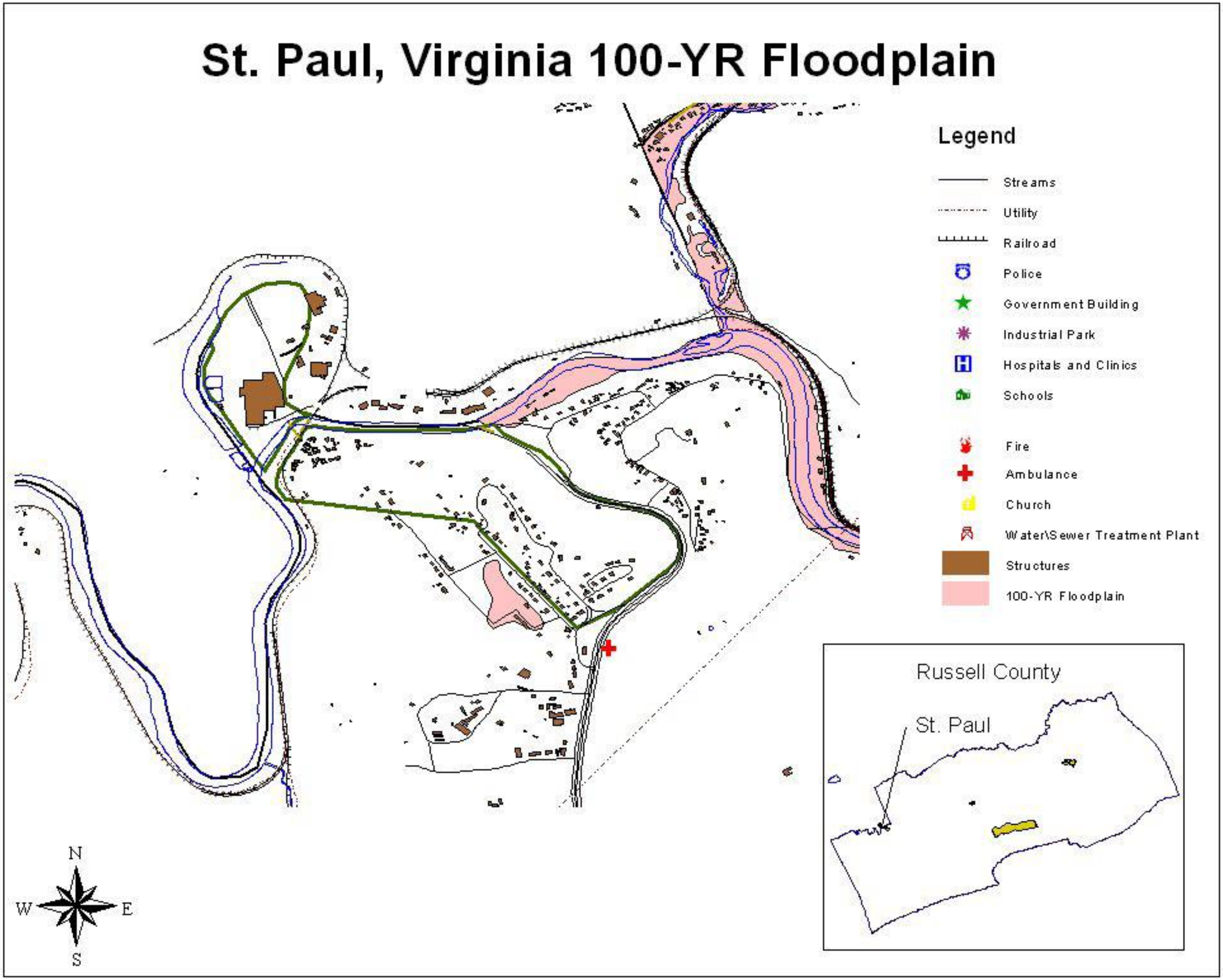


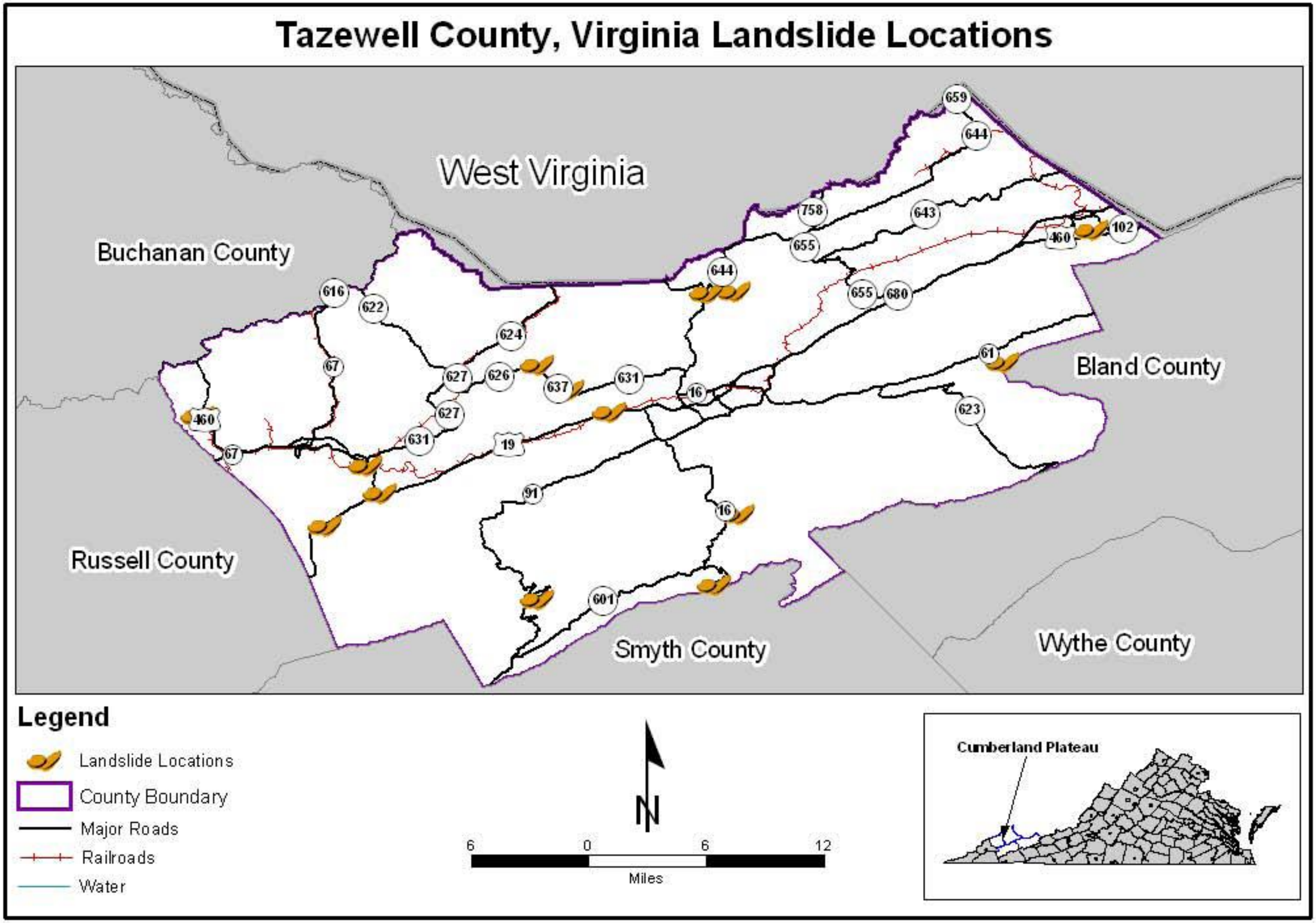
Richlands, Virginia 100-YR Floodplain



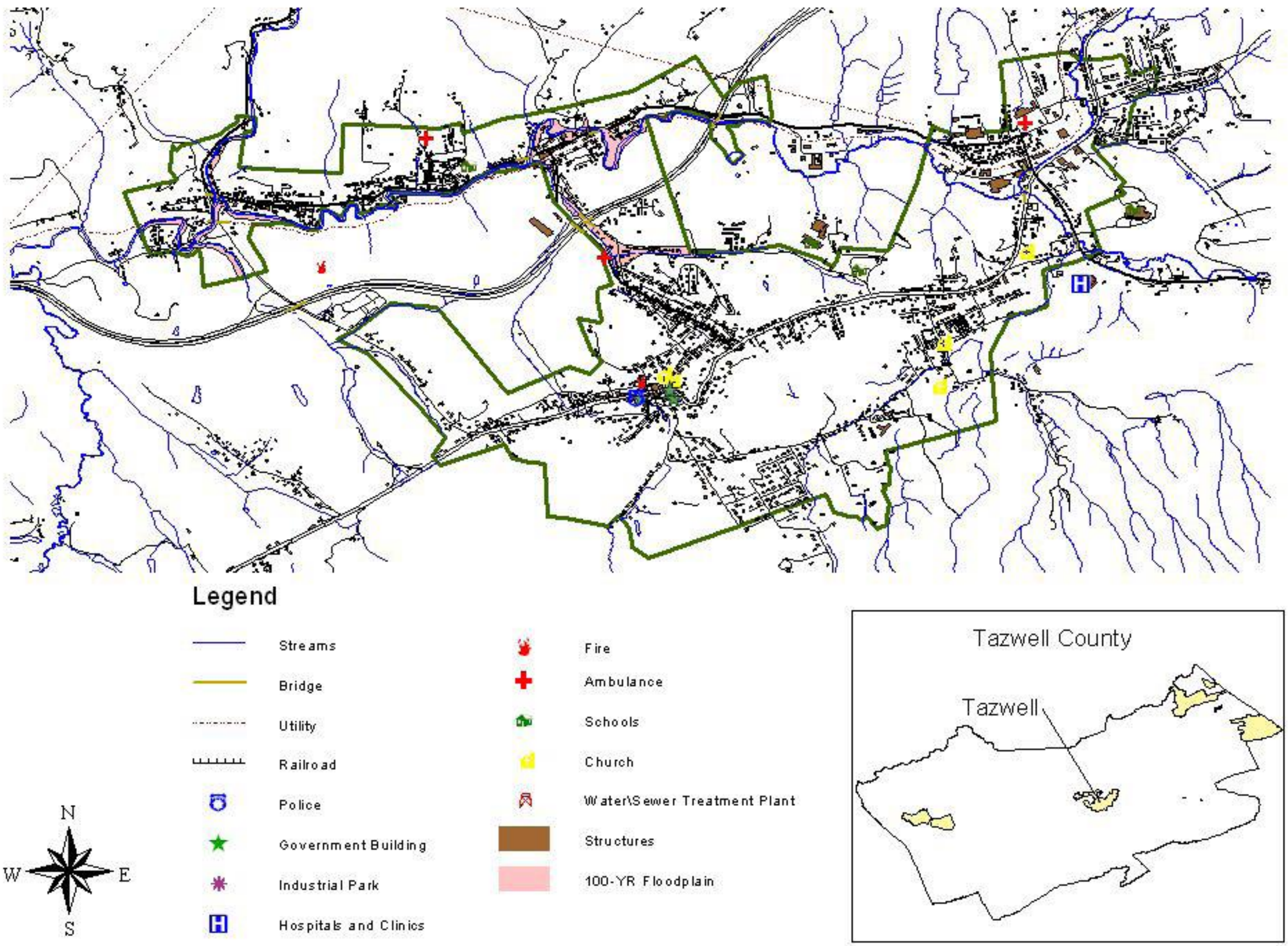


Russell County, Virginia Landslide Locations
Buchanan County
Tazewell County
Dickenson County
Wise County
Smyth County
Scott County
Washington County
632
624
80
620
637
67
615
19
63
600
615
82
71
80
65
71
Legend
Landslide Locations
County Boundary
Major Roads
Railroads
Water
N
6
0
6
12
Miles
Cumberland Plateau


St. Paul, Virginia 100-YR Floodplain
Legend
Streams
Utility
Railroad
Police
Government Building
Industrial Park
Hospitals and Clinics
Schools
Fire
Ambulance
Church
Water\Sewer Treatment Plant
Structures
100-YR Floodplain
Russell County
St. Paul
N
W
E
S


Tazewell County, Virginia Landslide Locations
West Virginia
Buchanan County
Bland County
Russell County
Smyth County
Wythe County
659
644
758
643
102
460
655
680
616
622
624
61
67
627
626
637
631
16
623
627
631
19
460
67
91
16
601
Legend
Landslide Locations
County Boundary
Major Roads
Railroads
Water
N
6
0
6
12
Miles
Cumberland Plateau

Tazewell, Virginia 100-YR Floodplain



SECTION VI. CAPABILITY ASSESSMENT

Introduction

This portion of the Plan assesses the Cumberland Plateau Planning District's current capacity to mitigate the effects of the natural hazards identified in Section V of the plan. This assessment includes a comprehensive examination of the following local government capabilities:

1. *Staff and Organizational Capability*
2. *Technical Capability*
3. *Fiscal Capability*
4. *Policy and Program Capability*
5. *Legal Authority*
6. *Political Willpower*

The purpose of conducting the capabilities assessment is to identify potential hazard mitigation opportunities available to the Cumberland Plateau Planning District's local governments including the Counties of Buchanan, Dickenson, Russell and Tazewell. Careful analysis should detect any existing gaps, shortfalls, or weaknesses within existing governmental activities that could exacerbate a community's vulnerability. The assessment also will highlight the positive measures already in place or being done at the County level, which should continue to be supported and enhanced, if possible, through future mitigation efforts.

The capabilities assessment serves as the foundation for designing an effective hazard mitigation strategy. It not only helps establish the goals and objectives for the Planning District to pursue under this Plan, but assures that those goals and objectives are realistically achievable under given local conditions.

This section of the plan is divided into four parts, each of which is a brief profile of the capabilities of the participating jurisdictions. The following table summarizes the plans and ordinances of each jurisdiction that can support hazard mitigation goals and strategies.

Table VI-1 — Capability Matrix - Plans and Ordinances

Plan or Ordinance	Buchanan County	Dickenson County	Russell County	Tazewell County
Building Code	X	X	X	X
Capital Improvements Plan or Program				
Comprehensive Land Use Plan	X	X	X	X
Emergency Operations Plan	X	X	X	X
Floodplain		X	X	X

Management Ordinance				
Floodplain Management Plan				
Land Use Regulation				
Local Hazard Mitigation Plan				
Open Space Plan				
Stormwater Management Plan				
Stormwater Ordinance				
Subdivision Ordinance	**X**	**X**	**X**	**X**
Watershed Protection Plan				
Zoning Ordinance				

Buchanan County

1. Staff and Organizational Capability

Buchanan County has limited staff and organizational capability to implement hazard mitigation strategies. Buchanan County is governed by a seven-member Board of Supervisors. The members represent the seven districts into which the county is divided. There is also a County Administrator. The Board bears the responsibility of serving the people and improving the quality of life in the County. The business of the County is conducted through the department and board system. There are eight (8) county departments and twenty-nine (29) boards and commissions.

Those professional staff departments and boards are as follows:

- Board Of Election Commissioners
- Legal Department
- Fire Department
- Sheriff's Department
- Public Works Department
- Board Of Building Code Appeals
- Black Diamond R C & D Council
- Coal Haul Road And Gas Improvements Adv. Committee
- Cumberland Mountain Community Service Board
- Cumberland Plateau Planning District
- Cumberland Plateau Regional Waste Management Authority
- Disability Service Board
- Emergency Services
- Finance Committee
- Buchanan General Hospital Board
- Industrial Development Authority
- Insurance Committee
- John Flannagan Water Authority
- Parks And Recreation Board
- Personnel Committee
- Planning Commission
- Buchanan County Public Library
- Public Service Authority
- Buchanan County Public School
- Social Services Advisory Board

- Southwest Virginia Community College Board
- Southwest Virginia Emergency Medical Services Council
- Southwest Virginia Community Corrections Board
- Youth Services Advisory Board

The Board of Supervisors is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events.

The Buchanan County Building Code does not maintains a full time planner that is also responsible for addressing land use planning, as well as, developing mitigation strategies. The Buchanan County Building Code enforces the National Flood Insurance Program requirements and other applicable local codes.

The Buchanan County Coal Haul Road Gas Improvement Department oversees the maintenance of county roadways. The Buchanan County Public Service Authority oversees the sewer and stormwater facilities and the community's water treatment facilities.

Of the above-listed County departments, agencies and offices, the Buchanan County Emergency Management Department is assigned specifically delegated responsibilities to carry out mitigation activities or hazard control tasks. They have been involved in the development of this mitigation plan in order to identify gaps, weaknesses or opportunities for enhancement with existing mitigation programs. For the most part, it was determined that the departments are adequately staffed, trained and funded to accomplish their missions.

2. Technical Capability

Buchanan County has limited technical capability to implement hazard mitigation strategies.

2.A. Technical Expertise

The County does not have a full-time planner on staff to administer the community's hazard mitigation programs. The County Engineer provides expertise in the area of water resources and associated technical work. The County does have an inspections office which enforces a building code.

The County does not have a person responsible for Information Technology (IT) which can enhance local government operations and the community's ability to develop and maintain a state-of-the art hazard mitigation program.

2.B. Geographic Information Systems (GIS)

GIS systems can best be described as a set of tools (hardware, software and people) used to collect, manage, analyze and display spatially referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. Buchanan County does currently have GIS capability to further hazard mitigation goals.

2.C. Internet Access

Buchanan County does provide some of its critical employees with high-speed broadband Internet service. Internet access provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance - a major factor for County officials and residents - far less important than it used to be. It is believed that Internet access will help further the community's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

3. Fiscal Capability

Buchanan County has limited fiscal capability to implement hazard mitigation strategies. For Fiscal Year 2012, the County had a public safety budget of $47,609,000. The County receives most of its revenues through State and Local sales tax and other local services and through restricted intergovernmental contributions (federal and state pass through dollars). Considering the current budget deficits at both the State and local government level, in Virginia, combined with the apparent increased reliance on local accountability by the Federal government, this is a significant and growing concern for Buchanan County.

4. Policy and Program Capability

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within Mitigation Strategy for Buchanan County.

4.A. Recent Hazard Mitigation Efforts

Buchanan County received emergency funding from the VA Department of Housing in 2002 for major flooding in the Hurley community.

Buchanan County has received these same funds from 2002 to current. In all approximately 100 houses have been removed and replaced or rehabilitated that were damaged during the flooding of 2002. Homes were either moved or built up out of the flood plain in the Hurley area. In all $2,275,000.00 has been received during the Hurley Flood Recovery Projects.

4.B. Community Rating System Activities

Communities that regulate development in floodplains are able participate in the National Flood Insurance Program (NFIP). In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. The Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

Buchanan County does not participate in the Community Rating System.

4.C. Emergency Operations Plan

Buchanan County has developed and adopted a Comprehensive Emergency Management Plan which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. For the most part, the Plan describes the County's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The Plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the County to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and Buchanan County's Comprehensive Emergency Management Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). The Plan does identify the Board of Supervisors as having lead role in the long-term reconstruction phase following a disaster - which presents a unique window of opportunity for implementing hazard mitigation strategies. However, none are specified within the Emergency Management Plan.

4.D. Floodplain Management Plan

Buchanan County does not currently have a separate floodplain management plan for purposes of the National Flood Insurance Program's Community Rating System (CRS). This plan is intended to fulfill the CRS planning requirement should the City decide to enter the CRS.

4.E. Stormwater Management Plan

Buchanan County does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision regulations. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

4.F. Comprehensive Plan

Buchanan County has developed and adopted a Comprehensive Plan in 1994. The plan provides the future vision for the community regarding growth and development. Hazard mitigation planning is not specifically addressed in the plan.

4.G. Ordinances

Buchanan County has adopted several ordinances that are relevant to hazard mitigation. The following worksheet provides an inventory of these ordinances, along with specific information to be considered when developing this Plan's Mitigation Strategy. For each ordinance, the following should be identified:

Table VI-2 —Buchanan County Ordinances Related to Hazard Mitigation

Title(s)	Adoption Date(s)	Description/Purpose(s)	Mitigation Effectiveness
Building Construction	7/3/1974	The Building Construction Ordinances controls all matters concerning the construction, alteration, addition, repair, removal, demolition, use, location, occupancy and maintenance of all buildings and all other functions which pertain to the installation of all systems vital to all buildings and structures and their service equipment, as defined by the Virginia Uniform Statewide Building Code.	Moderate
Erosion And Sediment Control	7-7-1998	The purpose is to conserve the land, water, air and other natural resources of Buchanan County. It establishes requirements for the control of erosion and sedimentation, and establishes procedures whereby these requirements shall be administered and enforced.	MODERATE
Flood Damage Prevention Ordinance	3/3/1997	The purpose of the 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. The Flood Damage Prevention Ordinance is designed to minimize public and private losses due to flood conditions in specific areas. It requires a development permit be submitted to the County prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance,	HIGH

Table VI-2 — Buchanan County Ordinances Related to Hazard Mitigation

Title(s)	Adoption Date(s)	Description/Purpose(s)	Mitigation Effectiveness
		which include development standards that will minimize the potential for flood losses. Standards are established for construction materials, equipment, methods, practices and uses. Most importantly, establishes the requirements for elevation and floodproofing (non-residential) to base flood elevation. The Ordinance requires the minimum standards of the National Flood Insurance Program (NFIP). The County's floodplain areas are currently being re-studied as part of the State's Floodplain Mapping Program. It is possible those floodplain areas will be re-delineated with updated topography, and that base flood elevations will be recalculated.	
Land Use	9/3/1996	The Land Use ordinance is intended to guide and facilitate the orderly and beneficial growth of Buchanan County land to promote the public health, safety, convenience comfort, prosperity and general welfare of the county.	MODERATE
Subdivision Ordinance	9/3/1996	The Subdivision Ordinance is designed to regulate all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements	MODERATE

Table VI-2 — Buchanan County Ordinances Related to Hazard Mitigation

Title(s)	Adoption Date(s)	Description/Purpose(s)	Mitigation Effectiveness
		must be completed before final plat approval. Plats are also reviewed by the local permit officer to determine what additional permits are required. Furthermore, all waterfront development must meet setback requirements and impervious surface requirements. Plats are also reviewed by Terra Tech Inc. to identify matters of topography and drainage. Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events.	

4.H. Open Space Plans

Buchanan County does not currently have a separate Open Space Plan.

4.I. Watershed Protection Plan

Buchanan County does not currently have a separate Watershed Protection Plan. However, the Upper Tennessee River Watershed Strategic Plan dated 2000 contains information for the Clinch, Holston and Powell Rivers.

5. Legal Authority

Local governments in Virginia have a wide range of tools available to them for implementing mitigation programs, policies and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Virginia, which are (a) Regulation; (b) Acquisition; (c) Taxation; and (d) Spending. The scope of this local authority is subject to constraints, however, as all of Virginia' political subdivisions must not act without proper delegation from the State. All power is vested in the State and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Virginia' enabling legislation which grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

5.A. Regulation

5.A.1. General Police Power

Virginia' local governments have been granted broad regulatory powers in their jurisdictions. Virginia State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. Buchanan County has enacted and enforces regulatory ordinances designed to promote the public health, safety and general welfare of its citizenry.

5.A.2. Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes. Buchanan County does have building codes. Municipalities and counties may adopt codes for their respective areas if approved by the state as providing "adequate minimum standards". Local regulations cannot be less restrictive than the state code.

Local governments in Virginia are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates their duties and responsibilities, which include enforcing state and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. Buchanan County has adopted a building code and established a Building Inspections Office to carry out its building inspections.

5.B. Land Use

Regulatory powers granted by the state to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. Buchanan County has not adopted a land use regulation.

5.B.1. Planning

According to State Statutes, local governments in Virginia may create or designate a planning agency. The planning agency may perform a number of duties, including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted "in accordance with a plan", the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. Buchanan County has established a Planning Department.

5.B.2. Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Virginia to engage in zoning. Land "uses" controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and set backs, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text. Buchanan County does not have a county wide zoning ordinance.

5.B.3. Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division/sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved. Buchanan County has adopted a Subdivision Ordinance.

5.B.4. Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small scale development of less than 5 acres. A reduction in damage from small scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Virginia encourages local governments to adopt stormwater regulations under land use authorities. Buchanan County has not adopted stormwater regulations.

5.B.5. Floodplain Regulation

Virginia State Statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through §15.2-2223 and §15.2-2280. Buchanan County has adopted a local floodplain ordinance as a requirement of participation in the National Flood Insurance Program.

5.C. Acquisition

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely "hazardproofing" a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Virginia legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain. Buchanan County proposes to use acquisition as a local mitigation tool.

5.D. Taxation

The power to levy taxes and special assessments is an important tool delegated to local governments by Virginia law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. Buchanan County does levy property taxes, and uses (preferential tax districts or special assessments) for purposes of guiding growth and development.

5.E. Spending

The fourth major power that has been delegated from the Virginia General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a view to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs. Buchanan County has not adopted a capital improvement program.

6. Political Willpower

Most County residents are knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Because of this fact, coupled with Buchanan County's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

Dickenson County

1. Staff and Organizational Capability

Dickenson County has limited staff and organizational capability to implement hazard mitigation strategies. Dickenson County is governed by a five (5) member Board of Supervisors. The members represent the five (5) districts into which the county is divided. There is also a County Administrator. The Board bears the responsibility of serving the people and improving the quality of life in the County. The business of the County is conducted through the department and board system.

Those professional staff departments and boards are as follows:

- Animal Welfare Shelter
- Board of Election Commissioners
- Building Department
- Commissioner of Revenue
- County Employees Credit Union
- Economic Development Department
- Emergency Services & Disaster Agency
- Equal Opportunity Office
- Finance Department
- Fire Department
- Human Resources
- Information Systems
- Industrial Development Authority
- Inspections
- Legal Department
- Planning and Growth Management
- Planning Commission
- Public Works Department
- Sheriff's Office
- Treasurer
- Voters Registration Office

The Department of Emergency Management is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events.

The Department of Emergency Management maintains a full time planner that is also responsible for addressing land use planning, as well as, developing mitigation strategies. The department also enforces the National Flood Insurance Program requirements and other applicable local codes.

The Public Works Department oversees the maintenance of city infrastructure including roadways, sewer and stormwater facilities and the community's water treatment facilities.

Of the above-listed County departments, agencies and offices, the Emergency Management Department and the Sheriff's Department have been assigned specifically delegated responsibilities to carry out mitigation activities or hazard control tasks. They have been involved in the development of this mitigation plan in order to identify gaps, weaknesses or opportunities for enhancement with existing mitigation programs. For the most part, it was determined that the departments are adequately staffed, trained and funded to accomplish their missions.

2. Technical Capability

Dickenson County has limited technical capability to implement hazard mitigation strategies.

2.A. Technical Expertise

The County does have a full-time planner on staff to administer the community's hazard mitigation programs. The County Engineer provides expertise in the area of water resources and associated technical work. The County has an inspections office which enforces a building code.

The County has a person responsible for Information Technology (IT) which can enhance local government operations and the community's ability to develop and maintain a state-of-the art hazard mitigation program.

2.B. Geographic Information Systems (GIS)

GIS systems can best be described as a set of tools (hardware, software and people) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. Dickenson County has existing GIS capability to further hazard mitigation goals.

2.C. Internet Access

Dickenson County provides its employees with high speed broadband Internet service. Internet access provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance - a major factor for County officials and residents - far less important than it used to be. It is believed that Internet access will help further the community's hazard mitigation awareness programs, but should be supplemented with more traditional and less technical means as well.

3. Fiscal Capability

Dickenson County has limited fiscal capability to implement hazard mitigation strategies. For Fiscal Year 2012, the County had a public safety budget of $3,647,242.00. The county receives most of its revenues through state and local sales tax and other local services and through restricted intergovernmental contributions (federal and state pass through dollars). Considering the current budget deficits at both the state and local government level, in Virginia, combined with the apparent increased reliance on local accountability by the federal government, this is a significant and growing concern for Dickenson County.

4. Policy and Program Capability

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within Mitigation Strategy for Dickenson County.

4.A. Recent Hazard Mitigation Efforts

Dickenson County is currently participating in a U.S. Corps of Engineers project to evaluate all structures in the flood plain zone. The school consolidation project is receiving funds through this agreement. Ervinton High, Clinchco Elementary, Sandlick Elementary and some buildings at Haysi High will be demolished and new facilities constructed outside of the floodplain. Between 200 and 300 homes/business are identified as being eligible also.

4.B. Community Rating System Activities

Communities that regulate development in floodplains are able participate in the National Flood Insurance Program (NFIP). In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. The Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

Dickenson County does not participate in the Community Rating System.

4.C. Emergency Operations Plan

Dickenson County has developed and adopted a Comprehensive Emergency Management Plan, which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. For the most part, the Plan describes the County's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The Plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the County to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and Dickenson County's Comprehensive Emergency Management Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). The Plan does identify the Board of Supervisors as having lead role in the long-term reconstruction phase following a disaster - which presents a unique window of opportunity for implementing hazard mitigation strategies. However, none are specified within the Emergency Management Plan.

4.D. Floodplain Management Plan

Dickenson County does not currently have a separate floodplain management plan for purposes of the National Flood Insurance Program's Community Rating System

(CRS). This plan is intended to fulfill the CRS planning requirement should the City decide to enter the CRS.

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4.E. Stormwater Management Plan

Dickenson County does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision regulations. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

4.F. Comprehensive Plan

Dickenson County developed and adopted a Comprehensive Plan in 2008. The plan provides the future vision for the community regarding growth and development. Hazard mitigation planning is not specifically addressed in the plan.

4.G. Ordinances

Dickenson County has adopted several ordinances that are relevant to hazard mitigation. The following table provides an inventory of these ordinances.

Table VI-2 — Dickenson County Ordinances Related to Hazard Mitigation

Title(s)	Adoption Date(s)	Description/Purpose(s)	Mitigation Effectiveness
Flood Damage Prevention and Control Ordinance	1/23/91	The Flood Damage Prevention Ordinance is designed to minimize public and private losses due to flood conditions in specific areas. It requires a development permit be submitted to the County prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance, which include development standards that will minimize the potential for flood losses. Standards are established for construction materials, equipment, methods, practices and uses. Most importantly, establishes the requirements for elevation and floodproofing (non-residential) to base flood elevation. The Ordinance requires the minimum standards of the National Flood Insurance Program (NFIP). The	HIGH

		County's floodplain areas are currently being re-studied as part of the State's Floodplain Mapping Program. It is possible those floodplain areas will be re-delineated with updated topography, and that base flood elevations will be recalculated.	
Subdivision Ordinance	5/28/96	The Subdivision Ordinance is designed to regulate all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval. Plats are also reviewed by the local permit officer to determine what additional permits are required. Furthermore, all waterfront development must meet setback requirements and impervious surface requirements. Plats are also reviewed by (Building Department) to identify matters of topography and drainage. Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its	MODERATE

		roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events.	
Dickenson County State of Emergency Ordinance	(N/A)	The purpose of this ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a State of Emergency. Establishes the authority and procedures for the Board of Supervisors to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession/transportation/transfer of intoxicating liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control of which may be reasonably necessary to maintain order and protect lives or property during the State of Emergency. The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event.	LOW

4.H. Open Space Plans

Dickenson County does not currently have a separate Open Space Plan.

4.I. Watershed Protection Plan

Dickenson County does not currently have a separate Watershed Protection Plan. However, the Upper Tennessee River Watershed Strategic Plan dated 2000 contains information for the Clinch, Holston and Powell Rivers.

5. Legal Authority

Local governments in Virginia have a wide range of tools available to them for implementing mitigation programs, policies and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Virginia, which are (a) regulation, (b) acquisition, (c) taxation, and (d) spending. The scope of this local authority is subject to constraints, however, as all of Virginia's political subdivisions must not act without proper delegation from the state. All power is vested in the state and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Virginia's enabling legislation which grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

5.A. Regulation

5.A.1. General Police Power

Virginia' local governments have been granted broad regulatory powers in their jurisdictions. Virginia State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments also may use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. Dickenson County has enacted and enforces regulatory ordinances designed to promote the public health, safety, and general welfare of its citizenry.

5.A.2. Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes. Dickenson County does have building codes. Municipalities and counties may adopt codes for their respective areas if approved by the state as providing "adequate minimum standards". Local regulations cannot be less restrictive than the state code.

Local governments in Virginia are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates their duties and responsibilities, which include enforcing state and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. Dickenson County has adopted a building code and established a Building Inspections Office to carry out its building inspections.

5.B. Land Use

Regulatory powers granted by the state to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount timing, density, quality, and location of new development. All these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. Dickenson County has not adopted a land use regulation.

5.B.1. Planning

According to State Statutes, local governments in Virginia may create or designate a planning agency. The planning agency may perform a number of duties, including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted "in accordance with a plan", the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. Dickenson County has established a Planning Department.

5.B.2. Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Virginia to engage in zoning. Land "uses" controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications that control height and bulk such as lot size, building height and set backs, and density of population. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text. Dickenson County does not have a county wide zoning ordinance.

5.B.3. Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division/sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved. Dickenson County has adopted a subdivision ordinance.

5.B.4. Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small scale development of less than 5 acres. A reduction in damage from small scale development is achieved through requirements such as on-site retention/detention ponds. The State of Virginia encourages local governments to adopt stormwater regulations under land use authorities. Dickenson County has not adopted stormwater regulations.

5.B.5. Floodplain Regulation

Virginia State Statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through §15.2-2223 and §15.2-2280. Dickenson County has adopted a local floodplain ordinance as a requirement of participation in the National Flood Insurance Program.

5.C. Acquisition

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely "hazardproofing" a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Virginia legislation empowers cities, towns, counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain. Dickenson County proposes to use acquisition as a local mitigation tool.

5.D. Taxation

The power to levy taxes and special assessments is an important tool delegated to local governments by Virginia law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. Dickenson County does levy property taxes, and uses preferential tax districts or special assessments for purposes of guiding growth and development.

5.E. Spending

The fourth major power that has been delegated from the Virginia General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a view to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs. Dickenson County has not adopted and implemented a capital improvement program.

6. Political Willpower

Most County residents are knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Because of this fact, coupled with Dickenson County's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

Russell County

1. Staff and Organizational Capability

Russell County has limited staff and organizational capability to implement hazard mitigation strategies. Russell County is governed by a six (6) member Board of Supervisors. The members represent the five (5) election districts with one supervisor elected at large. There is also a County Administrator. The Board bears the responsibility of serving the people and improving the quality of life in the County. The business of the County is conducted through the department and board system.

Those professional staff departments and boards are as follows:

- Board of Election Commissioners
- Building Inspections Office
- Economic Development Department
- Emergency Services & Disaster Agency
- Equal Opportunity Office
- Finance Department
- Human Resources
- Information Systems
- Inspections
- Legal Department
- Animal Welfare Shelter
- Fire Department
- Planning Department
- Sheriff's Department
- Public Works Department

The Office Of Emergency Services is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events.

2. Technical Capability

Russell County has limited technical capability to implement hazard mitigation strategies.

2.A. Technical Expertise

The County does not have a full-time planner on staff to administer the community's hazard mitigation programs. The County has an inspections office which enforces a building code.

The County does have a person responsible for Information Technology (IT) which can enhance local government operations and the community's ability to develop and maintain a state-of-the art hazard mitigation program.

2.B. Geographic Information Systems (GIS)

GIS systems can best be described as a set of tools (hardware, software and people) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. Russell County has GIS capability to further hazard mitigation goals.

2.C. Internet Access

Russell County provides its employees with high speed broadband Internet service. Internet access provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance - a major factor for County officials and residents - far less important than it used to be. It is believed that Internet access will help further the community's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

3. Fiscal Capability

Russell County has limited fiscal capability to implement hazard mitigation strategies. For Fiscal Year 2012, the County had a public safety budget of $4,463,848.00. The county receives most of its revenues through state and local sales tax and other local services and through restricted intergovernmental contributions (federal and state pass through dollars). Considering the current budget deficits at both the state and local government level, in Virginia, combined with the apparent increased reliance on local accountability by the federal government, this is a significant and growing concern for Russell County.

4. Policy and Program Capability

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within the Mitigation Strategy for Russell County.

4.A. Recent Hazard Mitigation Efforts

In the past 5 years, Russell County Emergency Management has only completed one mitigation project in Maple Gap. The project replace a failed drained pipe at the lower end of Maple Gap, which caused flooding during heavy rainfall events when the excess water was not allowed to flow through the drain pipe and back up into nearby homes.

4.B. Community Rating System Activities

Communities that regulate development in floodplains are able participate in the National Flood Insurance Program (NFIP). In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. The Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

Russell County does not participate in the Community Rating System.

4.C Emergency Operations Plan

Russell County has developed and adopted a Comprehensive Emergency Management Plan, which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. For the most part, the Plan describes the County's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The Plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the County to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and Russell County's Comprehensive Emergency Management Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). The Plan does identify the Board of Supervisors as having lead role in the long-term reconstruction phase following a disaster - which presents a unique window of opportunity for implementing hazard mitigation strategies. However, none are specified within the Emergency Management Plan.

4.D. Floodplain Management Plan

Russell County does not currently have a separate floodplain management plan for purposes of the National Flood Insurance Program's Community Rating System (CRS). This plan is intended to fulfill the CRS planning requirement should the City decide to enter the CRS.

4.E. Stormwater Management Plan

Russell County does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision regulations. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

4.F. Comprehensive Plan

Russell County has developed and adopted a Comprehensive Plan in 2010. The plan provides the future vision for the community regarding growth and development. Hazard mitigation planning is not specifically addressed in the plan.

4.G. Ordinances

Russell County has adopted several ordinances that are relevant to hazard mitigation. The following table provides an inventory of these ordinances.

Table VI-3 — Russell County Ordinances Related to Hazard Mitigation

Title(s)	Adoption Date(s)	Description/Purpose(s)	Mitigation Effectiveness

Subdivision Ordinance	November 5, 2001	The Subdivision Ordinance is designed to regulate all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval. Plats are also reviewed by the Russell County Building Official to identify matters of topography and drainage. Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions by emergency vehicles for fires or severe weather events.	MODERATE
Floodplain Management Ordinance	March 3, 1988	Virginia State Statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through §15.2-2223 and §15.2-2280 of the Code of Virginia. Russell County has adopted a local floodplain ordinance as a requirement of	MODERATE

		participation in the National Flood Insurance Program.	

4.H. Open Space Plans

Russell County does not currently have a separate Open Space Plan.

4.I. Watershed Protection Plan

Russell County does not currently have a separate Watershed Protection Plan. However, the Upper Tennessee River Watershed Strategic Plan, dated 2000, contains information for the Clinch, Holston and Powell Rivers.

5. Legal Authority

Local governments in Virginia have a wide range of tools available to them for implementing mitigation programs, policies and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Virginia, which are (a) regulation, (b) acquisition, (c) taxation, and (d) spending. The scope of this local authority is subject to constraints, however, as all of Virginia's political subdivisions must not act without proper delegation from the state. All power is vested in the state and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Virginia's enabling legislation which grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

5.A. Regulation

5.A.1. General Police Power

Virginia' local governments have been granted broad regulatory powers in their jurisdictions. Virginia State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments also may use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. Russell County has enacted and enforces regulatory ordinances designed to promote the public health, safety, and general welfare of its citizenry.

5.A.2. Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes. Russell County enforces the BOCA building codes. Municipalities and counties may adopt codes for their respective areas if approved by the state as providing "adequate minimum standards". Local regulations cannot be less restrictive than the state code.

Local governments in Virginia are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates their duties and responsibilities, which include enforcing state and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. Russell County has adopted the BOCA building codes and established a Building Inspections Office to carry out its building inspections.

5.B. Land Use

Regulatory powers granted by the state to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. Russell County has not adopted a land use regulation.

5.B.1. Planning

According to State Statutes, local governments in Virginia may create or designate a planning agency. The planning agency may perform a number of duties, including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted "in accordance with a plan", the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. Russell County has established a Planning Department.

5.B.2. Subdivision Ordinance

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division/sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 6 acres where no street right-of-way dedication is involved. Russell County has adopted a subdivision ordinance.

5.B.3. Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small scale development of less than 5 acres. A reduction in damage from small scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Virginia encourages local governments to adopt stormwater regulations under land use authorities. Russell County has not adopted stormwater regulations.

5.B.4. Floodplain Management Ordinance

Virginia State Statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through §15.2-2223 and §15.2-2280. Russell County has adopted a local floodplain ordinance as a requirement of participation in the National Flood Insurance Program.

5.C. Acquisition

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely "hazardproofing" a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Virginia legislation empowers cities, towns, counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain. Russell County proposes to continue using acquisition as a local mitigation tool.

5.D. Taxation

The power to levy taxes and special assessments is an important tool delegated to local governments by Virginia law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development.

Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. Russell County does levy property taxes, and uses preferential tax districts or special assessments for purposes of guiding growth and development.

5.E. Spending

The fourth major power that has been delegated from the Virginia General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a view to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs. Russell County has not adopted a capital improvement program.

6. Political Willpower

Most County residents are knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Because of this fact, coupled with Russell County's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

Tazewell County

1. Staff and Organizational Capability

Tazewell County has limited staff and organizational capability to implement hazard mitigation strategies. Tazewell County is governed by a 5 member Board of Supervisors. The members represent the 5 districts into which the county is divided. There is also a County Administrator. The Board bears the responsibility of serving the people and improving the quality of life in the County. The business of the County is conducted through the department and board system.

Those professional staff departments and boards are as follows:

- Board of Supervisors
- Economic Development Department and Tourism
  - Economic Development
  - Tourism
- Environmental Management and Control
  - Emergency Services
  - County Garage
  - Landfill and Transfer Station
  - Building Inspection
- Grounds and Recreation
  - Janitorial Services
  - Fairgrounds
  - Parks and Recreation
  - Maintenance Services
- Financial Services
  - Accounting and Budgeting
  - Payroll
- Administrative and Human Resources
  - Office Staff
  - CSA
  - Risk Management
- Public Safety and Technology Services
  - Information Technology
  - GIS
  - Communication Technology
  - E-911
  - Special Police (Animal Control)
- Planning and Engineering
- County Attorney

The Emergency Services Coordinator is responsible for the mitigation, preparedness, response and recovery operations that deal with both natural and man-made disaster events.

The Engineering and Planning Department maintains a full time planner that is also responsible for addressing land use planning, as well as, developing mitigation strategies. The department also enforces the National Flood Insurance Program requirements and other applicable local codes.

The Public Service Authority oversees the maintenance of city infrastructure including roadways, sewer and stormwater facilities and the community's water treatment facilities.

Of the above-listed County departments, agencies and offices, the Engineering and Planning Department, Environmental Services Department, and Public Safety and Technology Department have been assigned specifically delegated responsibilities to carry out mitigation activities or hazard control tasks. They have been involved in the development of this mitigation plan in order to identify gaps, weaknesses or opportunities for enhancement with existing mitigation programs. For the most part, it was determined that the departments are adequately staffed, trained and funded to accomplish their missions.

2. **Technical Capability**

Tazewell County has limited technical capability to implement hazard mitigation strategies.

2.A. Technical Expertise

The County does have a full-time planner on staff to administer the community's hazard mitigation programs. The County Engineer provides expertise in the area of water resources and associated technical work. The County does have an inspections office which enforces a building code.

The County has a person responsible for Information Technology (IT), which can enhance local government operations and the community's ability to develop and maintain a state-of-the art hazard mitigation program.

2.B. Geographic Information Systems (GIS)

GIS systems can best be described as a set of tools (hardware, software and people) used to collect, manage, analyze and display spatially-referenced data. Many local governments are now incorporating GIS systems into their existing planning and management operations. Tazewell County has GIS capability and a person responsible for maintaining/implementing the GIS to further hazard mitigation goals.

2.C. Internet Access

Tazewell County does provide most of its employees with high speed broadband Internet service. Internet access provides an enormous opportunity for local officials to keep abreast of the latest information relative to their work and makes receiving government services more affordable and convenient. Information technology also offers increased economic opportunities, higher living standards, more individual choices, and wider and more meaningful participation in government and public life. Simply put, information technology can make distance - a major factor for County officials and residents - far less important than it used to be. It is believed that Internet access will help further the community's hazard mitigation awareness programs, but should be supplemented with more traditional (and less technical) means as well.

3. Fiscal Capability

Tazewell County has limited fiscal capability to implement hazard mitigation strategies. For Fiscal Year 2012, the County had a public safety budget of $85,347,000.. The county receives most of its revenues through state and local sales tax and other local services and through restricted intergovernmental contributions (federal and state pass through dollars). Considering the current budget deficits at both the state and local government level, in Virginia, combined with the apparent increased reliance on local accountability by the federal government, this is a significant and growing concern for Tazewell County.

4. Policy and Program Capability

This part of the capabilities assessment includes the identification and evaluation of existing plans, policies, practices, programs, or activities that either increase or decrease the community's vulnerability to natural hazards. Positive activities, which decrease hazard vulnerability, should be sustained and enhanced if possible. Negative activities, which increase hazard vulnerability, should be targeted for reconsideration and be thoroughly addressed within the Mitigation Strategy for Tazewell County.

4.A. Recent Hazard Mitigation Efforts

Tazewell County has not undertaken specific hazard mitigation efforts in the past.

4.B. Community Rating System Activities

Communities that regulate development in floodplains are able participate in the National Flood Insurance Program (NFIP). In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. The Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: class 1 requires the most credit points and gives the largest premium reduction; class 10 receives no premium reduction.

Tazewell County does not participate in the Community Rating System and has been issued a rating of 10.

4.C. Emergency Operations Plan

Tazewell County has developed and adopted a Comprehensive Emergency Management Plan, which predetermines actions to be taken by government agencies and private organizations in response to an emergency or disaster event. For the most part, the Plan describes the County's capabilities to respond to emergencies and establishes the responsibilities and procedures for responding effectively to the actual occurrence of a disaster. The Plan does not specifically address hazard mitigation, but it does identify the specific operations to be undertaken by the county to protect lives and property immediately before, during and immediately following an emergency. There are no foreseeable conflicts between this Hazard Mitigation Plan and Tazewell County's Comprehensive Emergency Management Plan, primarily because they are each focused on two separate phases of emergency management (mitigation vs. preparedness and response). The Plan does identify the Board of Supervisors as having lead role in the long-term reconstruction phase following a disaster - which presents a unique window of opportunity for implementing hazard mitigation strategies. However, none are specified within the Emergency Management Plan.

4.D. Floodplain Management Plan

Tazewell County does currently have a separate floodplain management plan for purposes of the National Flood Insurance Program's Community Rating System (CRS). This plan is intended to fulfill the CRS planning requirement should the City decide to enter the CRS.

4.E. Stormwater Management Plan

Tazewell County does not currently have an adopted stormwater management plan, but does apply stormwater management provisions through their subdivision and Erosion and Sediment Control regulations. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval.

4.F. Comprehensive Plan

Tazewell County developed and adopted a Comprehensive Plan in 2008. The plan provides the future vision for the community regarding growth and development. Hazard mitigation planning is not specifically addressed in the plan.

4.G. Ordinances

Tazewell County has adopted several ordinances that are relevant to hazard mitigation. The following table provides an inventory of these ordinances.

Table VI-4 — Tazewell County Ordinances Related to Hazard Mitigation

Title(s)	Adoption Date(s)	Description/Purpose(s)	Mitigation Effectiveness
Flood Damage Prevention and Control Ordinance	8/17/99 (readopted)	The Flood Damage Prevention Ordinance is designed to minimize public and private losses due to flood conditions in specific areas. It requires a development permit be submitted to the County prior to any construction or substantial improvement activities. Permits will only be approved if they meet the provisions of the ordinance, which include development standards that will minimize the potential for flood losses. Standards are established for construction materials, equipment, methods, practices and uses. Most importantly, establishes the	HIGH

		requirements for elevation and floodproofing (non-residential) to base flood elevation. The Ordinance requires the minimum standards of the National Flood Insurance Program (NFIP). The County's floodplain areas are currently being re-studied as part of the State's Floodplain Mapping Program. It is possible those floodplain areas will be re-delineated with updated topography, and that base flood elevations will be recalculated.	
Subdivision Ordinance	1/27/1971	The Subdivision Ordinance is designed to regulate all divisions of land for purposes of sale or building development (immediate or future), including all divisions of land involving the dedication of new streets/roads or a change in existing streets/roads. All proposed subdivisions must go through an approval process involving multiple individuals/agencies. Subdivision plats are required for review and must include the location of areas subject to flooding. Lands subject to flooding, irregular drainage conditions, excessive erosion and other reasons unsuitable for residential use shall not be platted for residential use unless the hazards can be and are corrected. For major subdivisions, a stormwater drainage plan must be prepared and necessary stormwater drainage improvements must be completed before final plat approval. Plats are also reviewed by the local permit officer to determine what additional permits are required. Furthermore, all waterfront development must meet setback requirements and impervious surface requirements. Plats are also reviewed by County Engineer to identify matters of topography and drainage. Although not designed specifically for hazard mitigation purposes, this ordinance will prevent flood losses in tandem with the Flood Damage Prevention Ordinance. It will also minimize the adverse effects that development can have on stormwater drainage through impervious surface requirements and through sedimentation and erosion control. Through its roadway requirements, the ordinance also provides for adequate ingress and egress to subdivisions	MODERATE

		by emergency vehicles for fires or severe weather events.	
Tazewell County State of Emergency Ordinance	Unknown	The purpose of this ordinance is to authorize the proclamation of a State of Emergency and the imposition of prohibitions and restrictions during a State of Emergency. Establishes the authority and procedures for the Board of Supervisors to proclaim a State of Emergency, and to impose the following restrictions as described in the ordinance: curfew; evacuation; possession/transportation/transfer of intoxicating liquors, dangerous weapons and substances; access to areas; movements of people in public places; operation of businesses and other places; and other activities or conditions the control of which may be reasonably necessary to maintain order and protect lives or property during the State of Emergency. The ordinance does not incorporate any long-term mitigation actions, such as temporary moratoria on the reconstruction of structures damaged or destroyed by a disaster event.	LOW
Erosion And Sediment Control		The purpose is to conserve the land, water, air and other natural resources of Tazewell County. It establishes requirements for the control of erosion and sedimentation, and establishes procedures whereby these requirements shall be administered and enforced.	MODERATE

4.H. Open Space Plans

Tazewell County does not currently have a separate Open Space Plan.

4.I. Watershed Protection Plan

Tazewell County does not currently have a separate Watershed Protection Plan. However, the Upper Tennessee River Watershed Strategic Plan dated 2000 contains information for the Clinch, Holston and Powell Rivers.

5. Legal Authority

Local governments in Virginia have a wide range of tools available to them for implementing mitigation programs, policies and actions. A hazard mitigation program can utilize any or all of the four broad types of government powers granted by the State of Virginia, which are (a) regulation; (b) acquisition; (c) taxation; and (d) spending. The scope of this local authority is subject to constraints, however, as all of Virginia's political subdivisions must not act without proper delegation from the state. All power is vested in the state and can only be exercised by local governments to the extent it is delegated. Thus, this portion of the capabilities assessment will summarize Virginia's enabling legislation which grants the four types of government powers listed above within the context of available hazard mitigation tools and techniques.

5.A. Regulation

5.A.1. General Police Power

Virginia' local governments have been granted broad regulatory powers in their jurisdictions. Virginia State Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), towns, cities and counties may include requirements for hazard mitigation in local ordinances. Local governments also may use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard. Tazewell County has enacted and enforces regulatory ordinances designed to promote the public health, safety, and general welfare of its citizenry.

5.A.2. Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes, businesses and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through building codes. Tazewell County does have building codes. Municipalities and counties may adopt codes for their respective areas if approved by the state as providing "adequate minimum standards". Local regulations cannot be less restrictive than the state code.

Local governments in Virginia are also empowered to carry out building inspections. It empowers cities and counties to create an inspection department, and enumerates their duties and responsibilities, which include enforcing state and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters. Tazewell County has adopted the BOCA building code and established a Building Inspections Office to carry out its building inspections.

5.B. Land Use

Regulatory powers granted by the state to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls. Each local community possesses great power to prevent unsuitable development in hazard-prone areas. Tazewell County has not adopted a land use regulation.

5.B.1. Planning

According to State Statutes, local governments in Virginia may create or designate a planning agency. The planning agency may perform a number of duties, including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is illustrated by the requirement that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted "in accordance with a plan", the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. Tazewell County has established a Planning Department, which is a part of the Planning and Engineering Department.

5.B.2. Zoning

Zoning is the traditional and most common tool available to local governments to control the use of land. Broad enabling authority is granted for municipalities and counties in Virginia to engage in zoning. Land "uses" controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and set backs, density of population, etc. Local governments are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text. Tazewell County does not enforce a county wide zoning ordinance. The towns of Richlands, Tazewell, Bluefield, and Pochahontas enforce a town zoning ordinance.

5.B.3. Subdivision Regulations

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that sub-dividers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division/sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. The definition of subdivision does not include the division of land into parcels greater than 5 acres where no street right-of-way dedication is involved. Tazewell County has adopted a subdivision ordinance.

5.B.4. Stormwater Regulations

Stormwater regulations are most often used to control runoff and erosion potential which results from small scale development of less than 5 acres. A reduction in damage from small scale development is achieved through requirements such as on-site retention/detention ponds, etc. The State of Virginia encourages local governments to adopt stormwater regulations under land use authorities. Tazewell County has not adopted stormwater regulations.

5.B.5. Floodplain Regulation

Virginia State Statutes provide cities and counties the land use authority. In particular, issues such as floodwater control are empowered through §15.2-2223 and §15.2-2280. Tazewell County has adopted a local floodplain ordinance as a requirement of participation in the National Flood Insurance Program.

5.C. Acquisition

The power of acquisition can be a useful tool for pursuing local mitigation goals. Local governments may find the most effective method for completely "hazardproofing" a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. Virginia legislation empowers cities, towns, counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain. Tazewell County does not currently use acquisition as a local mitigation tool.

5.D. Taxation

The power to levy taxes and special assessments is an important tool delegated to local governments by Virginia law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Communities have the power to set preferential tax rates for areas which are more suitable for development in order to discourage development in otherwise hazardous areas. Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood protection works within a designated area. This can serve to increase the cost of building in such areas, thereby discouraging development. Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development. Tazewell County levies property taxes for purposes of guiding growth and development.

5.E. Spending

The fourth major power that has been delegated from the Virginia General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions made by the local government, including the adoption annual budgets and a Capital Improvement Plan (CIP). A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a view to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control growth to some extent especially in areas where the provision of on-site sewage disposal and water supply are unusually expensive. In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs. Tazewell County has not adopted and implemented a separate capital improvement program.

6. Political Willpower

Most County residents are knowledgeable about the potential hazards that their community faces, and in recent years, they have become more familiar with the practices and principles of mitigation. Because of this fact, coupled with Tazewell County's history with natural disasters, it is expected that the current and future political climates are favorable for supporting and advancing future hazard mitigation strategies.

SECTION VII. MITIGATION STRATEGY

The Mitigation Advisory Committee discussed the results of the hazard identification and risk assessment, review mitigation goals and objectives based on the priority areas and hazard types, discuss community strengths and weaknesses, and begin developing the mitigation strategy.

This section of the Hazard Mitigation Plan describes the most challenging part of any such planning effort - the development of a mitigation strategy. It is a process of:

1. Setting mitigation goals,
2. Considering mitigation alternatives,
3. Developing objectives and implementation approaches, and
4. Deriving a mitigation action plan.

Essentially these four elements comprise this mitigation strategy.

Setting Mitigation Goals

The hazard mitigation planning process followed by the MAC is a typical problem-solving methodology:

- Describe the problem (Hazard Identification),
- Estimate the impacts the problem could cause (Vulnerability Assessment),
- Assess what safeguards already exist that could/should lessen those impacts (Capability Assessment), and
- Using this information, determine if you should do something (Determine Acceptable Risk), and if so, what that something should be (Develop an Action Plan).

When a community decides that certain risks are unacceptable and that certain mitigation actions may be achievable, the development of *goals* and *actions* takes place. Goals and actions help to describe what should occur, using increasingly more narrow descriptors. Initially, broad-based goals are developed, which are long-term and general statements. Goals are accomplished by implementing actions, which are very detailed and achievable in a finite time period.

The MAC reviewed goals for this plan that were set by the original Hazard Mitigation Plan. General goals remained primarily the same as the initial tone and direction for the overall plan as well. Goals were revisited to confirm that the updated data collection process supported them. Lastly, actions were developed as a logical extension of the plan's objectives. Most of these actions are dynamic and can change. These actions have been utilized to develop a Mitigation Action Plan for the Planning District.

Representatives from Buchanan, Dickenson, Russell and Tazewell Counties, and the towns of Grundy, Clinchco, Haysi, Cleveland, Honaker, Lebanon, Bluefield, Cedar Bluff, Pocahontas, Richlands and Tazewell used the results of the data collection efforts to develop goals and prioritize their actions. The priorities differ somewhat from jurisdiction to jurisdiction. Overall, for the entire planning area, protecting new and existing development from the effects of hazards is the top priority because it is can be achieved on an individual community-by-community basis but at the same time be integrated into an overarching plan goal. Each jurisdiction's additional priorities were developed based on past damages, existing exposure to risk, other community goals, and weaknesses identified by the local government capability assessments.

The goals and their associated actions form the basis for the development of a mitigation action plan for implementation to be considered for the Planning District. The Mitigation Action Plan, located at the end of this section, contains recommended mitigation projects.

OVERARCHING COMMUNITY GOAL:
"To develop and maintain disaster resistant communities that are less vulnerable to the economic and physical devastation associated with natural hazard events."

- ***Goal1:***

  Enhance the safety of residents and businesses by protecting new and existing development from the effects of hazards.

- ***Goal 2:***

  Protect new and existing public and private infrastructure and critical facilities from the effects of hazards.

- ***Goal 3:***

  Increase the Planning District communities floodplain management activities and participation in the National Flood Insurance Program.

- ***Goal 4:***

  Ensure hazard awareness and risk reduction principles are institutionalized into the Planning District communities' daily activities, processes, and functions by incorporating it into policy documents and initiatives.

- ***Goal 5:***

  Enhance community-wide understanding and awareness of community hazards.

- ***Goal 6:***

  Publicize mitigation activities to reduce the area's vulnerability to hazards.

General Observations — Strengths

- Several of the Planning District's four counties and twelve towns have policies with hazard mitigation elements or effects such as development and building code regulations,floodplain ordinances,zoning ordinances and stormwater management programs. Building code regulations and local enforcement have helped to ensure that new development is built to acceptable safety standards for development overall.
- Much of the language used for flood hazard mitigation is already present in some of the Planning District communities' existing comprehensive plans. These concepts involve floodplain management and the preservation of open space and natural areas.
- Over the next few years, these communities will continue to have opportunities to experience new development within their jurisdictions. Those structures that are built will be constructed built to newer codes and standards that help to reduce damage from natural hazards.
- The jurisdictions within the Planning District have a strong community foundation of mutual assistance and the "help thy neighbor" philosophy.

General Observations — Weaknesses

- Citizens within the Planning District have a historic acceptance of the cycle of damage in the community. Repairing damaged buildings and infrastructure to pre-damaged condition, only to be damaged again during the next event, is common in even the most frequently and severely damaged portions of the planning district.
- While the Planning District communities enforce their floodplain ordinances, some current ordinances could be enhanced to offer further protection to the community and need to be revised. The area's jurisdictions could offer an even greater degree of protection if they adopted cumulative substantial damage and substantial improvement requirements.
- Limited amounts of developable land within the Planning District, and historic lack of public buy-in to mitigation has restricted the number of mitigation options available for some of the most frequently and severely damaged portions of the Planning District.

During the presentation of findings for the hazard identification and risk assessment workshop, the MAC was asked to provide their preliminary input and ideas. Ranges of alternatives were then considered by the MAC based on their comments and suggestions.

Considering Mitigation Alternatives

A wide range of potential mitigation alternatives were considered by the Mitigation Advisory Committee. The actions considered are presented in Appendix C. These actions include those for all hazards identified in the HIRA and include specific structural measures, policy and procedure revisions, and data collection measures. In many cases, actions specific to the community were developed based on the capacity of the communities and the level of data available when making decisions.

Mitigation Actions

In formulating a mitigation strategy, a wide range of activities were considered in order to help achieve the goals and to lessen the vulnerability of the Cumberland Plateau Planning District area to the effects of natural hazards. The original Mitigation Action Plan as well as the updated plan is comprised of proactive mitigation actions designed to reduce or eliminate future losses from natural hazards in the participating jurisdictions.

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. For structural measures, the level of cost effectiveness is primarily based on the likelihood of damages occurring in the future, the severity of the damages when they occur, and the level of effectiveness of the selected measure. Although detailed analysis was not conducted during the mitigation action development process, these factors were of primary concern when selecting measures. For those measures that do not result in a quantifiable reduction of damages, such as public education and outreach, the relationship of the probable future benefits and the cost of each measure was considered when developing the mitigation actions.

<u>Cumberland Plateau Planning District Commission Mitigation Actions</u>

The mitigation actions proposed for the Planning District to undertake are listed on the pages that follow. Each has been designed to achieve the goals and objectives identified in this multi-jurisdictional all-hazards mitigation plan. Each proposed action includes:

(1) the appropriate category for the mitigation technique,
(2) the hazard it is designed to mitigate,

(3) the objective(s) it is intended to help achieve,
(4) some general background information,
(5) the priority level for its implementation (high, moderate, or low),
(6) potential funding sources, if applicable,

When formulating a Mitigation Action Plan, a wide range of activities should be considered to help achieve the goals of communities and lessen the vulnerability of the participating jurisdictions to the effects of natural hazards. In general, all of these activities fall into one of the following broad categories of mitigation techniques. Tables VII-8 and VII-9 shows which jurisdictions have chosen to participate in the proposed actions. Appendix C includes the range of alternatives that were considered in by the Mitigation Advisory Committee.

When preparing the 2018 plan update, the four counties' Emergency Managers indicated a need to carry over all previous mitigation actions, since they were unable to complete the actions (mainly due to a lack of funding).

ACTION #1

Obtain official recognition of the Mitigation Advisory Committee by the Planning District's communities in order to help institutionalize and develop an ongoing mitigation program.

Category: Public Information & Awareness
Hazard: All
Goal(s) Addressed: 4
Background: After the passage of the Disaster Mitigation Act of 2000 (DMA2K), local governments are required to develop and to adopt all hazards mitigation plans to be eligible for certain types of future disaster assistance including funds for mitigation activities. Nationwide, many communities have formed committees, councils or citizen groups to assist in developing and implementing plans. In the case of multi-jurisdictional plans, "mitigation advisory committees" are often formed and are comprised of local officials and residents from the participating jurisdictions. One way to assure the effectiveness of such committees is to bestow official status to them. An officially recognized Mitigation Action Committee will aid each community by sharing the workload on regionally beneficial actions and present a unified voice in dealing with state and FEMA officials. **Priority:** High **Funding Sources: N/A Responsibility Assigned to: MAC** and **PDC Target Completion Date:** In progress.

ACTION #2

Target FEMA's Repetitive Loss Properties, and other known repetitively flooded properties, throughout the Planning District for potential mitigation projects.

Category: Property Protection

Hazard: Flood
Goal(s) Addressed: 1, 3
Background: Currently, over 40,000 of the four million properties insured under the National Flood Insurance Program have been identified by FEMA as repetitive loss properties. The known repetitive loss properties are those that have sustained flood damage and received flood insurance claim payments on multiple occasions. Repetitive loss properties, though they represent a minority of the active policies, represent the majority of claims made to the National Flood Insurance Program. In addition to these properties, there are also a number of properties throughout the planning district that are repetitively flooded yet the property owners do not carry flood insurance, so therefore would not appear on FEMA's repetitive loss properties list. Efforts should be made to identify these properties and determine the most effective mitigation approach (e.g., acquisition, relocation, elevation). **Priority:** High
Funding Sources: FEMA's Pre-Disaster Mitigation (PDM) program, Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) program
Responsibility Assigned to: Mitigation Advisory Committee and Planning District Commission **Target Completion Date:** In progress. Some localities are aware of repetitive loss properties. Lack of Funding

ACTION #3

Undertake educational outreach activities by developing and distributing brochures and education materials for FEMA's Repetitive Loss Properties with specific mitigation measures emphasizing acquisition, relocation and elevation.

Category: Public Education and Awareness
Hazard: Flood **Goal(s) Addressed: 3**
Background: The Planning District has several repetitive loss properties which have been identified by FEMA. Although an acquisition program for flood-prone properties has been undertaken in the state previously, local citizens are reluctant to relocate from an area where they have strong family and community ties. Citizens should be educated about the flood loss cycle associated with flood-prone areas and encouraged to work with local government officials to develop mutually agreeable strategies to address repetitive losses in the Planning District.
Priority: High
Funding Sources: FEMA, VDEM
Responsibility Assigned to: MAC, PDC and local emergency management agencies
Target Completion Date: In progress. Educational materials will be made available to the public on websites.

ACTION #4

Publicize the Virginia Department of Forestry's *Money for Mitigation Program.* Utilize existing wildfire maps to prioritize project areas in the Planning District.

Assist local residents, in priority areas, to reduce wildfire hazards through the use of funding from the *Money for Mitigation Program.*

Category: Public Education and Awareness
Hazard: Fire **Goal(s) Addressed: 1**
Background: Financial assistance to reduce fire hazards has been established at the Virginia Department of Forestry. The program provides a 50% cost share funds to reduce wildfire fuels, particularly in wildland-urban interface areas. Citizen's groups and homeowner's associations are eligible applicants. A program description including eligibility criteria can be accessed at the agency's website www.vdof.org.
Priority: High
Funding Sources: Virginia Department of Forestry
Responsibility Assigned to: MAC, PDC and local emergency management agencies.
Target Completion Date: In progress. Will publicize on website.

ACTION #5

Develop a comprehensive compilation of landslide activity in the Planning District to be used as a planning tool for future infrastructure projects.

Category: Prevention
Hazard: Landslide
Goal(s) Addressed: 2
Background: Landslide activity is prevalent in the mountainous regions of the Planning District. Most often, roadways are impacted by landslide events. The Virginia Department of Transportation and local government road and bridge departments usually respond to events on an as-needed basis. A compilation of landslide activity, both past and present, can assist decision-makers as a planning tool when determining where to cite new and upgraded infrastructure.
Priority: High
Funding Sources: VDOT and local public works departments/agencies
Responsibility Assigned to: MAC, PDC and local public works departments/agencies
Target Completion Date: Not started. Have been unable to obtain this information from localities.

ACTION #6

Evaluate the Planning District's community flood plain ordinances and enforcement procedures that may be outdated for possible upgrades.

Category: Prevention
Hazard: Flood **Goal(s)**
Addressed: 3
Background: Each county and community in the planning district has adopted and enforces the NFIP floodplain management regulations. By utilizing the working

relationship established by the formalization of the Mitigation Action Committee communities can share information on the state of current regulations as well as enforcement procedures. By sharing this information communities can learn from one another on ways to best implement, monitor, and enforce NFIP regulations and over all floodplain management. **Priority:** Moderate **Funding Sources: N/A**
Responsibility Assigned to: Planning District communities' floodplain managers
Target Completion Date: In progress.

ACTION #7

Initiate discussion concerning which individuals shall be designated as the Floodplain Manager in each of the four Planning District's jurisdictions. MAC and PDC will make recommendations to the appropriate decision-makers in each jurisdiction.

Category: Prevention
Hazard: All
Goal(s) Addressed: 3
Background: Over nineteen thousand communities participate in the National Flood Insurance Program (NFIP) and have adopted floodplain ordinances that specify the designation of a local floodplain official or administrator. In many cases, the local floodplain administrator is either 1) an individual with little or no experience about flooding and the NFIP, or 2) an individual with many responsibilities. Buchanan, Dickenson, Russell and Tazewell Counties have adopted floodplain ordinances and designated a local floodplain administrator. A review of these individual's responsibilities, not just floodplain administration, can assist local decision-makers in the effective allocation of personnel resources and funding.
Priority: Moderate
Funding Sources: N/A
Responsibility Assigned to: MAC,PDC and local government decision-makers including county commissions.
Target Completion Date: In progress.

ACTION #8

Initiate discussions with public utility companies about incorporating mitigation as infrastructure is laid, maintained, or repaired. Invite utilities to make a presentation to the MAC to begin dialogue.

Category: Prevention
Hazard: All
Goal(s) Addressed: 2

Background: Mitigation initiatives that protect utility infrastructure can most often be installed at the beginning of a project for much less money than if installed as a retrofitting project after the fact. Many utility companies have the financial capacity and desire to protect their facilities from the impacts of natural hazards but are often unaware of the risk until an event occurs. Local governments can serve to educate the companies about the risk of natural hazards and provide technical guidance and references about hazard proofing their facilities.
Priority: High
Funding Sources: FEMA; VDEM, VDC
Responsibility Assigned to: MAC, PDC, local public works departments/agencies, emergency management agencies and area Chambers of Commerce
Target Completion Date: Not started. Low priority of localities.

ACTION #9

Develop and distribute a brochure targeting the Planning District jurisdiction's community staff, which details mitigation principles and options.

Category: Public Information and Awareness
Hazard: All
Goal(s) Addressed: 4, 6
Background: Local governmental staff should be educated about the benefits of natural hazard mitigation and encouraged to incorporate the principles into the decision-making processes related to their jobs. Information on potential mitigation measures, as well as potential funding sources and partnering opportunities, should be shared with all appropriate local staff. **Priority:** Moderate
Funding Sources: FEMA, NWS, VDEM, VDC
Responsibility Assigned to: MAC, PDC and local emergency management agencies.
Target Completion Date: In progress. Website link will be given to local government through PDC website.

ACTION #10

Develop "hazard information centers" on the Planning District's community's websites and in public libraries where individuals can find hazard and mitigation information.

Category: Public Information and Awareness
Hazard: All
Goal(s) Addressed: 6
Background: As the Internet continues to become "the information super highway", more local governments around the country are using it as a primary means of official communication with community residents through the development and administration of websites. Today, many residents pay their water and power bills online, register to vote and even obtain driver's licenses over the Internet. Use of local government

websites to educate community residents about natural hazards and mitigation opportunities is growing nationwide.
Priority: Moderate
Funding Sources: Local government annual budgets for information technology
Responsibility Assigned to: Planning District community's local government communications departments/offices, the MAC and PDC.
Target Completion Date: In progress. The four counties will be asked to incorporate info on their websites.

ACTION #11

Investigate the benefits of submitting Community Rating System Applications for non-participating jurisdictions.

Category: Prevention
Hazard: All
Goal(s) Addressed: 3
Background: Communities that regulate development in floodplains are able participate in the National Flood Insurance Program (NFIP). In return, the NFIP makes federally-backed flood insurance policies available for properties in the community. The Community Rating System (CRS) was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. There are ten CRS classes: Class 1 requires the most credit points and gives the largest premium reduction (45%); class 10 receives no premium reduction. Each class, starting with Class 9, receives at least a 5% premium reduction. MAC members should be educated on the benefits of participation of CRS, so that each community may potentially submit a CRS application.
Priority: Medium
Funding Sources: Local government department budgets
Responsibility Assigned to: MAC, PDC, local government planning departments work with the State NFIP Coordinator at the VDC
Target Completion Date: Not started, Lack of funding.

ACTION #12

Investigate all critical facilities to evaluate their resistance to wind, fire, landslide and flood hazards. This study will examine all critical facilities within the Planning District communities and make recommendations as to ways in which the facilities can be strengthened or hardened.

Category: Public Information and Awareness
Hazard: All
Goal(s) Addressed: 2
Background: The ability to recover quickly after a disaster rests, in part, on the community's ability to maintain critical functions during response and recovery. Efforts should be undertaken to ensure that community critical facilities (e.g., fire departments, hospitals, schools) can withstand the impact of various hazards. Local facilities

management offices/agencies and local emergency management agencies will work with the MAC and PDC to undertake a future study with recommendations for improvements. In order to finance this initiative, the MAC and PDC will submit a Pre-Disaster Mitigation (PDM) program grant application to the Virginia Department of Emergency Management.
Priority: Moderate
Funding Sources: FEMA, VDEM
Responsibility Assigned to: MAC, PDC, local facilities management agencies and local emergency management agencies
Target Completion Date: Not started. Lack of funding.

ACTION #13

Support Public Works initiatives to improve stormwater infrastructure throughout the area.

Category: Structural Projects
Hazard: Flood
Goal(s) Addressed: 2, 4
Background: Many times, local stormwater channels are not identified on FEMA Flood Insurance Rates Maps (FIRMs). Consequently, stormwater hazards are often overlooked as natural hazards although they can cause significant problems during times of high water. Many jurisdictions do not regulate stormwater runoff, thereby, increasing flood damage potential during an event.
Priority: Medium
Funding Sources: EPA, USACE, FEMA
Responsibility Assigned to: MAC, PDC and local public works departments
Target Completion Date: In progress. Low priority.

ACTION #14

"Verify the geographic location of all NFIP repetitive losses, and make inquiries as to whether the properties have been mitigated, and if so, by what means."

Category: Prevention
Hazard: Flood
Goal(s): 2
Background: By keeping track of NFIP repetitive losses we can eliminate or reduce damage to properties that are caught in the flood-repair-flood-repair cycle and sustain actions that reduce vulnerability and risk from hazards, or reduce the severity of the effects of hazards on people and property.
Priority: Medium
Funding Sources: Local
Responsibility Assigned to: PDC\MAC
Target Completion Date: In progress.

Table VII-8 — Mitigation Action Item Participation by County

Action Item	Buchanan County	Dickenson County	Russell County	Tazewell County
1	X	X	X	X
2	X	X	X	X
3	X	X	X	X
4	X	X	X	X
5	X	X	X	X
6	X	X	X	X
7	X	X	X	X
8	X	X	X	X
9	X	X	X	X
10	X	X	X	X
11	X	X	X	X
12	X	X	X	X
13	X	X	X	X

Action Item	Town of Bluefield	Town of Cedar Bluff	Town of Cleveland	Town of Clinchco	Town of Grundy	Town of Haysi	Town of Honaker	Town of Lebanon	Town of Pocahontas	Town of Richlands	Town of Tazewell
1	X	X	X	X	X	X	X	X	X	X	X
2	X		X		X	X		X		X	X
3	X									X	X
4	X									X	X
5											
6											
7											
8											
9	X	X	X	X	X	X	X	X	X	X	X
10	X	X	X	X	X	X	X	X	X	X	X
11											
12	X										
13	X					X	X			X	X
	* Contingent upon funding										

Additional Actions

Buchanan County

Locate potential problems within our county.

Category: Prevention, Property Protection
Hazard: Flood, Winter Storm **Goal(s)**
Addressed: 1, 3, 4
Background: The county has streams and rivers that have experienced flooding in the past depending on the amount of precipitation in that area. The County's topography is characterized by hills and valleys. A majority of the lowest-lying areas of the valleys (i.e., the hollows) have not been studied as part of the National Flood Insurance Program mapping initiative.

The County is participating in a long-term flood project in the Town of Grundy, to mitigate the recurrence of flooding in that area. The County plans to continue to identify areas that would benefit from such projects.

Criteria would include proximity to flood source, impact of past and future flooding, number of structures potentially affected, and willingness and capacity of homeowners to participate in mitigation projects. Once the most likely targets for mitigation are determined, specific project development efforts can be undertaken.

Priority: Medium
Funding Sources:
Responsibility Assigned to: Emergency Services Director and Emergency Services Coordinator
Target Completion Date: In progress

Town of Richlands

Continuation of Strict Enforcement of Zoning Regulations

Category: Prevention
Hazard: Flood **Goal(s)**
Addressed: 4
Background: The Town has identified flooding as its most critical hazard based on the past number of flood occurrences, the severity of recent flood incidents, and the physical and monetary amounts of damage resulting from recent flood events. The Town has determined that reasonable mitigation strategies include the continuation of strict enforcement of the Town's Zoning Ordinance to ensure that new structures are not allowed to be constructed/placed within the flood way.

It should be noted that critical infrastructure, such as the water and wastewater facilities and the electrical substation, have already been placed outside of flood zones or have been constructed in a manner to preclude flooding.

Priority: High
Funding Sources: Town operating budget
Responsibility Assigned to: Town Manager
Target Completion Date: Continuous

SECTION VIII — PLAN MAINTENANCE PROCEDURES

The long-term success of the Cumberland Plateau Planning District's mitigation plan depends in large part on routine monitoring, evaluating, and updating of the plan so that it will remain a valid tool for the communities to use. The first step in ensuring that the plan's activities will be implemented is to obtain official recognition of the Mitigation Advisory Committee (MAC) as proposed in Mitigation Action#1 and assign the responsibility to the MAC.

Plan Adoption, Implementation and Maintenance

Formal Plan Adoption

Fifteen local governments in southwestern Virginia have participated in this planning process and formally adopted this plan by resolution of their governing Board. Those local governments are the counties of Buchanan, Dickenson, Russell and Tazewell and the towns of towns of Grundy, Clinchco, Haysi, Cleveland, Honaker, Lebanon, Bluefield, Cedar Bluff, Pocahontas, Richlands and Tazewell. The plan was completed under the auspices of the Cumberland Plateau Planning District.

The adoption process necessitated that the MAC 1) place the plan review and adoption on the appropriate meeting agendas in each jurisdiction, 2) produce and provide copies in official meeting packets, 3) facilitate the actual adoption, 4) collect the adoption resolutions, and 5) incorporate the adopted resolutions into the final Hazard Mitigation Plan.

The Cumberland Plateau Planning District appreciates the willingness that both Virginia Department of Emergency Management and FEMA Region III demonstrated by reviewing this plan concurrently and providing comments for revision *prior* to the adoption process. Not having done so would clearly have added more months to the adoption process.

Implementation

Upon adoption, the plan faces the biggest test: *implementation.* Implementation implies two concepts: action and priority.

While this plan puts forth many worthwhile and "High" priority recommendations, there may be competition among the participating communities in the Cumberland Plateau Planning District for limited mitigation funds. The decision of which action to undertake first will be the primary issue that the district's communities face. Fortunately, there are two factors that will help make that decision workable. First, there are high priority items for each participating community, so each can pursue an action independently. Therefore, the Plan's specific recommendations will begin to be addressed. Second, funding is always an important and critical issue. Therefore whenever possible, the Planning District communities will pursue low or no-cost recommendations.

An example of a low-cost, high-priority recommendation would be to pursue the education efforts necessary for elected officials and the general public as they relate to participation in the National Flood Insurance Program (NFIP). In other cases, some communities need to strengthen their commitment to the NFIP by amending local floodplain ordinances.

Another example would be to pursue the regional goal of increasing education opportunities for the Planning District communities' employees, MAC representatives, and public officials regarding natural hazard mitigation, floodplain management, floodplain regulations, and enforcement. These initial efforts will lead to long-standing changes in vulnerability and can be initiated at very little cost, while promoting public education through their relative "visibility" in the community.

Another important implementation approach that is highly effective, but low-cost, is to take steps to incorporate the recommendations, and equally important, the underlying principles of this Hazard Mitigation Plan into other community plans and mechanisms, such as:

- Comprehensive Planning
- Capital Improvement Budgeting
- Economic Development Goals and Incentives

Mitigation is most successful when it is incorporated within the day-to-day functions and priorities of government and development. This integration is accomplished by a constant effort to network and to identify and highlight the multi-objective, "win-win" benefits to each program, the communities and their constituents. Just as importantly, the mitigation plan and its recommendations should be presented as a *"framework for mitigation"* in all future planning efforts undertaken by the district's communities such as the development or revision of local comprehensive plans. This effort is achieved through the often tedious actions of monitoring agendas, attending meetings, sending memos, and promoting safe, sustainable communities.

Since 2005 Russell County has incorporated the 2005 mitigation recommendations into their Comprehensive Development Plan. Buchanan, Dickenson, Russell and Tazewell Counties have incorporated it into their Local Emergency Operations Plans. The PDC will continue to stress the need to integrate with other local community plans.

Simultaneous to these efforts, it will be important to constantly monitor funding opportunities that can be utilized to implement some of the higher cost recommended actions. This will include creating and maintaining a repository of ideas on how any required local match or participation requirement can be met. Then, when funding does become available, the Cumberland Plateau Planning District communities will be in a position to take advantage of an opportunity. Funding opportunities that can be monitored include special pre- and post-disaster funds, special district budgeted funds, state or federal ear-marked funds, and grant programs, including those that can serve or support multi-objective applications.

With adoption of this plan, the Cumberland Plateau Planning District communities commit to:

- Pursuing the implementation of the high-priority, low/no-cost recommended actions.
- Keeping the concept of mitigation in the forefront of community decision-making by identifying and stressing the recommendations of the Hazard Mitigation Plan when other community goals, plans and activities are discussed and decided upon.
- Maintaining a constant monitoring of multi-objective, cost-share opportunities to assist the participating communities in implementing the recommended actions of this plan for which no current funding or support exists.

Maintenance

Plan maintenance requires an ongoing effort to monitor and evaluate the implementation of the plan, and to update the plan as progress, roadblocks, or changing circumstances are recognized.

This monitoring and updating will take place through:

1. An annual review by each Cumberland Plateau Planning District community,
2. An annual review through the Mitigation Advisory Committee, and
3. A 5-year written update to be submitted to the state and FEMA Region III, unless disaster or other circumstances (e.g., changing regulations) lead to a different time frame.

   CPPDC employee Charlie Perkins will monitor, evaluate, and update the plan between 5-year written updates (2018-2023).

When each community convenes for a review, they will coordinate with each of the other jurisdictions that participated in the planning process - or that has joined the planning group since the inception of the planning process - to update and revise the plan. Public notice will be given and public participation will be invited, at a minimum, through available web postings and press releases to the local media outlets, primarily newspapers and radio stations.

The evaluation of the progress can be achieved by monitoring changes in the vulnerability identified in the plan. Changes in vulnerability can be identified by noting:

- Lessened vulnerability as a result of implementing recommended actions,
- Increased vulnerability as a result of failed or ineffective mitigation actions, and/or,
- Increased vulnerability as a result of new development (and/or annexation).

The updating of the plan will be by written changes and submissions, as the Cumberland Plateau Planning District communities and Mitigation Advisory Committee deem appropriate and necessary.

IX. REFERENCES

In addition to the general body of literature on hazard vulnerability and hazard mitigation, the following reports and data were reviewed and used during this study:

City of Chesapeake, Virginia, Natural Hazards Mitigation Plan, 2003-2008, by City of Chesapeake, VA and Dewberry & Davis LLC, September 2003.

City of Conway, South Carolina Flood Hazard Mitigation Plan, February 16, 2000, by French & Associates, Ltd. Park Forest, Illinois.

Flood Mitigation Plan for Lewes, Delaware, September 1999, by Greenhorne & O'Mara, Inc.,9001 Edmonston Road, Greenbelt, MD 20770.

Heart of Illinois Project Impact Natural Hazards Mitigation Plan, April 12, 2004 by Dewberry, 8401 Arlington Blvd., Fairfax, VA 220311-4666.

Hyde County, North Carolina, Multi-Hazard Mitigation Plan, 2003, by Hyde County, NC.

Northeast Colorado All Hazards Mitigation Plan, December 2003 by Northeast Colorado Emergency Management Association and Mitigation Assistance Corporation.

HIRA references

All about Bluefield

Buchanan County VA *Comprehensive Plan*

Cumberland Plateau PDC, *Comprehensive Economic Development Strategy*

Dickenson County VA *Comprehensive Plan*

Federal Emergency Management Agency , *Engineering Principles and Practices of Retrofitting Floodprone Residential Structures* (FEMA 259, 1995)

Federal Emergency Management Agency, *Understanding Your Risks: Identifying hazards and estimating losses* (FEMA 386-2, 2001)

National Earthquake Information Center

National Climatic Data Center, National Oceanic and Atmospheric Administration

Personal communication with Virginia Department of Transportation

Tazewell County VA *Comprehensive Plan*

Tennessee Valley Authority reports (1964, 1971)

Upper Tennessee River Watershed Conservation Roundtable, *Upper Tennessee River Watershed Strategic Plan*

Virginia State Water Control Board report (1977)

Virginia Uniform Statewide Building Code

VA Department of Forestry, *Wildfire Risk Assessment (WRA) - 2003*

Work Plan for Upper Clinch Valley Watershed

United States Corp of Army Engineers report (1971)

United States Geological Survey, Flood Gauge Data

APPENDIX A — DETAILED HAZARD IDENTIFICATION PARAMETERS AND METHODOLOGY

Based on all local and regional hazard data collected, an analysis of the potential hazards that can affect the Cumberland Plateau Planning area was performed based on the four parameters that are described below. These four parameters were based on two separate factors — *the probabilities that a potential hazard will affect the area and the potential impacts on the city should a hazard event occur.* Hazard identification parameters and computations used to prioritize the potential hazards that can threaten the Cumberland Plateau planning area are listed in tabular form at the end of this appendix.

Probability — This parameter addresses the probability that a potential hazard will affect the planning area. The probability for each hazard was determined based on the history of events in the planning area, as well as any other relevant available data. Hazard probabilities were classified into one of four distinct categories by estimating the hazard's average annual frequency, which is the probability of a specific hazard event occurring in the planning area in a given year.

Affected Area — This parameter is the first of three impact parameters, and addresses the potentially affected geographic area within the planning area should a hazard event occur. The extent of the affected area for each hazard was determined based on the specific characteristics of each hazard, the history of such events within the Cumberland Plateau planning area, and experience with similar events that have occurred near the area. The affected areas were classified into one of four distinct categories based on the extent of the planning area that would be directly impacted by the hazard, ranging from a single building or facility to a widespread area of the planning area.

Primary Impact — This second impact parameter addresses the potential direct damages to buildings, facilities, and individuals should a hazard event occur. The primary impact was determined based on the specific characteristics of each hazard, the history of such events in the Cumberland Plateau planning area, and experience with similar events that have occurred in the region. Primary impacts were classified into one of four distinct categories by estimating the typical damage to a city building or facility from a given hazard, ranging from negligible (less than 10% damage) to catastrophic (greater than 50% damage).

Secondary Impacts — This third impact parameter addresses the potential secondary impacts on the planning area should a hazard event occur. Note that while primary impacts are a direct result of the hazard, secondary impacts can only arise subsequent to a primary impact. For example, a primary impact of a flood event may be road closures due to submerged pavement; while a secondary impact could be restricted access of emergency vehicles to citizens in a portion of the community due to the road closure. Other examples of secondary impacts include loss of building or facility services (functional downtime), power outages, and mass evacuation of city residents. The secondary impacts were determined based on the specific characteristics of each hazard, the history of such events in the planning area, and experience with similar events in the region. Secondary impacts were classified into one of four distinct categories by estimating the typical impacts to the city at large from a given hazard, ranging from negligible (no loss of function, downtime, and/or evacuations) to high (major loss of function, downtime, and/or evacuations).

Once these parameters were determined, a preference scale was utilized to arrive at a hazard level for each of the hazard types considered for the planning area. The preference scale method has been used as a means of quantifying hazard assessment results in other communities, and similar scales were developed to rank alternatives in other FEMA documents such as FEMA Publication 259. The preference scale used for this hazard analysis first assigned a numerical value between 1 and 4 to each parameter, with 1 representing the lowest hazard potential and 4 being the highest. These numerical values were then modified by weighing each parameter by a factor to reflect the overall importance of that parameter, with 0.5 representing parameters of lowest importance and 2.0 representing parameters of highest importance. Importance factors may also be adjusted to reflect the level of confidence with the information supplied for a given parameter. For this reason, probability parameters were assigned a factor of 2.0 to reflect their high importance and the generally high confidence in the available information. However, the affected area, primary impact and secondary impacts parameter were assigned factors of 0.8, 0.7 and 0.5 to reflect their lower importance and the low confidence in the available information. Finally, the factored values assigned to the various parameters for each hazard were totaled, and the hazard types with the highest totals were considered the highest potential hazard level.

In order to quantify these hazard parameters, the following formula was developed to assign a value for probability and impact for each of the hazards considered.

Hazard Level = Probability x Impacts

Where: Probability = (Probability score x Importance factor)

Impacts = (Affected Area + Primary Impact + Secondary Impacts)

Affected Area = Affected Area score x Importance factor

Primary Impact = Primary Impact score x Importance factor

Secondary Impact = Secondary Impact score x Importance factor

The preference scale computations used to determine the hazard level for each of the potential hazards impacting the Cumberland Plateau planning area are summarized in tabular form at the end of this appendix. The hazard levels are broken down into four distinct categories that represent the likelihood of a hazard event of that type significantly impacting the planning area: High, Medium-High, Medium, and Low. Note that the assigning of numerical values and importance factors for parameters is qualitative in nature and based on data from a number of sources with varying degrees of accuracy. For this reason, a margin or error of +10 percent was assumed for the total scores used to arrive at the hazard level values.

Hazard Type	Probability	Impacts			Total Score	Hazard Level
		Affected Area	Primary Impact	Secondary Impacts		
SEVERE WINTER STORM	6	3.2	1.4	1.5	37	Medium-High
DROUGHT	4	3.2	0.7	1	20	Medium
EARTHQUAKE	4	3.2	1.4	1	22	Medium
WILDFIRE	8	2.4	2.1	0.5	40	Medium-High
FLOOD	8	2.4	2.1	2	52	High
EXTREME HEAT	2	3.2	0.7	0.5	9	Low
LANDSLIDES	8	1.6	2.1	1	38	Medium-High
SEVERE THNDERSTORM / HAIL STORM	8	1.6	0.7	0.5	22	Medium
DAM/LEVEE FAILURE	2	1.6	2.8	2	13	Medium
TORNADO	2	1.6	2.1	1	9	Low
SEVERE WIND	6	3.2	1.4	1.5	37	Medium-High
KARST	2	0.8	0.7	0.5	4	Low
ALGAE BLOOM	4	2.4	1.4	1.5	22	Medium
DOMESTIC FIRE	4	0.8	2.1	0.5	14	Medium
ABANDONED MINE FIRE / FLOOD	2	2.4	2.1	2	13	Medium

Total Score = Probability x Impact, where:
Probability = (Probability Score x Importance)
Impact = (Affected Area + Primary Impact + Secondary Impacts), where:
Affected Area = Affected Area Score x Importance Primary
Impact = Primary Impact Score x Importance Secondary
Impacts = Secondary Impacts Score x Importance

Hazard Level Total Score	(Range)	Hazard Level	Distribution
0.0	12.0	Low	2
12.1	28.0	Medium	4
28.1	48.0	Medium-High	3
48.1	64.0	High	1

The probability of each hazard is determined by assigning a level, from 1 to 4, based on the likelihood of occurrence from historical data. The total impact value includes the affected area, primary impact and secondary impact levels of each hazard. These levels are then multiplied by an importance factor to obtain a score for each category. The probability score is multiplied by the sum of the three impact categories to determine the total score for the hazard. Based on this total score, the hazards will be separated into four categories based on the hazard level they pose to the planning area: high, medium-high, medium, low.

Probability Importance 2.0

Based on average annual frequency of occurrence estimated from historical data

Level	Average Annual Frequency	Score
1	Unlikely (less than 1 % occurrence)	2
2	Possible (between 1% and 10% occurrence)	4
3	Likely (between 10% and 100% occurrence)	6
4	Highly likely (near 100% occurrence)	8

Affected Area Importance 0.8

Based on size of geographical area of community affected by hazard

Level	Affected Area	Score
1	Isolated - limited to one building/facility	0.8
2	Small - limited to a handful of buildings/facilities	1.6
3	Medium - affecting a portion of an area	2.4
4	Large - affecting a widespread area	3.2

Primary Impact Importance 0.7

Based on percentage of damage to typical facility in community

Level	Impact	Score
1	Negligible - less than 10% damage	0.7
2	Limited - between 10% and 25% damage	1.4
3	Critical - between 25% and 50% damage	2.1
4	Catastrophic - more than 50% damage	2.8

Secondary Impacts Importance 0.5

Based on estimated secondary impacts to community at large

Level	Impact	Score
1	Negligible - no loss of function, downtime, and/or evacuatio	0.5
2	Limited - minimal loss of function, downtime, and/or evacua	1
3	Moderate - some loss of function, downtime, and/or evacua	1.5
4	High - major loss of function, downtime, and/or evacuations	2

NOTE:
Total Score values assume a margin of error of + 10 percent. 0.5

65 events were reported in **Buchanan County, Virginia** between **05/01/2011 and 04/30/2018 (High wind limited to speed greater than 0 knots)**.

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Totals:					1	0	1.438M	0.00K
GRUNDY	05/10/2011	20:30	Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
VANSANT	05/22/2011	16:05	Hail	0.88 in.	0	0	0.00K	0.00K
GRUNDY	05/24/2011	08:53	Hail	1.25 in.	0	0	5.00K	0.00K
GRUNDY	06/11/2011	17:34	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
GRUNDY	06/11/2011	17:35	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
GRUNDY	07/04/2011	12:24	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
BUCHANAN (ZONE)	01/02/2012	16:00	Winter Weather		0	0	0.00K	0.00K
BUCHANAN (ZONE)	01/14/2012	18:00	Winter Weather		0	0	0.00K	0.00K
BUCHANAN (ZONE)	02/19/2012	10:00	Heavy Snow		0	0	100.00K	0.00K
HURLEY	06/29/2012	19:20	Thunderstorm Wind	50 kts. EG	0	0	250.00K	0.00K
HURLEY	06/30/2012	17:05	Hail	1.00 in.	0	0	0.00K	0.00K
HURLEY	06/30/2012	17:35	Hail	1.00 in.	0	0	0.00K	0.00K
GRUNDY	07/01/2012	09:12	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
GRUNDY	07/05/2012	13:20	Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
OAKWOOD	07/05/2012	13:25	Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
DAVENPORT	07/05/2012	13:35	Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
BIG ROCK	07/25/2012	00:18	Flash Flood		0	0	10.00K	0.00K
PAW PAW	07/31/2012	17:00	Flash Flood		0	0	100.00K	0.00K
BUCHANAN (ZONE)	10/29/2012	11:00	Heavy Snow		0	0	250.00K	0.00K
BUCHANAN (ZONE)	01/17/2013	11:30	Heavy Snow		0	0	0.00K	0.00K
ROWE	01/30/2013	18:30	Flood		0	0	1.00K	0.00K
BUCHANAN (ZONE)	03/25/2013	06:00	Winter Weather		0	0	0.00K	0.00K
BREAKS	05/20/2013	10:00	Flash Flood		0	0	200.00K	0.00K
JANEY	07/17/2013	18:35	Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
VANSANT	09/02/2013	18:30	Flash Flood		0	0	10.00K	0.00K
BUCHANAN (ZONE)	01/06/2014	16:00	Extreme Cold/wind Chill		0	0	50.00K	0.00K
BUCHANAN (ZONE)	01/25/2014	09:00	Winter Weather		0	0	0.00K	0.00K
BUCHANAN (ZONE)	01/28/2014	19:00	Cold/wind Chill		0	0	10.00K	0.00K
BUCHANAN (ZONE)	02/12/2014	15:00	Heavy Snow		0	0	0.00K	0.00K

BUCHANAN (ZONE)			03/03/2014	01:00		Winter Storm		0	0	0.00K	0.00K
BUCHANAN (ZONE)			03/12/2014	13:00		Strong Wind	40 kts. EG	0	0	25.00K	0.00K
BUCHANAN (ZONE)			03/12/2014	19:00		Winter Weather		0	0	0.00K	0.00K
ROWE			04/28/2014	15:43		Thunderstorm Wind	55 kts. MG	0	0	0.00K	0.00K
HURLEY			06/05/2014	02:00		Flash Flood		0	0	200.00K	0.00K
HURLEY			06/11/2014	23:30		Flash Flood		0	0	2.00K	0.00K
BUCHANAN (ZONE)			11/01/2014	00:01		Winter Weather		0	0	0.00K	0.00K
BUCHANAN (ZONE)			02/14/2015	14:00		Winter Weather		0	0	0.00K	0.00K
BUCHANAN (ZONE)			02/14/2015	23:00		Cold/wind Chill		0	0	0.00K	0.00K
BUCHANAN (ZONE)			02/16/2015	07:30		Heavy Snow		0	0	0.00K	0.00K
BUCHANAN (ZONE)			02/18/2015	22:00		Extreme Cold/wind Chill		0	0	0.00K	0.00K
BUCHANAN (ZONE)			02/21/2015	03:00		Winter Storm		0	0	20.00K	0.00K
BUCHANAN (ZONE)			02/25/2015	22:00		Winter Weather		0	0	0.00K	0.00K
DAVENPORT			03/04/2015	17:00		Flood		1	0	50.00K	0.00K
BUCHANAN (ZONE)			03/05/2015	04:30		Heavy Snow		0	0	0.00K	0.00K
GRUNDY			06/18/2015	17:40		Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
DWIGHT			06/18/2015	18:10		Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
JEWELL VLY			07/14/2015	04:40		Flash Flood		0	0	20.00K	0.00K
BUCHANAN (ZONE)			01/22/2016	05:00		Heavy Snow		0	0	0.00K	0.00K
BUCHANAN (ZONE)			02/14/2016	16:15		Heavy Snow		0	0	0.00K	0.00K
PAW PAW			05/01/2016	18:35		Hail	1.00 in.	0	0	0.00K	0.00K
GRUNDY			06/16/2016	19:01		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HARMON			06/23/2016	19:01		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
MT HERON			06/23/2016	19:20		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HURLEY			07/04/2016	18:36		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
PRATER			07/04/2016	18:40		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
DESKINS			07/06/2016	19:00		Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
BREAKS			04/23/2017	14:00		Flood		0	0	15.00K	0.00K
BUCHANAN (ZONE)			11/18/2017	11:00		Strong Wind	35 kts. EG	0	0	10.00K	0.00K
BUCHANAN (ZONE)			01/29/2018	19:00		Winter Weather		0	0	0.00K	0.00K
BUCHANAN (ZONE)			02/01/2018	20:00		Winter Weather		0	0	0.00K	0.00K
BREAKS			02/10/2018	17:00		Flood		0	0	0.00K	0.00K

BUCHANAN (ZONE)			03/24/2018	05:00		Winter Weather		0	0	0.00K	0.00K
BUCHANAN (ZONE)			03/24/2018	05:00		Winter Weather		0	0	30.00K	0.00K
GRUNDY			04/04/2018	01:10		Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
WHITEWOOD			04/04/2018	01:24		Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
Totals:								1	0	1.438M	0.00K

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2011-05-10 20:30 EST-5
Begin Location 0N GRUNDY
Begin Lat/Lon 37.28/-82.1
End Date 2011-05-10 20:30 EST-5
End Location 0N GRUNDY
End Lat/Lon 37.28/-82.1
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 15.00K
Crop Damage 0.00K
Episode Narrative Repetitive showers and thunderstorms dropped southeast from southern Ohio, eastern Kentucky and western West Virginia into Virginia. The convection was along a warm frontal boundary.
Event Narrative Trees fell onto power lines. Electrical outages occurred.

Event Hail
Magnitude 0.88 in.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Public
NCEI Data Source CSV
Begin Date 2011-05-22 16:05 EST-5
Begin Location 0N VANSANT
Begin Lat/Lon 37.23/-82.1
End Date 2011-05-22 16:05 EST-5
End Location 0N VANSANT
End Lat/Lon 37.23/-82.1
Deaths Direct/Indirect 0/0
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms developed in the afternoon instability. A moist southwest flow existed, well in advance of an approaching cold front.

Event Hail
Magnitude 1.25 in.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Public
NCEI Data Source CSV
Begin Date 2011-05-24 08:53 EST-5
Begin Location 0N GRUNDY
Begin Lat/Lon 37.28/-82.1
End Date 2011-05-24 08:53 EST-5
End Location 0N GRUNDY
End Lat/Lon 37.28/-82.1
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative A disturbance in the winds aloft helped trigger a round of morning convection. The storms moved into Virginia from eastern Kentucky.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Public
NCEI Data Source CSV
Begin Date 2011-06-11 17:34 EST-5
Begin Location 0N GRUNDY
Begin Lat/Lon 37.28/-82.1
End Date 2011-06-11 17:34 EST-5
End Location 0N GRUNDY
End Lat/Lon 37.28/-82.1
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage 0.00K
Episode Narrative The area was in the warm and moist summer air, well south of a front in the Midwest. In the heat of the late afternoon, a few thunderstorms moved out of eastern Kentucky into Virginia.
Event Narrative Trees were blown down. A tool shed was knocked over.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Law Enforcement
NCEI Data Source CSV

Begin Date 2011-06-11 17:35 EST-5
Begin Location 0N GRUNDY
Begin Lat/Lon 37.28/-82.1
End Date 2011-06-11 17:35 EST-5
End Location 0N GRUNDY
End Lat/Lon 37.28/-82.1
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage 0.00K
Episode Narrative The area was in the warm and moist summer air, well south of a front in the Midwest. In the heat of the late afternoon, a few thunderstorms moved out of eastern Kentucky into Virginia.
Event Narrative Trees were blown down across roads.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2011-07-04 12:24 EST-5
Begin Location 0N GRUNDY
Begin Lat/Lon 37.28/-82.1
End Date 2011-07-04 12:24 EST-5
End Location 0N GRUNDY
End Lat/Lon 37.28/-82.1
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 2.00K
Crop Damage 0.00K
Episode Narrative A moist and unstable environment was aided by daytime heating to create afternoon thunderstorms. One of the thunderstorms became severe in Buchanan County. The convection developed into a bow echo as it pushed northeast into McDowell and Wyoming Counties of southern West Virginia.
Event Narrative Trees were blown down on roads.

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2012-01-02 16:00 EST-5
End Date 2012-01-03 08:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K

Crop Damage 0.00K
Episode Narrative Much colder air arrived on the 2nd. Snow showers were common from late afternoon through the overnight hours. Snow accumulations of 2 to 4 inches were common by dawn on the 3rd.

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2012-01-14 18:00 EST-5
End Date 2012-01-15 04:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A clipper system deposited 2 to 3 inches of snow during the overnight period.
Event Narrative

Event Heavy Snow
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2012-02-19 10:00 EST-5
End Date 2012-02-19 22:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 100.00K
Crop Damage 0.00K
Episode Narrative As a surface low pressure system was moving east, off the southeast coast of the United States, its mid and upper level system was lifting out of the Tennessee Valley on Sunday, the 19th. Intermittent light rain and snow began after dawn. The cooling aloft and the deeper moisture associated with the comma head signature on satellite imagery moved through during the afternoon. As a result, wet snow became steady after 1200E. The snow fell at a rate of around an inch per hour during much of the afternoon. With the warm ground, and air temperatures at or slightly above freezing in the valleys, a highly elevation dependent accumulation was seen. Snow accumulations of 3 to 8 inches were common. The snow ended during the evening.
Trees or tree branches came down on overhead wires. Other wires sagged due to the weight of the snow. Roughly 4000 customers were without electricity in the 2 counties.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-06-29 19:20 EST-5
Begin Location 0N HURLEY
Begin Lat/Lon 37.42/-82.03
End Date 2012-06-29 19:50 EST-5
End Location 0N COUNCIL
End Lat/Lon 37.08/-82.07
Deaths Direct/Indirect 0/0
Injuries Direct/Indirect 0/0
Property Damage 250.00K
Crop Damage 0.00K
Episode Narrative On the second day of a developing heat wave, under a sunny sky, afternoon temperatures reached well into the 90s. Both Clintwood and Nora had 97 degrees. The 97 degrees at Clintwood was the hottest temperature on record there.
Meanwhile, an area of multi-cellular convection had moved out of northern Illinois that morning. It continued to organize and strengthen, as it propagated east and southeast across northern Indiana into western Ohio during the afternoon. As it moved through Ohio, it had already formed into a large arch of storms, or bow, with a developing cool pool in its wake. The temperature contrast between the air ahead of the developing derecho, compared to that in its wake was reaching 30 to 35 degrees. The resultant wind shift in the cool pool resulted in strong moisture convergence on the leading edge of the complex. This in turn, helped drive the storms further southeast, away from the mid and upper level wind support. However, the complex was diving right into that hot air that had obtained large convective available potential energy, on the order of 4000 to 5000 j/kg.
The weakening complex reaching into Buchanan County around 1900E. The outflow, or gust front, had outraced the rain.
Wind gusts of 55 to 65 mph were likely with the leading gust front. In the wake of these stronger winds gust, many areas did not even receive any rain. Grundy reported a meager 0.03 inches. Clintwood and Nora had no rain.
The wind caused trees and large branches to fall in scattered locations. The most impact was on the electric grid, let to a lesser degree than further north in West Virginia. Power outages lasted a few days in some areas. The lack of electricity in the midst of the heat wave, disrupted the daily routines of those citizens for several days. Water and ice were in high demand.
Event Narrative Trees were blown down in scattered locations about the county. Around 1,300 customers lost electricity.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Public
NCEI Data Source CSV
Begin Date 2012-06-30 17:05 EST-5
Begin Location 0N HURLEY
Begin Lat/Lon 37.42/-82.03
End Date 2012-06-30 17:05 EST-5
End Location 0N HURLEY
End Lat/Lon 37.42/-82.03
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A west to northwest wind flow aloft continued, as the dome of hot and more stable air resided to the west and south. An impulse in that flow aloft, along with the maximum heating and instability of late afternoon, helped trigger thunderstorms.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-07-01 09:12 EST-5
Begin Location 0N GRUNDY
Begin Lat/Lon 37.28/-82.1
End Date 2012-07-01 09:12 EST-5
End Location 0N GRUNDY
End Lat/Lon 37.28/-82.1
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative South of a nearly stationary front in the Ohio Valley, predawn showers and thunderstorms weakened as they headed toward northeastern Kentucky. An outflow boundary from that convection helped trigger a new cluster of showers and thunderstorms in southeast Kentucky during the morning. These moved southeast into Virginia.
The same pattern produced another round of showers and thunderstorms later that evening.
Event Narrative Trees were blown down onto power lines.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-07-05 13:20 EST-5
Begin Location 0N GRUNDY
Begin Lat/Lon 37.28/-82.1
End Date 2012-07-05 13:20 EST-5
End Location 0N GRUNDY
End Lat/Lon 37.28/-82.1
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 20.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms over eastern Ohio and western Pennsylvania weakened during the morning hours of the 5th. However, a strong outflow boundary from this convection pushed south. By late morning, the heating of the unstable air combined with the outflow boundary to trigger additional storms that pushed south across West Virginia, reaching Virginia by mid afternoon.
Event Narrative Trees were knocked down onto power lines, causing electric outages.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-07-05 13:25 EST-5
Begin Location 0N OAKWOOD
Begin Lat/Lon 37.22/-82
End Date 2012-07-05 13:25 EST-5
End Location 0N OAKWOOD
End Lat/Lon 37.22/-82
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 4.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms over eastern Ohio and western Pennsylvania weakened during the morning hours of the 5th. However, a strong outflow boundary from this convection pushed south. By late morning, the heating of the unstable air combined with the outflow boundary to trigger additional storms that pushed south across West Virginia, reaching Virginia by mid afternoon.
Event Narrative Multiple trees were blown down.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-07-05 13:35 EST-5
Begin Location 0N DAVENPORT
Begin Lat/Lon 37.1/-82.13
End Date 2012-07-05 13:35 EST-5
End Location 0N DAVENPORT
End Lat/Lon 37.1/-82.13
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms over eastern Ohio and western Pennsylvania weakened during the morning hours of the 5th. However, a strong outflow boundary from this convection pushed south. By late morning, the heating of the unstable air combined with the outflow boundary to trigger additional storms that pushed south across West Virginia, reaching Virginia by mid afternoon.
Event Narrative Multiple trees were blown down onto power lines.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Public
NCEI Data Source CSV
Begin Date 2012-07-25 00:18 EST-5
Begin Location 2NNE BIG ROCK
End Date 2012-07-25 02:00 EST-5
End Location 0S GRUNDY
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative A boundary was leftover from convection during the afternoon of the 24th near the southern border of West Virginia with Kentucky and Virginia. A narrow band of showers and thunderstorms redeveloped overnight along that boundary. The flow was parallel to the convective band, resulting in repetitive heavy rain over a portion of Buchanan County. Rain amounts of 1.5 to 2.1 inches were measured in less than an hour, with totals near 3 inches in less than 3 hours. Flash flooding occurred on small streams mainly north through east of Grundy. Grundy measured 2.1 inches for their 24

hour rain total.
Event Narrative Creeks and their feeder runs overflowed. Some of the basins included along Home Creek, Slate Creek, and Dismal Creek. This caused minor flash flooding along vulnerable roads.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-07-31 17:00 EST-5
Begin Location 0N PAW PAW
End Date 2012-07-31 19:00 EST-5
End Location 1SSW HURLEY
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 100.00K
Crop Damage 0.00K
Episode Narrative A disturbance in the winds aloft tracked into the mountainous counties by late afternoon. This feature, along with outflow boundaries from earlier afternoon convection, helped to focus thunderstorms. Local downpours occurred around Hurley of Buchanan County and Haysi of Dickenson County.
Event Narrative Rain estimates of 2 to 4 inches in less than 3 hours caused flash flooding on small streams and runs. The Knox Creek basin flooded including its Guess Fork and Cedar Branch. Roads and private bridges were flooded and damaged. No dwelling damage was reported to county emergency services.

Event Heavy Snow
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2012-10-29 11:00 EST-5
End Date 2012-10-31 02:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 250.00K
Crop Damage 0.00K
Episode Narrative A rare consolidation of a strong mid and upper level trough in the polar jet with a tropical hurricane named Sandy resulted in a historical snow storm for the month of October.
Periods of rain fell from late on the 27th into the 28th, as a cold front moved east. In response to the colder air associated with the polar jet and the strengthening mid

level trough, light rain changed to the first snowflakes around 0000E to 0200E on Monday the 29th. This was only across the high terrain of southwest Virginia northward into the mountainous counties of central West Virginia. For example, the ground was white by dawn on the mountaintops near Nora. However, little accumulations were seen through the morning hours of the 29th.
The main event began around midday on the 29th, with the brunt of the storm occurring overnight Monday night through the day on Tuesday the 30th. The snow decreased in intensity Tuesday evening, but some lighter snow mixed with drizzle and freezing drizzle lingered into the early morning hours on Wednesday the 31st.
Snow accumulations were highly dependent on elevation. Snow accumulations were mostly 2 to 12 inches. For example, the cooperative observer near Nora measured 10 inches. Near blizzard conditions were seen over the exposed high terrain, but not throughout a majority of Buchanan and Dickenson Counties.
The weight of the snow caused trees and branches to snap or bend onto power lines and blocked roads. Over 5,500 customers lost electricity, mostly in Dickenson County.

Event Heavy Snow
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2013-01-17 11:30 EST-5
End Date 2013-01-17 18:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative The last of 3 distinct waves, along a stalled front to the east and south, passed during the day on the 17th. The precipitation started as rain during the morning. It changed over to sleet and wet snow by midday. A quick shot of heavy wet snow fell during the afternoon hours. Four to 13 inches of snow fell in 6 hours across Dickenson and Buchanan Counties. The upper limit was over the high terrain in the eastern portion of both counties. For example, the cooperative observer in the high terrain near Nora measured 11 inches. An unofficial report of around 13 inches was received around West Dante. Amounts of 4 to 6 inches were more common in the river valley communities.
Event Narrative

Event Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2013-01-30 18:30 EST-5
Begin Location 0N ROWE
Begin Lat/Lon 37.15/-82.03
End Date 2013-01-30 20:30 EST-5
End Location 2WSW ROWE
End Lat/Lon 37.139/-82.0541
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage 0.00K
Episode Narrative Ahead of a squall line, temperatures were in the 60s. Dew points were in the low and mid 50s. The convective squall line moved east at about 35 to 40 mph, passing during the mid and late morning hours on the 30th. This caused brief wind gusts of 40 to 50 mph.
With strong dynamics aloft, widespread rain fell behind the squall line until the cold front passed early on the 31st. Rainfall amounts in 12 to 18 hours were mostly 1.75 to around 2 inches. Toward the end of the rain event, small streams were swollen.
Event Narrative Small streams and runs between Deskins and Rowe flooded roads. Route 620 was affected.

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2013-03-25 06:00 EST-5
End Date 2013-03-26 10:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Rain fell on the 24th. However, colder air swept into Buchanan and Dickenson Counties before dawn on the 25th. Lingering moisture deposited 1 to 3 inches of snow accumulation into the morning of the 26th.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area BUCHANAN

WFO RLX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2013-05-20 10:00 EST-5
Begin Location 2NNE BREAKS
End Date 2013-05-20 12:30 EST-5
End Location 1WNW BUCHANAN CO ARPT
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 200.00K
Crop Damage 0.00K
Episode Narrative A weak mid level flow existed over a moist lower atmosphere. Slow moving showers, with embedded thunderstorms, developed near dawn over Buchanan County. These showers moved along their northwest to southeast axis, causing repetitive showers over the small streams during the morning.
Rain amounts of 2 to 2.5 inches of rain were measured around Grundy in 3 to 4 hours. Radar estimated rain amounts upwards of 3 inches. A few small streams in the mountainous terrain flooded the narrow hollows between the Kentucky border and the Grundy vicinity. The steep terrain also caused some saturated mountainsides to slide into homes.
Event Narrative Small streams, such as Lynn Camp Creek, Old Home Creek, Jacks Creek, and Stiltner Creek flooded. Water was 1 to 2 feet deep in spots on adjacent roads. The water damaged the roads and the private bridges to residences.
Seven homes were damaged. Most of the damage was from water in the basements. One double wide manufactured home was knocked off its foundation from a land slide. Another slide knocked a tree into a carport, damaged the car and the back of the home.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2013-07-17 18:35 EST-5
Begin Location 1N JANEY
Begin Lat/Lon 37.2351/-82.048
End Date 2013-07-17 18:35 EST-5
End Location 1N JANEY
End Lat/Lon 37.2351/-82.048
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage 0.00K
Episode Narrative Instability, moisture, and

afternoon heat developed clusters of showers and thunderstorms along the West Virginia and Virginia border between Bluefield and Lewisburg on the 17th. This convection moved southwest during the early evening, reaching into Buchanan County.
Event Narrative Trees were blown down along Route 460.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2013-09-02 18:30 EST-5
Begin Location 1S VANSANT
End Date 2013-09-02 19:45 EST-5
End Location 1SW BUCHANAN CO ARPT
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative Well south of the prefrontal convection, a small cluster of showers and thunderstorms became anchored over the mountains of southern Buchanan County during the early evening on Labor Day.
Event Narrative Rain estimates of 1.5 to 2 inches in an hour and a storm total of 2 to 2.5 inches in 3 hours fell mainly southwest of Vansant toward Leemaster and Prater.
Small streams, such as Trace Fork Branch and War Fork, flooded and damaged roads. Water was around a mobile home along Route 83.

Event Extreme Cold/Wind Chill
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-01-06 16:00 EST-5
End Date 2014-01-07 15:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 50.00K
Crop Damage 0.00K
Episode Narrative An arctic cold front sweep through far western Virginia between 0200E and 0400E on Monday the 6th. Rain showers and temperatures in the 40s and 50s quickly became snow showers with temperatures falling through the 20s by dawn. Snow

accumulations were less than 2 inches. Temperatures continued to fall during the day on the 6th, with blustery winds. Readings reached down into the single digits by sunset.
Temperatures at dawn on the 7th were mostly 5 below zero to 10 below zero. The coldest temperatures came from the highest elevations.
Wind chill readings bottomed out in the minus 20 to minus 30 degree range overnight and into the morning hours for most counties.
Despite sunshine, temperatures were slow to recover during the day on the 7th. However, the wind did subside during the afternoon.
A scattering of frozen pipes, power outages, home furnace difficulties, and vehicular engine problems occurred. Repair companies were kept busy. County public school systems were closed.
Event Narrative

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-01-25 09:00 EST-5
End Date 2014-01-25 21:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Strong warm air advection in the Ohio Valley helped develop snow after dawn on the 25th. Lulls in the snowfall developed during the midday. A strong cold front and its associated mid level disturbance helped trigger more showery snow during the early evening. Snow totals of 2 to 4 inches were common.

Event Cold/Wind Chill
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-01-28 19:00 EST-5
End Date 2014-01-30 11:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative Colder air started to filter in on Monday the 27th. Yet, a storm across the southeastern states brushed the area with an inch or less of snow

during the late day and evening on the 28th.
In its wake, drier and colder air moved south for dawn on Wednesday the 29th. Yet, the main force of this cold wave remained further north, including Ohio and West Virginia. Temperatures were slightly below zero for most communities. Clintwood had a minimum temperature of 6 below zero for one of the colder readings.
A second cold night was felt with dawn temperatures on the 30th with very similar temperatures, mostly in the zero to 5 below zero range. However, Clintwood again observed 6 below zero.
The environment began to moderate on Thursday afternoon the 30th.

Event Heavy Snow
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source County Official
NCEI Data Source CSV
Begin Date 2014-02-12 15:00 EST-5
End Date 2014-02-13 15:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Snow spread north during the afternoon of the 12th, reaching into Dickenson and Buchanan Counties around 1500E. Temperatures were mostly in the mid and upper 20s at the onset of the snow. The snow was associated with a developing coastal storm that was still located over northern Florida. Meanwhile, high pressure ridged down the eastern seaboard and kept plenty of cold air in the lower atmosphere.
Heavy snow fell during the evening hours, with some decrease during the late night hours. The coastal storm was centered along the Virginia and North Carolina coast line by dawn on the 13th. The wrap around snow on the western side of the mid and upper level feature caused the snow to continue to fall during the daylight hours on the 13th, finally ending in the afternoon.
Total storm snow accumulations of 10 to 15 inches were common. For example, the cooperative observer near Clintwood measured 12 inches, while Grundy had a 10 inch accumulation, and John Flannagan Lake observed 8 inches.
Unofficial reports included 14 inches at Haysi, 11 inches at Hurley and 12 inches over Compton Mountain.

Event Winter Storm
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-03-03 01:00 EST-5
End Date 2014-03-03 15:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A strong north to south temperature gradient existed in the Ohio Valley as a cold front gradually sank south. The front sank south, reaching Buchanan and Dickenson late on the 2nd. Strong dynamics associated with a strengthening wind speed maximum in the flow well above the ground, lead to waves along the front. Each wave enhanced the precipitation and helped push the surface front further south.
After 1 to 1.5 inches of rain, the transition from freezing rain to sleet and finally snow began after 0100E on the 3rd. The duration of the freezing rain was mostly 1 to 3 hours before sleet and snow became the dominate precipitation type. Ice accretion amounts were mainly under a quarter of an inch. However, a quarter to a half inch of ice did accumulate in the Haysi vicinity. Most locations were observing all snow by dawn on the 3rd. The last and main wave along the frontal zone enhanced the snow for the morning hours on the 3rd.
The end result was snow accumulations of 3 to 4 inches in less than 12 hours.
The quick drop in temperature after the initial rain and freezing rain, made it difficult to remove the accumulating snow from roadways. Readings dropped from the 30s into the teens during this storm.

Event Strong Wind
Magnitude 40 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2014-03-12 13:00 EST-5
End Date 2014-03-12 17:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 25.00K
Crop Damage 0.00K
Episode Narrative A strengthening low pressure system crossed through Ohio into southern Pennsylvania

during the daylight hours of the 12th. Temperatures were in the 50s and 60s ahead of its associated cold front. The cold front swept through far western Virginia during the afternoon hours. In the wake of the front, falling temperatures and strong pressure rises resulted in widespread wind gusts around 45 mph. A fallen tree damaged a house in Oakwood. In the same area, a tree fell onto a truck.
In the colder air overnight into the 13th, banded snow showers fell. A few enhanced streaks had accumulations of 2 to 3 inches of snow. For example, the cooperative observer measured 3 inches. The county schools were closed in Dickenson County, while Buchanan County had a 2 hour delay.

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-03-12 19:00 EST-5
End Date 2014-03-13 07:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A strengthening low pressure system crossed through Ohio into southern Pennsylvania during the daylight hours of the 12th. Temperatures were in the 50s and 60s ahead of its associated cold front. The cold front swept through far western Virginia during the afternoon hours. In the wake of the front, falling temperatures and strong pressure rises resulted in widespread wind gusts around 45 mph. A fallen tree damaged a house in Oakwood. In the same area, a tree fell onto a truck.
In the colder air overnight into the 13th, banded snow showers fell. A few enhanced streaks had accumulations of 2 to 3 inches of snow. For example, the cooperative observer measured 3 inches. The county schools were closed in Dickenson County, while Buchanan County had a 2 hour delay.

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Public
NCEI Data Source CSV
Begin Date 2014-04-28 15:43 EST-5
Begin Location 0N ROWE
Begin Lat/Lon 37.15/-82.03

End Date 2014-04-28 15:43 EST-5
End Location 0N ROWE
End Lat/Lon 37.15/-82.03
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative As nearly stationary front was located near the southern West Virginia border with Virginia during the afternoon of the 28th. More unstable air was located to the southwest. Thunderstorms moved southeast Kentucky, then northeast into Virginia.
Event Narrative A home weather station reported a gust to 63 mph. However, the only visible effects was a loose piece of corrugated metal got blown into a tree.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2014-06-05 02:00 EST-5
Begin Location 1N HURLEY
End Date 2014-06-05 03:30 EST-5
End Location 3NE HURLEY
Deaths Direct/Indirect 0/0
Injuries Direct/Indirect 0/0
Property Damage 200.00K
Crop Damage 0.00K
Episode Narrative A cold front sagged south into southern West Virginia by dawn on the 4th. A strong low pressure for early June moved east through the Midwest, along the frontal boundary, during the day on the 4th. Dew points were in the upper 60s and lower 70s near and south of the front. The disturbance passed to the east by early on the 5th.
Several rounds of showers and thunderstorms passed through eastern Kentucky and West Virginia during the afternoon and evening hours on the 4th. The last round of the showers and thunderstorms sank down into northern Buchanan County after 0000E on the 5th. These lingering bands of showers and storms became oriented northwest to southeast along their movement.
Event Narrative An estimated 2 to 3.5 inches of rain fell in less than 3 hours. The hardest hit basins in this steep mountain terrain were along Upper Elk Creek and Guesses Fork. Small private bridges to homes were washed out. Roads were damaged. A few homes had minor basement flooding.
The axis of this small heavy rain area crossed the state border. Flash flooding also occurred in a small section of McDowell County, West Virginia.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2014-06-11 23:30 EST-5
Begin Location 0N HURLEY
End Date 2014-06-12 01:15 EST-5
End Location 2E HURLEY
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 2.00K
Crop Damage 0.00K
Episode Narrative Clusters of showers and thunderstorms moved north during the overnight hours of the 11th into the 12th. Rains estimated at 1.5 to 2 inches of fell in a few hours over wet terrain. Minor flash flooding occurred.
Event Narrative Feeder streams into Knox Creek, including Laurel Fork, flooded and closed roads. No structures were flooded. Mud and debris slides also occurred in this steep terrain.

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-11-01 00:01 EST-5
End Date 2014-11-01 12:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A strong mid level disturbance, and its associated cold pocket aloft, brought the first snow of the season as the month began. An elevation dependent accumulation of 1 to 4 inches occurred. The cooperative observer near Nora, elevation around 2700 feet, measured a 4 inch accumulation.

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Department of Highways
NCEI Data Source CSV
Begin Date 2015-02-14 14:00 EST-5
End Date 2015-02-14 23:00 EST-5

Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Another arctic front swept through during the late afternoon of the 14th. Temperatures dropped from the 30s into the teens in a few hours. In the wake of the front, wind gusts of 35 to 45 mph were common well through the night. Snow showers formed ahead of the front, with a heavier burst of snow along the front. Accumulations of 2 to 4 inches were common.
Temperatures dropped into the single digits by dawn on the 15th.
Early on the 15th, wind chill readings of minus 10 to minus 15 were common.

Event Cold/Wind Chill
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2015-02-14 23:00 EST-5
End Date 2015-02-15 12:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Another arctic front swept through during the late afternoon of the 14th. Temperatures dropped from the 30s into the teens in a few hours. In the wake of the front, wind gusts of 35 to 45 mph were common well through the night. Snow showers formed ahead of the front, with a heavier burst of snow along the front. Accumulations of 2 to 4 inches were common.
Temperatures dropped into the single digits by dawn on the 15th.
Early on the 15th, wind chill readings of minus 10 to minus 15 were common.

Event Heavy Snow
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-02-16 07:30 EST-5
End Date 2015-02-17 02:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0

Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A unique snow storm hit on the holiday for Washington's Birthday.
Light snow began falling around dawn on the 16th when the temperature was hovering in the 10 to 15 degree range. The snow increased during the morning, then decreased that evening. The snow ended early on the 17th. The temperature only crept up into the upper teens and lower 20s during the later part of the storm. Snow accumulations of 10 to 12 inches were common. For example, Grundy and Clintwood both measured around 11 inches.
It was the first significant snow storm of the 2014-2015 winter for this section of Virginia.

Event Extreme Cold/Wind Chill
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2015-02-18 22:00 EST-5
End Date 2015-02-20 11:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative In less than a week, a second arctic front swept through far western Virginia during the afternoon hours of the 18th. Snow showers formed ahead of the front, with a few bands lingering into the evening hours. Snow accumulations were mostly 1 to 2 inches. Temperatures dropped to either side of zero by dawn on the 19th based on elevation. Despite sunshine through icy low clouds, daytime readings only recovered into the 5 to 10 degree range. Wind chill readings of minus 10 to minus 20 were felt during the daylight hours.
With an existing snow pack, diminishing winds, and a clear sky, temperatures dropped into the 15 to 20 below zero range for most communities by dawn on the 20th. Near Clintwood, the cooperative observer measured 23 below zero for the coldest. This equaled the coldest temperature in Clintwood during the cold wave in February of 1996. At Grundy, the minimum temperature reached 17 below zero. This was colder than the minus 12 felt back in February 1996 and January 1994.

Event Winter Storm
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Trained Spotter
NCEI Data Source CSV

Begin Date 2015-02-21 03:00 EST-5
End Date 2015-02-21 18:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 20.00K
Crop Damage 0.00K
Episode Narrative After the arctic deep freeze at dawn on the 20th, snow, sleet, and freezing rain overspread far western Virginia around 0300E on the 21st. After 1 to 2 inches of wet snow in the river valleys, the snow changed to freezing rain for 3 to 4 hours during the morning. The cold ground temperatures allowed freezing rain to continue even with air temperatures of 33 and 34 degrees. Ice accumulations reached a maximum of a quarter of an inch. The freezing rain became mostly rain by midday for these low elevations. However, in the higher terrain of eastern Buchanan and eastern Dickenson Counties, wet snow continued into the afternoon before ending as drizzle that evening. Clintwood observed 4 to 5 inches of snow. One spotter from the Sandy Ridge area, near the Wise County border, reported 18 inches of snow.
Total melted precipitation totals were over 1.5 inches. Melting slush and snow piles from plowing and shoveling prevented the normal drainage of water. Water pooled on many roads. Ice filled streams were swollen, but no major flooding occurred. Ice dams in residential gutters and downspouts allowed runoff to seep into homes.

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2015-02-25 22:00 EST-5
End Date 2015-02-26 07:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Buchanan and Dickenson Counties were on the northwestern edge of a large winter storm that moved through the southeastern states. Snow accumulations of 2 to 4 inches were common. For example, the cooperative observers at Grundy, Clintwood, and Nora all measured 3 inches. With the cold February, the total snow pack remained around 10 to 18 inches.

County/Area BUCHANAN
WFO RLX
Report Source Emergency Manager

NCEI Data Source CSV
Begin Date 2015-03-04 17:00 EST-5
Begin Location 1S DAVENPORT
Begin Lat/Lon 37.0855/-82.13
End Date 2015-03-05 17:00 EST-5
End Location 2WNW PAYNESVILLE
End Lat/Lon 37.3442/-81.9384
Deaths Direct/Indirect 1/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 50.00K
Crop Damage 0.00K
Episode Narrative A warm front lifted north through the area on the 3rd. Rain amounts were mostly around 2 to 4 tenths of an inch. Late afternoon and evening temperatures rose into the 40s and 50s. Winds and dew points also increased. This combination helped accelerate the melting of any leftover snow cover.
Rains increased again during the afternoon of the 4th. A steady rain continued into the night. Rain rates were mostly 1 to 2 tenths of an inch per hour. This initiated small stream and head water river flooding during the night.
Around 2245E on the 4th, a flood fatality occurred in Buchanan County when a man drove into high water.
Rainfall totals reached 1.75 to 2 inches as the rain was finally transitioning to wet snow before dawn on the 5th. As minor small stream flooding continued, the snow accumulated 4 to 5 inches. The snow diminished toward evening on the 5th.
Event Narrative Small streams started to flood by evening on the 4th. Guess Fork flooded roads around Hurley.
Around 2245E on the 4th, a 61 year old man drove his car into flood waters near the mouth of Hurricane Creek with the Russell Fork. This was along Route 80. His car was washed into the water. His body was recovered the next day. A female occupant of the car was able to escape.

Event Heavy Snow
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2015-03-05 04:30 EST-5
End Date 2015-03-05 18:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A warm front lifted north through the area on the 3rd. Rain amounts were mostly around 2 to 4 tenths of an inch. Late afternoon and evening

temperatures rose into the 40s and 50s. Winds and dew points also increased. This combination helped accelerate the melting of any leftover snow cover.
Rains increased again during the afternoon of the 4th. A steady rain continued into the night. Rain rates were mostly 1 to 2 tenths of an inch per hour. This initiated small stream and head water river flooding during the night.
Around 2245E on the 4th, a flood fatality occurred in Buchanan County when a man drove into high water.
Rainfall totals reached 1.75 to 2 inches as the rain was finally transitioning to wet snow before dawn on the 5th.
As minor small stream flooding continued, the snow accumulated 4 to 5 inches. The snow diminished toward evening on the 5th.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-06-18 17:40 EST-5
Begin Location 1E GRUNDY
Begin Lat/Lon 37.2805/-82.0898
End Date 2015-06-18 17:40 EST-5
End Location 1E GRUNDY
End Lat/Lon 37.2805/-82.0898
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative Multiple cellular convection formed during the early afternoon across eastern Kentucky and southern West Virginia, then moved into far western Virginia late in the afternoon. A few storms pulsed to stronger levels. Brief downpours also caused full ditch lines along roads and muddy swollen creeks. A gauge along Slate Creek measured 0.99 inches in just 15 minutes.
Event Narrative Trees were blown down along Slate Creek and Route 83.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Department of Highways
NCEI Data Source CSV
Begin Date 2015-06-18 18:10 EST-5
Begin Location 1NNW DWIGHT
Begin Lat/Lon 37.2686/-81.9386

End Date 2015-06-18 18:10 EST-5
End Location 1NNW DWIGHT
End Lat/Lon 37.2686/-81.9386
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 2.00K
Crop Damage 0.00K
Episode Narrative Multiple cellular convection formed during the early afternoon across eastern Kentucky and southern West Virginia, then moved into far western Virginia late in the afternoon. A few storms pulsed to stronger levels. Brief downpours also caused full ditch lines along roads and muddy swollen creeks. A gauge along Slate Creek measured 0.99 inches in just 15 minutes.
Event Narrative Trees fell along Route 640 and Hale Creek.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-07-14 04:40 EST-5
Begin Location 0N JEWELL VLY
End Date 2015-07-14 07:00 EST-5
End Location 1NE KELSA
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 20.00K
Crop Damage 0.00K
Episode Narrative A mesoscale convective complex moved southeast and reached into southwest Virginia during the early evening hours on the 13th.
More thunderstorms formed during the overnight hours and moved southeast into Virginia during the predawn hours on the 14th. This caused some flash flooding near dawn.
Finally, thunderstorms formed in northern Ohio ahead of a cold front and mid level disturbance during the midday and early afternoon on the 14th. These storms formed into a squall line and moved southeast, reaching Virginia during the early evening hours of the 14th.
Event Narrative Small streams quickly rose and temporarily closed roads. Examples included Long Branch near Patterson and Dismal Creek near Whitewood.

Event Heavy Snow
State VIRGINIA
County/Area BUCHANAN

WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2016-01-22 05:00 EST-5
End Date 2016-01-23 12:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A major storm spread snow north, reaching far western Virginia before dawn on Friday the 22nd. The initial warm air advection snow was heavy at times, but it lifted out of Buchanan and Dickenson Counties by mid morning. A mid level dry slot also worked into the area during the late morning and early afternoon, causing lulls and lighter precipitation. Sleet was mixed with the lighter snows during the afternoon on the 22nd. The snow increased again in coverage by mid afternoon.
Periods of snow fell through the night, then diminished by midday on Saturday the 23rd.
Prior to this storm, 1 to 3 inches of old snow was on the ground. Accumulations of 5 to 8 inches were common. For example, the snow depth at Clintwood went from 3 inches prior to the storm to 11 inches in its wake. Near Nora, the snow depth went from 2 inches to 10 inches as a result of the storm. In Grundy, the snow depth went from 1 inch to 6 inches.

Event Heavy Snow
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2016-02-14 16:15 EST-5
End Date 2016-02-15 04:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Strong warm advection, north of a warm front in Tennessee, caused snow to develop across far western Virginia during the late afternoon on the 14th.
Four to 6 inches of snow fell in less than 12 hours. For example, Clintwood had a 4 inch accumulation, while Grundy saw a 5 inch accumulation. A 6 inch accumulation fell near Nora.
The snow changed to rain by late morning on the 15th. Occasional rain fell into the early hours of the 16th before ending as some wet snow and drizzle.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Public
NCEI Data Source CSV
Begin Date 2016-05-01 18:35 EST-5
Begin Location 1ESE PAW PAW
Begin Lat/Lon 37.42/-82.1
End Date 2016-05-01 18:35 EST-5
End Location 1ESE PAW PAW
End Lat/Lon 37.42/-82.1
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms formed during the mid afternoon over Kentucky and southern West Virginia. New convection transitioned south and reached extreme western Virginia by evening.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-06-16 19:01 EST-5
Begin Location 0N GRUNDY
Begin Lat/Lon 37.28/-82.1
End Date 2016-06-16 19:01 EST-5
End Location 0N GRUNDY
End Lat/Lon 37.28/-82.1
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Low pressure was situated north of the region in the lower Great Lakes during the afternoon of June 16th. A warm front was draped from Lake Erie south and east through Maryland and the Delmarva Peninsula, with a well-developed warm sector in place to the south and west of this boundary. By the afternoon, surface temperatures had warmed into the low to mid 80s across southern Ohio and most of West Virginia. A moist and unstable air mass was in place, with surface dew points in the mid to upper 60s and nearly 3000j/kg of ML CAPE analyzed by RUC analysis. 500 mb flow was near 50 knots and a possible large-scale damaging wind event was expected. Thunderstorms developed in east-central Ohio near the I-70 corridor

after 2pm and moved south and east over the Ohio Valley and into West Virginia. Later in the evening after the main line of thunderstorms exited West Virginia to the east, a few thunderstorms at the tail end of this line produced wind damage in southwest Virginia.
Event Narrative There were a few trees down in the county including in Grundy.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-06-23 19:01 EST-5
Begin Location 1S HARMON
Begin Lat/Lon 37.29/-82.2
End Date 2016-06-23 19:01 EST-5
End Location 1S HARMON
End Lat/Lon 37.29/-82.2
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms developed during the afternoon hours of the 23rd over the Ohio Valley. These thunderstorms moved south and east through eastern Kentucky and southern West Virginia, eventually making their way into southwest VA by 7:00 p.m. Thunderstorms produced wind damage throughout Buchanan and Dickenson counties.
Event Narrative There were four trees reported down along route 609 in Harman.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Public
NCEI Data Source CSV
Begin Date 2016-06-23 19:20 EST-5
Begin Location 1N MT HERON
Begin Lat/Lon 37.19/-82
End Date 2016-06-23 19:20 EST-5
End Location 1N MT HERON
End Lat/Lon 37.19/-82
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms developed during

the afternoon hours of the 23rd over the Ohio Valley. These thunderstorms moved south and east through eastern Kentucky and southern West Virginia, eventually making their way into southwest VA by 7:00 p.m. Thunderstorms produced wind damage throughout Buchanan and Dickenson counties.
Event Narrative Trees were reported down in southern Buchanan County.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-07-04 18:36 EST-5
Begin Location 2E HURLEY
Begin Lat/Lon 37.42/-82
End Date 2016-07-04 18:36 EST-5
End Location 2E HURLEY
End Lat/Lon 37.42/-82
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A warm front lifted north from southern West Virginia and northeast Kentucky during the morning hours, into central Ohio and northern West Virginia by early afternoon. By evening, the warm front was in eastern Ohio and western Pennsylvania.
A round of showers from the predawn hours into the mid morning was associated with that warm front.
More convection followed during the evening hours, eventually moving into far western Virginia. Local downpours were common.
Event Narrative Numerous trees were blown down, causing blocked roads in the Hurley area.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-07-04 18:40 EST-5
Begin Location 1N PRATER
Begin Lat/Lon 37.24/-82.2
End Date 2016-07-04 18:40 EST-5
End Location 1N PRATER
End Lat/Lon 37.24/-82.2
Deaths Direct/Indirect 0/0 (fatality details below, when available...)

Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A warm front lifted north from southern West Virginia and northeast Kentucky during the morning hours, into central Ohio and northern West Virginia by early afternoon. By evening, the warm front was in eastern Ohio and western Pennsylvania.
A round of showers from the predawn hours into the mid morning was associated with that warm front.
More convection followed during the evening hours, eventually moving into far western Virginia. Local downpours were common.
Event Narrative Trees fell down along Knob Hill Road.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-07-06 19:00 EST-5
Begin Location 1ESE DESKINS
Begin Lat/Lon 37.1953/-82.0873
End Date 2016-07-06 19:00 EST-5
End Location 1ESE DESKINS
End Lat/Lon 37.1953/-82.0873
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage 0.00K
Episode Narrative Instability driven thunderstorms formed during the early evening. A few storms pulsed to stronger levels, causing local wind damage. Brief downpours and considerable lightning were more common.
Event Narrative Large branches were blown down along Route 620 near Licklog Branch.

Event Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2017-04-23 14:00 EST-5
Begin Location 2ENE BREAKS
Begin Lat/Lon 37.3107/-82.2436
End Date 2017-04-24 07:00 EST-5
End Location 2E KELSA
End Lat/Lon 37.4531/-82.0301

Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 15.00K
Crop Damage 0.00K
Episode Narrative Multiple waves of low pressure brought a prolonged period of rainy weather from the 20th through the 22nd. Generally one to three inches of rain fell during this time. This caused a slow rise on creeks and streams across Southwestern Virginia. On the 23rd, two to three inches of rain fell, pushing some creeks and streams out of their banks. Periods of rainfall continued overnight before drier weather arrived and flooding subsided around daybreak on the 24th. In addition to the flooding, the soggy soil resulted in numerous mudslides.
The cooperative observer at Nora measured 5.43 inches of rainfall from the 21st through the morning of the 24th. The cooperative observer at Grundy measured 3 inches over the same time period.
The Cranes Nest River near Clintwood experienced minor flooding, cresting at 13.9 feet, or about a foot above bankfull of 13 feet.
Event Narrative Numerous roads were closed across Buchanan County due to flooding and mudslides. Examples included Route 460 near Big Rock and Garden Creek Road near Grundy.

Event Strong Wind
Magnitude 35 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2017-11-18 11:00 EST-5
End Date 2017-11-18 23:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative A strong cold front moved through the Central Appalachians late on the 18th. Ahead of the front, in unseasonably warm air, a strong low level jet resulted in gusty winds during the late morning and afternoon. Additional strong wind gusts occurred in showers along and just ahead of the cold front. A wind gust of 40 miles per hour was reported by a CWOP station near Clintwood during the afternoon.
Many trees were blown down, resulting in localized power outages. Some in Dickenson County didn't have power restored until the 20th.

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2018-01-29 19:00 EST-5
End Date 2018-01-30 12:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A deep upper trough crossed the central Appalachians on the 29th and 30th, with a period of light snowfall. Generally, 2 to 3 inches of snow fell from the afternoon of the 29th into the morning of the 30th. The cooperative observer in Clintwood measured 3.1 inches of snow, while the observer in Grundy received 2 inches.

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2018-02-01 20:00 EST-5
End Date 2018-02-02 10:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A strong Arctic cold front moved across the region on the 1st. Temperatures were warm ahead of the front, and a lot of the precipitation fell as rain. However, cold air rushed in during the evening, changing the rain to snow. Around 3 inches of snow fell from late on the 1st into the morning of the 2nd. For example, the cooperative observer at Nora in Dickenson County, measured 3.8 inches, while reports on social media indicated only 2-3 inches in lower elevation parts of the county.

Event Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2018-02-10 17:00 EST-5
Begin Location 1NE BREAKS
Begin Lat/Lon 37.314/-82.2604

End Date 2018-02-11 12:00 EST-5
End Location 4ENE KELSA
End Lat/Lon 37.4794/-82.0141
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A frontal system was draped across the central Appalachians on the 10th and 11th. As waves moved along the front, periods of heavy rainfall moved across Southwestern Virginia. Rainfall started during the morning of the 10th, with the heaviest rain from late afternoon overnight into the 11th. Three to four inches of rain fell over the 24 hour period, which lead to widespread flooding from the afternoon of the 10th, into the 11th. The cooperative observer at Nora in Dickenson County measured 4.04 inches of rainfall from the storm and a trained spotter in Clintwood measured 3.25 inches. In Buchanan County, the cooperative observer at Grundy measured 3.52 inches of rain and a mesonet gauge on Keen Mountain measured 3.04 inches. Dickenson County was placed under a state of emergency, and voluntary evacuation were started for the most flood prone spots in the county. A state of emergency was also declared by Buchanan County officials.
As the water drained through creeks and streams and into the rivers, river flooding occurred on the Russell Fork River and Cranes Nest River. John W. Flannagan Lake jumped 20 feet in just 24 hours, as the US Army Corps of Engineers shut down the dam's outflow to lessen river flooding in the region.
Event Narrative Multiple creeks and streams across the county flooded, including War Fork near Prater which closed State Route 83. Lesters Fork near Hurley also flooded, closing Route 650. the flood gates were closed in Grundy to keep water from the Levisa Fork from entering the city. Low lying areas around Davenport were flooded by high water on Hurricane Creek and Russell Fork. The Russell Fork also caused flooding of low lying areas in the community of Council.

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source Social Media
NCEI Data Source CSV
Begin Date 2018-03-24 05:00 EST-5
End Date 2018-03-24 22:30 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K

Episode Narrative On the northern side of a low pressure system, a narrow band of strong forcing developed and dropped a significant area of snow across portions of southwestern Virginia on the 24th. Across the higher elevations on the eastern side of Buchanan and Dickenson Counties 4 to 5 inches fell. The cooperative observer near Nora measured 4.8 inches, while 4 inches fell near Rowe. Farther west, generally 2 to 3 inches of snow accumulated, such as 3 inches in Clintwood and Haysi, and 2 inches in Grundy. There were several vehicle accidents across Dickenson County due to the snow covered roads.

Event Winter Weather
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2018-03-24 05:00 EST-5
End Date 2018-03-24 22:30 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 30.00K
Crop Damage 0.00K
Episode Narrative On the northern side of a low pressure system, a narrow band of strong forcing developed and dropped a significant area of snow across portions of southwestern Virginia on the 24th. Across the higher elevations on the eastern side of Buchanan and Dickenson Counties 4 to 5 inches fell. The cooperative observer near Nora measured 4.8 inches, while 4 inches fell near Rowe. Farther west, generally 2 to 3 inches of snow accumulated, such as 3 inches in Clintwood and Haysi, and 2 inches in Grundy. There were several vehicle accidents across Dickenson County due to the snow covered roads.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2018-04-04 01:10 EST-5
Begin Location 0N GRUNDY
Begin Lat/Lon 37.28/-82.1
End Date 2018-04-04 01:10 EST-5
End Location 0N GRUNDY
End Lat/Lon 37.28/-82.1
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0

Property Damage 0.50K
Crop Damage 0.00K
Episode Narrative A strong cold front pushed through shortly after midnight on the 4th, driving a line of strong to severe thunderstorms through southwestern Virginia.
Event Narrative A tree was blown down by thunderstorm winds in Grundy.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area BUCHANAN
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2018-04-04 01:24 EST-5
Begin Location 1NE WHITEWOOD
Begin Lat/Lon 37.24/-81.86
End Date 2018-04-04 01:24 EST-5
End Location 1NE WHITEWOOD
End Lat/Lon 37.24/-81.86
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 2.00K
Crop Damage 0.00K
Episode Narrative A strong cold front pushed through shortly after midnight on the 4th, driving a line of strong to severe thunderstorms through southwestern Virginia.
Event Narrative Several trees were downed by thunderstorm winds.
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54 events were reported in **Dickenson County, Virginia** between **05/01/2011 and 04/30/2018 (High wind limited to speed greater than 0 knots)**.

Location		Date	Time		Type	Mag	Dth	Inj	PrD	CrD
Totals:							0	0	1.626M	0.00K
CLINTWOOD		05/10/2011	20:31		Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
BARTLICK		05/24/2011	08:35		Hail	0.88 in.	0	0	0.00K	0.00K
DARWIN		07/25/2011	11:00		Flash Flood		0	0	2.00K	0.00K
DICKENSON (ZONE)		01/02/2012	16:00		Winter Weather		0	0	0.00K	0.00K
DICKENSON (ZONE)		01/14/2012	18:00		Winter Weather		0	0	0.00K	0.00K
DICKENSON (ZONE)		02/19/2012	10:00		Heavy Snow		0	0	100.00K	0.00K
GEORGES FORK		04/03/2012	13:20		Hail	0.88 in.	0	0	0.00K	0.00K
STRATTON		04/03/2012	13:25		Hail	1.75 in.	0	0	0.00K	0.00K
HAYSI		06/29/2012	19:35		Thunderstorm Wind	50 kts. EG	0	0	200.00K	0.00K
GEORGES FORK		07/01/2012	21:45		Hail	1.25 in.	0	0	0.00K	0.00K
CLINTWOOD		07/05/2012	13:45		Thunderstorm Wind	50 kts. EG	0	0	20.00K	0.00K
NORA		07/05/2012	13:50		Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
HAYSI		07/31/2012	18:30		Flash Flood		0	0	85.00K	0.00K
DICKENSON (ZONE)		10/29/2012	11:00		Heavy Snow		0	0	750.00K	0.00K
DICKENSON (ZONE)		01/17/2013	11:30		Heavy Snow		0	0	0.00K	0.00K
DICKENSON (ZONE)		03/25/2013	06:00		Winter Weather		0	0	0.00K	0.00K
HAYSI		06/13/2013	12:30		Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
VIERS		08/12/2013	17:05		Flash Flood		0	0	5.00K	0.00K
DICKENSON (ZONE)		01/06/2014	16:00		Extreme Cold/wind Chill		0	0	50.00K	0.00K
DICKENSON (ZONE)		01/25/2014	09:00		Winter Weather		0	0	0.00K	0.00K
DICKENSON (ZONE)		01/28/2014	19:00		Cold/wind Chill		0	0	15.00K	0.00K
DICKENSON (ZONE)		02/12/2014	15:00		Heavy Snow		0	0	0.00K	0.00K
DICKENSON (ZONE)		03/03/2014	01:00		Winter Storm		0	0	0.00K	0.00K
DICKENSON (ZONE)		03/12/2014	19:00		Winter Weather		0	0	0.00K	0.00K
SKEETROCK		04/28/2014	14:50		Hail	2.25 in.	0	0	5.00K	0.00K
DICKENSON (ZONE)		11/01/2014	00:01		Winter Weather		0	0	0.00K	0.00K
DICKENSON (ZONE)		02/14/2015	14:00		Winter Weather		0	0	0.00K	0.00K
DICKENSON (ZONE)		02/14/2015	23:00		Cold/wind Chill		0	0	0.00K	0.00K
DICKENSON (ZONE)		02/16/2015	07:30		Heavy Snow		0	0	0.00K	0.00K
DICKENSON (ZONE)		02/18/2015	22:00		Extreme Cold/wind Chill		0	0	0.00K	0.00K
DICKENSON (ZONE)		02/21/2015	03:00		Winter Storm		0	0	25.00K	0.00K
DICKENSON (ZONE)		02/25/2015	22:00		Winter Weather		0	0	0.00K	0.00K
GEORGES FORK		03/04/2015	15:30		Flood		0	0	25.00K	0.00K
DICKENSON (ZONE)		03/05/2015	04:30		Heavy Snow		0	0	0.00K	0.00K
HONEYCAMP		04/25/2015	19:30		Hail	1.00 in.	0	0	0.00K	0.00K
TRAMMEL		04/25/2015	20:00		Hail	0.88 in.	0	0	0.00K	0.00K
HONEYCAMP		06/01/2015	11:45		Thunderstorm Wind	40 kts. EG	0	0	5.00K	0.00K

CLINTWOOD		07/13/2015	16:36		Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
HAYSI		07/13/2015	16:40		Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
DICKENSON (ZONE)		01/22/2016	04:00		Heavy Snow		0	0	0.00K	0.00K
DICKENSON (ZONE)		02/14/2016	16:00		Heavy Snow		0	0	0.00K	0.00K
RUSSELL MART		06/16/2016	19:43		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RUSSELL MART		06/23/2016	19:00		Thunderstorm Wind	50 kts. EG	0	0	15.00K	0.00K
STRATTON		06/23/2016	19:17		Thunderstorm Wind	50 kts. EG	0	0	10.00K	0.00K
IBEX		07/04/2016	18:40		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
OSBORNS GAP		04/23/2017	14:00		Flood		0	0	50.00K	0.00K
TANDY		05/24/2017	12:40		Hail	2.00 in.	0	0	0.00K	0.00K
CLINTWOOD		05/24/2017	13:23		Flash Flood		0	0	3.00K	0.00K
DICKENSON (ZONE)		11/18/2017	11:00		Strong Wind	35 kts. EG	0	0	20.00K	0.00K
DICKENSON (ZONE)		01/29/2018	19:00		Winter Weather		0	0	0.00K	0.00K
DICKENSON (ZONE)		02/01/2018	20:00		Winter Weather		0	0	0.00K	0.00K
OSBORNS GAP		02/10/2018	17:00		Flood		0	0	200.00K	0.00K
VICEY		02/17/2018	17:00		Flood		0	0	1.00K	0.00K
CLINTWOOD		04/04/2018	00:54		Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
Totals:							0	0	1.626M	0.00K

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2011-05-10 20:31 EST-5
Begin Location 0N CLINTWOOD
Begin Lat/Lon 37.15/-82.47
End Date 2011-05-10 20:31 EST-5
End Location 0N CLINTWOOD
End Lat/Lon 37.15/-82.47
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 15.00K
Crop Damage 0.00K
Episode Narrative Repetitive showers and thunderstorms dropped southeast from southern Ohio, eastern Kentucky and western West Virginia into Virginia. The convection was along a warm frontal boundary.
Event Narrative Trees fell onto power lines. Electrical outages occurred.

Event Hail
Magnitude 0.88 in.
State VIRGINIA
County/Area DICKENSON
WFO RLX

Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2011-05-24 08:35 EST-5
Begin Location 1SW BARTLICK
Begin Lat/Lon 37.2337/-82.3478
End Date 2011-05-24 08:35 EST-5
End Location 1SW BARTLICK
End Lat/Lon 37.2337/-82.3478
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A disturbance in the winds aloft helped trigger a round of morning convection. The storms moved into Virginia from eastern Kentucky.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2011-07-25 11:00 EST-5
Begin Location 1SSE DARWIN
End Date 2011-07-25 13:00 EST-5
End Location 1SSE DARWIN
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 2.00K
Crop Damage 0.00K
Episode Narrative A cluster of late morning showers and thunderstorms caused local rain amounts around 3 inches in a few hours across portions of Dickenson County. The usual ponding of water and overflowing ditch lines occurred in various locations throughout the county. However, near the Wise County border, the headwaters of the Cranes Nest River quickly flooded and closed portions of Route 72 south of Darwin. The nearby feeder streams and runs also overflowed. However, no structures were affected. Later that day, and further down the river, a river gauge rose nearly 10 feet and crested at 12.9 feet. This was just below the 13 foot bank full level.

Event Winter Weather
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2012-01-02 16:00 EST-5
End Date 2012-01-03 08:00 EST-5

Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Much colder air arrived on the 2nd. Snow showers were common from late afternoon through the overnight hours. Snow accumulations of 2 to 4 inches were common by dawn on the 3rd.

Event Winter Weather
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2012-01-14 18:00 EST-5
End Date 2012-01-15 04:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A clipper system deposited 2 to 3 inches of snow during the overnight period.

Event Heavy Snow
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2012-02-19 10:00 EST-5
End Date 2012-02-19 22:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 100.00K
Crop Damage 0.00K
Episode Narrative As a surface low pressure system was moving east, off the southeast coast of the United States, its mid and upper level system was lifting out of the Tennessee Valley on Sunday, the 19th. Intermittent light rain and snow began after dawn. The cooling aloft and the deeper moisture associated with the comma head signature on satellite imagery moved through during the afternoon. As a result, wet snow became steady after 1200E. The snow fell at a rate of around an inch per hour during much of the afternoon. With the warm ground, and air temperatures at or slightly above freezing in the valleys, a highly elevation dependent accumulation was seen. Snow accumulations of 3 to 8 inches were common. The snow ended during the evening.
Trees or tree branches came down on overhead wires. Other wires sagged due to the weight of the snow.

Roughly 4000 customers were without electricity in the 2 counties.

Event Hail
Magnitude 0.88 in.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2012-04-03 13:20 EST-5
Begin Location 1SE GEORGES FORK
Begin Lat/Lon 37.144/-82.4911
End Date 2012-04-03 13:20 EST-5
End Location 1SE GEORGES FORK
End Lat/Lon 37.144/-82.4911
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A strong gradient in moisture and surface dew point existed along a nearly stationary front across southeastern Kentucky and the Virginia border with Tennessee. Afternoon convection formed just north of that boundary. One storm pulsed briefly stronger. Large hail was observed.

Event Hail
Magnitude 1.75 in.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source Public
NCEI Data Source CSV
Begin Date 2012-04-03 13:25 EST-5
Begin Location 1ENE STRATTON
Begin Lat/Lon 37.0829/-82.36
End Date 2012-04-03 13:25 EST-5
End Location 1ENE STRATTON
End Lat/Lon 37.0829/-82.36
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A strong gradient in moisture and surface dew point existed along a nearly stationary front across southeastern Kentucky and the Virginia border with Tennessee. Afternoon convection formed just north of that boundary. One storm pulsed briefly stronger. Large hail was observed.

Event Thunderstorm Wind
Magnitude 50 kts.

State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-06-29 19:35 EST-5
Begin Location 0N HAYSI
Begin Lat/Lon 37.22/-82.32
End Date 2012-06-29 19:55 EST-5
End Location 0N CLINTWOOD
End Lat/Lon 37.15/-82.47
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 200.00K
Crop Damage 0.00K
Episode Narrative On the second day of a developing heat wave, under a sunny sky, afternoon temperatures reached well into the 90s. Both Clintwood and Nora had 97 degrees. The 97 degrees at Clintwood was the hottest temperature on record there.
Meanwhile, an area of multi-cellular convection had moved out of northern Illinois that morning. It continued to organize and strengthen, as it propagated east and southeast across northern Indiana into western Ohio during the afternoon. As it moved through Ohio, it had already formed into a large arch of storms, or bow, with a developing cool pool in its wake. The temperature contrast between the air ahead of the developing derecho, compared to that in its wake was reaching 30 to 35 degrees. The resultant wind shift in the cool pool resulted in strong moisture convergence on the leading edge of the complex. This in turn, helped drive the storms further southeast, away from the mid and upper level wind support. However, the complex was diving right into that hot air that had obtained large convective available potential energy, on the order of 4000 to 5000 j/kg.
The weakening complex reaching into Buchanan County around 1900E. The outflow, or gust front, had outraced the rain.
Wind gusts of 55 to 65 mph were likely with the leading gust front. In the wake of these stronger winds gust, many areas did not even receive any rain. Grundy reported a meager 0.03 inches. Clintwood and Nora had no rain.
The wind caused trees and large branches to fall in scattered locations. The most impact was on the electric grid, let to a lesser degree than further north in West Virginia. Power outages lasted a few days in some areas. The lack of electricity in the midst of the heat wave, disrupted the daily routines of those citizens for several days. Water and ice were in high demand.
Event Narrative Trees and large branches were blown down in scattered locations about the county. Electricity was lost to around 800 customers.

Event Hail
Magnitude 1.25 in.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2012-07-01 21:45 EST-5
Begin Location 1SE GEORGES FORK
Begin Lat/Lon 37.14/-82.49
End Date 2012-07-01 21:45 EST-5
End Location 1SE GEORGES FORK
End Lat/Lon 37.14/-82.49
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative South of a nearly stationary front in the Ohio Valley, predawn showers and thunderstorms weakened as they headed toward northeastern Kentucky. An outflow boundary from that convection helped trigger a new cluster of showers and thunderstorms in southeast Kentucky during the morning. These moved southeast into Virginia.
The same pattern produced another round of showers and thunderstorms later that evening.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-07-05 13:45 EST-5
Begin Location 0N CLINTWOOD
Begin Lat/Lon 37.15/-82.47
End Date 2012-07-05 13:45 EST-5
End Location 0N CLINTWOOD
End Lat/Lon 37.15/-82.47
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 20.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms over eastern Ohio and western Pennsylvania weakened during the morning hours of the 5th. However, a strong outflow boundary from this convection pushed south. By late morning, the heating of the unstable air combined with the outflow boundary to trigger additional storms that pushed south across West Virginia, reaching Virginia by mid afternoon.
Event Narrative Trees were blown down causing power outages. Over 400 customers lost electricity.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-07-05 13:50 EST-5
Begin Location 0N NORA
Begin Lat/Lon 37.07/-82.35
End Date 2012-07-05 13:50 EST-5
End Location 0N NORA
End Lat/Lon 37.07/-82.35
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms over eastern Ohio and western Pennsylvania weakened during the morning hours of the 5th. However, a strong outflow boundary from this convection pushed south. By late morning, the heating of the unstable air combined with the outflow boundary to trigger additional storms that pushed south across West Virginia, reaching Virginia by mid afternoon.
Event Narrative Trees were blown down causing power outages.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-07-31 18:30 EST-5
Begin Location 0N HAYSI
End Date 2012-07-31 20:30 EST-5
End Location 1SE RUSSELL MART
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 85.00K
Crop Damage 0.00K
Episode Narrative A disturbance in the winds aloft tracked into the mountainous counties by late afternoon. This feature, along with outflow boundaries from earlier afternoon convection, helped to focus thunderstorms. Local downpours occurred around Hurley of Buchanan County and Haysi of Dickenson County.
Event Narrative Rain estimates of 1.5 to 3 inches fell in less than 3 hours. This included Lick Creek and Turkey Branch. Four roads were closed with 2 roads sustaining damage. Driveways were washed out with

damage to their drain pipes.

Event Heavy Snow
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2012-10-29 11:00 EST-5
End Date 2012-10-31 02:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 750.00K
Crop Damage 0.00K
Episode Narrative A rare consolidation of a strong mid and upper level trough in the polar jet with a tropical hurricane named Sandy resulted in a historical snow storm for the month of October.
Periods of rain fell from late on the 27th into the 28th, as a cold front moved east. In response to the colder air associated with the polar jet and the strengthening mid level trough, light rain changed to the first snowflakes around 0000E to 0200E on Monday the 29th. This was only across the high terrain of southwest Virginia northward into the mountainous counties of central West Virginia. For example, the ground was white by dawn on the mountaintops near Nora. However, little accumulations were seen through the morning hours of the 29th.
The main event began around midday on the 29th, with the brunt of the storm occurring overnight Monday night through the day on Tuesday the 30th. The snow decreased in intensity Tuesday evening, but some lighter snow mixed with drizzle and freezing drizzle lingered into the early morning hours on Wednesday the 31st.
Snow accumulations were highly dependent on elevation. Snow accumulations were mostly 2 to 12 inches. For example, the cooperative observer near Nora measured 10 inches. Near blizzard conditions were seen over the exposed high terrain, but not throughout a majority of Buchanan and Dickenson Counties.
The weight of the snow caused trees and branches to snap or bend onto power lines and blocked roads. Over 5,500 customers lost electricity, mostly in Dickenson County.

Event Heavy Snow
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2013-01-17 11:30 EST-5
End Date 2013-01-17 18:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below,

when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative The last of 3 distinct waves, along a stalled front to the east and south, passed during the day on the 17th. The precipitation started as rain during the morning. It changed over to sleet and wet snow by midday. A quick shot of heavy wet snow fell during the afternoon hours. Four to 13 inches of snow fell in 6 hours across Dickenson and Buchanan Counties. The upper limit was over the high terrain in the eastern portion of both counties. For example, the cooperative observer in the high terrain near Nora measured 11 inches. An unofficial report of around 13 inches was received around West Dante. Amounts of 4 to 6 inches were more common in the river valley communities.

Event Winter Weather
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2013-03-25 06:00 EST-5
End Date 2013-03-26 10:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Rain fell on the 24th. However, colder air swept into Buchanan and Dickenson Counties before dawn on the 25th. Lingering moisture deposited 1 to 3 inches of snow accumulation into the morning of the 26th.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2013-06-13 12:30 EST-5
Begin Location 0N HAYSI
Begin Lat/Lon 37.22/-82.32
End Date 2013-06-13 12:30 EST-5
End Location 0N HAYSI
End Lat/Lon 37.22/-82.32
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage 0.00K

**Episode Narrative	A large cluster of showers and thunderstorms raced east and southeast at around 50 mph, reaching far western Virginia during the early afternoon. Wind gusts of 40 to 45 mph were common. At least 1 location likely had a stronger gust. Brief downpours, minor street flooding, and ponding of water also occurred.**
**Event Narrative	Trees were blown down.**

**Event	Flash Flood**
**-- Flood Cause	Heavy Rain**
**State	VIRGINIA**
**County/Area	DICKENSON**
**WFO	RLX**
**Report Source	911 Call Center**
**NCEI Data Source	CSV**
**Begin Date	2013-08-12 17:05 EST-5**
**Begin Location	1S VIERS**
**End Date	2013-08-12 18:45 EST-5**
**End Location	1SSW TENSO**
**Deaths Direct/Indirect	0/0 (fatality details below, when available...)**
**Injuries Direct/Indirect	0/0**
**Property Damage	5.00K**
**Crop Damage	0.00K**
**Episode Narrative	A cluster of showers and thunderstorms developed across Kentucky during the early afternoon of the 12th. This convection moved and developed east, into southwest Virginia after 1500E.**
**Event Narrative	Rains of 1.5 to 2 inches fell in less than 2 hours.**
Lick Creek flooded roads near Nancy. Flyingpan Creek had high water along Route 80. No dwellings were flooded.

**Event	Extreme Cold/Wind Chill**
**State	VIRGINIA**
**County/Area	DICKENSON**
**WFO	RLX**
**Report Source	COOP Observer**
**NCEI Data Source	CSV**
**Begin Date	2014-01-06 16:00 EST-5**
**End Date	2014-01-07 15:00 EST-5**
**Deaths Direct/Indirect	0/0 (fatality details below, when available...)**
**Injuries Direct/Indirect	0/0**
**Property Damage	50.00K**
**Crop Damage	0.00K**
**Episode Narrative	An arctic cold front sweep through far western Virginia between 0200E and 0400E on Monday the 6th. Rain showers and temperatures in the 40s and 50s quickly became snow showers with temperatures falling through the 20s by dawn. Snow accumulations were less than 2 inches. Temperatures continued to fall during the day on the 6th, with blustery**

winds. Readings reached down into the single digits by sunset.
Temperatures at dawn on the 7th were mostly 5 below zero to 10 below zero. The coldest temperatures came from the highest elevations.
Wind chill readings bottomed out in the minus 20 to minus 30 degree range overnight and into the morning hours for most counties.
Despite sunshine, temperatures were slow to recover during the day on the 7th. However, the wind did subside during the afternoon.
A scattering of frozen pipes, power outages, home furnace difficulties, and vehicular engine problems occurred. Repair companies were kept busy. County public school systems were closed.

Event Winter Weather
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-01-25 09:00 EST-5
End Date 2014-01-25 21:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Strong warm air advection in the Ohio Valley helped develop snow after dawn on the 25th. Lulls in the snowfall developed during the midday. A strong cold front and its associated mid level disturbance helped trigger more showery snow during the early evening. Snow totals of 2 to 4 inches were common.

Event Cold/Wind Chill
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-01-28 19:00 EST-5
End Date 2014-01-30 11:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 15.00K
Crop Damage 0.00K
Episode Narrative Colder air started to filter in on Monday the 27th. Yet, a storm across the southeastern states brushed the area with an inch or less of snow during the late day and evening on the 28th.
In its wake, drier and colder air moved south for dawn on Wednesday the 29th. Yet, the main force of this cold wave

remained further north, including Ohio and West Virginia. Temperatures were slightly below zero for most communities. Clintwood had a minimum temperature of 6 below zero for one of the colder readings.
A second cold night was felt with dawn temperatures on the 30th with very similar temperatures, mostly in the zero to 5 below zero range. However, Clintwood again observed 6 below zero.
The environment began to moderate on Thursday afternoon the 30th.

Event Heavy Snow
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-02-12 15:00 EST-5
End Date 2014-02-13 15:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Snow spread north during the afternoon of the 12th, reaching into Dickenson and Buchanan Counties around 1500E. Temperatures were mostly in the mid and upper 20s at the onset of the snow. The snow was associated with a developing coastal storm that was still located over northern Florida. Meanwhile, high pressure ridged down the eastern seaboard and kept plenty of cold air in the lower atmosphere.
Heavy snow fell during the evening hours, with some decrease during the late night hours. The coastal storm was centered along the Virginia and North Carolina coast line by dawn on the 13th. The wrap around snow on the western side of the mid and upper level feature caused the snow to continue to fall during the daylight hours on the 13th, finally ending in the afternoon.
Total storm snow accumulations of 10 to 15 inches were common. For example, the cooperative observer near Clintwood measured 12 inches, while Grundy had a 10 inch accumulation, and John Flannagan Lake observed 8 inches.
Unofficial reports included 14 inches at Haysi, 11 inches at Hurley and 12 inches over Compton Mountain.

Event Winter Storm
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2014-03-03 01:00 EST-5
End Date 2014-03-03 15:00 EST-5

Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A strong north to south temperature gradient existed in the Ohio Valley as a cold front gradually sank south. The front sank south, reaching Buchanan and Dickenson late on the 2nd. Strong dynamics associated with a strengthening wind speed maximum in the flow well above the ground, lead to waves along the front. Each wave enhanced the precipitation and helped push the surface front further south.
After 1 to 1.5 inches of rain, the transition from freezing rain to sleet and finally snow began after 0100E on the 3rd. The duration of the freezing rain was mostly 1 to 3 hours before sleet and snow became the dominate precipitation type. Ice accretion amounts were mainly under a quarter of an inch. However, a quarter to a half inch of ice did accumulate in the Haysi vicinity. Most locations were observing all snow by dawn on the 3rd. The last and main wave along the frontal zone enhanced the snow for the morning hours on the 3rd.
The end result was snow accumulations of 3 to 4 inches in less than 12 hours.
The quick drop in temperature after the initial rain and freezing rain, made it difficult to remove the accumulating snow from roadways. Readings dropped from the 30s into the teens during this storm.

Event Winter Weather
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-03-12 19:00 EST-5
End Date 2014-03-13 07:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A strengthening low pressure system crossed through Ohio into southern Pennsylvania during the daylight hours of the 12th. Temperatures were in the 50s and 60s ahead of its associated cold front. The cold front swept through far western Virginia during the afternoon hours. In the wake of the front, falling temperatures and strong pressure rises resulted in widespread wind gusts around 45 mph. A fallen tree damaged a house in Oakwood. In the same area, a tree fell onto a truck.
In the colder air overnight into the 13th, banded snow

showers fell. A few enhanced streaks had accumulations of 2 to 3 inches of snow. For example, the cooperative observer measured 3 inches. The county schools were closed in Dickenson County, while Buchanan County had a 2 hour delay.

Event Hail
Magnitude 2.25 in.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2014-04-28 14:50 EST-5
Begin Location 0N SKEETROCK
Begin Lat/Lon 37.23/-82.42
End Date 2014-04-28 14:50 EST-5
End Location 0N SKEETROCK
End Lat/Lon 37.23/-82.42
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative As nearly stationary front was located near the southern West Virginia border with Virginia during the afternoon of the 28th. More unstable air was located to the southwest. Thunderstorms moved southeast Kentucky, then northeast into Virginia.

Event Winter Weather
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-11-01 00:01 EST-5
End Date 2014-11-01 12:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A strong mid level disturbance, and its associated cold pocket aloft, brought the first snow of the season as the month began. An elevation dependent accumulation of 1 to 4 inches occurred. The cooperative observer near Nora, elevation around 2700 feet, measured a 4 inch accumulation.

Event Winter Weather
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source Department of Highways

NCEI Data Source CSV
Begin Date 2015-02-14 14:00 EST-5
End Date 2015-02-14 23:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Another arctic front swept through during the late afternoon of the 14th.
Temperatures dropped from the 30s into the teens in a few hours. In the wake of the front, wind gusts of 35 to 45 mph were common well through the night. Snow showers formed ahead of the front, with a heavier burst of snow along the front. Accumulations of 2 to 4 inches were common.
Temperatures dropped into the single digits by dawn on the 15th.
Early on the 15th, wind chill readings of minus 10 to minus 15 were common.

Event Cold/Wind Chill
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2015-02-14 23:00 EST-5
End Date 2015-02-15 12:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Another arctic front swept through during the late afternoon of the 14th.
Temperatures dropped from the 30s into the teens in a few hours. In the wake of the front, wind gusts of 35 to 45 mph were common well through the night. Snow showers formed ahead of the front, with a heavier burst of snow along the front. Accumulations of 2 to 4 inches were common.
Temperatures dropped into the single digits by dawn on the 15th.
Early on the 15th, wind chill readings of minus 10 to minus 15 were common.

Event Heavy Snow
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-02-16 07:30 EST-5
End Date 2015-02-17 02:00 EST-5

Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A unique snow storm hit on the holiday for Washington's Birthday.
Light snow began falling around dawn on the 16th when the temperature was hovering in the 10 to 15 degree range. The snow increased during the morning, then decreased that evening. The snow ended early on the 17th. The temperature only crept up into the upper teens and lower 20s during the later part of the storm. Snow accumulations of 10 to 12 inches were common. For example, Grundy and Clintwood both measured around 11 inches.
It was the first significant snow storm of the 2014-2015 winter for this section of Virginia.

Event Extreme Cold/Wind Chill
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2015-02-18 22:00 EST-5
End Date 2015-02-20 11:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative In less than a week, a second arctic front swept through far western Virginia during the afternoon hours of the 18th. Snow showers formed ahead of the front, with a few bands lingering into the evening hours. Snow accumulations were mostly 1 to 2 inches. Temperatures dropped to either side of zero by dawn on the 19th based on elevation. Despite sunshine through icy low clouds, daytime readings only recovered into the 5 to 10 degree range. Wind chill readings of minus 10 to minus 20 were felt during the daylight hours.
With an existing snow pack, diminishing winds, and a clear sky, temperatures dropped into the 15 to 20 below zero range for most communities by dawn on the 20th. Near Clintwood, the cooperative observer measured 23 below zero for the coldest. This equaled the coldest temperature in Clintwood during the cold wave in February of 1996. At Grundy, the minimum temperature reached 17 below zero. This was colder than the minus 12 felt back in February 1996 and January 1994.

Event Winter Storm
State VIRGINIA
County/Area DICKENSON

WFO RLX
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2015-02-21 03:00 EST-5
End Date 2015-02-21 18:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 25.00K
Crop Damage 0.00K
Episode Narrative After the arctic deep freeze at dawn on the 20th, snow, sleet, and freezing rain overspread far western Virginia around 0300E on the 21st. After 1 to 2 inches of wet snow in the river valleys, the snow changed to freezing rain for 3 to 4 hours during the morning. The cold ground temperatures allowed freezing rain to continue even with air temperatures of 33 and 34 degrees. Ice accumulations reached a maximum of a quarter of an inch. The freezing rain became mostly rain by midday for these low elevations. However, in the higher terrain of eastern Buchanan and eastern Dickenson Counties, wet snow continued into the afternoon before ending as drizzle that evening. Clintwood observed 4 to 5 inches of snow. One spotter from the Sandy Ridge area, near the Wise County border, reported 18 inches of snow.
Total melted precipitation totals were over 1.5 inches. Melting slush and snow piles from plowing and shoveling prevented the normal drainage of water. Water pooled on many roads. Ice filled streams were swollen, but no major flooding occurred. Ice dams in residential gutters and downspouts allowed runoff to seep into homes.

Event Winter Weather
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2015-02-25 22:00 EST-5
End Date 2015-02-26 07:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Buchanan and Dickenson Counties were on the northwestern edge of a large winter storm that moved through the southeastern states. Snow accumulations of 2 to 4 inches were common. For example, the cooperative observers at Grundy, Clintwood, and Nora all measured 3 inches. With the cold February, the total snow pack remained around 10 to 18 inches.

Event Flood
-- Flood Cause Heavy Rain / Snow Melt
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2015-03-04 15:30 EST-5
Begin Location 0NNE GEORGES FORK
Begin Lat/Lon 37.1556/-82.4967
End Date 2015-03-05 16:30 EST-5
End Location 1S OPEN FORK
End Lat/Lon 37.0296/-82.3655
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 25.00K
Crop Damage 0.00K
Episode Narrative A warm front lifted north through the area on the 3rd. Rain amounts were mostly around 2 to 4 tenths of an inch. Late afternoon and evening temperatures rose into the 40s and 50s. Winds and dew points also increased. This combination helped accelerate the melting of any leftover snow cover.
Rains increased again during the afternoon of the 4th. A steady rain continued into the night. Rain rates were mostly 1 to 2 tenths of an inch per hour. This initiated small stream and head water river flooding during the night.
Around 2245E on the 4th, a flood fatality occurred in Buchanan County when a man drove into high water. Rainfall totals reached 1.75 to 2 inches as the rain was finally transitioning to wet snow before dawn on the 5th. As minor small stream flooding continued, the snow accumulated 4 to 5 inches. The snow diminished toward evening on the 5th.
Event Narrative Small stream flooding began during the afternoon on the 4th. Browning Hollow, near Clintwood, had water over the road. The Cranes Nest River near Clintwood crested a few feet over bank full, the highest level in 10 years. The water receded in the county toward the end of the snow storm on the 5th.

Event Heavy Snow
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2015-03-05 04:30 EST-5
End Date 2015-03-05 18:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K

Crop Damage 0.00K
Episode Narrative A warm front lifted north through the area on the 3rd. Rain amounts were mostly around 2 to 4 tenths of an inch. Late afternoon and evening temperatures rose into the 40s and 50s. Winds and dew points also increased. This combination helped accelerate the melting of any leftover snow cover.
Rains increased again during the afternoon of the 4th. A steady rain continued into the night. Rain rates were mostly 1 to 2 tenths of an inch per hour. This initiated small stream and head water river flooding during the night.
Around 2245E on the 4th, a flood fatality occurred in Buchanan County when a man drove into high water.
Rainfall totals reached 1.75 to 2 inches as the rain was finally transitioning to wet snow before dawn on the 5th.
As minor small stream flooding continued, the snow accumulated 4 to 5 inches. The snow diminished toward evening on the 5th.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source Public
NCEI Data Source CSV
Begin Date 2015-04-25 19:30 EST-5
Begin Location 1SE HONEYCAMP
Begin Lat/Lon 37.12/-82.47
End Date 2015-04-25 19:30 EST-5
End Location 1SE HONEYCAMP
End Lat/Lon 37.12/-82.47
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A low pressure wave rode east through Kentucky during the late afternoon and evening, along a strong east to west front. There was a 30 degree temperature contrast on either side of the front.
Just south of the surface front, a few discrete thunderstorms cells formed ahead of the main cluster of convection. These cells moved into southwest Virginia during the evening hours.

Event Hail
Magnitude 0.88 in.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2015-04-25 20:00 EST-5

Begin Location 1WSW TRAMMEL
Begin Lat/Lon 37.0157/-82.3214
End Date 2015-04-25 20:00 EST-5
End Location 1WSW TRAMMEL
End Lat/Lon 37.0157/-82.3214
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A low pressure wave rode east through Kentucky during the late afternoon and evening, along a strong east to west front. There was a 30 degree temperature contrast on either side of the front.
Just south of the surface front, a few discrete thunderstorms cells formed ahead of the main cluster of convection. These cells moved into southwest Virginia during the evening hours.

Event Thunderstorm Wind
Magnitude 40 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2015-06-01 11:45 EST-5
Begin Location 1NNW HONEYCAMP
Begin Lat/Lon 37.1385/-82.4856
End Date 2015-06-01 11:45 EST-5
End Location 1NNW HONEYCAMP
End Lat/Lon 37.1385/-82.4856
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms formed during the early afternoon along a front across the central Appalachians. A strong temperature contrast existed from south to north.
Event Narrative A tree fell on power lines along Route 72. A few hundred customers lost electricity.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-07-13 16:36 EST-5
Begin Location 0N CLINTWOOD
Begin Lat/Lon 37.15/-82.47
End Date 2015-07-13 16:36 EST-5

End Location 1ENE CLINTWOOD
End Lat/Lon 37.1602/-82.4492
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative A mesoscale convective complex moved southeast and reached into southwest Virginia during the early evening hours on the 13th.
More thunderstorms formed during the overnight hours and moved southeast into Virginia during the predawn hours on the 14th. This caused some flash flooding near dawn.
Finally, thunderstorms formed in northern Ohio ahead of a cold front and mid level disturbance during the midday and early afternoon on the 14th. These storms formed into a squall line and moved southeast, reaching Virginia during the early evening hours of the 14th.
Event Narrative Trees were blown down around the town, including near the hospital.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-07-13 16:40 EST-5
Begin Location 0N HAYSI
Begin Lat/Lon 37.22/-82.32
End Date 2015-07-13 16:40 EST-5
End Location 0N HAYSI
End Lat/Lon 37.22/-82.32
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative A mesoscale convective complex moved southeast and reached into southwest Virginia during the early evening hours on the 13th.
More thunderstorms formed during the overnight hours and moved southeast into Virginia during the predawn hours on the 14th. This caused some flash flooding near dawn.
Finally, thunderstorms formed in northern Ohio ahead of a cold front and mid level disturbance during the midday and early afternoon on the 14th. These storms formed into a squall line and moved southeast, reaching Virginia during the early evening hours of the 14th.
Event Narrative Trees were blown down.

Event Heavy Snow

State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2016-01-22 04:00 EST-5
End Date 2016-01-23 12:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A major storm spread snow north, reaching far western Virginia before dawn on Friday the 22nd. The initial warm air advection snow was heavy at times, but it lifted out of Buchanan and Dickenson Counties by mid morning. A mid level dry slot also worked into the area during the late morning and early afternoon, causing lulls and lighter precipitation. Sleet was mixed with the lighter snows during the afternoon on the 22nd. The snow increased again in coverage by mid afternoon.
Periods of snow fell through the night, then diminished by midday on Saturday the 23rd.
Prior to this storm, 1 to 3 inches of old snow was on the ground. Accumulations of 5 to 8 inches were common. For example, the snow depth at Clintwood went from 3 inches prior to the storm to 11 inches in its wake. Near Nora, the snow depth went from 2 inches to 10 inches as a result of the storm. In Grundy, the snow depth went from 1 inch to 6 inches.

Event Heavy Snow
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2016-02-14 16:00 EST-5
End Date 2016-02-15 03:30 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Strong warm advection, north of a warm front in Tennessee, caused snow to develop across far western Virginia during the late afternoon on the 14th.
Four to 6 inches of snow fell in less than 12 hours. For example, Clintwood had a 4 inch accumulation, while Grundy saw a 5 inch accumulation. A 6 inch accumulation fell near Nora.
The snow changed to rain by late morning on the 15th. Occasional rain fell into the early hours of the 16th before

ending as some wet snow and drizzle.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-06-16 19:43 EST-5
Begin Location 1SE RUSSELL MART
Begin Lat/Lon 37.21/-82.29
End Date 2016-06-16 19:43 EST-5
End Location 1SE RUSSELL MART
End Lat/Lon 37.21/-82.29
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Low pressure was situated north of the region in the lower Great Lakes during the afternoon of June 16th. A warm front was draped from Lake Erie south and east through Maryland and the Delmarva Peninsula, with a well-developed warm sector in place to the south and west of this boundary. By the afternoon, surface temperatures had warmed into the low to mid 80s across southern Ohio and most of West Virginia. A moist and unstable air mass was in place, with surface dew points in the mid to upper 60s and nearly 3000j/kg of ML CAPE analyzed by RUC analysis. 500 mb flow was near 50 knots and a possible large-scale damaging wind event was expected. Thunderstorms developed in east-central Ohio near the I-70 corridor after 2pm and moved south and east over the Ohio Valley and into West Virginia. Later in the evening after the main line of thunderstorms exited West Virginia to the east, a few thunderstorms at the tail end of this line produced wind damage in southwest Virginia.
Event Narrative There were numerous reports of trees and power lines down throughout Dickenson County, especially between Clincho and Haysi.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-06-23 19:00 EST-5
Begin Location 1SE RUSSELL MART
Begin Lat/Lon 37.21/-82.29
End Date 2016-06-23 19:00 EST-5
End Location 1SE RUSSELL MART

End Lat/Lon 37.21/-82.29
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 15.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms developed during the afternoon hours of the 23rd over the Ohio Valley. These thunderstorms moved south and east through eastern Kentucky and southern West Virginia, eventually making their way into southwest VA by 7:00 p.m. Thunderstorms produced wind damage throughout Buchanan and Dickenson counties.
Event Narrative There were numerous reports of downed trees in the Haysi vicinity.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-06-23 19:17 EST-5
Begin Location 1NE STRATTON
Begin Lat/Lon 37.09/-82.36
End Date 2016-06-23 19:17 EST-5
End Location 1NE STRATTON
End Lat/Lon 37.09/-82.36
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms developed during the afternoon hours of the 23rd over the Ohio Valley. These thunderstorms moved south and east through eastern Kentucky and southern West Virginia, eventually making their way into southwest VA by 7:00 p.m. Thunderstorms produced wind damage throughout Buchanan and Dickenson counties.
Event Narrative A roof was blown off the Binns-Counts community center.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-07-04 18:40 EST-5
Begin Location 1ESE IBEX
Begin Lat/Lon 37.04/-82.46
End Date 2016-07-04 18:40 EST-5

End Location 1ESE IBEX
End Lat/Lon 37.04/-82.46
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A warm front lifted north from southern West Virginia and northeast Kentucky during the morning hours, into central Ohio and northern West Virginia by early afternoon. By evening, the warm front was in eastern Ohio and western Pennsylvania.
A round of showers from the predawn hours into the mid morning was associated with that warm front.
More convection followed during the evening hours, eventually moving into far western Virginia. Local downpours were common.
Event Narrative Trees were blown down along Canay Ridge.

Event Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2017-04-23 14:00 EST-5
Begin Location 1SE OSBORNS GAP
Begin Lat/Lon 37.1885/-82.5336
End Date 2017-04-24 07:00 EST-5
End Location 2SW BREAKS
End Lat/Lon 37.2825/-82.2995
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 50.00K
Crop Damage 0.00K
Episode Narrative Multiple waves of low pressure brought a prolonged period of rainy weather from the 20th through the 22nd. Generally one to three inches of rain fell during this time. This caused a slow rise on creeks and streams across Southwestern Virginia. On the 23rd, two to three inches of rain fell, pushing some creeks and streams out of their banks. Periods of rainfall continued overnight before drier weather arrived and flooding subsided around daybreak on the 24th. In addition to the flooding, the soggy soil resulted in numerous mudslides.
The cooperative observer at Nora measured 5.43 inches of rainfall from the 21st through the morning of the 24th.
The cooperative observer at Grundy measured 3 inches over the same time period.
The Cranes Nest River near Clintwood experienced minor flooding, cresting at 13.9 feet, or about a foot above

bankfull of 13 feet.
Event Narrative Multiple roads were closed due to flooding, with several roads partially washed out. Water entered the basements of some homes along Coeburn Road south of Clintwood.

Event Hail
Magnitude 2.00 in.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source Public
NCEI Data Source CSV
Begin Date 2017-05-24 12:40 EST-5
Begin Location 1SE TANDY
Begin Lat/Lon 37.21/-82.39
End Date 2017-05-24 12:40 EST-5
End Location 1SE TANDY
End Lat/Lon 37.21/-82.39
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Showers and thunderstorms developed along a warm front on the 24th. The showers and storms produced very heavy rainfall with one to two inches of rain in a short time. This rain fell on already saturated soils resulting in flash flooding. One storm briefly pulsed up and produced hail.
Event Narrative Photo with ruler submitted via social media.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2017-05-24 13:23 EST-5
Begin Location 0NE CLINTWOOD
End Date 2017-05-24 14:45 EST-5
End Location 1NE CLINTWOOD
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 3.00K
Crop Damage 0.00K
Episode Narrative Showers and thunderstorms developed along a warm front on the 24th. The showers and storms produced very heavy rainfall with one to two inches of rain in a short time. This rain fell on already saturated soils resulting in flash flooding. One storm briefly pulsed up and produced hail.

Event Narrative Several roads in and around Clintwood were closed due to flooding.

Event Strong Wind
Magnitude 35 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2017-11-18 11:00 EST-5
End Date 2017-11-18 23:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 20.00K
Crop Damage 0.00K
Episode Narrative A strong cold front moved through the Central Appalachians late on the 18th. Ahead of the front, in unseasonably warm air, a strong low level jet resulted in gusty winds during the late morning and afternoon. Additional strong wind gusts occurred in showers along and just ahead of the cold front. A wind gust of 40 miles per hour was reported by a CWOP station near Clintwood during the afternoon.
Many trees were blown down, resulting in localized power outages. Some in Dickenson County didn't have power restored until the 20th.

Event Winter Weather
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2018-01-29 19:00 EST-5
End Date 2018-01-30 12:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A deep upper trough crossed the central Appalachians on the 29th and 30th, with a period of light snowfall. Generally, 2 to 3 inches of snow fell from the afternoon of the 29th into the morning of the 30th. The cooperative observer in Clintwood measured 3.1 inches of snow, while the observer in Grundy received 2 inches.

Event Winter Weather
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source COOP Observer

NCEI Data Source CSV
Begin Date 2018-02-01 20:00 EST-5
End Date 2018-02-02 10:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A strong Arctic cold front moved across the region on the 1st. Temperatures were warm ahead of the front, and a lot of the precipitation fell as rain. However, cold air rushed in during the evening, changing the rain to snow. Around 3 inches of snow fell from late on the 1st into the morning of the 2nd. For example, the cooperative observer at Nora in Dickenson County, measured 3.8 inches, while reports on social media indicated only 2-3 inches in lower elevation parts of the county.

Event Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2018-02-10 17:00 EST-5
Begin Location 0SSE OSBORNS GAP
Begin Lat/Lon 37.1936/-82.5471
End Date 2018-02-11 11:00 EST-5
End Location 1SE IBEX
End Lat/Lon 37.0399/-82.4703
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 200.00K
Crop Damage 0.00K
Episode Narrative A frontal system was draped across the central Appalachians on the 10th and 11th. As waves moved along the front, periods of heavy rainfall moved across Southwestern Virginia. Rainfall started during the morning of the 10th, with the heaviest rain from late afternoon overnight into the 11th. Three to four inches of rain fell over the 24 hour period, which lead to widespread flooding from the afternoon of the 10th, into the 11th. The cooperative observer at Nora in Dickenson County measured 4.04 inches of rainfall from the storm and a trained spotter in Clintwood measured 3.25 inches. In Buchanan County, the cooperative observer at Grundy measured 3.52 inches of rain and a mesonet gauge on Keen Mountain measured 3.04 inches. Dickenson County was placed under a state of emergency, and voluntary evacuation were started for the most flood prone spots in the county. A state of emergency was also declared by Buchanan County officials.

As the water drained through creeks and streams and into the rivers, river flooding occurred on the Russell Fork River and Cranes Nest River. John W. Flannagan Lake jumped 20 feet in just 24 hours, as the US Army Corps of Engineers shut down the dam's outflow to lessen river flooding in the region.
Event Narrative Water from flooding along Crooked Branch got into Dyers Chapel near Clinchco, and covered some equipment at a nearby well services business. Several drivers had to be rescued after driving into high water near Haysi. At least 8 people had to be rescued throughout the night, but fortunately there were no injuries. Social media pictures showed a number of vehicles parked in private driveways were flooded.
An earthen dam failed at Camp Jacob in the far southwest corner of the county, draining the nearly 10 acre lake and causing significant damage to the camp.
Many roads were flooded across the county. This included US Route 460, due to high water along Levisa Fork and Slate Creek. County Route 611 was closed due to flooding from Barts Lick Creek, and County Route 608 due to water from Doe Branch. Route 637 was closed due to flooding along the Cranes Nest River and Lick Branch, and Route 612 was under water due to Laurel Creek and Georges Fork. Bearpen Creek also flooded near Isom. Several private roads and bridges across the county were also washed out.
The Russell Fork River at Haysi rose above its flood stage of 19 feet on the evening of the 10th. The river crested at about 20.5 feet just after midnight on the 11th, and returned to its banks by sunrise. This caused flooding along parts of Route 63 and 80/83. Minor water also effected the park and some businesses in Haysi.
The Cranes Nest River in Clintwood also surged out of its banks on the evening of the 10th. It rose to just over 14.5 feet by midnight, about a foot and a half over bankfull level, and returned to its banks during the pre-dawn hours of the 11th. This flooded a section of Route 649 as well as several camps along the river.

Event Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2018-02-17 17:00 EST-5
Begin Location 1WNW VICEY
Begin Lat/Lon 37.2307/-82.2713
End Date 2018-02-17 20:00 EST-5
End Location 2NW BEE
End Lat/Lon 37.1424/-82.2029
Deaths Direct/Indirect 0/0 (fatality details below, when available...)

Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage 0.00K
Episode Narrative A wave of low pressure and surface front crossed from Kentucky and Tennessee into Virginia and West Virginia, producing heavy rainfall on the 16th and 17th. Generally 1 to 2 inches of rain fell, resulting in some minor creek and road flooding.
Event Narrative Several roads were closed due to high water. Coeburn Road was flooded near the Wise County Line due to high water on the Cranes Nest River. Russell Fork also flooded, causing high water along Sandlick Road near Haysi.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area DICKENSON
WFO RLX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2018-04-04 00:54 EST-5
Begin Location 1E CLINTWOOD
Begin Lat/Lon 37.15/-82.46
End Date 2018-04-04 00:54 EST-5
End Location 1E CLINTWOOD
End Lat/Lon 37.15/-82.46
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 4.00K
Crop Damage 0.00K
Episode Narrative A strong cold front pushed through shortly after midnight on the 4th, driving a line of strong to severe thunderstorms through southwestern Virginia.
Event Narrative Several trees were blown down, which also took down some power lines.
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66 events were reported in **Russell County, Virginia** between **05/01/2011 and 04/30/2018 (High wind limited to speed greater than 0 knots)**.

Location	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
Totals:					0	0	120.00K	0.00K
LEBANON	05/10/2011	21:00	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
CASTLEWOOD	05/24/2011	09:45	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HONAKER	05/24/2011	09:45	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
BOLTON	05/24/2011	15:55	Tornado	EF0	0	0	30.00K	0.00K
CASTLEWOOD	06/21/2011	21:15	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HONAKER	07/22/2011	15:35	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
RUSSELL (ZONE)	02/19/2012	10:00	Heavy Snow		0	0	10.00K	0.00K
LEBANON	02/22/2012	21:00	Heavy Rain		0	0	0.00K	0.00K
LEBANON	02/29/2012	18:50	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
LEBANON	02/29/2012	19:30	Hail	1.00 in.	0	0	0.00K	0.00K
HONAKER	07/01/2012	09:40	Hail	1.25 in.	0	0	0.00K	0.00K
HONAKER	07/01/2012	09:42	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
DAW	07/05/2012	13:40	Thunderstorm Wind	60 kts. EG	0	0	0.00K	0.00K
RUSSELL (ZONE)	10/28/2012	03:00	Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)	10/28/2012	03:00	Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)	10/28/2012	03:00	Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)	10/28/2012	03:00	Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)	10/28/2012	03:00	Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)	12/20/2012	12:00	High Wind	55 kts. EG	0	0	8.00K	0.00K
RUSSELL (ZONE)	12/26/2012	05:00	High Wind	52 kts. EG	0	0	5.00K	0.00K
LEBANON	01/16/2013	08:00	Flood		0	0	1.00K	0.00K
RUSSELL (ZONE)	01/17/2013	13:45	Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)	02/26/2013	11:30	High Wind	55 kts. EG	0	0	20.00K	0.00K
RUSSELL (ZONE)	03/05/2013	23:00	Heavy Snow		0	0	0.00K	0.00K
LEBANON	05/19/2013	15:58	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HONAKER	06/13/2013	12:35	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
LEBANON	06/13/2013	12:38	Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
CASTLEWOOD	07/18/2013	16:00	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RUSSELL (ZONE)	02/12/2014	21:55	Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)	02/13/2014	12:00	Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)	02/13/2014	12:00	Heavy Snow		0	0	0.00K	0.00K
LEBANON	02/21/2014	04:45	Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RUSSELL (ZONE)	03/03/2014	04:00	Ice Storm		0	0	0.00K	0.00K
HONAKER	06/10/2014	18:30	Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
HONAKER	06/10/2014	19:00	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
CASTLEWOOD	06/11/2014	12:00	Hail	1.00 in.	0	0	0.00K	0.00K
CASTLEWOOD	06/11/2014	12:00	Thunderstorm Wind	50 kts. EG	0	0	2.00K	0.00K
LEBANON	06/11/2014	13:05	Thunderstorm Wind	50 kts. EG	0	0	8.00K	0.00K

LEBANON			07/14/2014	16:40		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RUSSELL (ZONE)			02/16/2015	16:50		Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)			02/16/2015	17:30		Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)			02/17/2015	09:30		Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)			02/17/2015	09:30		Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)			02/17/2015	09:30		Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)			02/21/2015	07:12		Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)			02/21/2015	10:50		Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)			02/21/2015	13:45		Heavy Snow		0	0	0.00K	0.00K
LEBANON			03/04/2015	12:45		Flood		0	0	2.00K	0.00K
DANTE			03/04/2015	22:40		Flood		0	0	1.00K	0.00K
WEST RAVEN			06/08/2015	16:55		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
LEBANON			07/13/2015	17:10		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RUSSELL (ZONE)			11/18/2015	16:10		High Wind	50 kts. EG	0	0	0.00K	0.00K
RUSSELL (ZONE)			11/18/2015	22:38		High Wind	50 kts. EG	0	0	0.00K	0.00K
RUSSELL (ZONE)			11/18/2015	23:49		High Wind	50 kts. EG	0	0	0.00K	0.00K
RUSSELL (ZONE)			01/22/2016	05:00		Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)			02/08/2016	15:00		Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)			02/08/2016	15:00		Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)			02/08/2016	15:00		Heavy Snow		0	0	0.00K	0.00K
CASTLEWOOD			05/12/2016	17:10		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HONAKER			05/12/2016	17:50		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
HONAKER			06/16/2016	21:15		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
DYE			06/21/2016	17:35		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
PUTNAM			06/23/2016	19:30		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
RUSSELL (ZONE)			01/06/2017	21:00		Heavy Snow		0	0	0.00K	0.00K
RUSSELL (ZONE)			01/06/2017	21:00		Heavy Snow		0	0	0.00K	0.00K
CASTLEWOOD			04/23/2017	10:00		Flood		0	0	0.00K	0.00K
Totals:								0	0	120.00K	0.00K

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2011-05-10 21:00 EST-5
Begin Location 0N LEBANON
Begin Lat/Lon 36.9/-82.08
End Date 2011-05-10 21:00 EST-5
End Location 0N LEBANON
End Lat/Lon 36.9/-82.08
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage

Crop Damage
**Episode Narrative	Repeat convection became severe along a warm front extending across Southwest Virginia and Northeast Tennessee during the late evening hours. Convection became organized along the boundary transitioning into an mesoscale convective system which moved across Southwest Virginia and Northeast Tennessee.**
**Event Narrative	Trees and power lines were reported down across the county.**

**Event	Thunderstorm Wind**
**Magnitude	50 kts.**
**State	VIRGINIA**
**County/Area	RUSSELL**
**WFO	MRX**
**Report Source	Law Enforcement**
**NCEI Data Source	CSV**
**Begin Date	2011-05-24 09:45 EST-5**
**Begin Location	1E CASTLEWOOD**
**Begin Lat/Lon	36.88/-82.29**
**End Date	2011-05-24 09:45 EST-5**
**End Location	1E CASTLEWOOD**
**End Lat/Lon	36.88/-82.29**
**Deaths Direct/Indirect	0/0 (fatality details below, when available...)**
**Injuries Direct/Indirect	0/0**
Property Damage
Crop Damage
**Episode Narrative	A short wave trough moving through the Mid Mississippi and Lower Ohio Valley produced strong convection across Kentucky and Northern Middle Tennessee early in the day. The convection organized into a Mesoscale Convective System as it moved into the unstable atmosphere across Southwest Virginia and Northeast Tennessee. Severe convection continued to form well into the afternoon in the vicinity of a west through east outflow boundary in place across extreme Southwest Virginia.**
**Event Narrative	A few trees were reported down.**

**Event	Thunderstorm Wind**
**Magnitude	50 kts.**
**State	VIRGINIA**
**County/Area	RUSSELL**
**WFO	MRX**
**Report Source	Law Enforcement**
**NCEI Data Source	CSV**
**Begin Date	2011-05-24 09:45 EST-5**
**Begin Location	0N HONAKER**
**Begin Lat/Lon	37.02/-81.98**
**End Date	2011-05-24 09:45 EST-5**
**End Location	0N HONAKER**
**End Lat/Lon	37.02/-81.98**
**Deaths Direct/Indirect	0/0 (fatality details below,**

when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative A short wave trough moving through the Mid Mississippi and Lower Ohio Valley produced strong convection across Kentucky and Northern Middle Tennessee early in the day. The convection organized into a Mesoscale Convective System as it moved into the unstable atmosphere across Southwest Virginia and Northeast Tennessee. Severe convection continued to form well into the afternoon in the vicinity of a west through east outflow boundary in place across extreme Southwest Virginia.
Event Narrative A few trees were reported down.

Event Tornado
-- Scale EF0
-- Length 4.24 Miles
-- Width 50 Yards
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2011-05-24 15:55 EST-5
Begin Location 0N BOLTON
Begin Lat/Lon 36.8/-82.22
End Date 2011-05-24 15:58 EST-5
End Location 0ENE HANSONVILLE
End Lat/Lon 36.8206/-82.1479
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 30.00K
Crop Damage 0.00K
Episode Narrative A short wave trough moving through the Mid Mississippi and Lower Ohio Valley produced strong convection across Kentucky and Northern Middle Tennessee early in the day. The convection organized into a Mesoscale Convective System as it moved into the unstable atmosphere across Southwest Virginia and Northeast Tennessee. Severe convection continued to form well into the afternoon in the vicinity of a west through east outflow boundary in place across extreme Southwest Virginia.
Event Narrative An EF-0 tornado touched down near the Bolton area and moved northeast to near Hansonville, Virginia, before lifting. Several trees were downed in the path of the tornado.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL

WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2011-06-21 21:15 EST-5
Begin Location 0E CASTLEWOOD
Begin Lat/Lon 36.88/-82.3
End Date 2011-06-21 21:25 EST-5
End Location 0E CASTLEWOOD
End Lat/Lon 36.88/-82.3
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A boundary across the area triggered thunderstorms during the evening hours. A few of the storms produced damaging thunderstorm wind.
Event Narrative Law enforcement personnel reported 1 tree and several large limbs downed by thunderstorm wind in Castlewood.

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2011-07-22 15:35 EST-5
Begin Location 0N HONAKER
Begin Lat/Lon 37.02/-81.98
End Date 2011-07-22 15:35 EST-5
End Location 0N HONAKER
End Lat/Lon 37.02/-81.98
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Very moist atmosphere with intense heating led to the development of isolated severe convection in a moderately unstable environment. The stronger convection was limited mainly to Northeast Tennessee and Southwest Virginia.
Event Narrative A few trees were reported down at Honaker.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2012-02-19 10:00 EST-5
End Date 2012-02-20 00:30 EST-5

Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative A shortwave tracking through the area combined with a cold airmass to produce heavy snow over southwest Virginia. The highest snowfall totals were in the higher elevations were up to 8 inches was reported. The lower elevations received around 1 to 4 inches of snow.
Event Narrative Dispatch reported 8 inches of snow fell in Honaker. Power poles and lines downed by the snow.

Event Heavy Rain
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2012-02-22 21:00 EST-5
Begin Location 2SW LEBANON
Begin Lat/Lon 36.8841/-82.0998
End Date 2012-02-22 22:00 EST-5
End Location 2SSW LEBANON
End Lat/Lon 36.8766/-82.0921
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Flash flooding in southwest Virginia was produced by heavy rain falling on ground saturated by the previous days' rainfall.
Event Narrative Standing water observed on secondary roads in and around Lebanon. Six inches of water covered VA-660 just outside of the city limits.

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2012-02-29 18:50 EST-5
Begin Location 1N LEBANON
Begin Lat/Lon 36.91/-82.08
End Date 2012-02-29 19:00 EST-5
End Location 1N LEBANON
End Lat/Lon 36.91/-82.08
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0

Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative A boundary across the area triggered scattered thunderstorms during the evening hours across southwest Virginia. A few of the storms produced damaging thunderstorm wind or hail as large as a golfball.
Event Narrative Law enforcement personnel reported trees and powerlines downed by thunderstorm wind near Lebanon.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Department of Highways
NCEI Data Source CSV
Begin Date 2012-02-29 19:30 EST-5
Begin Location 1N LEBANON
Begin Lat/Lon 36.91/-82.08
End Date 2012-02-29 19:32 EST-5
End Location 1N LEBANON
End Lat/Lon 36.91/-82.08
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A boundary across the area triggered scattered thunderstorms during the evening hours across southwest Virginia. A few of the storms produced damaging thunderstorm wind or hail as large as a golfball.
Event Narrative Highway department personnel reported thunderstorms produced quarter-size hail north of Lebanon.

Event Hail
Magnitude 1.25 in.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Public
NCEI Data Source CSV
Begin Date 2012-07-01 09:40 EST-5
Begin Location 0N HONAKER
Begin Lat/Lon 37.02/-81.98
End Date 2012-07-01 09:40 EST-5
End Location 0N HONAKER
End Lat/Lon 37.02/-81.98
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage

Crop Damage
Episode Narrative **Scattered severe convection developed across the region in a weak to moderately unstable environment. An outflow boundary aided by a relatively strong west to northwesterly flow produced severe thunderstorms during the morning. A second episode of severe thunderstorms occurred during the evening as a strong thunderstorm complex moved southeast out of the Ohio Valley across the Southern Appalachians. The atmosphere supported both large hail and severe wind gusts.**
Event Narrative **Half dollar sized hail was reported at Honaker.**

Event **Thunderstorm Wind**
Magnitude **55 kts.**
State **VIRGINIA**
County/Area **RUSSELL**
WFO **MRX**
Report Source **State Official**
NCEI Data Source **CSV**
Begin Date **2012-07-01 09:42 EST-5**
Begin Location **0N HONAKER**
Begin Lat/Lon **37.02/-81.98**
End Date **2012-07-01 09:42 EST-5**
End Location **0N HONAKER**
End Lat/Lon **37.02/-81.98**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage
Crop Damage
Episode Narrative **Scattered severe convection developed across the region in a weak to moderately unstable environment. An outflow boundary aided by a relatively strong west to northwesterly flow produced severe thunderstorms during the morning. A second episode of severe thunderstorms occurred during the evening as a strong thunderstorm complex moved southeast out of the Ohio Valley across the Southern Appalachians. The atmosphere supported both large hail and severe wind gusts.**
Event Narrative **Numerous trees were reported down in Honaker.**

Event **Thunderstorm Wind**
Magnitude **60 kts.**
State **VIRGINIA**
County/Area **RUSSELL**
WFO **MRX**
Report Source **State Official**
NCEI Data Source **CSV**
Begin Date **2012-07-05 13:40 EST-5**
Begin Location **1WSW DAW**
Begin Lat/Lon **37.04/-81.89**

End Date 2012-07-05 13:40 EST-5
End Location 1WSW DAW
End Lat/Lon 37.04/-81.89
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Organized convection developed over the Southern Appalachian region in the presence of a very moist and unstable air mass. Relatively strong winds through a deep portion of the atmosphere helped to produce an extensive outflow boundary resulting in numerous downed trees and significant structural damage to homes and businesses. The powerful thunderstorm complex resulted in four fatalities and 9 injuries.
Event Narrative Several trees were reported down five miles east northeast of Honaker.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2012-10-28 03:00 EST-5
End Date 2012-10-31 08:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative With the aid of increasing moisture supplied by the remnants of Hurricane Sandy, combined with a strong upslope wind, heavy snow was reported during a 4 day period. The heaviest snow was recorded in the higher elevation where up to 30 inches was reported breaking records for total snowfall. The northern valley was blanketed with 1 to 4 inches of snow.
Event Narrative Law enforcement personnel reported 4 inches of snow fell in Lebanon.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Broadcast Media
NCEI Data Source CSV
Begin Date 2012-10-28 03:00 EST-5
End Date 2012-10-31 08:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K

Crop Damage 0.00K
Episode Narrative With the aid of increasing moisture supplied by the remnants of Hurricane Sandy, combined with a strong upslope wind, heavy snow was reported during a 4 day period. The heaviest snow was recorded in the higher elevation where up to 30 inches was reported breaking records for total snowfall. The northern valley was blanketed with 1 to 4 inches of snow.
Event Narrative Broadcast media personnel reported 9 inches of snow fell 3 miles northwest of Honaker at Big A Mountain.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2012-10-28 03:00 EST-5
End Date 2012-10-31 08:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative With the aid of increasing moisture supplied by the remnants of Hurricane Sandy, combined with a strong upslope wind, heavy snow was reported during a 4 day period. The heaviest snow was recorded in the higher elevation where up to 30 inches was reported breaking records for total snowfall. The northern valley was blanketed with 1 to 4 inches of snow.
Event Narrative Law enforcement personnel reported 12 inches of snow fell in Belfast 7 miles northeast of Lebanon.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2012-10-28 03:00 EST-5
End Date 2012-10-31 08:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative With the aid of increasing moisture supplied by the remnants of Hurricane Sandy, combined with a strong upslope wind, heavy snow was reported during a 4 day period. The heaviest snow was recorded in the higher elevation where up to 30 inches was reported breaking records for total snowfall. The

northern valley was blanketed with 1 to 4 inches of snow.
Event Narrative Law enforcement personnel reported 8 inches of snow fell in Honaker.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2012-10-28 03:00 EST-5
End Date 2012-10-31 08:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative With the aid of increasing moisture supplied by the remnants of Hurricane Sandy, combined with a strong upslope wind, heavy snow was reported during a 4 day period. The heaviest snow was recorded in the higher elevation where up to 30 inches was reported breaking records for total snowfall. The northern valley was blanketed with 1 to 4 inches of snow.
Event Narrative The dispatch station personnel reported 6 inches of snow fell at the dispatch center in the city of Lebanon.

Event High Wind
Magnitude 55 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-12-20 12:00 EST-5
End Date 2012-12-20 18:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 8.00K
Crop Damage 0.00K
Episode Narrative A cold front tracked across the region producing high non-thunderstorm wind across the area. The strongest wind occurred across the higher elevations where most of the wind damage was reported. Several trees were downed by the high wind.
Event Narrative Dispatch personnel reported several trees downed by high wind countywide. The Belfast and Honaker areas were hardest hit by the wind.

Event High Wind
Magnitude 52 kts.
State VIRGINIA
County/Area RUSSELL

WFO MRX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-12-26 05:00 EST-5
End Date 2012-12-26 11:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative A deep area of low pressure produced high non-thunderstorm wind over the area on the 26th. The highest wind were across the mountains where the damaging wind were reported. Several trees were downed by the high wind.
Event Narrative Dispatch personnel reported a few trees downed by high wind in Lebanon.

Event Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2013-01-16 08:00 EST-5
Begin Location 2NW LEBANON
Begin Lat/Lon 36.9205/-82.1056
End Date 2013-01-16 12:00 EST-5
End Location 2SW LEBANON
End Lat/Lon 36.8795/-82.1056
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage 0.00K
Episode Narrative Large moist synoptic event resulted in several inches of rain across the area.
Event Narrative Thirteen roads closed.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2013-01-17 13:45 EST-5
End Date 2013-01-17 17:45 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Very strong lifting of a moist air mass in the presence of an upper level low pressure

system resulted in a heavy wet snowfall event during the period from around noon est until early evening. Atmospheric dynamics were so intense at times, that lightning was generated; i.e. thundersnow. Much of the snow accumulated across the region from Central East Tennessee northeast through Southwest Virginia, generally north of Interstate 40 and east of Interstate 75. The upper level low moved east from Northern to Northeast Georgia generating 3 to 5 inches of snow across the Great Valley of Central East Tennessee northeast to the Tri-Cities area. Much greater snowfall amounts occurred across Southwest Virginia with enhancement in the higher terrain in this region as well as over the mountains of Northeast Tennessee. In these areas, snowfall amounts ranged from 6 inches to as much as a foot in the highest elevations across Southwest Virginia.
Event Narrative Ten inches of snow was reported at Lebanon.

Event High Wind
Magnitude 55 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2013-02-26 11:30 EST-5
End Date 2013-02-26 15:30 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 20.00K
Crop Damage 0.00K
Episode Narrative A deep area of low pressure moved into the region increasing the pressure gradient resulting in high non-thunderstorm wind over the area. The damaging wind was primarily across the higher elevations. Several trees were downed by the wind. In addition, a tree fell on a mobile home near Swords Creek Road in Honaker.
Event Narrative Dispatch personnel reported several trees downed by high wind throughout the county. In addition, a tree fell on a mobile home near Swords Creek in Honaker.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2013-03-05 23:00 EST-5
End Date 2013-03-06 17:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)

Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Moderate to heavy snow fell across the higher terrain in Southwest Virginia and Northeast Tennessee as well as the Smoky Mountains from Tuesday evening through Wednesday afternoon. The heavy snow event was the result of the passage of a deep upper level low pressure system. Much of these higher terrain areas picked up three to six inches of snow while the highest peaks in the Smoky Mountains recorded snow totals as high as ten to fifteen inches.
Event Narrative Around one inch of snow was reported in Lebanon.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source State Official
NCEI Data Source CSV
Begin Date 2013-05-19 15:58 EST-5
Begin Location 0N LEBANON
Begin Lat/Lon 36.9/-82.08
End Date 2013-05-19 15:58 EST-5
End Location 0N LEBANON
End Lat/Lon 36.9/-82.08
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Orographics and a slightly to moderately unstable atmosphere appeared to play a role in severe thunderstorms that formed across Southwest Virginia.
Event Narrative Several trees were reported down in Lebanon.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2013-06-13 12:35 EST-5
Begin Location 0N HONAKER
Begin Lat/Lon 37.02/-81.98
End Date 2013-06-13 12:45 EST-5
End Location 0N HONAKER
End Lat/Lon 37.02/-81.98
Deaths Direct/Indirect 0/0 (fatality details below, when available...)

Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative A front tracked through southwest Virginia producing thunderstorms during the afternoon hours. Several of the storms produced a damaging thunderstorm wind downing many trees over the area. Hail as large as quarters was also reported.
Event Narrative Law enforcement personnel reported several trees downed by thunderstorm wind in Honaker.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2013-06-13 12:38 EST-5
Begin Location 2E LEBANON
Begin Lat/Lon 36.9/-82.0438
End Date 2013-06-13 12:45 EST-5
End Location 2E LEBANON
End Lat/Lon 36.9/-82.0438
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 3.00K
Crop Damage 0.00K
Episode Narrative A front tracked through southwest Virginia producing thunderstorms during the afternoon hours. Several of the storms produced a damaging thunderstorm wind downing many trees over the area. Hail as large as quarters was also reported.
Event Narrative Law enforcement personnel reported a few trees downed by thunderstorm wind 2 miles east Lebanon.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source State Official
NCEI Data Source CSV
Begin Date 2013-07-18 16:00 EST-5
Begin Location 1E CASTLEWOOD
Begin Lat/Lon 36.88/-82.29
End Date 2013-07-18 16:00 EST-5
End Location 1E CASTLEWOOD
End Lat/Lon 36.88/-82.29
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0

Property Damage
Crop Damage
Episode Narrative Severe thunderstorms developed later in the afternoon with continuation into mid evening as the atmosphere became moderately to extremely unstable. Deep moisture was again present on the periphery of a weakening high pressure system over the Ohio Valley. The storms produced mainly straight line wind damage which in one case resulted in a fatality in Northeast Tennessee.
Event Narrative Two trees were reported down in Castlewood.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2014-02-12 21:55 EST-5
End Date 2014-02-13 08:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Heavy snow blanketed the area as strong upper level disturbance combined with deep moisture pulled from the Carolina coast for a 2-day period. The largest snowfall totals reached 11.0 inches over southwest Virginia.
Event Narrative A trained spotter reported 5 inches of snow fell in Lebanon.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2014-02-13 12:00 EST-5
End Date 2014-02-13 20:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Heavy snow blanketed the area as strong upper level disturbance combined with deep moisture pulled from the Carolina coast for a 2-day period. The largest snowfall totals reached 11.0 inches over southwest Virginia.
Event Narrative A trained spotter reported 9 inches of snow fell in Honaker.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2014-02-13 12:00 EST-5
End Date 2014-02-13 20:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Heavy snow blanketed the area as strong upper level disturbance combined with deep moisture pulled from the Carolina coast for a 2-day period. The largest snowfall totals reached 11.0 inches over southwest Virginia.
Event Narrative A trained spotter reported 8 inches of snow fell in Lebanon.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source State Official
NCEI Data Source CSV
Begin Date 2014-02-21 04:45 EST-5
Begin Location 2NE LEBANON
Begin Lat/Lon 36.9205/-82.0544
End Date 2014-02-21 05:00 EST-5
End Location 2NE LEBANON
End Lat/Lon 36.9205/-82.0544
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms tracked into southwest Virginia during the morning hours on the 21st. Numerous trees and powerlines were downed over the area.
Event Narrative Law enforcement personnel reported a few trees downed by thunderstorm wind across the eastern portions of Russel County.

Event Ice Storm
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2014-03-03 04:00 EST-5
End Date 2014-03-03 11:00 EST-5

Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative An arctic air mass slipped into the Southern Appalachian region followed by a strong upper level system that pushed east from the Lower Mississippi Valley. Sufficient moisture was available for lifting over the dense and cold surface air resulting in an ice storm that produced accretions ranging from around one tenth to as much as one half inch. The area affected extended from the Cumberland Plateau counties closer to the Kentucky border east northeast across Southwest Virginia.
Event Narrative Freezing rain accretion across Russell County ranged from one to three tenths of an inch.

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source State Official
NCEI Data Source CSV
Begin Date 2014-06-10 18:30 EST-5
Begin Location 0N HONAKER
Begin Lat/Lon 37.02/-81.98
End Date 2014-06-10 18:50 EST-5
End Location 0N HONAKER
End Lat/Lon 37.02/-81.98
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative A cold front tracked through southwest Virginia during the afternoon hours on the 10th. Many thunderstorms developed with several of storms downing trees and powerlines.
Event Narrative Law enforcement personnel reported multiple trees were downed by thunderstorm wind in the Honaker and Cleveland areas.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Public
NCEI Data Source CSV
Begin Date 2014-06-10 19:00 EST-5
Begin Location 0N HONAKER
Begin Lat/Lon 37.02/-81.98

End Date 2014-06-10 19:20 EST-5
End Location 0N HONAKER
End Lat/Lon 37.02/-81.98
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative A cold front tracked through southwest Virginia during the afternoon hours on the 10th. Many thunderstorms developed with several of storms downing trees and powerlines.
Event Narrative The public reported a few trees were downed by thunderstorm wind in Honaker.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Public
NCEI Data Source CSV
Begin Date 2014-06-11 12:00 EST-5
Begin Location 0E CASTLEWOOD
Begin Lat/Lon 36.88/-82.3
End Date 2014-06-11 12:10 EST-5
End Location 0E CASTLEWOOD
End Lat/Lon 36.88/-82.3
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A frontal boundary lingered across southwest Virginia on the 11th. Thunderstorms formed in the afternoon hours with few of the storms produced a damaging thunderstorm wind by downing some trees. Hail as large as a golfball was also reported.
Event Narrative The public reported thunderstorms produced quarter-size hail in Castlewood.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2014-06-11 12:00 EST-5
Begin Location 0E CASTLEWOOD
Begin Lat/Lon 36.88/-82.3
End Date 2014-06-11 12:05 EST-5
End Location 0E CASTLEWOOD
End Lat/Lon 36.88/-82.3
Deaths Direct/Indirect 0/0 (fatality details below,

when available...)
Injuries Direct/Indirect 0/0
Property Damage 2.00K
Crop Damage 0.00K
Episode Narrative A frontal boundary lingered across southwest Virginia on the 11th. Thunderstorms formed in the afternoon hours with few of the storms produced a damaging thunderstorm wind by downing some trees. Hail as large as a golfball was also reported.
Event Narrative Law enforcement personnel reported 1 tree downed by thunderstorm wind in Castlewood.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2014-06-11 13:05 EST-5
Begin Location 5SW LEBANON
Begin Lat/Lon 36.8488/-82.144
End Date 2014-06-11 13:25 EST-5
End Location 5SW LEBANON
End Lat/Lon 36.8488/-82.144
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 8.00K
Crop Damage 0.00K
Episode Narrative A frontal boundary lingered across southwest Virginia on the 11th. Thunderstorms formed in the afternoon hours with few of the storms produced a damaging thunderstorm wind by downing some trees. Hail as large as a golfball was also reported.
Event Narrative Emergency management personnel reported several trees downed by thunderstorm wind 5 miles southwest of Lebanon.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source State Official
NCEI Data Source CSV
Begin Date 2014-07-14 16:40 EST-5
Begin Location 0N LEBANON
Begin Lat/Lon 36.9/-82.08
End Date 2014-07-14 16:40 EST-5
End Location 0N LEBANON
End Lat/Lon 36.9/-82.08
Deaths Direct/Indirect 0/0 (fatality details below, when available...)

Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative A cold front moved toward the Southern Appalachian Region late in the evening with sufficient atmospheric shear but limited buoyancy due to the late hour. Therefore, intensity of convection ahead of the front was rather weak producing an isolated event.
Event Narrative Several trees were reported down countywide.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-02-16 16:50 EST-5
End Date 2015-02-16 22:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A winter storm tracked through area on the 16-17th with the atmosphere favorable for both heavy snow and thick ice. The highest peaks had up to 17 inches of snow while ice accumulations has up to inch.
Event Narrative Dispatch personnel reported 5 inches of snow fell in Lebanon.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Public
NCEI Data Source CSV
Begin Date 2015-02-16 17:30 EST-5
End Date 2015-02-16 23:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A winter storm tracked through area on the 16-17th with the atmosphere favorable for both heavy snow and thick ice. The highest peaks had up to 17 inches of snow while ice accumulations has up to inch.
Event Narrative The public reported 7 inches of snow fell in Honaker.

Event Heavy Snow
State VIRGINIA

County/Area RUSSELL
WFO MRX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2015-02-17 09:30 EST-5
End Date 2015-02-17 16:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A winter storm tracked through area on the 16-17th with the atmosphere favorable for both heavy snow and thick ice. The highest peaks had up to 17 inches of snow while ice accumulations has up to inch.
Event Narrative Emergency manager personnel reported 8 inches of snow fell in Lebanon.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2015-02-17 09:30 EST-5
End Date 2015-02-17 16:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A winter storm tracked through area on the 16-17th with the atmosphere favorable for both heavy snow and thick ice. The highest peaks had up to 17 inches of snow while ice accumulations has up to inch.
Event Narrative Emergency manager personnel reported 9 inches of snow fell in Castlewood.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2015-02-17 09:30 EST-5
End Date 2015-02-17 16:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A winter storm tracked through area on the 16-17th with the atmosphere favorable for

both heavy snow and thick ice. The highest peaks had up to 17 inches of snow while ice accumulations has up to inch.
**Event Narrative	Emergency manager personnel reported 15 inches of snow fell in 4 mile southwest of Lebanon. The higher elevations received 14 to 16 inches in the county.**

**Event	Heavy Snow**
**State	VIRGINIA**
**County/Area	RUSSELL**
**WFO	MRX**
**Report Source	911 Call Center**
**NCEI Data Source	CSV**
**Begin Date	2015-02-21 07:12 EST-5**
**End Date	2015-02-21 17:00 EST-5**
**Deaths Direct/Indirect	0/0 (fatality details below, when available...)**
**Injuries Direct/Indirect	0/0**
**Property Damage	0.00K**
**Crop Damage	0.00K**
**Episode Narrative	For the second time this month the atmosphere was favorable in the production heavy snow with up to 19 inches reported.**
**Event Narrative	Dispatch personnel reported up to 4 inches of snow in Lebanon.**

**Event	Heavy Snow**
**State	VIRGINIA**
**County/Area	RUSSELL**
**WFO	MRX**
**Report Source	Emergency Manager**
**NCEI Data Source	CSV**
**Begin Date	2015-02-21 10:50 EST-5**
**End Date	2015-02-21 19:00 EST-5**
**Deaths Direct/Indirect	0/0 (fatality details below, when available...)**
**Injuries Direct/Indirect	0/0**
**Property Damage	0.00K**
**Crop Damage	0.00K**
**Episode Narrative	For the second time this month the atmosphere was favorable in the production heavy snow with up to 19 inches reported.**
**Event Narrative	Emergency manager personnel reported 16 inches of snow fell in Lebanon.**

**Event	Heavy Snow**
**State	VIRGINIA**
**County/Area	RUSSELL**
**WFO	MRX**
**Report Source	Public**
**NCEI Data Source	CSV**
**Begin Date	2015-02-21 13:45 EST-5**
**End Date	2015-02-21 20:00 EST-5**
**Deaths Direct/Indirect	0/0 (fatality details below,**

when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative For the second time this month the atmosphere was favorable in the production heavy snow with up to 19 inches reported.
Event Narrative The public reported 5 inches of snow fell in Honaker.

Event Flood
-- Flood Cause Heavy Rain / Snow Melt
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2015-03-04 12:45 EST-5
Begin Location 1S LEBANON
Begin Lat/Lon 36.8855/-82.08
End Date 2015-03-06 08:00 EST-5
End Location 2SW CASTLEWOOD
End Lat/Lon 36.8595/-82.3256
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 2.00K
Crop Damage 0.00K
Episode Narrative An unusually deep snow pack across southwest Virginia underwent melting from warming temperatures and from liquid rain falling upon it. Flooding in low-lying areas, streams, and rivers resulted and became widespread.
Event Narrative Several roads closed across the county due to flooding.

Event Flood
-- Flood Cause Heavy Rain / Snow Melt
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2015-03-04 22:40 EST-5
Begin Location 1SE DANTE
Begin Lat/Lon 36.9598/-82.2872
End Date 2015-03-05 08:00 EST-5
End Location 2NW DANTE
End Lat/Lon 36.9905/-82.3256
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage 0.00K
Episode Narrative An unusually deep snow pack

across southwest Virginia underwent melting from warming temperatures and from liquid rain falling upon it. Flooding in low-lying areas, streams, and rivers resulted and became widespread.
Event Narrative Minor flooding reported in the Dante area. Mudslide reported in the Horton Ridge area.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source State Official
NCEI Data Source CSV
Begin Date 2015-06-08 16:55 EST-5
Begin Location 1NNW WEST RAVEN
Begin Lat/Lon 37.1/-81.89
End Date 2015-06-08 16:55 EST-5
End Location 1NNW WEST RAVEN
End Lat/Lon 37.1/-81.89
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Low level moisture increased across the region in the southerly flow ahead of a short wave trough building southeast through the Midwest states. In addition, an outflow boundary served as additional focus for convection which became severe in a moderately unstable environment.
Event Narrative Several trees were reported down in the northern end of the county. Also, a tree fell onto a home on Franks Hollow Road in the Swords Creek area.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Public
NCEI Data Source CSV
Begin Date 2015-07-13 17:10 EST-5
Begin Location 0N LEBANON
Begin Lat/Lon 36.9/-82.08
End Date 2015-07-13 17:10 EST-5
End Location 0N LEBANON
End Lat/Lon 36.9/-82.08
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative A bowing line of severe convection in association with an outflow boundary moved southeast

across Southwest Virginia and Northeast Tennessee during the late afternoon through early evening hours. Atmospheric shear was more than adequate along with moderate to high instability. Widespread wind damage occurred during this event.
**Event Narrative	Numerous trees were reported down across the county.**

**Event	High Wind**
**Magnitude	50 kts.**
**State	VIRGINIA**
**County/Area	RUSSELL**
**WFO	MRX**
**Report Source	Broadcast Media**
**NCEI Data Source	CSV**
**Begin Date	2015-11-18 16:10 EST-5**
**End Date	2015-11-18 16:10 EST-5**
**Deaths Direct/Indirect	0/0 (fatality details below, when available...)**
**Injuries Direct/Indirect	0/0**
Property Damage
Crop Damage
**Episode Narrative	The main low pressure system moved along a northeast path from the Central Plains through the Central Great Lakes with a lead frontal system moving across the Appalachians. A southeast 45 to 55 knot low level jet crossed the higher terrain generating mountain waves along the foothills.**
**Event Narrative	Strong wind destroyed a three bay garage along route 71 in Lebanon.**

**Event	High Wind**
**Magnitude	50 kts.**
**State	VIRGINIA**
**County/Area	RUSSELL**
**WFO	MRX**
**Report Source	Broadcast Media**
**NCEI Data Source	CSV**
**Begin Date	2015-11-18 22:38 EST-5**
**End Date	2015-11-18 22:38 EST-5**
**Deaths Direct/Indirect	0/0 (fatality details below, when available...)**
**Injuries Direct/Indirect	0/0**
Property Damage
Crop Damage
**Episode Narrative	The main low pressure system moved along a northeast path from the Central Plains through the Central Great Lakes with a lead frontal system moving across the Appalachians. A southeast 45 to 55 knot low level jet crossed the higher terrain generating mountain waves along the foothills.**
**Event Narrative	Tree damage due to strong wind gusts was reported in Belfast.**

**Event	High Wind**

Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Broadcast Media
NCEI Data Source CSV
Begin Date 2015-11-18 23:49 EST-5
End Date 2015-11-18 23:49 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative The main low pressure system moved along a northeast path from the Central Plains through the Central Great Lakes with a lead frontal system moving across the Appalachians. A southeast 45 to 55 knot low level jet crossed the higher terrain generating mountain waves along the foothills.
Event Narrative Power lines were reported down due to strong wind gusts on Hayters Gap Road in Rosedale.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-01-22 05:00 EST-5
End Date 2016-01-24 04:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A strengthening low pressure system moved northeast from the Lower Mississippi Valley across the Southern Appalachians with a modified Arctic air mass in place prior to the system's arrival. Temperatures were cold enough in this air mass that much of the precipitation that fell across southwest Virginia was in the form of snow. Winter storm warning criteria was easily met with around 8 to 12 inches of snow across Southwest Virginia. In some higher terrain areas, amounts topped out around 15 to 16 inches across the southwest corner of the state with about two feet in the High Knob region.
Event Narrative Snowfall totals of 6-7 inches across the lower elevations including Lebanon and Honaker. Higher elevations had close to 18 inches of snow at locations such as Hazel Mountain and Clinch Mountain.

Event Heavy Snow
State VIRGINIA

County/Area RUSSELL
WFO MRX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2016-02-08 15:00 EST-5
End Date 2016-02-09 11:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Sub-freezing air spilled south through the Eastern United States for a two day period of mainly orographic snowfall as several shorter wavelength systems dropped southeast out of the Northern Plains and Great Lakes. The snow accumulated to a depth of three to five inches on average however, some greater snowfall totals occurred primarily in the highest terrain across Southwest Virginia and in the Smoky Mountains.
Event Narrative A snowfall total of 5.6 inches was measured at the dispatch center.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Public
NCEI Data Source CSV
Begin Date 2016-02-08 15:00 EST-5
End Date 2016-02-09 14:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Sub-freezing air spilled south through the Eastern United States for a two day period of mainly orographic snowfall as several shorter wavelength systems dropped southeast out of the Northern Plains and Great Lakes. The snow accumulated to a depth of three to five inches on average however, some greater snowfall totals occurred primarily in the highest terrain across Southwest Virginia and in the Smoky Mountains.
Event Narrative Three inches of snow was reported at Honaker.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2016-02-08 15:00 EST-5
End Date 2016-02-09 15:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below,

when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Sub-freezing air spilled south through the Eastern United States for a two day period of mainly orographic snowfall as several shorter wavelength systems dropped southeast out of the Northern Plains and Great Lakes. The snow accumulated to a depth of three to five inches on average however, some greater snowfall totals occurred primarily in the highest terrain across Southwest Virginia and in the Smoky Mountains.
Event Narrative Six inches of snow was measured at Lebanon.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source State Official
NCEI Data Source CSV
Begin Date 2016-05-12 17:10 EST-5
Begin Location 1E CASTLEWOOD
Begin Lat/Lon 36.88/-82.29
End Date 2016-05-12 17:10 EST-5
End Location 1E CASTLEWOOD
End Lat/Lon 36.88/-82.29
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative A few showers and thunderstorms developed in the unstable air mass ahead of a cold front during the afternoon. The convection became severe producing damaging wind across Central East Tennessee as well as a small part of Southwest Virginia.
Event Narrative Several trees were reported down in the Castlewood area.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2016-05-12 17:50 EST-5
Begin Location 0N HONAKER
Begin Lat/Lon 37.02/-81.98
End Date 2016-05-12 17:50 EST-5
End Location 0N HONAKER
End Lat/Lon 37.02/-81.98
Deaths Direct/Indirect 0/0 (fatality details below,

when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative A few showers and thunderstorms developed in the unstable air mass ahead of a cold front during the afternoon. The convection became severe producing damaging wind across Central East Tennessee as well as a small part of Southwest Virginia.
Event Narrative A few trees were reported down across the eastern half of Russell county.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source State Official
NCEI Data Source CSV
Begin Date 2016-06-16 21:15 EST-5
Begin Location 0N HONAKER
Begin Lat/Lon 37.02/-81.98
End Date 2016-06-16 21:15 EST-5
End Location 0N HONAKER
End Lat/Lon 37.02/-81.98
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative A few severe thunderstorms developed in a weakly to moderately unstable environment in association with an upper level trough. The storms were aided by orographic lifting.
Event Narrative A few trees and power lines were reported down in Honaker.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Public
NCEI Data Source CSV
Begin Date 2016-06-21 17:35 EST-5
Begin Location 1SSW DYE
Begin Lat/Lon 37.05/-81.94
End Date 2016-06-21 17:35 EST-5
End Location 1SSW DYE
End Lat/Lon 37.05/-81.94
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage

Episode Narrative A few severe thunderstorms developed in a weak to moderately unstable environment in advance of an outflow boundary building southeast out of the Upper Ohio Valley. The storms were enhanced over the higher terrain on the Cumberland Plateau.
Event Narrative Several trees were reported down near the Swords Creek.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source State Official
NCEI Data Source CSV
Begin Date 2016-06-23 19:30 EST-5
Begin Location 1E PUTNAM
Begin Lat/Lon 37.02/-81.96
End Date 2016-06-23 19:30 EST-5
End Location 1E PUTNAM
End Lat/Lon 37.02/-81.96
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Severe thunderstorms formed along an outflow boundary during the early afternoon across the Ohio Valley and this boundary moved southeast across Southwest Virginia and Northeast Tennessee during the late afternoon into the evening hours. The storms moved into a weak to moderately unstable environment generating mostly wind damage.
Event Narrative One tree was reported down east of Honaker.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Broadcast Media
NCEI Data Source CSV
Begin Date 2017-01-06 21:00 EST-5
End Date 2017-01-07 09:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Deep and moist air was lifted over a chilly air mass in place across the Southeastern United States as a low pressure system moved northeast from the Central Gulf of Mexico through the Middle Atlantic Coast. Heavy snowfall occurred across the Southern Appalachian region northwest of the pressure system's

path.
Event Narrative A snow depth of 3.5 inches was measured fives at Castlewood.

Event Heavy Snow
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Broadcast Media
NCEI Data Source CSV
Begin Date 2017-01-06 21:00 EST-5
End Date 2017-01-07 09:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Deep and moist air was lifted over a chilly air mass in place across the Southeastern United States as a low pressure system moved northeast from the Central Gulf of Mexico through the Middle Atlantic Coast. Heavy snowfall occurred across the Southern Appalachian region northwest of the pressure system's path.
Event Narrative A snow depth of 3.5 inches was measured fives at Castlewood.

Event Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area RUSSELL
WFO MRX
Report Source Department of Highways
NCEI Data Source CSV
Begin Date 2017-04-23 10:00 EST-5
Begin Location 1W CASTLEWOOD
Begin Lat/Lon 36.88/-82.3181
End Date 2017-04-23 12:00 EST-5
End Location 3NNE CASTLEWOOD
End Lat/Lon 36.9201/-82.2792
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A 500 MB trough of low pressure moved into the central plains on the 20th and 21st, and was associated with a surface front moving southeastward from the Ohio Valley into eastern Kentucky and middle Tennessee. This placed the upper Tennessee Valley in a warm and humid air mass, which aided in the generation of heavy rainfall and some severe storms on those days. The 500 MB trough then deepened into a closed low, while low pressure formed along the surface front and tracked from southern Arkansas on the 22nd to northern

Georgia on the 23rd, by which time a surface trough extended from Chattanooga to southwestern Virginia. Upper level divergence on the northeast side of the closed low and these surface boundaries contributed to additional heavy rains on the 22nd and 23rd.
Event Narrative Numerous road closures in the Castlewood area.
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130 events were reported in **Tazewell County, Virginia** between **05/01/2011 and 04/30/2018 (High wind limited to speed greater than 0 knots)**.

Location			Date	Time		Type	Mag	Dth	Inj	PrD	CrD
Totals:								0	2	4.583M	0.00K
RICHLANDS			05/10/2011	18:10		Hail	1.00 in.	0	0	0.00K	0.00K
CEDAR BLUFF			05/10/2011	18:10		Hail	1.00 in.	0	0	0.00K	0.00K
CLAYPOOL HILL			05/10/2011	20:24		Lightning		0	0	15.00K	0.00K
FALLS MILLS			05/13/2011	17:29		Flash Flood		0	0	0.00K	0.00K
HOCKMAN			05/24/2011	08:56		Hail	0.75 in.	0	0	0.00K	0.00K
RICHLANDS			05/24/2011	09:35		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CEDAR BLUFF			05/24/2011	15:37		Hail	1.00 in.	0	0	0.00K	0.00K
BLUEFIELD			05/26/2011	19:20		Thunderstorm Wind	50 kts. EG	0	0	0.00K	0.00K
CEDAR BLUFF			06/09/2011	16:56		Hail	1.00 in.	0	0	0.00K	0.00K
MALDEN SPGS			06/09/2011	17:00		Hail	1.25 in.	0	0	0.00K	0.00K
MALDEN SPGS			06/09/2011	17:00		Thunderstorm Wind	50 kts. EG	0	0	2.50K	0.00K
POCAHONTAS			06/28/2011	13:48		Hail	1.75 in.	0	0	0.00K	0.00K
ADRIA			06/28/2011	14:24		Thunderstorm Wind	55 kts. EG	0	0	4.50K	0.00K
CEDAR BLUFF			07/22/2011	15:30		Flash Flood		0	0	0.00K	0.00K
RICHLANDS			08/14/2011	13:43		Hail	0.75 in.	0	0	0.00K	0.00K
BUSTHEAD			08/14/2011	14:00		Hail	1.00 in.	0	0	0.00K	0.00K
BUSTHEAD			08/14/2011	14:00		Hail	1.00 in.	0	0	0.00K	0.00K
TAZEWELL (ZONE)			02/19/2012	09:55		Winter Storm		0	0	0.00K	0.00K
BLUEFIELD			03/02/2012	11:53		Hail	0.75 in.	0	0	0.00K	0.00K
TAZEWELL (ZONE)			03/27/2012	04:00		Frost/freeze		0	0	0.00K	0.00K
RICHLANDS			04/26/2012	10:51		Flood		0	0	0.00K	0.00K
BLUEFIELD			04/26/2012	18:05		Hail	1.00 in.	0	0	0.00K	0.00K
MUD FORK			04/26/2012	18:45		Hail	1.00 in.	0	0	0.00K	0.00K
BLUEFIELD			05/22/2012	16:30		Flood		0	0	0.00K	0.00K
POCAHONTAS			06/29/2012	19:34		Thunderstorm Wind	65 kts. EG	0	0	400.00K	0.00K
BURKES GARDEN			06/30/2012	17:45		Hail	1.00 in.	0	0	0.00K	0.00K
BUSTHEAD			06/30/2012	18:04		Hail	1.25 in.	0	0	0.00K	0.00K
ADRIA			06/30/2012	18:40		Hail	2.00 in.	0	0	50.00K	0.00K
GRATTON			06/30/2012	19:07		Hail	1.75 in.	0	0	0.00K	0.00K
DORAN			07/01/2012	09:30		Hail	1.00 in.	0	0	0.00K	0.00K
DORAN			07/01/2012	09:32		Hail	1.75 in.	0	0	0.00K	0.00K

RICHLANDS			07/01/2012	09:40		Hail	1.00 in.	0	0	0.00K	0.00K
CLAYPOOL HILL			07/01/2012	09:40		Hail	1.75 in.	0	0	0.00K	0.00K
CLIFFIELD			07/01/2012	09:45		Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
PUCKETTS STORE			07/01/2012	09:45		Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
RICHLANDS			07/01/2012	22:00		Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
TAZEWELL			07/01/2012	22:05		Thunderstorm Wind	55 kts. EG	0	0	3.00K	0.00K
BURKES GARDEN			07/01/2012	22:25		Thunderstorm Wind	55 kts. EG	0	0	8.00K	0.00K
RICHLANDS			07/05/2012	13:24		Thunderstorm Wind	55 kts. EG	0	0	1.20K	0.00K
THOMPSON VLY			07/05/2012	13:26		Thunderstorm Wind	50 kts. EG	0	0	1.20K	0.00K
SEABOARD			07/24/2012	14:00		Heavy Rain		0	0	0.00K	0.00K
MALDEN SPGS			07/25/2012	00:57		Thunderstorm Wind	50 kts. EG	0	0	0.60K	0.00K
DORAN			07/31/2012	15:08		Flash Flood		0	0	0.00K	0.00K
TAZEWELL (ZONE)			09/18/2012	03:30		Strong Wind	39 kts. EG	0	0	1.00K	0.00K
FOURWAY			10/18/2012	16:05		Hail	0.75 in.	0	0	0.00K	0.00K
TAZEWELL (ZONE)			10/28/2012	21:15		Winter Storm		0	0	0.00K	0.00K
TAZEWELL (ZONE)			10/30/2012	06:00		High Wind	50 kts. EG	0	0	5.00K	0.00K
TAZEWELL (ZONE)			12/20/2012	07:30		High Wind	50 kts. EG	0	0	0.50K	0.00K
TAZEWELL (ZONE)			12/26/2012	08:45		High Wind	55 kts. EG	0	0	15.00K	0.00K
TAZEWELL (ZONE)			12/27/2012	00:16		High Wind	57 kts. MG	0	0	0.00K	0.00K
TAZEWELL (ZONE)			01/17/2013	12:35		Heavy Snow		0	0	0.00K	0.00K
TAZEWELL (ZONE)			02/26/2013	08:30		High Wind	50 kts. EG	0	0	7.00K	0.00K
RICHLANDS			05/19/2013	16:17		Flash Flood		0	0	0.00K	0.00K
PISGAH			05/22/2013	15:00		Flash Flood		0	0	0.00K	0.00K
RICHLANDS			07/12/2013	18:40		Hail	0.75 in.	0	0	0.00K	0.00K
NORTH TAZEWELL			07/18/2013	14:30		Hail	1.00 in.	0	0	0.00K	0.00K
RICHLANDS			08/12/2013	16:53		Thunderstorm Wind	52 kts. EG	0	0	15.00K	0.00K
FROG LEVEL			08/12/2013	17:56		Flash Flood		0	0	0.00K	0.00K
MOUTH OF LAUREL			08/12/2013	18:00		Flash Flood		0	0	0.00K	0.00K
RICHLANDS			08/21/2013	17:56		Thunderstorm Wind	50 kts. EG	0	0	0.20K	0.00K
TIPTOP			09/02/2013	19:52		Flash Flood		0	0	0.50K	0.00K
TAZEWELL (ZONE)			12/08/2013	10:00		Winter Weather		0	0	0.00K	0.00K
TAZEWELL (ZONE)			01/02/2014	17:00		Winter Storm		0	0	0.00K	0.00K
TAZEWELL (ZONE)			01/07/2014	00:00		Cold/wind Chill		0	0	0.00K	0.00K
TAZEWELL (ZONE)			01/25/2014	19:55		High Wind	50 kts. MG	0	0	0.00K	0.00K
TAZEWELL (ZONE)			02/12/2014	13:25		Heavy Snow		0	0	0.00K	0.00K
TAZEWELL (ZONE)			03/12/2014	13:05		High Wind	50 kts. EG	0	0	5.00K	0.00K
TAZEWELL (ZONE)			03/13/2014	00:00		Winter Weather		0	0	0.00K	0.00K
RICHLANDS			06/10/2014	18:36		Hail	0.88 in.	0	0	0.00K	0.00K
MAXWELL			06/10/2014	18:40		Thunderstorm Wind	50 kts. EG	0	0	0.20K	0.00K
CEDAR BLUFF			06/10/2014	18:40		Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
TAZEWELL (ZONE)			10/14/2014	21:45		High Wind	50 kts. EG	0	0	1.00K	0.00K
TAZEWELL (ZONE)			11/01/2014	00:00		Winter Weather		0	0	0.00K	0.00K
TAZEWELL (ZONE)			11/20/2014	00:00		High Wind	50 kts. EG	0	0	30.00K	0.00K

TAZEWELL (ZONE)			11/24/2014	12:30		Strong Wind	41 kts. MG	0	0	20.00K	0.00K
TAZEWELL (ZONE)			11/26/2014	04:00		Winter Weather		0	0	0.00K	0.00K
TAZEWELL (ZONE)			01/04/2015	07:45		High Wind	50 kts. EG	0	0	2.00K	0.00K
TAZEWELL (ZONE)			02/16/2015	09:00		Winter Storm		0	0	0.00K	0.00K
TAZEWELL (ZONE)			02/19/2015	05:00		Extreme Cold/wind Chill		0	0	0.00K	0.00K
TAZEWELL (ZONE)			02/21/2015	08:00		Winter Storm		0	0	0.00K	0.00K
TAZEWELL (ZONE)			02/21/2015	15:00		Avalanche		0	0	0.00K	0.00K
TAZEWELL (ZONE)			02/25/2015	23:00		Winter Weather		0	0	0.00K	0.00K
RED ASH			03/04/2015	08:00		Flood		0	0	10.00K	0.00K
HORSEPEN			05/16/2015	18:30		Flash Flood		0	0	0.00K	0.00K
YARDS			05/16/2015	19:00		Flash Flood		0	0	0.00K	0.00K
BAILEY			06/08/2015	17:49		Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
TIPTOP			06/21/2015	16:00		Hail	1.00 in.	0	0	0.00K	0.00K
POCAHONTAS			06/21/2015	16:10		Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
TAZEWELL (ZONE)			06/26/2015	22:57		Strong Wind	40 kts. EG	0	0	0.10K	0.00K
POCAHONTAS			07/05/2015	19:00		Flash Flood		0	0	3.500M	0.00K
YARDS			07/05/2015	19:38		Flash Flood		0	0	0.00K	0.00K
WITTENS MILLS			07/05/2015	20:00		Flash Flood		0	0	0.00K	0.00K
MUD FORK			07/05/2015	20:00		Flash Flood		0	0	200.00K	0.00K
PUCKETTS STORE			07/13/2015	17:00		Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
HORSEPEN			07/13/2015	17:08		Thunderstorm Wind	60 kts. EG	0	0	20.00K	0.00K
CEDAR BLUFF			07/13/2015	17:17		Hail	0.88 in.	0	0	0.00K	0.00K
TAZEWELL (ZONE)			11/18/2015	04:00		High Wind	50 kts. EG	0	0	10.00K	0.00K
TAZEWELL (ZONE)			01/05/2016	06:30		Winter Weather		0	2	0.00K	0.00K
TAZEWELL (ZONE)			01/22/2016	03:00		Winter Storm		0	0	0.00K	0.00K
TAZEWELL (ZONE)			02/08/2016	16:35		Winter Storm		0	0	0.00K	0.00K
TAZEWELL (ZONE)			02/14/2016	12:15		Winter Storm		0	0	0.00K	0.00K
GRATTON			03/14/2016	15:25		Hail	1.00 in.	0	0	0.00K	0.00K
TAZEWELL (ZONE)			04/02/2016	19:00		High Wind	50 kts. EG	0	0	10.00K	0.00K
YARDS			05/02/2016	13:52		Hail	0.75 in.	0	0	0.00K	0.00K
YARDS			05/02/2016	14:00		Hail	1.50 in.	0	0	0.00K	0.00K
RICHLANDS			06/04/2016	17:20		Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
RICHLANDS ARPT			06/04/2016	17:33		Thunderstorm Wind	50 kts. EG	0	0	3.00K	0.00K
RICHLANDS			06/04/2016	17:36		Thunderstorm Wind	50 kts. EG	0	0	150.00K	0.00K
DORAN			06/16/2016	20:15		Thunderstorm Wind	50 kts. EG	0	0	1.00K	0.00K
CEDAR BLUFF			06/16/2016	20:25		Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
RICHLANDS ARPT			06/21/2016	17:18		Thunderstorm Wind	55 kts. EG	0	0	2.50K	0.00K
BLUEFIELD			06/23/2016	18:52		Thunderstorm Wind	55 kts. EG	0	0	10.00K	0.00K
BLUEFIELD			06/23/2016	19:15		Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
YARDS			07/08/2016	14:52		Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
BURKES GARDEN			08/14/2016	17:46		Thunderstorm Wind	50 kts. EG	0	0	0.60K	0.00K
SAYERSVILLE			03/01/2017	11:00		Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
RAVEN			04/23/2017	16:30		Flood		0	0	5.00K	0.00K

NORTH TAZEWELL			05/24/2017	14:00		Thunderstorm Wind	50 kts. EG	0	0	4.00K	0.00K
THOMPSON VLY			05/27/2017	17:30		Hail	1.00 in.	0	0	0.00K	0.00K
CLAYPOOL HILL			05/27/2017	17:58		Hail	0.88 in.	0	0	0.00K	0.00K
BLUEFIELD			06/16/2017	17:50		Flood		0	0	0.00K	0.00K
TAZEWELL (ZONE)			10/09/2017	03:00		Strong Wind	40 kts. EG	0	0	1.00K	0.00K
TAZEWELL (ZONE)			01/05/2018	02:14		Extreme Cold/wind Chill		0	0	0.00K	0.00K
RICHLANDS			02/11/2018	03:00		Flood		0	0	0.00K	0.00K
TAZEWELL (ZONE)			03/01/2018	22:10		High Wind	52 kts. EG	0	0	12.50K	0.00K
TAZEWELL (ZONE)			03/24/2018	05:00		Winter Storm		0	0	0.00K	0.00K
PLEASANT HILL			04/04/2018	01:38		Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
RAVEN			04/04/2018	01:45		Thunderstorm Wind	50 kts. EG	0	0	0.50K	0.00K
CEDAR BLUFF			04/16/2018	02:00		Flood		0	0	0.00K	0.00K
TAZEWELL (ZONE)			04/23/2018	04:35		Strong Wind	25 kts. MG	0	0	20.00K	0.00K
Totals:								0	2	4.583M	0.00K

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2011-05-10 18:10 EST-5
Begin Location 1E RICHLANDS
Begin Lat/Lon 37.1/-81.8
End Date 2011-05-10 18:10 EST-5
End Location 1E RICHLANDS
End Lat/Lon 37.1/-81.8
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Strong to severe storms developed along a warm front that stretched from Indiana southeast into the Carolinas. An upper level disturbance helped to trigger the storms in the mid-afternoon over southwest Virginia and then developed eastward mainly across the Mountain Empire and the New River Valley. The storms also produced heavy rainfall with several stations in Montgomery County reporting over an inch of rain in a short period, including Christiansburg 1.8S CoCoRaHs 1.61���, Christiansburg 1S COOP 1.56���, Falling Branch IFLOWS 1.46��� and Brush Mtn. IFLOWS 1.26���.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2011-05-10 18:10 EST-5
Begin Location 1NE CEDAR BLUFF
Begin Lat/Lon 37.09/-81.76
End Date 2011-05-10 18:10 EST-5
End Location 1NE CEDAR BLUFF
End Lat/Lon 37.09/-81.76

Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Strong to severe storms developed along a warm front that stretched from Indiana southeast into the Carolinas. An upper level disturbance helped to trigger the storms in the mid-afternoon over southwest Virginia and then developed eastward mainly across the Mountain Empire and the New River Valley. The storms also produced heavy rainfall with several stations in Montgomery County reporting over an inch of rain in a short period, including Christiansburg 1.8S CoCoRaHs 1.61���, Christiansburg 1S COOP 1.56���, Falling Branch IFLOWS 1.46��� and Brush Mtn. IFLOWS 1.26���.

Event Lightning
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source State Official
NCEI Data Source CSV
Begin Date 2011-05-10 20:24 EST-5
Begin Location 1S CLAYPOOL HILL
Begin Lat/Lon 37.05/-81.77
End Date 2011-05-10 20:24 EST-5
End Location 1S CLAYPOOL HILL
End Lat/Lon 37.05/-81.77
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 15.00K
Crop Damage 0.00K
Episode Narrative Strong to severe storms developed along a warm front that stretched from Indiana southeast into the Carolinas. An upper level disturbance helped to trigger the storms in the mid-afternoon over southwest Virginia and then developed eastward mainly across the Mountain Empire and the New River Valley. The storms also produced heavy rainfall with several stations in Montgomery County reporting over an inch of rain in a short period, including Christiansburg 1.8S CoCoRaHs 1.61���, Christiansburg 1S COOP 1.56���, Falling Branch IFLOWS 1.46��� and Brush Mtn. IFLOWS 1.26���.
Event Narrative Lightning caused a fire at a home with significant damage reported.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2011-05-13 17:29 EST-5
Begin Location 1WSW FALLS MILLS
End Date 2011-05-13 18:30 EST-5
End Location 1W FALLS MILLS
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative An upper level storm system approaching from the west helped to trigger numerous showers and thunderstorms mainly over the Appalachians and Blue Ridge Mountains. The storms developed along a slow-moving frontal boundary, and with abundant moisture in place,some of the storms produced heavy rainfall with flash flooding in several counties along with hail and strong winds.
Event Narrative Rainfall of 1 to 2 inches in less than two hours caused flooding on Mud Fork Road in the northeast part of the county.

Event Hail
Magnitude 0.75 in.
State VIRGINIA
County/Area TAZEWELL

WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2011-05-24 08:56 EST-5
Begin Location 1SW HOCKMAN
Begin Lat/Lon 37.24/-81.33
End Date 2011-05-24 08:56 EST-5
End Location 1SW HOCKMAN
End Lat/Lon 37.24/-81.33
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Two distinct upper level storm systems passed through the area, one in the late morning, the second during the late afternoon and early evening. Each brought a round of active severe weather to the region. Enough time passed after the exit of the first for afternoon heating to play a factor just prior to the arrival of the second. The earlier storms were primarily hail, while the second round consisted of strong damaging winds. Precipitation was also quite heavy with radar estimated rainfall of 1 to 3 inches, although no flooding was reported.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2011-05-24 09:35 EST-5
Begin Location 1E RICHLANDS
Begin Lat/Lon 37.1/-81.8
End Date 2011-05-24 09:35 EST-5
End Location 1E RICHLANDS
End Lat/Lon 37.1/-81.8
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Two distinct upper level storm systems passed through the area, one in the late morning, the second during the late afternoon and early evening. Each brought a round of active severe weather to the region. Enough time passed after the exit of the first for afternoon heating to play a factor just prior to the arrival of the second. The earlier storms were primarily hail, while the second round consisted of strong damaging winds. Precipitation was also quite heavy with radar estimated rainfall of 1 to 3 inches, although no flooding was reported.
Event Narrative Trees were reported down in Richlands.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2011-05-24 15:37 EST-5
Begin Location 1NW CEDAR BLUFF
Begin Lat/Lon 37.0923/-81.7836
End Date 2011-05-24 15:37 EST-5
End Location 1NW CEDAR BLUFF
End Lat/Lon 37.0923/-81.7836
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Two distinct upper level storm systems passed through the area, one in the late morning, the

second during the late afternoon and early evening. Each brought a round of active severe weather to the region. Enough time passed after the exit of the first for afternoon heating to play a factor just prior to the arrival of the second. The earlier storms were primarily hail, while the second round consisted of strong damaging winds. Precipitation was also quite heavy with radar estimated rainfall of 1 to 3 inches, although no flooding was reported.
Event Narrative Hail reported at Pizza Hut on Front Street in Richlands.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2011-05-26 19:20 EST-5
Begin Location 1S BLUEFIELD
Begin Lat/Lon 37.24/-81.28
End Date 2011-05-26 19:20 EST-5
End Location 1S BLUEFIELD
End Lat/Lon 37.24/-81.28
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative The atmosphere quickly became very unstable on the afternoon of May 26th, which resulted in the development of severe thunderstorms, mainly in the mountains and foothills. These storms were primarily large hail producers. Also, A derecho-like feature crossed Franklin and Henry counties causing some significant damage. In addition, rainfall of 1 to 3 inches fell in a swath from Grayson County northeast all the way to Alleghany County causing isolated flash flooding.
Event Narrative A tree was blow down near Hillcrest Lane.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2011-06-09 16:56 EST-5
Begin Location 1NE CEDAR BLUFF
Begin Lat/Lon 37.09/-81.76
End Date 2011-06-09 16:56 EST-5
End Location 1NE CEDAR BLUFF
End Lat/Lon 37.09/-81.76
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Despite being under the influence by an area of high pressure, enough ridge top convergence of winds took place to help facilitate the development of isolated to scattered thunderstorms. A number of these storms reached severe levels with large hail and damaging winds.

Event Hail
Magnitude 1.25 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Post Office
NCEI Data Source CSV
Begin Date 2011-06-09 17:00 EST-5
Begin Location 2WSW MALDEN SPGS
Begin Lat/Lon 37.02/-81.73

End Date 2011-06-09 17:00 EST-5
End Location 2WSW MALDEN SPGS
End Lat/Lon 37.02/-81.73
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Despite being under the influence by an area of high pressure, enough ridge top convergence of winds took place to help facilitate the development of isolated to scattered thunderstorms. A number of these storms reached severe levels with large hail and damaging winds.
Event Narrative The hail occurred at the Ponding Mill Post Office.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Post Office
NCEI Data Source CSV
Begin Date 2011-06-09 17:00 EST-5
Begin Location 2WSW MALDEN SPGS
Begin Lat/Lon 37.02/-81.73
End Date 2011-06-09 17:00 EST-5
End Location 2WSW MALDEN SPGS
End Lat/Lon 37.02/-81.73
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 2.50K
Crop Damage
Episode Narrative Despite being under the influence by an area of high pressure, enough ridge top convergence of winds took place to help facilitate the development of isolated to scattered thunderstorms. A number of these storms reached severe levels with large hail and damaging winds.
Event Narrative Numerous large tree limbs were blown down at the Ponding Mill Post Office. Damage values are estimated.

Event Hail
Magnitude 1.75 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2011-06-28 13:48 EST-5
Begin Location 1WNW POCAHONTAS
Begin Lat/Lon 37.31/-81.37
End Date 2011-06-28 13:48 EST-5
End Location 1WNW POCAHONTAS
End Lat/Lon 37.31/-81.37
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A cold front swept through the region on the 28th. Multiple clusters of storms accompanied the front as it progressed. Some of these storms increased to severe levels and produced large hail and damaging winds.
Event Narrative

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK

Report Source State Official
NCEI Data Source CSV
Begin Date 2011-06-28 14:24 EST-5
Begin Location 1SE ADRIA
Begin Lat/Lon 37.16/-81.54
End Date 2011-06-28 14:24 EST-5
End Location 1SE ADRIA
End Lat/Lon 37.16/-81.54
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 4.50K
Crop Damage 0.00K
Episode Narrative A cold front swept through the region on the 28th. Multiple clusters of storms accompanied the front as it progressed. Some of these storms increased to severe levels and produced large hail and damaging winds.
Event Narrative Thunderstorm winds blew trees down on Adria Road. Damage values are estimated.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source State Official
NCEI Data Source CSV
Begin Date 2011-07-22 15:30 EST-5
Begin Location 1NE CEDAR BLUFF
End Date 2011-07-22 16:30 EST-5
End Location 1N CEDAR BLUFF
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A weak upper level storm system moved across the area during the afternoon, and combined with daytime heating, ignited thunderstorms across northwest North Carolina and up into Virginia, in the vicinity of the Blue Ridge. Enough instability existed for some of these storms to become severe. Enough moisture was present, and storm motion was slow enough, to also bring very heavy rain from these storms.
Event Narrative Heavy rains of between 2 and 4 inches in a few hours caused Cedar Valley Drive to be closed due to flooding.

Event Hail
Magnitude 0.75 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2011-08-14 13:43 EST-5
Begin Location 1E RICHLANDS
Begin Lat/Lon 37.1/-81.8
End Date 2011-08-14 13:43 EST-5
End Location 1E RICHLANDS
End Lat/Lon 37.1/-81.8
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms developed along a cold front and along a trough of low pressure east of the mountains in the afternoon. These storms produced some large hail, damaging winds and heavy rains.
Event Narrative

Event Hail
Magnitude 1.00 in.

State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2011-08-14 14:00 EST-5
Begin Location 1SW BUSTHEAD
Begin Lat/Lon 37.09/-81.73
End Date 2011-08-14 14:02 EST-5
End Location 1SW BUSTHEAD
End Lat/Lon 37.09/-81.73
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms developed along a cold front and along a trough of low pressure east of the mountains in the afternoon. These storms produced some large hail, damaging winds and heavy rains.
Event Narrative

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2011-08-14 14:00 EST-5
Begin Location 1SW BUSTHEAD
Begin Lat/Lon 37.09/-81.73
End Date 2011-08-14 14:00 EST-5
End Location 1SW BUSTHEAD
End Lat/Lon 37.09/-81.73
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Thunderstorms developed along a cold front and along a trough of low pressure east of the mountains in the afternoon. These storms produced some large hail, damaging winds and heavy rains.
Event Narrative Quarter hail fell near Richlands.

Event Winter Storm
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2012-02-19 09:55 EST-5
End Date 2012-02-20 00:15 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative The first significant, and overdue, winter storm of the 2011-2012 winter season developed over the central Appalachian region on Sunday, February 19, 2012. Temperatures had been unseasonably warm in the days leading up to the event, resulting in warm ground conditions. It took a timely combination of colder air filtering back into the region from the north throughout the day Sunday, and then heavier bands of precipitation moving across the region late enough in the afternoon and into the evening, to get snow to begin sticking in earnest. At the conclusion, a generous swath of five to eight inches of snow fell across most of the forecast area in Virginia, with some localized nine inch amounts. Areas of southside Virginia the NC border received less snow, more on the order of three to four inches.
Event Narrative A total of 5.5 inches of snow fell in Richlands.

Event **Hail**
Magnitude **0.75 in.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Public**
NCEI Data Source **CSV**
Begin Date **2012-03-02 11:53 EST-5**
Begin Location **1SSW BLUEFIELD**
Begin Lat/Lon **37.23/-81.29**
End Date **2012-03-02 11:53 EST-5**
End Location **1SSW BLUEFIELD**
End Lat/Lon **37.23/-81.29**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage **0.00K**
Episode Narrative **Storms developed ahead of a warm front over the Tennessee Valley with a some cells producing copious amounts of dime to penny-size hail.**
Event Narrative **Hail reached dime to penny size and covered the ground. Plows were required to clear the roads in Bluefield.**

Event **Frost/Freeze**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **COOP Observer**
NCEI Data Source **CSV**
Begin Date **2012-03-27 04:00 EST-5**
End Date **2012-03-27 07:00 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage
Episode Narrative **Weeks of abnormally warm March temperatures caused an early start to the growing season which was followed by a sharp frost/freeze on the morning of March 27th as a ridge of cool high pressure settled across the region. Some crop damage was reported, mainly to orchards and vineyards.**
Event Narrative **Minimum temperatures ranged from 26 to 32 degrees across much of the county.**

Event **Flood**
-- Flood Cause **Heavy Rain**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **County Official**
NCEI Data Source **CSV**
Begin Date **2012-04-26 10:51 EST-5**
Begin Location **1SSE RICHLANDS**
Begin Lat/Lon **37.0923/-81.816**
End Date **2012-04-26 15:51 EST-5**
End Location **1SE RICHLANDS**
End Lat/Lon **37.0933/-81.814**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage **0.00K**
Episode Narrative **What began as an unseasonably cold, even snowy week for late April, ended with very heavy rain, especially across southeast West Virginia and southwest Virginia. The front that brought the very cold weather to the region early in the week was returning north of a warm front on the 26th. This, combined with a strong upper-level disturbance tracking across the Ohio Valley and an influx of Gulf moisture, set the stage for the development of**

showers and thunderstorms . Rainfall amounts across much of southeast West Virginia and southwest Virginia were in the 1.0 to 2.0 inch range for the 24-hour period from midnight Thursday April 26th to midnight Friday April 27th. However, the most significant rainfall fell across areas of southwest Virginia, west of I-77, and in southeast West Virginia. In these areas, several locations received rainfall of 2.0 to 3.0 inches in the 24-hour period ending at midnight June 27th, with parts of Bland county receiving in excess of 5.0 inches of rain.
During the afternoon and evening, scattered showers and thunderstorms redeveloped across southeast West Virginia and southwest Virginia in an increasingly warm, humid air mass. Some of these became severe producing quarter to ping-pong ball-sized hail.
Event Narrative The Tazewell County 911 Center reported that Barrett Street in downtown Richlands was completely flooded. Rainfall of 3 to 5 inches was reported in the area during the 24-hr period from midnight on the 26th to midnight on the 27th, the heaviest of which fell during the early to mid-morning hours of the 26th. No road or structural damage was reported as a result of the flooding.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2012-04-26 18:05 EST-5
Begin Location 5NW BLUEFIELD
Begin Lat/Lon 37.3012/-81.3443
End Date 2012-04-26 18:05 EST-5
End Location 5NW BLUEFIELD
End Lat/Lon 37.3012/-81.3443
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative What began as an unseasonably cold, even snowy week for late April, ended with very heavy rain, especially across southeast West Virginia and southwest Virginia. The front that brought the very cold weather to the region early in the week was returning north of a warm front on the 26th. This, combined with a strong upper-level disturbance tracking across the Ohio Valley and an influx of Gulf moisture, set the stage for the development of showers and thunderstorms . Rainfall amounts across much of southeast West Virginia and southwest Virginia were in the 1.0 to 2.0 inch range for the 24-hour period from midnight Thursday April 26th to midnight Friday April 27th. However, the most significant rainfall fell across areas of southwest Virginia, west of I-77, and in southeast West Virginia. In these areas, several locations received rainfall of 2.0 to 3.0 inches in the 24-hour period ending at midnight June 27th, with parts of Bland county receiving in excess of 5.0 inches of rain.
During the afternoon and evening, scattered showers and thunderstorms redeveloped across southeast West Virginia and southwest Virginia in an increasingly warm, humid air mass. Some of these became severe producing quarter to ping-pong ball-sized hail.
Event Narrative A trained storm spotter observed penny to quarter-sized hail approximately five miles northwest of Bluefield, Virginia.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source County Official
NCEI Data Source CSV
Begin Date 2012-04-26 18:45 EST-5
Begin Location 2NNE MUD FORK
Begin Lat/Lon 37.2473/-81.4528
End Date 2012-04-26 18:45 EST-5
End Location 2NNE MUD FORK
End Lat/Lon 37.2473/-81.4528
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K

Crop Damage 0.00K
Episode Narrative What began as an unseasonably cold, even snowy week for late April, ended with very heavy rain, especially across southeast West Virginia and southwest Virginia. The front that brought the very cold weather to the region early in the week was returning north of a warm front on the 26th. This, combined with a strong upper-level disturbance tracking across the Ohio Valley and an influx of Gulf moisture, set the stage for the development of showers and thunderstorms . Rainfall amounts across much of southeast West Virginia and southwest Virginia were in the 1.0 to 2.0 inch range for the 24-hour period from midnight Thursday April 26th to midnight Friday April 27th. However, the most significant rainfall fell across areas of southwest Virginia, west of I-77, and in southeast West Virginia. In these areas, several locations received rainfall of 2.0 to 3.0 inches in the 24-hour period ending at midnight June 27th, with parts of Bland county receiving in excess of 5.0 inches of rain.
During the afternoon and evening, scattered showers and thunderstorms redeveloped across southeast West Virginia and southwest Virginia in an increasingly warm, humid air mass. Some of these became severe producing quarter to ping-pong ball-sized hail.
Event Narrative The Tazewell County 911 Center relayed a report of quarter-sized hail from the Abbs Valley area near the West Virginia state line.

Event Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2012-05-22 16:30 EST-5
Begin Location 1WSW BLUEFIELD
Begin Lat/Lon 37.245/-81.2992
End Date 2012-05-22 18:30 EST-5
End Location 1WNW BLUEFIELD
End Lat/Lon 37.2548/-81.2969
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Scattered showers and thunderstorms developed across portions of central and southwest Virginia and southeast West Virginia due to weak shortwave troughs passing over the area ahead of an approaching cold front. Strong daytime heating across the piedmont area of Virginia, with highs reaching into the upper 80s and lower 90s, aided in destabilizing the atmosphere. Weak upper level winds kept these storms more pulse-variety in nature.
Event Narrative Multiple roads across the city of Bluefield were closed due to flooding.

Event Thunderstorm Wind
Magnitude 65 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2012-06-29 19:34 EST-5
Begin Location 0N POCAHONTAS
Begin Lat/Lon 37.3/-81.35
End Date 2012-06-29 19:44 EST-5
End Location 0N MC CALL PLACE
End Lat/Lon 37.18/-81.6
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 400.00K
Crop Damage
Episode Narrative A derecho of historic proportion rolled through the region and caused widespread, significant damage. Numerous power outages occurred. Some customers were without power for 12 days which coincided with a prolonged period of excessive heat. The derecho had its origin around Chicago, Illinois around 1:00 pm EST. By 7:00 pm EST the derecho had reached southeast West Virginia. Only two hours later, it was pushing through Southside

Virginia. By midnight EST it had reached the Atlantic coast.
Event Narrative Thunderstorm winds blew hundreds of trees down across the county. A combination of the winds and the falling trees brought down many power lines. Damage values are estimated.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2012-06-30 17:45 EST-5
Begin Location 0N BURKES GARDEN
Begin Lat/Lon 37.1/-81.35
End Date 2012-06-30 17:45 EST-5
End Location 0N BURKES GARDEN
End Lat/Lon 37.1/-81.35
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative A passing upper level disturbance interacted with a very unstable atmosphere near the surface to generate scattered large hail producing thunderstorms. Some of these were accompanied by damaging winds.
Event Narrative

Event Hail
Magnitude 1.25 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2012-06-30 18:04 EST-5
Begin Location 1E BUSTHEAD
Begin Lat/Lon 37.1/-81.71
End Date 2012-06-30 18:04 EST-5
End Location 1E BUSTHEAD
End Lat/Lon 37.1/-81.71
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative A passing upper level disturbance interacted with a very unstable atmosphere near the surface to generate scattered large hail producing thunderstorms. Some of these were accompanied by damaging winds.
Event Narrative Hail ranged from quarter to ping pong ball size along Indian Creek Rd.

Event Hail
Magnitude 2.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2012-06-30 18:40 EST-5
Begin Location 1SSW ADRIA
Begin Lat/Lon 37.15/-81.56
End Date 2012-06-30 19:00 EST-5
End Location 1S FOURWAY
End Lat/Lon 37.12/-81.5

Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **50.00K**
Crop Damage
Episode Narrative **A passing upper level disturbance interacted with a very unstable atmosphere near the surface to generate scattered large hail producing thunderstorms. Some of these were accompanied by damaging winds.**
Event Narrative Hail ranged from quarter size to hens egg size for a duration of twenty minutes from three miles northwest of Tazewell to one mile east-northeast of Tazewell. The hail caused damage to vehicles. Damage values are estimated.

Event **Hail**
Magnitude **1.75 in.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Public**
NCEI Data Source **CSV**
Begin Date **2012-06-30 19:07 EST-5**
Begin Location **1NE GRATTON**
Begin Lat/Lon **37.14/-81.41**
End Date **2012-06-30 19:07 EST-5**
End Location **1NE GRATTON**
End Lat/Lon **37.14/-81.41**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage **0.00K**
Episode Narrative **A passing upper level disturbance interacted with a very unstable atmosphere near the surface to generate scattered large hail producing thunderstorms. Some of these were accompanied by damaging winds.**
Event Narrative

Event **Hail**
Magnitude **1.00 in.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Public**
NCEI Data Source **CSV**
Begin Date **2012-07-01 09:30 EST-5**
Begin Location **1SW DORAN**
Begin Lat/Lon **37.09/-81.86**
End Date **2012-07-01 09:30 EST-5**
End Location **1SW DORAN**
End Lat/Lon **37.09/-81.86**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage **0.00K**
Episode Narrative **A broad ridge over the central U.S. set the stage for scattered to numerous severe storms that developed in the early morning and persisted much of the day and into the night. The storms were triggered by the remains of a mesoscale convective system (MCS) that dropped southeast across the southern Appalachians in the morning hours while strong surface heating created a very unstable air mass as the day progressed. Strong wind shear, steep lapse rates and instability that was approaching 3000 J/kg by mid-morning contributed to the intensity of the storms. The Mountain Empire, New River Valley and Southside Virginia saw most of the activity which featured mainly severe, damaging high winds but also some hail.**
Event Narrative

Event **Hail**
Magnitude **1.75 in.**

State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2012-07-01 09:32 EST-5
Begin Location 1SE DORAN
Begin Lat/Lon 37.093/-81.844
End Date 2012-07-01 09:40 EST-5
End Location 1NW CEDAR BLUFF
End Lat/Lon 37.0903/-81.7815
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A broad ridge over the central U.S. set the stage for scattered to numerous severe storms that developed in the early morning and persisted much of the day and into the night. The storms were triggered by the remains of a mesoscale convective system (MCS) that dropped southeast across the southern Appalachians in the morning hours while strong surface heating created a very unstable air mass as the day progressed. Strong wind shear, steep lapse rates and instability that was approaching 3000 J/kg by mid-morning contributed to the intensity of the storms. The Mountain Empire, New River Valley and Southside Virginia saw most of the activity which featured mainly severe, damaging high winds but also some hail.
Event Narrative Hail was reported at several locations around Richlands during about a 8-minute period and ranged in size from 1 inch up to 1.75 inches in diameter.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2012-07-01 09:40 EST-5
Begin Location 5SSE RICHLANDS
Begin Lat/Lon 37.0331/-81.7853
End Date 2012-07-01 09:40 EST-5
End Location 5SSE RICHLANDS
End Lat/Lon 37.0331/-81.7853
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A broad ridge over the central U.S. set the stage for scattered to numerous severe storms that developed in the early morning and persisted much of the day and into the night. The storms were triggered by the remains of a mesoscale convective system (MCS) that dropped southeast across the southern Appalachians in the morning hours while strong surface heating created a very unstable air mass as the day progressed. Strong wind shear, steep lapse rates and instability that was approaching 3000 J/kg by mid-morning contributed to the intensity of the storms. The Mountain Empire, New River Valley and Southside Virginia saw most of the activity which featured mainly severe, damaging high winds but also some hail.
Event Narrative Quarter size hail fell 5 miles south-southeast of Richlands.

Event Hail
Magnitude 1.75 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2012-07-01 09:40 EST-5
Begin Location 1E CLAYPOOL HILL
Begin Lat/Lon 37.07/-81.76

End Date 2012-07-01 09:40 EST-5
End Location 1E CLAYPOOL HILL
End Lat/Lon 37.07/-81.76
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A broad ridge over the central U.S. set the stage for scattered to numerous severe storms that developed in the early morning and persisted much of the day and into the night. The storms were triggered by the remains of a mesoscale convective system (MCS) that dropped southeast across the southern Appalachians in the morning hours while strong surface heating created a very unstable air mass as the day progressed. Strong wind shear, steep lapse rates and instability that was approaching 3000 J/kg by mid-morning contributed to the intensity of the storms. The Mountain Empire, New River Valley and Southside Virginia saw most of the activity which featured mainly severe, damaging high winds but also some hail.
Event Narrative

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2012-07-01 09:45 EST-5
Begin Location 3NE CLIFFIELD
Begin Lat/Lon 37.1307/-81.6315
End Date 2012-07-01 09:45 EST-5
End Location 3NE CLIFFIELD
End Lat/Lon 37.1307/-81.6315
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 3.00K
Crop Damage 0.00K
Episode Narrative A broad ridge over the central U.S. set the stage for scattered to numerous severe storms that developed in the early morning and persisted much of the day and into the night. The storms were triggered by the remains of a mesoscale convective system (MCS) that dropped southeast across the southern Appalachians in the morning hours while strong surface heating created a very unstable air mass as the day progressed. Strong wind shear, steep lapse rates and instability that was approaching 3000 J/kg by mid-morning contributed to the intensity of the storms. The Mountain Empire, New River Valley and Southside Virginia saw most of the activity which featured mainly severe, damaging high winds but also some hail.
Event Narrative Several trees were blown down by thunderstorm winds.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2012-07-01 09:45 EST-5
Begin Location 6SSW PUCKETTS STORE
Begin Lat/Lon 36.9578/-81.6475
End Date 2012-07-01 09:45 EST-5
End Location 6SSW PUCKETTS STORE
End Lat/Lon 36.9578/-81.6475
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.50K
Crop Damage 0.00K
Episode Narrative A broad ridge over the central U.S. set the stage for scattered to numerous severe storms that developed in the early morning and persisted much of the day and into the night. The storms were triggered by the

remains of a mesoscale convective system (MCS) that dropped southeast across the southern Appalachians in the morning hours while strong surface heating created a very unstable air mass as the day progressed. Strong wind shear, steep lapse rates and instability that was approaching 3000 J/kg by mid-morning contributed to the intensity of the storms. The Mountain Empire, New River Valley and Southside Virginia saw most of the activity which featured mainly severe, damaging high winds but also some hail.
Event Narrative Thunderstorm winds blew down a large tree limb which fell on a car on Freestone Valley Road and smashed the windshield. People inside the car were uninjured.

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2012-07-01 22:00 EST-5
Begin Location 1E RICHLANDS
Begin Lat/Lon 37.1/-81.8
End Date 2012-07-01 22:05 EST-5
End Location 1E RICHLANDS
End Lat/Lon 37.1/-81.8
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 3.00K
Crop Damage 0.00K
Episode Narrative A broad ridge over the central U.S. set the stage for scattered to numerous severe storms that developed in the early morning and persisted much of the day and into the night. The storms were triggered by the remains of a mesoscale convective system (MCS) that dropped southeast across the southern Appalachians in the morning hours while strong surface heating created a very unstable air mass as the day progressed. Strong wind shear, steep lapse rates and instability that was approaching 3000 J/kg by mid-morning contributed to the intensity of the storms. The Mountain Empire, New River Valley and Southside Virginia saw most of the activity which featured mainly severe, damaging high winds but also some hail.
Event Narrative Multiple trees were reported down in Richlands.

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2012-07-01 22:05 EST-5
Begin Location 0N TAZEWELL
Begin Lat/Lon 37.12/-81.52
End Date 2012-07-01 22:05 EST-5
End Location 0N TAZEWELL
End Lat/Lon 37.12/-81.52
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 3.00K
Crop Damage 0.00K
Episode Narrative A broad ridge over the central U.S. set the stage for scattered to numerous severe storms that developed in the early morning and persisted much of the day and into the night. The storms were triggered by the remains of a mesoscale convective system (MCS) that dropped southeast across the southern Appalachians in the morning hours while strong surface heating created a very unstable air mass as the day progressed. Strong wind shear, steep lapse rates and instability that was approaching 3000 J/kg by mid-morning contributed to the intensity of the storms. The Mountain Empire, New River Valley and Southside Virginia saw most of the activity which featured mainly severe, damaging high winds but also some hail.
Event Narrative Multiple trees were reported down in Tazewell.

Event **Thunderstorm Wind**
Magnitude **55 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **COOP Observer**
NCEI Data Source **CSV**
Begin Date **2012-07-01 22:25 EST-5**
Begin Location **1SE BURKES GARDEN**
Begin Lat/Lon **37.09/-81.34**
End Date **2012-07-01 22:25 EST-5**
End Location **1SE BURKES GARDEN**
End Lat/Lon **37.09/-81.34**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **8.00K**
Crop Damage **0.00K**
Episode Narrative **A broad ridge over the central U.S. set the stage for scattered to numerous severe storms that developed in the early morning and persisted much of the day and into the night. The storms were triggered by the remains of a mesoscale convective system (MCS) that dropped southeast across the southern Appalachians in the morning hours while strong surface heating created a very unstable air mass as the day progressed. Strong wind shear, steep lapse rates and instability that was approaching 3000 J/kg by mid-morning contributed to the intensity of the storms. The Mountain Empire, New River Valley and Southside Virginia saw most of the activity which featured mainly severe, damaging high winds but also some hail.**
Event Narrative **Several large trees were knocked down in the Burkes Garden area, one landing on a house and another on a car.**

Event **Thunderstorm Wind**
Magnitude **55 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Public**
NCEI Data Source **CSV**
Begin Date **2012-07-05 13:24 EST-5**
Begin Location **1E RICHLANDS**
Begin Lat/Lon **37.1/-81.8**
End Date **2012-07-05 13:30 EST-5**
End Location **1NE CEDAR BLUFF**
End Lat/Lon **37.0875/-81.7592**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **1.20K**
Crop Damage **0.00K**
Episode Narrative **Several upper level storm systems rotating around an upper high centered over the mid-Mississippi Valley helped to generate severe thunderstorms across the mountains. The convective activity was initiated out of the remains of a nocturnal Mesoscale Convective System (MCS) over the Ohio Valley that encountered increasing shear and instability as it moved into the southern Appalachians.**
Event Narrative **Tree reported down across road at Richlands High School and a power outage reported in town. Trees were also toppled in Cedar Bluff.**

Event **Thunderstorm Wind**
Magnitude **50 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **911 Call Center**
NCEI Data Source **CSV**
Begin Date **2012-07-05 13:26 EST-5**
Begin Location **0N THOMPSON VLY**
Begin Lat/Lon **37.08/-81.55**

End Date **2012-07-05 13:26 EST-5**
End Location **0N THOMPSON VLY**
End Lat/Lon **37.08/-81.55**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **1.20K**
Crop Damage **0.00K**
Episode Narrative **Several upper level storm systems rotating around an upper high centered over the mid-Mississippi Valley helped to generate severe thunderstorms across the mountains. The convective activity was initiated out of the remains of a nocturnal Mesoscale Convective System (MCS) over the Ohio Valley that encountered increasing shear and instability as it moved into the southern Appalachians.**
Event Narrative Multiple trees down in Thompson Valley.

Event **Heavy Rain**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **County Official**
NCEI Data Source **CSV**
Begin Date **2012-07-24 14:00 EST-5**
Begin Location **2W SEABOARD**
Begin Lat/Lon **37.132/-81.8289**
End Date **2012-07-24 18:00 EST-5**
End Location **1SSE CLIFFIELD**
End Lat/Lon **37.0827/-81.6614**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage **0.00K**
Episode Narrative **Northwesterly flow aloft interacted with a frontal zone and an extremely warm and unstable air mass to bring strong storms to the mountains. Rainfall was also quite heavy with 2 to 3 inch amounts falling across in western Tazewell County. Minor flooding occurred as a result of the rains.**
Event Narrative Rainfall of 2 to 3 inches in several hours fell across the western sections of the county as several bands of precipitation dropped southeast from the Ohio Valley.

Event **Thunderstorm Wind**
Magnitude **50 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **911 Call Center**
NCEI Data Source **CSV**
Begin Date **2012-07-25 00:57 EST-5**
Begin Location **6SSE MALDEN SPGS**
Begin Lat/Lon **36.95/-81.66**
End Date **2012-07-25 00:57 EST-5**
End Location **6SSE MALDEN SPGS**
End Lat/Lon **36.95/-81.66**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.60K**
Crop Damage **0.00K**
Episode Narrative **Northwesterly flow aloft interacted with a frontal zone and an extremely warm and unstable air mass to bring strong storms to the mountains. Rainfall was also quite heavy with 2 to 3 inch amounts falling across in western Tazewell County. Minor flooding occurred as a result of the rains.**
Event Narrative Two large trees were brought down at the intersection of Freestone Valley and Veterans Road.

Event **Flash Flood**
-- Flood Cause **Heavy Rain**
State **VIRGINIA**
County/Area **TAZEWELL**

WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-07-31 15:08 EST-5
Begin Location 1SE DORAN
End Date 2012-07-31 16:08 EST-5
End Location 1WSW RICHLANDS
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A slow-moving thunderstorm drifted across western Tazewell County with very heavy rainfall in the town of Richlands and vicinity. Doppler radar estimated 2 to 3 inches of rain fell in a few hours in and around Richlands. Several roads were flooded and small creeks left their banks. Rain gauge reports for the 24-hours ending at 8 AM EDT on August 1st, included: Richlands 2.51, Richlands COOP 2.30 and Xmas Tree Hill IFLOWS 2.26.
Event Narrative Pockets of urban type flash flooding were reported around Richlands including 6 to 8 inches of water across Route 460 at the west end of Richlands. Other reports included spotter on Eagle Street reporting that water rose several feet in small creek and overflowed a walk bridge on neighbors property. Bragg Road wasclosed due to flooding with 6 to 12 inches of water was flowing over the road. Another spotter reported Route 609 in Richlands closed due to 1 to 2 feet of water flowing over road.

Event Strong Wind
Magnitude 39 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2012-09-18 03:30 EST-5
End Date 2012-09-18 03:30 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage 0.00K
Episode Narrative Heavy rain occurred across the entire forecast area, but particularly across the mountains, as a low pressure system passed rapidly northward from the gulf coast through Kentucky and West Virginia. This low brought with it unusually high amounts of moisture from the Gulf of Mexico, with the 18/12Z upper air sounding for KRNK observing 1.69 inches of precipitable water, and the 18/12Z upper air sounding from KGSP observing 1.92 inches, values for both locations being around 2 standard deviations above normal for mid-September. Anywhere from 2 to 5 inches total rainfall accumulation was observed for the passage of this system with the eastern facing slope receiving the highest rainfall amounts. Despite the heavy widespread rainfall however, very few locations experienced anything more than brief periods of nuisance flooding/high water issues because there had been very little rainfall for the past several weeks leading up to the event.
Event Narrative Two trees were blow down at East Mountain along U.S. Highway 460.

Event Hail
Magnitude 0.75 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2012-10-18 16:05 EST-5
Begin Location 1E FOURWAY
Begin Lat/Lon 37.13/-81.49
End Date 2012-10-18 16:15 EST-5
End Location 1E FOURWAY
End Lat/Lon 37.13/-81.49
Deaths Direct/Indirect 0/0 (fatality details below, when available...)

Injuries Direct/Indirect **0/0**
Property Damage
Crop Damage
Episode Narrative **Thunderstorms developed in advance of an approaching cold front. One of these storms became large enough to produce hail.**
Event Narrative

Event **Winter Storm**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Public**
NCEI Data Source **CSV**
Begin Date **2012-10-28 21:15 EST-5**
End Date **2012-10-31 11:09 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage
Crop Damage
Episode Narrative **Hurricane Sandy moved north off the Atlantic Coast and combined with a complex low pressure system and deepening trough over the eastern part of the U.S., and then turned west northwest and into New Jersey into Pennsylvania, slowing down and then drifting north. It produced an expansive area of high impact weather as it approached the coast and moved inland. Strong winds and heavy snowfall were the biggest impacts on southeastern West Virginia, northwestern North Carolina and extreme southwestern Virginia, lasting for 24-48 hours. One to two feet of snow with significant drifting was observed in the higher elevations, with a sharp reduction to little or no accumulation in the valleys. Winds gusted into the 50-60 mph range.**
Event Narrative **The higher snow totals for the county include 8.4 inches at Burkes Garden, 9.0 inches at Richlands, 10.0 inches at Tazewell, and 14.5 inches at a location two miles north of Tazewell.**

Event **High Wind**
Magnitude **50 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Post Office**
NCEI Data Source **CSV**
Begin Date **2012-10-30 06:00 EST-5**
End Date **2012-10-30 06:00 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **5.00K**
Crop Damage
Episode Narrative **Hurricane Sandy moved north off the Atlantic Coast and combined with a complex low pressure system and deepening trough over the eastern part of the U.S., and then turned west northwest and into New Jersey into Pennsylvania, slowing down and then drifting north. It produced an expansive area of high impact weather as it approached the coast and moved inland. Strong winds and heavy snowfall were the biggest impacts on southeastern West Virginia, northwestern North Carolina and extreme southwestern Virginia, lasting for 24-48 hours. One to two feet of snow with significant drifting was observed in the higher elevations, with a sharp reduction to little or no accumulation in the valleys. Winds gusted into the 50-60 mph range.**
Event Narrative **Several trees were blown down in the Richlands area. There were a total of 2228 power outages. Damage values are estimated.**

Event **High Wind**
Magnitude **50 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Trained Spotter**
NCEI Data Source **CSV**
Begin Date **2012-12-20 07:30 EST-5**
End Date **2012-12-20 12:50 EST-5**

Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.50K**
Crop Damage **0.00K**
Episode Narrative **An intense upper low was rotating through the mid-Atlantic region during the period. An equally intense surface low and occluded front was located across the eastern Ohio valley. As the low pressure area approached the region from the west early on the 20th, very strong, gusty southeast winds developed across the higher elevations of southwest Virginia and northwest North Carolina. This resulted in some minor tree damage in Tazewell county Virginia. As the system moved to the north and east of the region, very strong, gusty northwest winds developed and persisted for an extended period across the western part of the Blacksburg forecast area from late on the afternoon of the 21st through much of the 22nd. However, the strongest winds, with gusts of 50 to 65 mph in southwest Virginia and northwest North Carolina, occurred during the late evening hours of the 21st and the early morning hours of the 22nd. Winds gusts of 40 to 50 mph were common. The strong upslope winds also resulted in a persistent snowfall across the upslope areas of the Alleghanys through southwest West Virginia and the mountains of northwest North Carolina.**
Below is a sample of some of the highest wind gusts recorded from southwest Virginia counties. If no data is given, the county either did not have winds exceeding 35 mph or did not have a wind reporting station.
Bath county (HSP AWOS, 12/21/12, 955 pm EST) - 59 mph Bedford county (4SSE Buchanan, 12/22/12, 752 am EST) - 41 mph, Botetourt county (6W Fincastle, 12,21,12, 1035 pm EST) - 39 mph, Carroll county (Galax AWOS, 12/22,12, 135 am EST) - 43 mph, Franklin county (3SSW Stewartsville, 12/22/12, 325 am EST) - 39 mph, Henry county (MTV AWOS, 12/22/12, 335 am EST) - 35 mph, Montgomery county (BCB AWOS, 12/22/12, 455 am EST) - 54 mph, Pittsylvania county (3E Mountain Valley, 12/22/12, 312 am EST) - 35 mph, Pulaski county (PSK AWOS, 12/22/12, 255 am EST) - 47 mph, Radford city (2SSE Walton, 12/21/12, 1039 pm EST) - 38 mph, Roanoke city (ROA ASOS, 12/21/12, 1054 pm EST) - 47 mph Roanoke county (Bent Mountain, 12/21/12, 1117 pm EST) - 49 mph, Rockbridge county (6SSE Millboro, 12/22/12, 514 am EST) - 40 mph, Smyth county (MKJ AWOS, 12/21/12, 1035 pm EST) - 58 mph, Wythe county (2E Wytheville, 12/21/12, 1047 pm EST) - 46 mph.
Event Narrative A SkyWarn spotter reported that some large tree limbs were down at the intersection of Dogwood Road and Steeles Lane just south-southwest of Benbolt. This event occurred around 730 am EST. At 1250 pm EST, more tree limbs were blown down in the same area at the intersection of Painter Street and Dogwood Road.

Event **High Wind**
Magnitude **55 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Public**
NCEI Data Source **CSV**
Begin Date **2012-12-26 08:45 EST-5**
End Date **2012-12-26 12:00 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **15.00K**
Crop Damage **0.00K**
Episode Narrative **A series of deep upper low pressure systems and associated intense surface lows tracked across the region during the last two weeks of December bringing winter weather and strong to high winds to southwest Virginia, southeast West Virginia, the adjacent Allegheny Highlands of Virginia, and northwest North Carolina. Several surface lows tracked from the week before Christmas through the final days of the year in a similar path from the Tennessee Valley across southwest Virginia and/or southeast West Virginia, then toward the mid-Atlantic region. As the surface low pressure areas intensified off the mid-Atlantic coast, very strong, gusty northwest winds developed across the region, especially across southwest Virginia and northwest North Carolina. Sustained winds of 25 to 35 mph with gusts in excess of 50 mph were common from the evening of the 26th through the early morning hours of the 27th. The strong winds blew down a number of trees, many onto power lines and some onto roads, resulting in scattered power outages throughout the region. Here are some sample wind gusts measured from various weather stations across southwest Virginia and the date/time that they occurred. Note, counties not listed either do not have reporting stations or had wind gusts reported or measured of less than 35 mph.**
Bedford County (4SSE Buchanan): 12/27/12, 512 am EST, 35 mph, Botetourt County (6W Fincastle): 12/27/12, 1215 am EST, 36 mph, Carroll County (HLX AWOS): 12/26/12, 1155 pm EST, 44 mph, Franklin County (3SW Moneta): 12/27/12, 813 am EST, 36 mph, Montgomery County (BCB AWOS): 12/27/12, 235 am EST, 48 mph, Pulaski County (PSK AWOS): 12/27/12, 1235 am EST, 41 mph, Roanoke City (ROA ASOS): 12/27/12, 454 am EST, 48 mph, Roanoke County (VDOT ROA): 12/27/12, 642 am EST, 36 mph, Rockbridge County (6SSE Millboro): 12/27/12, 459 am EST, 41 mph, Smyth County (Marion/Wytheville AWOS): 12/27/12, 155 am EST, 45 mph, Wythe County (VDOT 2E

Wytheville): 12/27/12, 326 am EST, 45 mph.
Event Narrative Trees were blown down in the Thompson Valley Area at 0845 EST on the 26th, and several large tree limbs were blown down near Tazewell at 1130 EST on the 26th.

Event High Wind
Magnitude 57 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2012-12-27 00:16 EST-5
End Date 2012-12-27 00:16 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A series of deep upper low pressure systems and associated intense surface lows tracked across the region during the last two weeks of December bringing winter weather and strong to high winds to southwest Virginia, southeast West Virginia, the adjacent Allegheny Highlands of Virginia, and northwest North Carolina. Several surface lows tracked from the week before Christmas through the final days of the year in a similar path from the Tennessee Valley across southwest Virginia and/or southeast West Virginia, then toward the mid-Atlantic region. As the surface low pressure areas intensified off the mid-Atlantic coast, very strong, gusty northwest winds developed across the region, especially across southwest Virginia and northwest North Carolina. Sustained winds of 25 to 35 mph with gusts in excess of 50 mph were common from the evening of the 26th through the early morning hours of the 27th. The strong winds blew down a number of trees, many onto power lines and some onto roads, resulting in scattered power outages throughout the region. Here are some sample wind gusts measured from various weather stations across southwest Virginia and the date/time that they occurred. Note, counties not listed either do not have reporting stations or had wind gusts reported or measured of less than 35 mph.
Bedford County (4SSE Buchanan): 12/27/12, 512 am EST, 35 mph, Botetourt County (6W Fincastle): 12/27/12, 1215 am EST, 36 mph, Carroll County (HLX AWOS): 12/26/12, 1155 pm EST, 44 mph, Franklin County (3SW Moneta): 12/27/12, 813 am EST, 36 mph, Montgomery County (BCB AWOS): 12/27/12, 235 am EST, 48 mph, Pulaski County (PSK AWOS): 12/27/12, 1235 am EST, 41 mph, Roanoke City (ROA ASOS): 12/27/12, 454 am EST, 48 mph, Roanoke County (VDOT ROA): 12/27/12, 642 am EST, 36 mph, Rockbridge County (6SSE Millboro): 12/27/12, 459 am EST, 41 mph, Smyth County (Marion/Wytheville AWOS): 12/27/12, 155 am EST, 45 mph, Wythe County (VDOT 2E Wytheville): 12/27/12, 326 am EST, 45 mph.
Event Narrative A wind gust of 66 MPH was measured from a handheld anemometer one mile northwest of Richlands.

Event Heavy Snow
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2013-01-17 12:35 EST-5
End Date 2013-01-17 20:55 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A deep low pressure system tracked from northern Georgia to the North Carolina coast. Warm air in the low levels allowed precipitation to fall initially as rain, however cold air wrapping around the west side of the low caused rain to change over to a brief period of intense sleet, before changing over to snow across the mountains during the afternoon, and across the piedmonts during the evening. Snowfall rates were at times 2 to 3 inches per hour for some locations. Snowfall came to an end quickly from west to east during late evening as drier air aloft moved into the area. Heaviest snowfall accumulations were observed in the mountains due to the longer residence time of colder air, however the piedmont region experienced less snowfall due to warmer air lingering across the area longer, resulting in only a brief but intense burst of snowfall just as the system was exiting the area.
The following is a list of total snowfall reports, in inches, from across Virginia.
- Alleghany County - 4 E Covington: 3.0, 1 NW Falling Spring: 3.0, 4 E Covington City: 3.0, 1 WNW Falling Spring:

3.0, 1 WSW Idlewilde: 2.2, 1 NNE Selma: 2.2, 1 W Natural Well: 2.0, Selma: 2.0.
- Amherst County - Alto: 7.0, Pedlar: 0.5, Monroe: 0.2.
- Appomattox County - Appomattox: 4.6, Stonewall: 4.6, Pamplin: 4.0, 2 SE Chap: 3.5, 9 E Lynchburg: 1.5.
- Bath County - Chimney Run: 2.0, Warm Springs: 2.0, 2 SSW Mountain Grove: 1.0, Millboro: 1.0, Hot Springs: 1.0, 1 SE Millboro Spring: 1.0, 1 SSW Douthat S.P.: 0.5.
- Bedford County - 2 NW Reba: 7.5, Huddleston: 4.0, Stewartsville: 2.3,, Forest: 2.0.
- Bland County - Rocky Gap: 12.0, 5 W Bland: 11.0, Bastian: 8.5, 1 N Ceres: 6.0.
- Botetourt County - Nace: 8.0, Troutville: 8.0, 2 S Buchanan: 7.5, Blue Ridge: 6.5, 3 N Daleville: 6.0, Laymantown: 4.7, Buchanan: 3.4.
- Buckingham County - 1 E Wingina: 5.5, 2 NNE Tower Hill: 3.5, Dillwyn: 3.3, 3 SSE Sheppards: 3.0, New Canton: 2.5, Buckingham: 2.5, 2 NNE Bent Creek: 2.0, 4 SE Rosney: 2.0.
- Campbell County - 1 E Happy Valley: 3.5, Concord: 3.2, Naruna: 3.0, 3 E Brookneal: 2.2, Evington: 2.0, Lynch Station: 1.5, 1 N Pine Ridge: 1.0, Brookneal: 0.7.
- Carroll County - Hillsville: 10.5, Hebron: 10.0, 1 N Fancy Gap: 8.5, 7 SE Galax: 8.0, Dugspur: 5.0.
- Charlotte County - 1 WSW Taro: 7.0, Charlotte Court House: 4.0, Redoak: 3.8 4 SE Saxe: 3.5, 3 NNE Aspen: 2.0.
- City of bedford - Bedford: 1.0.
- City of buena vista - Buena Vista: 5.0.
- City of galax - Galax: 10.0.
- City of lexington - Lexington: 2.6, West Lexington: 1.5.
- City of lynchburg - 1 SSW Richland Hills: 4.0, Lynchburg: 2.0.
- City of martinsville - Martinsville: 2.0.
- City of radford - Radford: 6.0.
- City of roanoke - Edgehill Estates: 7.3,, Roanoke: 5.0, Carter Heights: 4.0,
- Craig County - 1 SSE Valley Mill: 8.0, Simmonsville: 3.5.
- Floyd County - 2 SE Willis: 12.1, Indian Valley: 11.5, Copper Hill: 9.5, Floyd: 7.8, Check: 7.0, Alum Ridge: 7.0, Terrys fork: 0.5.
- Franklin County - Callaway: 6.0, 4 W Rocky Mount: 5.5, Redwood: 4.0, Ferrum: 4.0, Boones Millaway: 3.5, 1 N Henry: 3.0, Rocky Mount: 3.0, Hardy Ford: 1.5, 1 ENE Burnt Chimney: 1.2, 1 ENE Penhook: 1.2, Burnt Chimney: 1.0.
- Giles County - Glen Lyn: 13.0, Rich Creek: 12.5, Narrows: 12.0, Pearisburg: 10.0, 3 WNW Newport: 9.5, W Pearisburg: 9.0, Maybrook: 9.0, Newport: 6.5, Pembroke: 6.3,, Prospectdale: 4.0.
- Grayson County - 4 SW Galax City: 12.0, Fries: 11.5, Elk Creek: 11.0, 1 ESE Fries: 8.0, Independence: 2.0.
- Halifax County - Alton: 2.5, Halifax: 2.5, Virgilina: 2.5, High Rock: 2.0, 2 SE South Boston: 2.0, Nathalie: 2.0, South Boston: 1.5.
- Henry County - Fieldale: 3.5, Ridgeway: 2.3,, Spencer: 2.0, 1 SSW Lithia Springs: 2.0, Axton: 1.7, 1 SW Bassett: 1.5.
- Montgomery County - 1 NE Laurel Ridge: 9.2, 4 WSW Shawsville: 9.0, 1 ESE Christiansburg: 8.5, 2 SSW Christiansburg: 8.3, N Blacksburg: 7.5, Mountain View: 7.0, Highview Terrace: 7.0, Blacksburg: 7.0, Merrimac: 6.8, Christiansburg: 6.6, 2 NE Blacksburg: 6.5, 2 S Christiansburg: 6.5, 1 E Ellett: 6.0, Lafayette: 4.8, Elliston: 4.2, 3 S Christiansburg: 2.5,
- Patrick County - Meadows of Dan: 7.0, 4 NE Stuart: 4.0, 5 SW Meadows of Dan: 3.5, 10 N Stuart: 3.0, 1 S Patrick Springs: 2.0, Stuart: 0.5, Fairy Stone S.P.: 0.4, 1 E Woolwine: 0.1, 1 S Claudville: T, Claudville: T, Ararat: T.
- Pittsylvania County - 5 SW Chatham: 6.0, Gretna: 4.0, Chatham: 4.0, Whitmell: 3.0, Blairs: 2.6, 1 N Ringgold: 1.5.
- Pulaski County - 2 N Pulaski: 9.0, Dublin: 9.0, 1 NW New River: 7.5, Fairlawn: 7.5, Pulaski: 7.0.
- Roanoke County - Bent Mountain: 10.3, 1 SE Wabun: 4.5, Briar Ridge: 4.3, Sugar Loaf Hills: 4.0, 2 WSW Poages Mill: 1.5.
- Rockbridge County - Natural Bridge: 5.0, Fairfield: 4.5, 2 SSE Riverside: 4.5, Glasgow: 3.5, 2 E Kerrs Creek: 1.8, Goshen: 1.0, Rockbridge Baths: 1.0.
- Smyth County - Marion: 10.2, 1 NW Marion: 10.0, 2 ENE Marion: 9.0, Saltville: 5.0, 1 W McMullin: 3.0.
- Tazewell County - Burkes Garden: 12.0, 1 WNW Bluefield: 12.0, 1 N Paintlick: 8.5, Richlands: 7.9, 1 SSW Lake Park: 7.0, Tazewell: 2.5.
- Wythe County - Wytheville: 11.0, Rural Retreat: 5.5, Austinville: 5.0, Max Meadows: 4.0.
Event Narrative Total snowfall amounts across Tazewell County range from 12.0 inches at Burkes Garden and 1 WNW Bluefield to 2.5 inches at Tazewell.

Event High Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV

Begin Date 2013-02-26 08:30 EST-5
End Date 2013-02-26 10:30 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 7.00K
Crop Damage
Episode Narrative A strong pressure gradient developed between low pressure moving into the Great Lakes region and high pressure over New England. The result was very strong southerly winds that brought down a few trees over Tazewell County. A power line was brought down near Tazewell by one of these trees.
Event Narrative High wind gusts brought down four trees across the county. At the Tazewell County Country Club, two miles east of Cliffield, two of these trees fell close to Pounding Mill Branch Road. Another tree fell two miles east of Tiptop along Route 460 near Springville Elementary School. The final tree fell two miles east-northeast of Tazewell along Bulldog Avenue. This tree took down a power line as it fell. Damage values are estimated.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source State Official
NCEI Data Source CSV
Begin Date 2013-05-19 16:17 EST-5
Begin Location 1E RICHLANDS
End Date 2013-05-19 20:00 EST-5
End Location 1NNW CEDAR BLUFF
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative An upper level low pressure system moved from Kentucky across western Virginia, triggering strong thunderstorms during the afternoon and evening. Southeast winds near the surface associated with a departing high pressure wedge fed Atlantic moisture into the Appalachian Mountains, where marginal instability allowed the thunderstorm activity to develop. Very light upper level winds resulted in slow storm movement and therefore prolonged periods of locally heavy rain in areas where soil conditions were already very moist from rainfall in the preceding days.
Event Narrative Multiple roads around the Richlands area were closed due to flooding, including Larimer Lane. Heavy rain also caused nearby streams to rise out of their banks. In addition, some roads were closed due to debris, including one debris flow that blocked Highway 460.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source State Official
NCEI Data Source CSV
Begin Date 2013-05-22 15:00 EST-5
Begin Location 1N PISGAH
End Date 2013-05-22 16:30 EST-5
End Location 1WSW ADRIA
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Widely scattered strong to severe thunderstorms developed during the afternoon and evening due to strong instability associated with an approaching upper level trough and the associated cold front.
Event Narrative Six inches of water and a significant amount of debris washed onto Baptist Valley Road near the 6600 block, causing the road to be closed. Cabbage Creek flooded Adria Road near Route 636.

Event **Hail**
Magnitude **0.75 in.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Trained Spotter**
NCEI Data Source **CSV**
Begin Date **2013-07-12 18:40 EST-5**
Begin Location **1SE RICHLANDS**
Begin Lat/Lon **37.09/-81.81**
End Date **2013-07-12 18:40 EST-5**
End Location **1SE RICHLANDS**
End Lat/Lon **37.09/-81.81**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage **0.00K**
Episode Narrative **Afternoon convection again bubbled up over southwest Virginia in evening hours of the 12th with very heavy rains over the City of Galax, Grayson and Carroll counties where 2 to 3 inch rains fell. Several flooding reports were received. Several gauges in the Galax area had over 2 inches for the period ending 0700 EDT on the 13th.**
Event Narrative

Event **Hail**
Magnitude **1.00 in.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Public**
NCEI Data Source **CSV**
Begin Date **2013-07-18 14:30 EST-5**
Begin Location **1N NORTH TAZEWELL**
Begin Lat/Lon **37.14/-81.53**
End Date **2013-07-18 14:30 EST-5**
End Location **1N NORTH TAZEWELL**
End Lat/Lon **37.14/-81.53**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage **0.00K**
Episode Narrative **There was very little strong convection across southwest Virginia with exception of an afternoon cell over western Tazewell County that produced 1-inch diameter hail.**
Event Narrative **Hail up to quarter size was reported.**

Event **Thunderstorm Wind**
Magnitude **52 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Broadcast Media**
NCEI Data Source **CSV**
Begin Date **2013-08-12 16:53 EST-5**
Begin Location **0N RICHLANDS**
Begin Lat/Lon **37.1/-81.82**
End Date **2013-08-12 16:53 EST-5**
End Location **0N RICHLANDS**
End Lat/Lon **37.1/-81.82**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**

Injuries Direct/Indirect 0/0
Property Damage 15.00K
Crop Damage 0.00K
Episode Narrative A stationary front to a warm front remain draped across southern Virginia and southern West Virginia. This boundary combined with a persistent moist, unstable air mass across the region served as a focusing mechanism for isolated to scattered afternoon and evening thunderstorm development across the region once again. One thunderstorm developed across Tazewell county during the early evening and quickly became severe blowing the roof off a house and downing at least one large tree.
Event Narrative WOAY Television of Oak Hill, West Virginia reported that thunderstorm winds blew a portion of a roof off a home near Richlands as well as blowing down one tree.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2013-08-12 17:56 EST-5
Begin Location 2SW FROG LEVEL
End Date 2013-08-12 19:56 EST-5
End Location 2SW FROG LEVEL
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A stationary front to a warm front remain draped across southern Virginia and southern West Virginia. This boundary combined with a persistent moist, unstable air mass across the region served as a focusing mechanism for scattered afternoon and evening thunderstorm development across the region once again. As had been the case much of the summer of 2013, heavy rain and flash flooding were once again the main concerns. Thunderstorms across southwest Virginia during the evening prompted several flash flood warnings netting several flash flood events as rainfall of two to four inches fell in flash flood prone areas within a couple of hours.
Event Narrative The public reported that Wittens Valley Road was flooded, presumably by waters from the West Fork of Plum Creek.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Department of Highways
NCEI Data Source CSV
Begin Date 2013-08-12 18:00 EST-5
Begin Location 1WNW MOUTH OF LAUREL
End Date 2013-08-12 20:00 EST-5
End Location 1WNW MOUTH OF LAUREL
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A stationary front to a warm front remain draped across southern Virginia and southern West Virginia. This boundary combined with a persistent moist, unstable air mass across the region served as a focusing mechanism for scattered afternoon and evening thunderstorm development across the region once again. As had been the case much of the summer of 2013, heavy rain and flash flooding were once again the main concerns. Thunderstorms across southwest Virginia during the evening prompted several flash flood warnings netting several flash flood events as rainfall of two to four inches fell in flash flood prone areas within a couple of hours.
Event Narrative The Virginia Department of Highways reported that Randy Road was flooded and closed.

Event **Thunderstorm Wind**
Magnitude **50 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Law Enforcement**
NCEI Data Source **CSV**
Begin Date **2013-08-21 17:56 EST-5**
Begin Location **1ESE RICHLANDS**
Begin Lat/Lon **37.093/-81.7962**
End Date **2013-08-21 17:56 EST-5**
End Location **1ESE RICHLANDS**
End Lat/Lon **37.093/-81.7962**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.20K**
Crop Damage **0.00K**
Episode Narrative **A weak upper-level trough persisted just to the west of the area. A warm, humid air mass remained in place across the region along with numerous outflow boundaries from earlier convection. A near solid line of thunderstorms was moving into southern West Virginia and far southwest Virginia during the early evening. The tail end of this line produced a severe thunderstorm with damaging wind gusts in Tazewell county before it weakened as it moved further eastward.**
Event Narrative The Tazewell County Sheriff's Office reported that two large tree limbs were blown off trees by thunderstorm winds on Front Street in downtown Richlands.

Event **Flash Flood**
-- Flood Cause **Heavy Rain**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **County Official**
NCEI Data Source **CSV**
Begin Date **2013-09-02 19:52 EST-5**
Begin Location **1WNW TIPTOP**
End Date **2013-09-02 22:30 EST-5**
End Location **1WNW TIPTOP**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.50K**
Crop Damage **0.00K**
Episode Narrative **Deep atmospheric moisture was observed pooling ahead of an approaching cold front, although downslope westerly wind flow worked to inhibit convective development, resulting in only widely scattered showers and thunderstorms. Atmospheric winds aloft were light, resulting in slow storm motion.**
Event Narrative A deputy sheriff observed six to eight inches of water associated with heavy rain flowing over Wittens Mill Road near Dolphin Lane. The high water washed out a nearby driveway.

Event **Winter Weather**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Public**
NCEI Data Source **CSV**
Begin Date **2013-12-08 10:00 EST-5**
End Date **2013-12-10 09:00 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage **0.00K**
Episode Narrative **A classic eastern U.S. cold air wedge set up began to evolve from December 7th into**

December 8th as a large 1038mb Canadian surface high, anchored across eastern Pennsylvania and eastern New York wedged southwestward along the east side of the Appalachians down through Virginia into Georgia. Meanwhile, a cold front was stalled along the southeast U.S. coast. In the upper-levels of the atmosphere a deep western U.S. trough was slowly shifting eastward into the central U.S. Surface low pressure was tracking along the stalled southeast U.S. frontal boundary. This feature combined with the slowly eastward tracking upper-level trough provided for the development of widespread overrunning precipitation into the cold air mass where temperatures hovered in the upper 20s and lower 30s. Given that a layer of warmer air with temperatures above freezing was present just 3000 to 4000 feet above the surface, precipitation fell largely in the cold air at the surface as a wintry mix of freezing rain and sleet, with some snow in the northern portions and higher elevations of the Blacksburg County Warning Area (CWA). This was a near perfect cold air damming/wedge pattern for the mid-Atlantic region and as such proved to be so in terms of winter weather. Freezing rain with ice accumulations ranging from 1/4 to 1/2 inch was widespread across the Virginia Piedmont, Southside Virginia, the Roanoke Valley, the New River Valley, and the Alleghany Highlands. Sleet accumulations of 1/2 to 1 inch were also reported from the higher elevations of the New River Valley and northward in the Alleghany Highlands and Southern Shenandoah Valley. Warm temperatures in the days leading up to this event prevented widespread travel problems. However, ice accumulations on trees and power lines were significant. While between 50 and 100 residents in nearly all of the Virginia counties within the Blacksburg CWA were left without power for some duration, the most widespread power outages were encountered across the Piedmont and Southside areas where over 2000 customers were left without power in Pittsylvania county and nearly 2000 customers in both Campbell and Henry counties of southern Virginia.
Here are some of the snow, sleet, and freezing rain accumulations reported across southwest. south central, and west central Virginia as of the morning of December 9, 2013.
Alleghany (4E Convington) - 1.20 inch sleet, 0.20 inch ice, (1W Natural Well) - 0.25 inch ice, Amherst (2W Elon) - 0.25 inch, (2WSW Willow) - 0.30 inch, Appomattox (2E Concord) - 0.30 inch, Bath county (1 NNW Millboro) - 0.50 inch ice, Bedford county (4NNW Forest) - 0.25 inch ice, (5NW Lynchburg Airport) - 0.25 inch ice, (Peaks of Otter Summit) - 0.13 inch ice, Bland county (Bastian) - 0.25 inch ice, Bottetourt county (Fincastle) - 0.25 inch ice, (Blue Ridge) - 0.25 inch ice, Buckingham (Buckingham) - 0.40 inch sleet/ice Buena Vista City - 0.25 inch ice, Campbell county (1W Altavista) - 0.10 inch sleet/0.25 inch ice, (1S Hat Creek) - 0.25 inch ice Covington City (2SSW) - 0.25 inch ice/trace sleet Danville City - 0.10 inch ice, Craig county (1 ESE Simmonsville) - 0.75 inch sleet/0.25 inch ice, (New Castle) - 0.25 inch ice, Franklin county (Callaway) - 0.25 inch ice, (Boones Mill) - 0.50 inch ice, Galax City - 0.25 inch ice, Giles county (Pearisburg) - 0.30 inch ice, Grayson county (2W Baywood) - 0.10 inch ice, Montgomery county (5NNE Blacksburg/Brush Mountain) - 0.50 inch sleet/0.1 inch ice, (Blacksburg) - 0.19 inch ice, Patrick county (10NE Stuart) - 0.30 inch ice, Pittsylvania county (Dry Fork) - 0.13 inch ice, Pulaski county (Pulaski) - 0.20 inch ice, Roanoke city - 0.30 inch ice, Roanoke county (Bent Mountain) - 0.25 inch ice, Rockbridge county (3NW Vesuvius) - 0.25 inch ice, Tazewell county (Falls Mills) - 0.10 inch ice, Wythe county (2NNW Grahams Forge) - 0.20 inch ice (Max Meadows) - 0.13 inch ice.
Event Narrative The public reported 0.10 inch of ice accumulation in the Falls Mills area.

Event Winter Storm
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2014-01-02 17:00 EST-5
End Date 2014-01-03 08:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A deep low pressure system affecting the Atlantic coast was followed by a strong arctic cold front passing across the region during the early morning hours of January 3rd, resulting in brief but heavy accumulating snow confined mainly to the west-facing slopes from southeast West Virginia through the mountains of North Carolina. Winds with the arctic surge topped 60 mph in a few places across the mountains and, when combined with snow, resulted in periods of localized blizzard-like conditions. Temperatures dropped into the teens and the positive single digits across the mountains, resulting flash-freezing of wet surfaces from rainfall on January 2nd. Wind chills across the mountains were exceptionally cold, dropping into the negative teens. Gradient winds began to relax by sunrise on the 3rd, allowing snow shower activity and blowing snow to diminish.
Event Narrative Reports ranging from two to five inches of snow accumulation were received from across Tazewell County. In addition, wind gusts as high as 47 mph were observed, resulting in blowing snow that significantly reduced visibilities, as well as dangerously low wind chill temperatures.

Event Cold/Wind Chill
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source AWOS
NCEI Data Source CSV
Begin Date 2014-01-07 00:00 EST-5
End Date 2014-01-07 12:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A surge of arctic air arrived into the mid-Atlantic during the early morning hours of January 6th. Temperatures continued to fall over the next 24 hours, eventually bottoming out below zero nearly everywhere west of the Blue Ridge. Winds remained gusty through that 24 hour period as well due to a tightened pressure gradient as high pressure built into the region. The result was dangerously low wind chill temperatures not see in the region in many years.
Event Narrative Wind chill temperatures were observed in the -20F to -32F range at several locations throughout the county during the early morning hours of January 7th, 2014.

Event High Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source AWOS
NCEI Data Source CSV
Begin Date 2014-01-25 19:55 EST-5
End Date 2014-01-25 19:55 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A large dome of Canadian high pressure built into the mid-Atlantic region behind an Alberta Clipper cold front. The very tight pressure gradient between the two systems resulted in very gusty northwest winds across the mountains, as well as a period of upslope snow showers that were heavy at times.
Event Narrative

Event Heavy Snow
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2014-02-12 13:25 EST-5
End Date 2014-02-13 15:55 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage 0.00K
Episode Narrative Cold high pressure was in place across the region on Tuesday, February 11, 2014. An area of low pressure progressed northward from the Gulf of Mexico the 11th into the 12th of February and transported a generous amount of moisture into and across the cold air over the area allowing the precipitation to fall as moderate to heavy snow. During Tuesday night into Wednesday the low passed over the region and brought some air just slightly above freezing into the lower portions of the atmosphere. This allowed for the snow to transition into a period of freezing rain and/or sleet over parts of the western Virginia piedmont. However, during the day on Thursday, February 13, 2014, the low pressure progressed northeast of the region, and sub-freezing air in the lower parts of the

atmosphere returned and allowed for snow to be falling across the area until it ended in the mid to late afternoon. Before its conclusion, there was a time where a clearly defined band of snow stalled, and pivoted around a central location in southwest Virginia. This allowed for the axis of heaviest snowfall to be centered along parts of the New River and upper Roanoke valleys.
Snowfall totals averaged 6 to 10 inches along and east of a Martinsville to Lynchburg line, 10 to 14 inches across the Mountain Empire part of southwest Virginia, 12 to 16 inches just east of the crest of the Blue Ridge and north into the southern Shenandoah valley, with 16 to 26 inches in an area between Covington Virginia south into the Blacksburg to Roanoke region and farther south to near Galax. The highest end of this range was centered over Floyd County.
Sleet amounts were generally less than an inch between Martinsville and Danville. Freezing rain occurred mainly along and east of a line from Martinsville to Buckingham. Amounts ranged from around one tenth of an inch to one quarter of an inch.
Event Narrative Snowfall amounts ranged from around 9 inches in the western part of the county to 17 inches in the east.

Event High Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2014-03-12 13:05 EST-5
End Date 2014-03-12 16:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative An intensifying center of low pressure passed north of the area and the trailing cold front was accompanied by very strong winds behind it as very cold air surged southward along with a large pressure rises.
Event Narrative A telephone pole and power lines in Cedar Bluff were blown down and shingles removed from a home in Jewell Ridge.

Event Winter Weather
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Newspaper
NCEI Data Source CSV
Begin Date 2014-03-13 00:00 EST-5
End Date 2014-03-13 11:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Northwest winds behind a departing cold front, generated upslope snow showers in portions of southwest VA. Snowfall totals in Tazewell county averaged around one inch, and caused several minor accidents due to snow covered roads.
Event Narrative Several minor accidents occurred in Tazewell county due to light snow that fell over the area, covering roads. Snowfall totals in Tazewell county averaged around one inch.

Event Hail
Magnitude 0.88 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2014-06-10 18:36 EST-5

Begin Location 1E RICHLANDS
Begin Lat/Lon 37.1/-81.8
End Date 2014-06-10 18:36 EST-5
End Location 1E RICHLANDS
End Lat/Lon 37.1/-81.8
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative Unstable air was situated over the region south of a warm front and east of an approaching cold front. Showers and storms developed during the late afternoon and continued into the nighttime. Some storms increased to severe levels and produced damaging winds and large hail.
Event Narrative

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2014-06-10 18:40 EST-5
Begin Location 2N MAXWELL
Begin Lat/Lon 37.1478/-81.5982
End Date 2014-06-10 18:40 EST-5
End Location 2N MAXWELL
End Lat/Lon 37.1478/-81.5982
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.20K
Crop Damage
Episode Narrative Unstable air was situated over the region south of a warm front and east of an approaching cold front. Showers and storms developed during the late afternoon and continued into the nighttime. Some storms increased to severe levels and produced damaging winds and large hail.
Event Narrative Thunderstorm winds blew a large limb down that blocked both lanes of Dryfork Road. Damage values are estimated.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2014-06-10 18:40 EST-5
Begin Location 1WNW CEDAR BLUFF
Begin Lat/Lon 37.0899/-81.7889
End Date 2014-06-10 18:40 EST-5
End Location 1WNW CEDAR BLUFF
End Lat/Lon 37.0899/-81.7889
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.50K
Crop Damage
Episode Narrative Unstable air was situated over the region south of a warm front and east of an approaching cold front. Showers and storms developed during the late afternoon and continued into the nighttime. Some storms increased to severe levels and produced damaging winds and large hail.
Event Narrative Thunderstorm winds blew a tree down on McGuire Lane. Damage values are estimated.

Event **High Wind**
Magnitude **50 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Trained Spotter**
NCEI Data Source **CSV**
Begin Date **2014-10-14 21:45 EST-5**
End Date **2014-10-14 23:15 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **1.00K**
Crop Damage
Episode Narrative **As a cold front approached the region, surface winds increased significantly in advance of the front on Tuesday the 14th, and then continued very gusty behind the front into the early morning hours of Wednesday the 15th. A large number of trees were blown down in association with these winds. Showers and storms developed in advance of the front and also occurred coincident to the passage of the front. Trees were blown down in association with a few of the storms increasing to severe levels.**
Event Narrative High winds blew two trees down in Tazewell County. The one tree was blown down across McQuire Valley Road. The other tree was blown down across Highway 19 near Kents Ridge Road. Damage values are estimated.

Event **Winter Weather**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Public**
NCEI Data Source **CSV**
Begin Date **2014-11-01 00:00 EST-5**
End Date **2014-11-01 16:00 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage **0.00K**
Episode Narrative **A very high amplitude upper atmospheric pattern featured equally deep troughs in the western and eastern U.S. Within the eastern U.S. trough, was a vigorous Alberta clipper that intensified immensely as it plunged into the southeast states into the base of the upper trough. Meanwhile...a large nearly 1040mb Canadian High was plunging into the central and eastern U.S. on the back side of the developing storm system in the southeast states. The combination of these features brought an early season snowfall principally to the Appalachian mountains of eastern Tennessee, far southwest Virginia, and northwest North Carolina. Light snow also fell in the mountains of eastern West Virginia, but the storm system tracked too far south for any significant amounts in that region. Snowfall amounts were generally in the 1 to 3 inch range across this region...with some higher totals in the higher elevations of northwest North Carolina. Strong and gusty northwest winds accompanied the snow in these areas causing scattered power outages. A few locations recorded wind gusts in excess of 45 mph, meeting strong wind criteria. These included Hot Springs in Bath county with a wind gust of 46 mph at 8:35 am EST on 11/2/14, the AWOS at the Galax/Hillsville Airport on 11/2/14 at 12:35 am EST, and a weather station located four miles west of Dublin in Pulaski county which recorded a wind gust of 47 mph on 11/2/14 at 4:05 am EST. Several hundred residents of Tazewell county in far southwest Virginia were left without power for several hours from the comination of 30 to 40 mph wind gusts and the heavy, wet snow. Because of warm temperatures within the preceding days and the early season time of the event, roads and travel conditions were not significantly impacted.**
Here are some of the snow reports from southwest Virginia as of the afternoon of November 1, 2014. These denote the high end of the event in these counties. Note, the event actually began during the afternoon of October 31st.
Bland (Ceres) - 1 inch, Carroll (6N Galax, Woodlawn) - 3 inches, City of Galax - 4 inches, Floyd (Floyd) - 3 inches, Giles (Mountain Lake) - 3 inches, Grayson (5NE Independence) - 4 inches, Patrick (Meadows of Dan) - 4 inches, Pulaski (2S Snowville) - 2 inches, Smyth (Marion) - 2 inches, Tazewell (Tazewell) - 4 inches, Wythe (Rural Retreat) - 2 inches.
Event Narrative The public reported four inches of snow in Tazewell, 2.5 inches of in Bluefield, and one inch of snow at Burkes Garden.

Event **High Wind**

Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2014-11-20 00:00 EST-5
End Date 2014-11-20 03:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 30.00K
Crop Damage 0.00K
Episode Narrative A northwest flow upper trough and associated strong cold front were approaching the region from the west. Strong southeast winds developed through the mountains of Smyth and Tazewell counties in Virginia into Mercer county in southeast West Virginia during the early morning hours. The winds were strong enough to blow over a communications tower near Tazewell.
Event Narrative The Tazewell County Emergency Management Director reported that winds had blown over a communications tower near Tazewell.

Event Strong Wind
Magnitude 41 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Mesonet
NCEI Data Source CSV
Begin Date 2014-11-24 12:30 EST-5
End Date 2014-11-24 15:30 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 20.00K
Crop Damage 0.00K
Episode Narrative A strong cold front was approaching from the Tennessee and Ohio Valleys during the day on the 24th, moving into southwest Virginia during the early to mid-afternoon. Very strong southerly gradient winds were observed in advance of the front, a common occurrence with these type of synoptic patterns across the mountains of southwest Virginia. Several wind gusts in the 35 to 47 mph range were observed by weather stations in Tazewell and Richlands, both in Tazewell county. These non-thunderstorm related wind gusts were responsible for blowing down at least seven trees across the county, including one tree that fell on and caused damage to three cars parked at the Cedar Bluff Post Office.
Event Narrative Wind gusts measured by a mesonet station in Tazewell and the AWOS at Richlands showed wind gusts of 40 and 47 mph, respectively in the 12:30 pm to 3:30 pm EST time frame. At least seven trees were down across the county as a result of these strong winds. One tree fell on three parked cars at the Cedar Bluff Post Office around 2:35 pm EST causing damage to the vehicles.

Event Winter Weather
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2014-11-26 04:00 EST-5
End Date 2014-11-26 16:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A deep upper trough, developing through the central U.S. and swinging into the southeast states the Tuesday before Thanksgiving induced an area of low pressure along the eastern Gulf Coastal region. As the upper trough shifted into the eastern U.S., the surface low underwent explosive development as it moved northward

along the southeast and Mid-Atlantic coastal region. The deepening surface low pulled cold air and moisture into the region bringing a period of snow to areas west of the Blue Ridge on one of the busiest travel days of the year. Snowfall amounts were generally in the one to three inch range, but several locations saw snowfall in the three to four inch range across southwest Virginia, northwest North Carolina, and southeast West Virginia. The heaviest snowfall within southwest Virginia was at Mount Rogers in Grayson county where eight inches of snow was observed. The heavy wet snow resulted and combined gusty winds resulted in power outages for several thousands residents of southwest Virginia counties.
Here are some of the snow reports from southwest Virginia as of mid-morning on the day before Thanksgiving, namely November 26, 2014. The amounts below represent the maximum amounts reported from these counties.
Alleghany (4E Covington) - 3 inches, Bath (Warm Springs) - 4 inches, Bedford (peaks of Otter) - 4 inches, Bland (5N Bland) - 3 inches, Botetourt (Fincastle) - 1.5 inch, Carroll (Hebron) - 4.9 inches, Craig (2W Simmonsville) - 6.5 inches, Floyd (Check) - 4.5 inches, Giles (Mountain Lake) - 5 inches, Grayson (Mount Rogers) - 8 inches, Montgomery (2SSW Christiansburg) - 5.8 inches, Patrick (Meadows of Dan) - 3.8 inches, Pulaski (2S Snowville) - 6.1 inches, Roanoke (3ESE Cave Spring) - 2.5 inches, Rockbridge (Raphine) - 4.0 inches, Smyth (Sugar Grove) - 3.5 inches, Tazewell (Burkes Garden) - 1.6 inch, Wythe (Rural Retreat) - 3.0 inches.
Event Narrative The Burkes Garden CO-OP observer reported 1.6 inches of snow, while the public observed 0.5 inch and 1.0 inch of snow at Maiden Spring and Richlands, respectively.

Event High Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-01-04 07:45 EST-5
End Date 2015-01-04 08:05 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 2.00K
Crop Damage
Episode Narrative A strong low level jet from the southwest increased in advance of an approaching cold front. Some of these stronger winds aloft were able to mix to the surface and down some trees. Near the community of Claypool Hill, one tree was blown down on College Estates Road. A few trees were blown down within the community of Bluefield.
Event Narrative A few trees were blown down in the community of Bluefield. On College Estates Road in Claypool Hill, one tree was toppled by the wind. Damage values are estimated.

Event Winter Storm
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2015-02-16 09:00 EST-5
End Date 2015-02-17 12:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Immediately on the heels of the intense Arctic outbreak that spread into the region on the 14th and 15th came the most significant snow storm to affect the region since February 12th and 13th of 2014. The snow storm was the result of a strong upper-level disturbance tracking from the central U.S. into the eastern U.S. on top of the bitterly cold Arctic air mass. A surface low pressure area tracked across the southeast states to off the North Carolina coast, a fairly typical scenario for bigger snowfall events in our area. Temperatures had little to no time to recover at all from the bitterly cold temperatures of the 15th. As snow spread into the region during the late morning and early afternoon hours of the 16th, temperatures were only in the upper teens to lower 20s across the region and fell back into the 10 to 20 degree range across much of the region during the heavier snow. Snowfall amounts were significant in many areas, ranging from 3 to 4 inches across the Piedmont, where some sleet mixed in during the later

part of the event, to 8 to 11 inches across the New River Valley, Greenbrier Valley, and Tazewell county in far southwest Virginia. In addition to the snow storm, the extended period of extreme cold preceding and following this event caused many ponds to ice over. A 51-year old female died when she fell into an ice covered pond in Pittsylvania County while trying to feed ducks. Her husband was also rescued from the frozen waters, but without injury. In Blacksburg, two children had to be rescued from an ice-covered pond. There were also a vehicle-related death during the snow storm on Interstate 81 in Wythe county where a vehicle ran off the right side of the road into the median and overturned, killing the driver. There were 53 vehicle accidents and 121 disabled vehicles during the height of the snow storm.
Here are the snowfall amounts from the southwest and south central Virginia counties within our forecast area: Alleghany County - 8.5 inches 4E of Covington to 6.5 inches at Covington, Amherst County - 7.0 inches 2W of Elon and 3SW of Lowesville, Appomattox County - 9.0 inches at Stonewall to 7.0 inches 2NW of Oakville, Bath County - 8.0 inches at Mountain Grove to 5.0 inches at Williamsville, Bedford County - 9.5 inches at Forest to 7.0 inches just southeast of Big Island, Bland County - 7.0 inches 3SSE or Suiter and Bland to 5.2 inches 3SW of Long Spur, Botetourt County - 10.0 inches at Laymantown to 8.0 inches just east-northeast of Cloverdale, Buckingham County - 8.0 inches of snow at Cumberland, Campbell County - 9.0 inches 4NNE of Rustburg to 7.2 inches at the Lynchburg Airport, Carroll County - 6.0 inches at Hillsville to 4.0 inches 2NNE of Galax/Hillsville Airport, Charlotte County - 6.2 inches at Charlotte Court House to 4.5 inches at Saxe, Craig County - 7.0 inches of snow in New Castle to 6.0 inches of snow 4W of New Castle, Floyd County - 6.0 inches 1SE of Simpsons to 3.0 inches 2SE of Willis, Franklin County - 8.0 inches 4SSW of Moneta to 5.0 inches at Rocky Mount, Giles County - 9.7 inches 2SE of Mountain Lake (elevation 4000 feet) to 7.5 inches 2E of Pearisburg, Grayson County - 6.0 inches 5NW of Baywood to 3.0 inches 3W of Baywood, Halifax County - 5.9 inches at South Boston to 3.0 inches at Clover, Henry County - 4.0 inches at Mountain Valley, Montgomery County - 9.5 inches 5NNE of Blacksburg (Brush Mountain) and 1E of Shawsville to 6.0 inches 3E of Pilot, Patrick County - 5.5 inches 4ESE of Buffalo Ridge, Pittsylvania County - 5.0 inches at Pittsville to 2.0 inches at Danville, Pulaski County - 6.0 inches from Draper to Snowville, Rockbridge County - 6.4 inches 3SW of Rockbridge Baths to 8.0 inches at Buena Vista, Roanoke County - 9.0 inches 4NW Roanoke Airport and Salem to 7.5 inches 1ESE of Roanoke Airport, Smyth County - 7.0 inches at Chilhowie to 4.8 inches 1N of Marion, Tazewell County - 11.0 inches at Burkes Garden and Richlands Wythe County - 5.2 inches 1WNW Gunton Park to 3.0 inches 2WSW Wytheville.
Event Narrative The COOP observers at Burkes Garden and Richlands both measured 11.0 inches of snow. The was the maximum amount of snow reported from this event in the Virginia counties within the Blacksburg National Weather Service forecast area.

Event Extreme Cold/Wind Chill
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Mesonet
NCEI Data Source CSV
Begin Date 2015-02-19 05:00 EST-5
End Date 2015-02-19 09:30 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative The second major Arctic blast to affect the region within the same 7-day period surged through the region on the 18th sending temperatures to their lowest levels in over a year and by the morning of the 20th setting record low temperatures. Maximum temperatures on the 19th failed to rise above 20F across the Piedmont and failed to even reach 10F across the western mountains. All of the climate stations within the Blacksburg National Weather Service Forecast Office County Warning Area (CWA) tied record low maximum temperatures on the 18th and all but Bluefield did the same on the 20th. All of the climate stations set record low temperatures the morning of February 20th, with Lynchburg recording a new all time record low temperature of 11F early in the morning on the 20th. The first morning after the Arctic frontal passage brought bitterly cold temperatures and gusty northwest winds leading to dangerously low wind chills. The record cold resulted in at least one instance of frozen water pipes at an office building in Lynchburg which suffered extensive damage as a result. Undoubtedly, there are countless other such events for which documentation was not received. Below are the highlights of the dangerously low -20F or lower wind chills from the Virginia counties within the Blacksburg National Weather Service Forecast area as well as the plethora of record low and record low maximum temperatures set as a result of this Arctic outbreak:
Wind Chills: Bath County - the Hot Springs (Ingalls Field) AWOS (KHSP) recorded a wind chill of -32F at 715 am EST on the 19th, Bland County - a mesonet station in Bland recorded a wind chill of -20F at 725 am EST on the 19th, Carroll County - the Galax/Hillsville Airport (KHLX) recorded a wind chill of -25F at 815 am EST on the 19th while a mesonet station 2N of Fancy Gap recorded a wind chill of -21F at 829 am EST on the 19th,

Grayson County - A wind chill of -24F was recorded 2NNW of Elk Creek by a mesonet station at 746 am EST on the 19th, Montgomery County - wind chill readings of -23F to -25F were recorded 4E of Childress and 4NE of Blacksburg at 835 am EST and 747 am EST via mesonet stations on the 19th, respectively. A wind chill of -22F was recorded by a mesonet station at Radford. Pulaski County - wind chill readings of -25F 2SW of Graysontown and -20F at the Pulaski County/Dublin Airport, Roanoke County - a wind chill reading of -23F was recorded 3NNW of Bent Mountain by a mesonet station at 841 am EST on the 19th, Smyth County - a wind chill reading of -24F was recorded at the Marion/Wytheville Mt. Empire Airport (KMKJ) at 835 am EST on the 19th, Tazewell County - wind chill readings of -24F were recorded by mesonet stations 5SW of Claypool Hill, 2ENE of Tazewell, and 2S of Richlands at 759 am EST, 840 am EST, and 735 am EST on the 19th, respectively, Wythe - a wind chill reading of -22F was recorded 2E of the Marion/Wytheville Airport.
Record Low Maximum Temperatures on the 19th: Roanoke - maximum temperature of 13F tied for 7th coldest on record and coldest maximum temperature since 12/22/1989. Coldest on record is 11F set on 12/22/1989, Blacksburg - maximum temperature of 7F tied for 5th coldest on record and coldest maximum temperature observed since 1/10/1970. Coldest on record is 2F set on 1/28/1996. Lynchburg - maximum temperature of 15F tied for 15th coldest on record and coldest maximum temperature since 1/10/1984. Coldest on record is 9F set on 2/13/1899. Danville - maximum temperature of 20F tied for the 3rd coldest on record and coldest maximum temperature since 1/15/1994. Coldest on record is 16F set on 2/17/1958.
Record Low Maximum Temperatures on the 20th: Roanoke - maximum of 22F broke previous record of 26F set in 1947, Blacksburg -maximum of 21F tied previous record of 21F set in 1958, Lynchburg - maximum of 18F broke previous record of 23F set in 1947, Danville - maximum of 24F broke previous record of 35F set in 1972.
Record Low Temperatures on the 20th: Roanoke - minimum of 0F broke previous record of 9F set in 1979, Blacksburg - minimum temperature of -5F broke previous record of 2F set in 1972, Lynchburg - minimum temperature of -11F broke previous record of 7F set in 1896. Note, this is also the all time minimum temperature for Lynchburg, breaking the previous record of -10F set on 2/5/1996 and 1/21/1985. Danville - minimum temperature of 3F broke previous record of 10F set in 1979.
Event Narrative Mesonet stations recorded wind chill readings of -24F 5SW of Claypool Hill, -24F 2ENE of Tazewell, and -23F 2S Richlands at 759 am EST, 840 am EST, and 735 am EST, respectively.

Event Winter Storm
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2015-02-21 08:00 EST-5
End Date 2015-02-22 06:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Right on the heels of the second surge of bitterly, record cold air to affect the forecast area within the same week and only five days since the previous significant snow storm, yet another significant winter storm impacted the forecast area. This storm was result of complex series of low pressure areas tracking along a stalled front across the southeast states and an upper-trough embedded within a very deep and persistent long-wave trough across the eastern U.S. Snow began to fall during the late morning and early afternoon spreading northward during the late afternoon and evening. Unlike the President's Day snow storm, this storm brought significantly greater two foot amounts to the northern portions of the forecast area, especially along the Interstate 64 corridor, while markedly less snow fell in the southern parts of the forecast area. The vast majority of winter storm-criteria snowfall (4 inches east to 5 inches west/6 hours) fell north of U.S. 460 with this event. Very little snowfall fell south of U.S. 460 and especially across the Virginia and North Carolina Piedmont. Snowfall amounts ranged from less than inch across most counties near the North Carolina border and east of Interstate 77 to two feet of snow across northern and western Greenbrier county West Virginia. However, at the end of this event as warm air aloft spread into the region, precipitation changed to freezing rain bringing ice accumulations of 1/10 to 1/4 inch to a number of counties east of Interstate 81.
The heavy snow across the northern parts of the forecast area resulted in two avalanches, a rare event in Virginia. One occurred on Virginia Route 623 in Tazewell county near Burkes Garden and the other was on U.S. 220 in Alleghany county near Iron Gate. In addition, there were over 100 traffic accidents and disabled vehicles across Virginia alone.
The following are snow and ice totals reported from southwest and south central Virginia counties within the Blacksburg National Weather Service Forecast area:
Snowfall: Alleghany County - 11.0 inches 4E of Covington to 8.0 inches in Alleghany, Amherst County - 11.0 inches 2SW Pera to 6.0 inches at Elon, Appomattox County - 3.0 inches at Appomattox, Bath County - 15 inches at Warm

Springs to 13 inches at Bath Alum, Bedford County - 9.5 inches at Big Island to 4.0 inches 5WSW of Bedford, Bland County - 7.0 inches at Ceres to 6.0 inches at Bland, Botetourt County - 12.0 inches at Fincastle to 9.0 inches at Buchanan, Buckingham County - 4.0 inches 1NW of Gold Hill to 1.8 inches 7N of Dillwyn, Campbell County - 5.0 inches City of Lynchburg, 3.0 inches at Concord and at the Lynchburg Airport to 2.0 inches at Rustburg, Carroll County - 1.5 inches 2SSE of Byllesby, Craig County - 18.0 inches at New Castle, Floyd County - 1.3 inches at Check, Franklin County - 3.5 inches at Rocky Mount to 2.3 inches at Callaway, Giles County - 8.0 inches 2SE Mountain Lake to 6.1 inches at Pearisburg, Grayson County - 1.5 inches 3SSW of Elk Creek, Montgomery County - 9.0 inches 5NNE of Blacksburg, 7.5 inches Blacksburg, 2.1 inches Christiansburg, to < 1.0 inch at Pilot, Patrick County - 1.0 inch 2W Critz, Pulaski County - 10.5 inches at Pulaski to 2.8 inches at Draper, Roanoke County - 11.5 inches at Catawba, 8.8 inches at Roanoke, 7.0 inches at Salem, to 3.0 inches 3NNW Boones Mill, Rockbridge County - 16.0 inches 3NW Rockbridge Baths and Zack 15.5 inches at Lexington, to 12.0 inches at Buena Vista, Smyth County - 4.0 inches at Chilhowie to 3.5 inches 2N Marion, Tazewell County - 9.0 inches at Tannersville to 7.0 inches at North Tazewell, Wythe County - 2.3 inches in Wytheville.
Ice: Alleghany County - 0.10 inch 4E of Covington, Bedford County - 0.25 inch 5WSW of Bedford to 0.10 inch 5NNW of Forest, Buckingham County - 0.10 inch 7N Dillwyn and in Buckingham, Campbell County - 0.30 inch at Altavista to 0.13 inch 1SE of Timberlake, Floyd County - 0.10 inch at Floyd, Franklin County - 0.25 inch at Boones Mill to 0.10 inch 3ESE of Roanoke Mountain, Henry County - 0.10 inch 6W of Bassett, Pittsylvania County - 0.10 inch at Pittsville, Pulaski County - 0.10 inch 2S Snowville and in Pulaski, Roanoke - 0.25 inch 3NNW of Boones Mill to 0.20 inch in Salem, Smyth County - 0.10 inch at Chilhowie, Tazewell County - 0.10 inch at North Tazewell.
Event Narrative A spotter measured 9.0 inches of snow in Tannersville. The public measured 7.0 inches of snow in North Tazewell along with 0.10 inch of ice. Elsewhere across the county, amounts were generally less than 7.0 inches.

Event Avalanche
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Broadcast Media
NCEI Data Source CSV
Begin Date 2015-02-21 15:00 EST-5
End Date 2015-02-21 15:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Right on the heels of the second surge of bitterly, record cold air to affect the forecast area within the same week and only five days since the previous significant snow storm, yet another significant winter storm impacted the forecast area. This storm was result of complex series of low pressure areas tracking along a stalled front across the southeast states and an upper-trough embedded within a very deep and persistent long-wave trough across the eastern U.S. Snow began to fall during the late morning and early afternoon spreading northward during the late afternoon and evening. Unlike the President's Day snow storm, this storm brought significantly greater two foot amounts to the northern portions of the forecast area, especially along the Interstate 64 corridor, while markedly less snow fell in the southern parts of the forecast area. The vast majority of winter storm-criteria snowfall (4 inches east to 5 inches west/6 hours) fell north of U.S. 460 with this event. Very little snowfall fell south of U.S. 460 and especially across the Virginia and North Carolina Piedmont. Snowfall amounts ranged from less than inch across most counties near the North Carolina border and east of Interstate 77 to two feet of snow across northern and western Greenbrier county West Virginia. However, at the end of this event as warm air aloft spread into the region, precipitation changed to freezing rain bringing ice accumulations of 1/10 to 1/4 inch to a number of counties east of Interstate 81.
The heavy snow across the northern parts of the forecast area resulted in two avalanches, a rare event in Virginia. One occurred on Virginia Route 623 in Tazewell county near Burkes Garden and the other was on U.S. 220 in Alleghany county near Iron Gate. In addition, there were over 100 traffic accidents and disabled vehicles across Virginia alone.
The following are snow and ice totals reported from southwest and south central Virginia counties within the Blacksburg National Weather Service Forecast area:
Snowfall: Alleghany County - 11.0 inches 4E of Covington to 8.0 inches in Alleghany, Amherst County - 11.0 inches 2SW Pera to 6.0 inches at Elon, Appomattox County - 3.0 inches at Appomattox, Bath County - 15 inches at Warm Springs to 13 inches at Bath Alum, Bedford County - 9.5 inches at Big Island to 4.0 inches 5WSW of Bedford, Bland County - 7.0 inches at Ceres to 6.0 inches at Bland, Botetourt County - 12.0 inches at Fincastle to 9.0 inches at Buchanan, Buckingham County - 4.0 inches 1NW of Gold Hill to 1.8 inches 7N of Dillwyn, Campbell County - 5.0 inches City of Lynchburg, 3.0 inches at Concord and at the Lynchburg Airport to 2.0 inches at Rustburg, Carroll County - 1.5 inches 2SSE of Byllesby, Craig County - 18.0 inches at New Castle, Floyd County - 1.3 inches at Check, Franklin County - 3.5 inches at Rocky Mount to 2.3 inches at Callaway, Giles County - 8.0 inches 2SE Mountain Lake

to 6.1 inches at Pearisburg, Grayson County - 1.5 inches 3SSW of Elk Creek, Montgomery County - 9.0 inches 5NNE of Blacksburg, 7.5 inches Blacksburg, 2.1 inches Christiansburg, to < 1.0 inch at Pilot, Patrick County - 1.0 inch 2W Critz, Pulaski County - 10.5 inches at Pulaski to 2.8 inches at Draper, Roanoke County - 11.5 inches at Catawba, 8.8 inches at Roanoke, 7.0 inches at Salem, to 3.0 inches 3NNW Boones Mill, Rockbridge County - 16.0 inches 3NW Rockbridge Baths and Zack 15.5 inches at Lexington, to 12.0 inches at Buena Vista, Smyth County - 4.0 inches at Chilhowie to 3.5 inches 2N Marion, Tazewell County - 9.0 inches at Tannersville to 7.0 inches at North Tazewell, Wythe County - 2.3 inches in Wytheville.
Ice: Alleghany County - 0.10 inch 4E of Covington, Bedford County - 0.25 inch 5WSW of Bedford to 0.10 inch 5NNW of Forest, Buckingham County - 0.10 inch 7N Dillwyn and in Buckingham, Campbell County - 0.30 inch at Altavista to 0.13 inch 1SE of Timberlake, Floyd County - 0.10 inch at Floyd, Franklin County - 0.25 inch at Boones Mill to 0.10 inch 3ESE of Roanoke Mountain, Henry County - 0.10 inch 6W of Bassett, Pittsylvania County - 0.10 inch at Pittsville, Pulaski County - 0.10 inch 2S Snowville and in Pulaski, Roanoke - 0.25 inch 3NNW of Boones Mill to 0.20 inch in Salem, Smyth County - 0.10 inch at Chilhowie, Tazewell County - 0.10 inch at North Tazewell.
Event Narrative WVVA Television reported that there was an avalanche on Virginia route 623 near Burkes Garden. The road was closed for several hours until the snow could be cleared from the road.

Event Winter Weather
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2015-02-25 23:00 EST-5
End Date 2015-02-26 05:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A low pressure area took a fairly classic path from the northeast Gulf to off the North Carolina coast between the afternoon of the 25th and the morning of the 26th. However, the track of the low was a little further south and east than needed to bring optimal snowfall to the region. Snowfall amounts were heaviest across the southern counties of the forecast area and especially across the North Carolina counties. Snowfall amounts ranged from 4.0 to 8.0 inches across northwest and north central North Carolina, to 3.0 to 6.0 inches across southwest Virginia and Southside Virginia, mostly east of the Blue Ridge, to 2.0 to 3.0 inches further north across southeast West Virginia and toward the Shenandoah Valley of Virginia. The heaviest snow was nearly all south of U.S. 460 across the forecast area.
Here are the snowfall amounts reported from the Virginia counties within the Blacksburg, Virginia National Weather Service Forecast Office area:
Amherst County - 4.0 to 5.0 inches across the county, Bedford County - 4.0 to 6.0 inches across the county, Bland County - 3.0 to 4.0 inches across the county, Botetourt County - 3.0 to 4.0 inches across the county, Campbell County - 3.0 to 6.0 inches across the county, Charlotte County - 5.0 to 6.0 inches across the county, Floyd County - 5.0 inches across much of the county, Giles County - 2.0 to 3.0 inches across the county, Grayson County - 5.0 to 6.0 inches across the county, Montgomery County - 3.0 to 4.0 inches across the county, Patrick County - 5.0 to 6.0 inches across the county, Roanoke County - 3.0 to 4.0 inches across the county, Rockbridge County - 2.0 to 3.0 inches across the county, Smyth County - 4.0 to 5.0 inches across the county, Tazewell County - 3.0 to 4.0 inches across the county, Wythe County - 4.0 inches across much of the county.
Event Narrative The Tazewell County Sheriff's Office reported 4.0 inches of snow in Tazewell and the public measured 4.0 inches of snow in Richlands. Elsewhere across the county, snowfall amounts were mostly in the 2.5 to 3.0 range as reported by spotters.

Event Flood
-- Flood Cause Heavy Rain / Snow Melt
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-03-04 08:00 EST-5
Begin Location 0WSW RED ASH

Begin Lat/Lon 37.1176/-81.8852
End Date 2015-03-05 22:00 EST-5
End Location 1W AMONATE
End Lat/Lon 37.1773/-81.6765
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative A wet period began early on the 4th as a complex series of disturbances lifted northeast through the Ohio Valley pushing a slow-moving cold front across the area. Rainfall ending 0700 EST on March 4th was confined to the northwestern mountains with amounts to that time from 0.25 to 0.75 inches. Stream gages across parts of the western New and Greenbrier basins were rising rapidly during the overnight and early morning hours of March 4th. The wet soils and rapid snowmelt were strong contributors to the rapid runoff. Snow water equivalents per the National Operational Hydrologic Remote Sensing Center (NOHRSC) in parts of these river basins ranged from around 1��� to as much as 4��� in the higher terrain at the outset of the flooding. The rain and warmer temperatures caused rapid snowmelt the entire day on the 4th along with continued rainfall and there were numerous reports of flooding.
Event Narrative Numerous roads were closed due to flooding across the county. A church and several properties were flooded in the Raven area causing significant damage. The Clinch River at Richlands in western Tazewell County crested above the Moderate Flood Stage (12 feet) at 12.29 feet early on the 5th which was the highest stage observed since March, 1998.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-05-16 18:30 EST-5
Begin Location 1ENE HORSEPEN
End Date 2015-05-16 21:40 EST-5
End Location 2NNE MUD FORK
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A thunderstorm over northeast Tazewell County produced 2 or more inches of rain a few hours and caused some pockets of flash flooding.
Event Narrative Water was reported to be flowing across several roads in the Abbs Valley Area including portions of Abbs Valley Road, Route 161 and Bo Street rendering them impassable and closed in those locations.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-05-16 19:00 EST-5
Begin Location 0N YARDS
End Date 2015-05-16 21:00 EST-5
End Location 0N YARDS
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A thunderstorm over northeast Tazewell County produced 2 or more inches of rain a few hours and caused some pockets of flash flooding.

Event Narrative Heavy rains caused Big Branch Creek to climb out of its banks and flood Big Branch Road.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2015-06-08 17:49 EST-5
Begin Location 0SW BAILEY
Begin Lat/Lon 37.2183/-81.3823
End Date 2015-06-08 17:49 EST-5
End Location 0SW BAILEY
End Lat/Lon 37.2183/-81.3823
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.50K
Crop Damage 0.00K
Episode Narrative A few thunderstorms became severe during the afternoon and evening of June 8th, triggered by the combination of instability associated with an upper level trough digging across the eastern United States, pushing a cold front southward toward the central Appalachians. Surface-based CAPE (Convective Available Potential Energy) values ahead of the approaching cold front rose to around 2000 J/Kg with afternoon heating.
Event Narrative A tree was blown down across Baily Switch Road.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2015-06-21 16:00 EST-5
Begin Location 2N TIPTOP
Begin Lat/Lon 37.2295/-81.4297
End Date 2015-06-21 16:00 EST-5
End Location 2N TIPTOP
End Lat/Lon 37.2295/-81.4297
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Upper level ridging became established across the central Plains, with upper level troughing observed across the Great Lakes region, resulting in west northwesterly wind flow aloft for the central Appalachians. Upper level disturbances embedded within the flow passed across the forecast area, triggering a few strong to severe thunderstorms. CAPE (Convective Available Potential Energy) values were observed exceeding 2000 J/Kg during the afternoon and early evening.
Event Narrative

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2015-06-21 16:10 EST-5
Begin Location 1NE POCAHONTAS

Begin Lat/Lon 37.3076/-81.3386
End Date 2015-06-21 16:10 EST-5
End Location 1NE POCAHONTAS
End Lat/Lon 37.3076/-81.3386
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.50K
Crop Damage 0.00K
Episode Narrative Upper level ridging became established across the central Plains, with upper level troughing observed across the Great Lakes region, resulting in west northwesterly wind flow aloft for the central Appalachians. Upper level disturbances embedded within the flow passed across the forecast area, triggering a few strong to severe thunderstorms. CAPE (Convective Available Potential Energy) values were observed exceeding 2000 J/Kg during the afternoon and early evening.
Event Narrative A tree was blown down in the community of Pocahontas.

Event Strong Wind
Magnitude 40 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2015-06-26 22:57 EST-5
End Date 2015-06-26 22:57 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.10K
Crop Damage 0.00K
Episode Narrative Upper level clouds from a thunderstorm complex arriving during the morning of June 26th cleared across the mountains of North Carolina into southern Virginia by early afternoon, allowing strong surface heating to take place. The heating provided instability for the remnants of a strong thunderstorm complex arriving from eastern Tennessee and Kentucky to allow a few storms to pulse upward to severe levels.
Event Narrative Tree limbs less than an inch in diameter and a few roof shingles were blown down in the Richlands area during a thunderstorm. Dime-size hail was also observed.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-07-05 19:00 EST-5
Begin Location 0N POCAHONTAS
End Date 2015-07-05 23:00 EST-5
End Location 0ENE POCAHONTAS
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 3.50M
Crop Damage 0.00K
Episode Narrative Heavy rainfall developed across portions of the southern Appalachian mountains as clearing ahead of a slow-moving surface low over the Cumberland Gap allowed instabilities to rise into the 2000 J/Kg range along with good upper divergence. Developing storms and cell mergers produced rainfall rates of 1.5���/hr with totals up to 3-4��� in isolated storms. A Flash Flood Warning was issued for Tazewell County at 737 PM EDT where radar had showed 1 to 2 inches of rain had fallen with more expected. Total rainfall amounts reached 2.5 to 3 inches in a 3-hour period ending around 02z (10 PM on the 5th) over parts of northeastern Tazewell County which produced substantial flash flooding and debris flows in several locations. The worst flooding occurred along Laurel Fork near the town of Pocahontas where 25 homes, 5 businesses and 2 mobile homes were damaged or destroyed.
Event Narrative Laurel Creek flooded about half of the town of Pocahontas. 25 homes, 5 businesses and 2 mobile

homes were damaged or destroyed. Total damage estimates reached $3.5 million, primarily due to a single business that was uninsured and destroyed. Multiple roads across northeast Tazewell County were reported to be closed due to flooding and mudslides as well.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2015-07-05 19:38 EST-5
Begin Location 1W YARDS
End Date 2015-07-05 21:00 EST-5
End Location 1W YARDS
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Heavy rainfall developed across portions of the southern Appalachian mountains as clearing ahead of a slow-moving surface low over the Cumberland Gap allowed instabilities to rise into the 2000 J/Kg range along with good upper divergence. Developing storms and cell mergers produced rainfall rates of 1.5���/hr with totals up to 3-4��� in isolated storms. A Flash Flood Warning was issued for Tazewell County at 737 PM EDT where radar had showed 1 to 2 inches of rain had fallen with more expected. Total rainfall amounts reached 2.5 to 3 inches in a 3-hour period ending around 02z (10 PM on the 5th) over parts of northeastern Tazewell County which produced substantial flash flooding and debris flows in several locations. The worst flooding occurred along Laurel Fork near the town of Pocahontas where 25 homes, 5 businesses and 2 mobile homes were damaged or destroyed.
Event Narrative Big Branch Creek flooded its banks, crossing over Big Branch Road.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-07-05 20:00 EST-5
Begin Location 1NNE WITTENS MILLS
End Date 2015-07-05 23:00 EST-5
End Location 1E FIVE OAKS
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Heavy rainfall developed across portions of the southern Appalachian mountains as clearing ahead of a slow-moving surface low over the Cumberland Gap allowed instabilities to rise into the 2000 J/Kg range along with good upper divergence. Developing storms and cell mergers produced rainfall rates of 1.5���/hr with totals up to 3-4��� in isolated storms. A Flash Flood Warning was issued for Tazewell County at 737 PM EDT where radar had showed 1 to 2 inches of rain had fallen with more expected. Total rainfall amounts reached 2.5 to 3 inches in a 3-hour period ending around 02z (10 PM on the 5th) over parts of northeastern Tazewell County which produced substantial flash flooding and debris flows in several locations. The worst flooding occurred along Laurel Fork near the town of Pocahontas where 25 homes, 5 businesses and 2 mobile homes were damaged or destroyed.
Event Narrative Multiple roads and portions of Route 460 between Tazewell and Bluefield were closed due to flash flooding.

Event Flash Flood
-- Flood Cause Heavy Rain
State VIRGINIA

County/Area TAZEWELL
WFO RNK
Report Source Broadcast Media
NCEI Data Source CSV
Begin Date 2015-07-05 20:00 EST-5
Begin Location 2NNE MUD FORK
End Date 2015-07-05 23:00 EST-5
End Location 2NNE MUD FORK
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 200.00K
Crop Damage 0.00K
Episode Narrative Heavy rainfall developed across portions of the southern Appalachian mountains as clearing ahead of a slow-moving surface low over the Cumberland Gap allowed instabilities to rise into the 2000 J/Kg range along with good upper divergence. Developing storms and cell mergers produced rainfall rates of 1.5���/hr with totals up to 3-4��� in isolated storms. A Flash Flood Warning was issued for Tazewell County at 737 PM EDT where radar had showed 1 to 2 inches of rain had fallen with more expected. Total rainfall amounts reached 2.5 to 3 inches in a 3-hour period ending around 02z (10 PM on the 5th) over parts of northeastern Tazewell County which produced substantial flash flooding and debris flows in several locations. The worst flooding occurred along Laurel Fork near the town of Pocahontas where 25 homes, 5 businesses and 2 mobile homes were damaged or destroyed.
Event Narrative Five homes in Abbs Valley were flooded and considered a total loss.

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2015-07-13 17:00 EST-5
Begin Location 4SSW PUCKETTS STORE
Begin Lat/Lon 36.97/-81.63
End Date 2015-07-13 17:00 EST-5
End Location 4SSW PUCKETTS STORE
End Lat/Lon 36.97/-81.63
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage
Episode Narrative A line of thunderstorms associated with a larger cluster of storms advanced southeast through the region. A large number of trees were downed across the area, and some storms produced large hail during the late afternoon and early evening. An isolated severe storm not associated with the thunderstorm complex generated quarter size hail much earlier in the day in Bedford.
Event Narrative Thunderstorm winds down several trees in the Tannersville area. Damage values are estimated.

Event Thunderstorm Wind
Magnitude 60 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2015-07-13 17:08 EST-5
Begin Location 2ENE HORSEPEN
Begin Lat/Lon 37.2417/-81.4968
End Date 2015-07-13 17:36 EST-5
End Location 6S MALDEN SPGS
End Lat/Lon 36.9415/-81.6781
Deaths Direct/Indirect 0/0 (fatality details below, when available...)

Injuries Direct/Indirect **0/0**
Property Damage **20.00K**
Crop Damage
Episode Narrative **A line of thunderstorms associated with a larger cluster of storms advanced southeast through the region. A large number of trees were downed across the area, and some storms produced large hail during the late afternoon and early evening. An isolated severe storm not associated with the thunderstorm complex generated quarter size hail much earlier in the day in Bedford.**
Event Narrative Thunderstorm winds downed trees across the county. Damage values are estimated.

Event **Hail**
Magnitude **0.88 in.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Social Media**
NCEI Data Source **CSV**
Begin Date **2015-07-13 17:17 EST-5**
Begin Location **1NE CEDAR BLUFF**
Begin Lat/Lon **37.09/-81.76**
End Date **2015-07-13 17:17 EST-5**
End Location **1NE CEDAR BLUFF**
End Lat/Lon **37.09/-81.76**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage
Crop Damage
Episode Narrative **A line of thunderstorms associated with a larger cluster of storms advanced southeast through the region. A large number of trees were downed across the area, and some storms produced large hail during the late afternoon and early evening. An isolated severe storm not associated with the thunderstorm complex generated quarter size hail much earlier in the day in Bedford.**
Event Narrative

Event **High Wind**
Magnitude **50 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Law Enforcement**
NCEI Data Source **CSV**
Begin Date **2015-11-18 04:00 EST-5**
End Date **2015-11-18 18:00 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **10.00K**
Crop Damage **0.00K**
Episode Narrative **High pressure was wedged against the eastern face of the Appalachians, while a deep low pressure system passed across the central Plains states. The tight pressure gradient between the two features resulted in 60 to 65 knot southeasterly low level jet along the central Appalachians. Winds were particularly strong on the west side of the actual ridge lines, where downslope flow acted to draw the winds of the low level jet toward the surface, resulting in surface gusts 50 to nearly 60 mph.**
Event Narrative Several trees and powerlines were blown down at multiple locations across Tazewell county at various times through the day due to persistent damaging southeasterly winds.

Event **Winter Weather**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Newspaper**

NCEI Data Source **CSV**
Begin Date **2016-01-05 06:30 EST-5**
End Date **2016-01-05 16:00 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **2/0**
Property Damage
Crop Damage **0.00K**
Episode Narrative **A cold front pushed through the region during the overnight hours January 4th/5th resulting in localized snow squalls across portions of the western highlands of Virginia. These squalls produced 1-2 inches of snow in a very short period of time during rush hour that resulted in several accidents.**
Event Narrative Multiple vehicle accidents were reported across portions of southeast West Virginia and far Western portions of Virginia due to snowy and icy conditions. Snow squalls coupled with temperatures in the mid-20's were determined to be the primary cause of an accident with injuries near the Country Club in Tazewell County. Multiple tractor trailers reported having issues along Falls Mills Road according to Tazewell County Warning Point.

Event **Winter Storm**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Trained Spotter**
NCEI Data Source **CSV**
Begin Date **2016-01-22 03:00 EST-5**
End Date **2016-01-23 21:00 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage
Crop Damage
Episode Narrative **A significant winter storm pushed from southwest to northeast, spreading periods of moderate to heavy snowfall across portions of southwest Virginia January 22nd through the 23rd. Snowfall continued through the day Friday and into Saturday before coming to an end after sunset. Accumulations from 6 to 12 inches of snow were commonplace, with portions of the higher elevations well over a foot of snowfall. Sleet mixed in at times, especially south and west of the Blue Ridge Mountains.**
Event Narrative Snowfall amounts between 8 and 14 inches were observed across several locations throughout the county. The highest accumulation report was recieved out of Burkes Garden, where 14 inches was measured. A brief period of sleet was also reported during this storm.

Event **Winter Storm**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **911 Call Center**
NCEI Data Source **CSV**
Begin Date **2016-02-08 16:35 EST-5**
End Date **2016-02-11 17:35 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage
Crop Damage **0.00K**
Episode Narrative **A strong cyclone sank into the Ohio Valley and then remain near stationary for three days. Two separate cold fronts associated with this low passed through the region. With passage of the first front a rain/snow mix developed. The passage of the second front would encourage more robust snow amounts.**
Event Narrative Snowfall amounts between 6 to 7 inches were observed across several locations in the county. The highest accumulation was in the Tazewell area where 7 inches was estimated.

Event **Winter Storm**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**

Report Source Public
NCEI Data Source CSV
Begin Date 2016-02-14 12:15 EST-5
End Date 2016-02-16 02:00 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage 0.00K
Episode Narrative A strong winter storm took a favorable track for heavy snow and a wintry mix, moving from the southeast U.S. into New England. This resulted in widespread heavy snow across southwest Virginia. In the mountains, snowfall in excess of 6-10 inches was common with small amounts of freezing rain. East of the Blue Ridge, while some locations did get up to 6 inches of snow, the freezing rain amounts were far more significant. In the wake of the storm, strong winds were seen through the region. Coupled with the icy conditions, this led to numerous traffic accidents and power outages.
Event Narrative Snowfall amounts between 6 to 8 inches were observed across several locations in the county. The highest accumulation was in the Cedar Bluff area where 8 inches was measured. Small amounts of sleet were also observed with this storm.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source State Official
NCEI Data Source CSV
Begin Date 2016-03-14 15:25 EST-5
Begin Location 0W GRATTON
Begin Lat/Lon 37.1301/-81.421
End Date 2016-03-14 15:25 EST-5
End Location 0W GRATTON
End Lat/Lon 37.1301/-81.421
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Early morning stratus associated with high pressure wedged against the eastern face of the Appalachians eroded by early afternoon across much of the mid-Atlantic region due to strong daytime heating. This heating allowed surface temperatures to rise into the upper 60s and low 70s, while CAPE values increased into the 1000-1500 J/kg range. A strong upper level disturbance passed across the central Appalachians during the afternoon, triggering scattered showers and thunderstorms, a few of which intensified to severe levels. Lower freezing levels aloft due to the pool of cool air associated with the upper level disturbance proved conducive for the development of large hail during this event.
Event Narrative

Event High Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-04-02 19:00 EST-5
End Date 2016-04-03 00:35 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage
Episode Narrative A cold front moved through the area the afternoon of April 2nd, 2016. Wind gusts 58 MPH and greater brought down trees and power lines.

Event Narrative High winds blew trees down in Pounding Mill, Jewell Ridge, and North Tazewell. Damage values are estimated.

Event Hail
Magnitude 0.75 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2016-05-02 13:52 EST-5
Begin Location 1W YARDS
Begin Lat/Lon 37.28/-81.34
End Date 2016-05-02 13:52 EST-5
End Location 1W YARDS
End Lat/Lon 37.28/-81.34
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative A cold front situated across the Ohio Valley and extending into New England early on May 2nd began sagging south into an unstable air-mass during the afternoon and early evening. Scattered severe storms formed along this boundary, impacting a large portion of the Mid-Atlantic region, producing large hail and damaging winds.
Event Narrative

Event Hail
Magnitude 1.50 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2016-05-02 14:00 EST-5
Begin Location 1E YARDS
Begin Lat/Lon 37.28/-81.3
End Date 2016-05-02 14:00 EST-5
End Location 1E YARDS
End Lat/Lon 37.28/-81.3
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative A cold front situated across the Ohio Valley and extending into New England early on May 2nd began sagging south into an unstable air-mass during the afternoon and early evening. Scattered severe storms formed along this boundary, impacting a large portion of the Mid-Atlantic region, producing large hail and damaging winds.
Event Narrative

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Trained Spotter
NCEI Data Source CSV
Begin Date 2016-06-04 17:20 EST-5
Begin Location 1E RICHLANDS

Begin Lat/Lon **37.1/-81.8**
End Date **2016-06-04 17:20 EST-5**
End Location **1E RICHLANDS**
End Lat/Lon **37.1/-81.8**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **5.00K**
Crop Damage **0.00K**
Episode Narrative **A stationary boundary across the region would transition into a warm front, helping to trigger severe thunderstorms. This was the beginning of a very active weather pattern for the afternoons of the fourth and fifth of June.**
Event Narrative **Thunderstorm winds knocked several large trees down near Richlands.**

Event **Thunderstorm Wind**
Magnitude **50 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **911 Call Center**
NCEI Data Source **CSV**
Begin Date **2016-06-04 17:33 EST-5**
Begin Location **0N RICHLANDS ARPT**
Begin Lat/Lon **37.08/-81.83**
End Date **2016-06-04 17:33 EST-5**
End Location **0N RICHLANDS**
End Lat/Lon **37.1/-81.82**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **3.00K**
Crop Damage **0.00K**
Episode Narrative **A stationary boundary across the region would transition into a warm front, helping to trigger severe thunderstorms. This was the beginning of a very active weather pattern for the afternoons of the fourth and fifth of June.**
Event Narrative **A few trees reported down in locations west of Richlands due to thunderstorm winds.**

Event **Thunderstorm Wind**
Magnitude **50 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **911 Call Center**
NCEI Data Source **CSV**
Begin Date **2016-06-04 17:36 EST-5**
Begin Location **2ENE RICHLANDS**
Begin Lat/Lon **37.1074/-81.7926**
End Date **2016-06-04 17:36 EST-5**
End Location **2ENE RICHLANDS**
End Lat/Lon **37.1074/-81.7926**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **150.00K**
Crop Damage **0.00K**
Episode Narrative **A stationary boundary across the region would transition into a warm front, helping to trigger severe thunderstorms. This was the beginning of a very active weather pattern for the afternoons of the fourth and fifth of June.**
Event Narrative **Thunderstorm winds knocked over a tree along the railroad track and broke a railroad gate.**

Event **Thunderstorm Wind**

Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-06-16 20:15 EST-5
Begin Location 1WSW DORAN
Begin Lat/Lon 37.0947/-81.8633
End Date 2016-06-16 20:15 EST-5
End Location 1WSW DORAN
End Lat/Lon 37.0947/-81.8633
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage 0.00K
Episode Narrative At the beginning of a day, a low was centered over the Great Lakes region with an associated cold front extending back through the midwest. An upper level disturbance ahead of the low would trigger pulse convection in the mountains during the afternoon, but become more organized going eastward as the front advanced east. High moisture levels and warm temperatures contributed to the development of numerous showers and thunderstorms.
Event Narrative Thunderstorm winds knocked down power lines along Redwood Road.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-06-16 20:25 EST-5
Begin Location 1NE CEDAR BLUFF
Begin Lat/Lon 37.0882/-81.7629
End Date 2016-06-16 20:25 EST-5
End Location 1NE CEDAR BLUFF
End Lat/Lon 37.0882/-81.7629
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.50K
Crop Damage 0.00K
Episode Narrative At the beginning of a day, a low was centered over the Great Lakes region with an associated cold front extending back through the midwest. An upper level disturbance ahead of the low would trigger pulse convection in the mountains during the afternoon, but become more organized going eastward as the front advanced east. High moisture levels and warm temperatures contributed to the development of numerous showers and thunderstorms.
Event Narrative One tree was blown down by thunderstorm wind in the Cedar Bluff Area.

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-06-21 17:18 EST-5
Begin Location 1E RICHLANDS ARPT
Begin Lat/Lon 37.0822/-81.8133
End Date 2016-06-21 17:18 EST-5
End Location 1E RICHLANDS ARPT

End Lat/Lon 37.0822/-81.8133
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 2.50K
Crop Damage 0.00K
Episode Narrative A cold front was located from West Virginia into Pennsylvania. To the south of this boundary, unstable air was in placed with CAPES ranging from 1500-2000 j/kg. This unstable air mass, combined with moderate mid level shear, triggered a severe thunderstorm in Tazewell County.
Event Narrative Thunderstorm winds blew down multiple trees along Kents Ridge Road near Richlands.

Event Thunderstorm Wind
Magnitude 55 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-06-23 18:52 EST-5
Begin Location 1N BLUEFIELD
Begin Lat/Lon 37.2603/-81.279
End Date 2016-06-23 18:52 EST-5
End Location 1N BLUEFIELD
End Lat/Lon 37.2603/-81.279
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 10.00K
Crop Damage 0.00K
Episode Narrative While historic flooding that struck southeast West Virginia and the Alleghany Highlands of Virginia will be the event most remembered on this day, numerous severe thunderstorms impacted southwest Virginia, as well. A nearly stationary boundary over our area interacted with a very warm and unstable air mass, triggering multiple rounds of severe storms. This prolonged severe weather event started in the morning and continued well into the evening.
Event Narrative Thunderstorm winds downed numerous trees along State Route 102.

Event Thunderstorm Wind
Magnitude 52 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-06-23 19:15 EST-5
Begin Location 1S BLUEFIELD
Begin Lat/Lon 37.24/-81.28
End Date 2016-06-23 19:15 EST-5
End Location 1S BLUEFIELD
End Lat/Lon 37.24/-81.28
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative While historic flooding that struck southeast West Virginia and the Alleghany Highlands of Virginia will be the event most remembered on this day, numerous severe thunderstorms impacted southwest Virginia, as well. A nearly stationary boundary over our area interacted with a very warm and unstable air mass, triggering multiple rounds of severe storms. This prolonged severe weather event started in the morning and continued well into the evening.
Event Narrative Thunderstorm winds blew down multiple trees just west of Bluefield.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2016-07-08 14:52 EST-5
Begin Location 1E YARDS
Begin Lat/Lon 37.2783/-81.3003
End Date 2016-07-08 14:52 EST-5
End Location 1E YARDS
End Lat/Lon 37.2783/-81.3003
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative A strong upper level disturbance pushed across the central Appalachians, triggering an organized line of severe thunderstorms. Strong daytime heating ahead of an approaching cold front supported afternoon temperatures in the upper 80s and the low 90s. CAPE values approached 2500 J/Kg, while mid level winds were observed in the 30 to 40 knot range.
Event Narrative Two power poles were blown down by thunderstorm winds along Angel Lane.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source COOP Observer
NCEI Data Source CSV
Begin Date 2016-08-14 17:46 EST-5
Begin Location 1E BURKES GARDEN
Begin Lat/Lon 37.1/-81.34
End Date 2016-08-14 17:46 EST-5
End Location 1E BURKES GARDEN
End Lat/Lon 37.1/-81.34
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.60K
Crop Damage
Episode Narrative Afternoon showers and thunderstorm developed within a hot and humid airmass in advance of an approaching cold front. A couple of these storms increased in intensity to produce damaging winds that downed trees and large tree limbs.
Event Narrative Thunderstorm winds blew large tree limbs down. Damage values are estimated.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Law Enforcement
NCEI Data Source CSV
Begin Date 2017-03-01 11:00 EST-5
Begin Location 1N SAYERSVILLE
Begin Lat/Lon 37.1987/-81.6298
End Date 2017-03-01 11:20 EST-5
End Location 3ESE BENBOW
End Lat/Lon 37.047/-81.4679
Deaths Direct/Indirect 0/0 (fatality details below, when available...)

Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative A fast-moving line of thunderstorms moved across Kentucky and West Virginia during the late morning and afternoon hours of March 1st, entering western Virginia shortly before noon. Strong heating was observed ahead of the line, with temperatures warming into the 60s and 70s across the central Appalachians, and around 80 degrees in spots across the Piedmont. This provided the necessary instability for the line of storms to sustain severe levels as it moved across the region, producing long swaths of wind damage.
Event Narrative Several large trees and numerous large tree limbs were blown down across Tazewell County.

Event Flood
-- Flood Cause Heavy Rain
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2017-04-23 16:30 EST-5
Begin Location 1NNW RAVEN
Begin Lat/Lon 37.0908/-81.8766
End Date 2017-04-24 09:00 EST-5
End Location 1SW MOUTH OF LAUREL
End Lat/Lon 37.1105/-81.7427
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 5.00K
Crop Damage 0.00K
Episode Narrative Several waves of low pressure moved across the area as an upper level low closed off over the southeastern U.S. Signiifcant rainfall began early on April 22nd over far southwest Virginia and the rainfall persisted on and off over the next four days with mainly moderate rates (0.10��� to 0.25��� per hour) as the upper low drifted very slowly eastward from the lower Mississippi Valley toward the southeastern states. 24-hour totals ending 12z (0700 EST) on the 23rd ranged from less than 0.50 inches over the James River basin up to 1.25��� to 1.75��� across parts of the Roanoke, New and Dan basins. The heaviest rains April 23-24 fell across the western and central river basins with amounts ranging from 2 to 5 inches. Another 1 to 3 inches with isolated higher amounts fell mainly across the foothills and piedmont in the next 24-hours. Storm total rainfall for the four-day period ending at 12z (0700 EST) on the 25th ranged from 3 to 9+ inches with highest amounts in parts of the Blue Ridge mountains and foothills in Patrick, Carroll and Henry counties. Busted Rock #2 IFLOWS (BUEV2) led the way with 9.53 over the 4-day period. Widespread small stream flooding resulted with numerous larger rivers that approached or exceeded flood stage including portions of the Clinch, New, Roanoke and Dan rivers. Return frequency intervals for the flooding were generally in the 5-year to 10-year range (0.20-0.10 annual exceedance probability), but close to 20-year (0.05 AEP) in the lower Dan River. Numerous roads were closed by flooding in at least a dozen counties.
Event Narrative Old Kentucky Turnpike in Cedar Bluff was completely covered by flood waters from either Indian Creek or the Clinch River. Water flooded a basement causing an oil tank and hot water heater to overturn. Water was also reported up to the basement level of a home along Route 67 in Raven. The Clinch River gage at Richlands (RLRV2) crested at 10.68 feet at 0200 EST. Minor Flood stage is 10 feet.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2017-05-24 14:00 EST-5
Begin Location 1N NORTH TAZEWELL
Begin Lat/Lon 37.14/-81.53
End Date 2017-05-24 14:00 EST-5
End Location 1N NORTH TAZEWELL
End Lat/Lon 37.14/-81.53

Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 4.00K
Crop Damage 0.00K
Episode Narrative A warm front extended east across the central Appalachians, allowing cool stable air to the north and warm unstable conditions to the south. The differential heating coupled with ample lift and low level shear provided an environment ripe for rotating thunderstorms, many of which were already ongoing through the early afternoon hours. In all, the strongest storms produced extensive wind damage, especially in the Grayson Highlands of Virginia, with damage proceeding east of the Blue Ridger.
Event Narrative Thunderstorm winds downed a tree that also took down powerlines along Blackhorse Road.

Event Hail
Magnitude 1.00 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Broadcast Media
NCEI Data Source CSV
Begin Date 2017-05-27 17:30 EST-5
Begin Location 0N THOMPSON VLY
Begin Lat/Lon 37.08/-81.55
End Date 2017-05-27 17:30 EST-5
End Location 0N THOMPSON VLY
End Lat/Lon 37.08/-81.55
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A cold front approached and stalled over the Mid-Atlantic region during the early afternoon on May 27th, allowing numerous strong to severe thunderstorms to form. Some of these storms produced large hail across portions of the Virginia highlands, with a storm or two moving east of the Blue Ridge Mountains.
Event Narrative

Event Hail
Magnitude 0.88 in.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Broadcast Media
NCEI Data Source CSV
Begin Date 2017-05-27 17:58 EST-5
Begin Location 1E CLAYPOOL HILL
Begin Lat/Lon 37.07/-81.76
End Date 2017-05-27 17:58 EST-5
End Location 1E CLAYPOOL HILL
End Lat/Lon 37.07/-81.76
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative A cold front approached and stalled over the Mid-Atlantic region during the early afternoon on May 27th, allowing numerous strong to severe thunderstorms to form. Some of these storms produced large hail across portions of the Virginia highlands, with a storm or two moving east of the Blue Ridge Mountains.
Event Narrative

Event Flood
-- Flood Cause Heavy Rain
State VIRGINIA

County/Area TAZEWELL
WFO RNK
Report Source Emergency Manager
NCEI Data Source CSV
Begin Date 2017-06-16 17:50 EST-5
Begin Location 1ESE BLUEFIELD
Begin Lat/Lon 37.24/-81.26
End Date 2017-06-16 20:50 EST-5
End Location 1ESE BLUEFIELD
End Lat/Lon 37.2448/-81.26
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.00K
Crop Damage 0.00K
Episode Narrative Evening convection redeveloped on the 16th with the Blue Ridge foothills and southside VA counties (Henry, Pittsylvania, Franklin and Halifax) once again receiving the bulk of the rainfall. Rainfall was estimated by radar at 1 to 2.5 inches in a few hours. Several reports were received of flooding issues in the Bassett area north of Martinsville. Lesser amounts produced minor flooding in Tazewell County.
Event Narrative Reported urban flooding caused several streets to be flooded along Beaver Pond Creek. Rainfall was 1 to 1.25 inches according to radar estimates and nearby rain gages.

Event Strong Wind
Magnitude 40 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source 911 Call Center
NCEI Data Source CSV
Begin Date 2017-10-09 03:00 EST-5
End Date 2017-10-09 04:30 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 1.00K
Crop Damage
Episode Narrative The remnants of Hurricane Nate lifted northeast through the Tennessee Valley on October 8th and 9th. To the east of this system, strong winds were observed the lower levels of the atmosphere. These strong winds, coupled with a saturated ground from heavy rain, provided prime conditions for numerous trees to be blown over across southwest Virginia.
Event Narrative Strong winds knocked over one tree onto U.S. Highway 460 in Pounding Mill. A second tree was blown down by strong winds in Thompson Valley.

Event Extreme Cold/Wind Chill
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Public
NCEI Data Source CSV
Begin Date 2018-01-05 02:14 EST-5
End Date 2018-01-05 10:01 EST-5
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage
Crop Damage
Episode Narrative A strong area of low pressure off the Atlantic coast rapidly strengthened, ushering in strong winds and an extremely frigid arctic air mass. Record cold temperatures combined with these winds created dangerous wind chills.
Event Narrative Wind chill temperatures fell to -20��F or below at Burkes Garden on the 5th.

Event **Flood**
-- Flood Cause **Heavy Rain**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **River/Stream Gage**
NCEI Data Source **CSV**
Begin Date **2018-02-11 03:00 EST-5**
Begin Location **2SE RICHLANDS**
Begin Lat/Lon **37.0865/-81.7982**
End Date **2018-02-12 03:00 EST-5**
End Location **1WSW POUNDING MILL**
End Lat/Lon **37.0739/-81.7429**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage **0.00K**
Episode Narrative **A broad upper level trough with a slow-moving frontal boundary brought an extended period of mainly light to moderate rainfall that began on the afternoon of the 10th and persisted well into the evening of the 11th. Several rivers reached flood stage and a number of roads were reported closed. Rainfall amounts ranged from 2 to 3 inches in a 24-hour period ending at 7 AM EST on the 11th and for many locations it was one of the wettest February days on record. 48-hour storm total rainfall (ending 7 AM EST) on the 12th) reached 4 to 5 inches in several locations.**
Event Narrative The Clinch River at Richlands (RLRV2) crested at 10.97 feet (Minor Flood stage - 10 ft.). In addition, a portion of Route 608, Cove Road, was reported closed by high water.

Event **High Wind**
Magnitude **52 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **911 Call Center**
NCEI Data Source **CSV**
Begin Date **2018-03-01 22:10 EST-5**
End Date **2018-03-02 21:45 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **12.50K**
Crop Damage
Episode Narrative **A cold front crossed the region on the evening of March 1st. Behind the front very strong winds a few thousand feet off the surface were brought downward due to good mixing within the lower levels. The long lasting, greater than 60 mph winds helped produce widespread damage that included hundreds of trees down and hundreds of power lines down, thousands of people left without power for a period of time, damaged structures due to the falling trees, and one case of an indirect injury as a motorist drove into a downed tree in Buckingham County. The damaging winds continued through mid-day March 3rd.**
Event Narrative Winds brought down five large trees in the county, two of which fell on power lines. The trees fell along Routes 604, 615, 26, and Baptist Valley Road. Damage values are estimated.

Event **Winter Storm**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **Broadcast Media**
NCEI Data Source **CSV**
Begin Date **2018-03-24 05:00 EST-5**
End Date **2018-03-25 00:00 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage

Crop Damage
Episode Narrative An area of low pressure tracked eastward from the Tennessee Valley to the coast of the Carolinas, before swinging northward along the U.S. east coast. Initially, temperatures were warm enough for rain to fall, but as colder air worked its way into the area behind the departing low pressure, the precipitation changed over to snow. Late in the event, warmer air just off the surface worked its way into parts of the area resulting in a period of freezing rain across Carroll County. Snowfall amounts generally ranged from 5 to 10 inches just east of the crest of the Blue Ridge and parts of the Grayson Highlands to 10 to 16 inches across the New River Valley. Freezing rain accretion was a trace. A total of 58,000 electric customers were without power. State police reported twenty-four crashes in its Wytheville district and four in its Salem district.
Event Narrative Snowfall totals from across the county include 8.5 inches three miles northwest of Tazewell, 9.0 inches two miles east-southeast of Tiptop, 10.0 inches at Bluefield, and 12.0 inches at Jewell Ridge. Approximately 1800 electric customers were without power.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Department of Highways
NCEI Data Source CSV
Begin Date 2018-04-04 01:38 EST-5
Begin Location 2NNW PLEASANT HILL
Begin Lat/Lon 37.2066/-81.7573
End Date 2018-04-04 01:38 EST-5
End Location 2NNW PLEASANT HILL
End Lat/Lon 37.2066/-81.7573
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.50K
Crop Damage
Episode Narrative A cold front pushed a line of showers and thunderstorms into parts of southwest Virginia. The thunderstorms produced wind damage by knocking down two trees in Tazewell County before dissipating. Another thunderstorm blew down a few trees in Marion within Smyth County.
Event Narrative One tree was blown down near the intersection of Bearwallow Road and Greasey Creek Road.

Event Thunderstorm Wind
Magnitude 50 kts.
State VIRGINIA
County/Area TAZEWELL
WFO RNK
Report Source Department of Highways
NCEI Data Source CSV
Begin Date 2018-04-04 01:45 EST-5
Begin Location 1E RAVEN
Begin Lat/Lon 37.0816/-81.8525
End Date 2018-04-04 01:45 EST-5
End Location 1E RAVEN
End Lat/Lon 37.0816/-81.8525
Deaths Direct/Indirect 0/0 (fatality details below, when available...)
Injuries Direct/Indirect 0/0
Property Damage 0.50K
Crop Damage
Episode Narrative A cold front pushed a line of showers and thunderstorms into parts of southwest Virginia. The thunderstorms produced wind damage by knocking down two trees in Tazewell County before dissipating. Another thunderstorm blew down a few trees in Marion within Smyth County.
Event Narrative One large tree was blown down along Daw Road.

Event **Flood**
-- Flood Cause **Heavy Rain**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **River/Stream Gage**
NCEI Data Source **CSV**
Begin Date **2018-04-16 02:00 EST-5**
Begin Location **1NW CEDAR BLUFF**
Begin Lat/Lon **37.0908/-81.7889**
End Date **2018-04-16 12:00 EST-5**
End Location **1NNE CEDAR BLUFF**
End Lat/Lon **37.0895/-81.7641**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **0.00K**
Crop Damage **0.00K**
Episode Narrative **A strong cold front propelled by a deep upper trough that took on a negative tilt, pushed through the region on April 15 producing severe weather and heavy rainfall. The speed of convective elements prevented any flash flooding but longer duration flooding occurred on several rivers and streams, mainly in the minor category. Rainfall ranged from 2 to 4 inches with locally higher amounts up to nearly 4.5 inches in 24-hours ending at 7 AM on the 16th. The highest amounts were roughly a 5-year recurrence interval (0.2 Annual exceedance probability).**
Event Narrative **The Clinch River at Richlands (RLRV2) crested at 10.62 feet just over Minor flood stage of 10 ft.**

Event **Strong Wind**
Magnitude **25 kts.**
State **VIRGINIA**
County/Area **TAZEWELL**
WFO **RNK**
Report Source **911 Call Center**
NCEI Data Source **CSV**
Begin Date **2018-04-23 04:35 EST-5**
End Date **2018-04-23 04:35 EST-5**
Deaths Direct/Indirect **0/0 (fatality details below, when available...)**
Injuries Direct/Indirect **0/0**
Property Damage **20.00K**
Crop Damage
Episode Narrative **Strong winds caused a trailer home to be blown off its foundation.**
Event Narrative **A trailer home was blown off its foundation by strong winds. The wind gust was measured from the nearby Bluefield, West Virginia airport.**

Appendix B

Town of Bluefield

Supplement to the CPPDC Plan

Last Updated: 2011

Table of Contents

Hazard Identification and Risk Assessment

Section 1 - Introduction

Background

In 2002, the Town of Bluefield was awarded several FEMA Hazard Mitigation Grant Program (HMGP) grants from DR-1386-VA for 2001 flooding. One of these grants provided funding for Bluefield to develop a multi-hazard mitigation plan to satisfy Disaster Mitigation Act of 2000 (DMA2K) requirements. This funding was awarded prior to Virginia establishing a statewide approach to develop these plans. Originally, Bluefield had planned to develop a separate, stand-alone plan to cover all DMA2K requirements. In 2002, the Virginia Department of Emergency Management established the policy of using Virginia Planning District Commissions to develop multi-jurisdictional plans. After the Cumberland Plateau Planning District Commission (CPPDC) was awarded funding, Bluefield staff met with CPPDC representations and decided to make the Bluefield efforts a supplement to the District Plan. Instead of having the limited grant funds for Bluefield used to duplicate many of the sections of the District Plan, the Bluefield supplement would focus on gathering more detailed information for the town for the hazard identification and risk assessment (HIRA) and the mitigation strategy. This also allowed Bluefield to focus on those issues that the town's government controls, such as local ordinances, rather than those issues that are controlled at the Tazewell County level, such as VDOT road improvement plans

This Appendix, to the CPPDC Plan, provides that supplemental HIRA and strategy information specific to Bluefield, Virginia be incorporated in the regional plan. For certain hazards, such as flooding, grants funds were to used to develop more detailed hazard and critical facility mapping than the CPPDC Plan funds could gather. This supplement also indicates when any additional information has been gathered or when the CPPDC Plan information and description apply. For example, additional information was gathered for karst (sinkhole) hazards, included detailed mapping in Bluefield. This has been included in the landslide section of this Bluefield supplement, but no additional descriptive information was included about basic landslides, which was covered in depth by the CPPDC Plan. This Appendix was developed by the Virginia Tech Center for Geospatial Information Technology, under a subcontract with Anderson and Associates of Blacksburg, Virginia. Additional data was provided by Marshall Miller and Associates and Willis Engineering, both in Bluefield, Virginia.

Town Description

The Town of Bluefield, Virginia is located at the northeast corner of Tazewell County, adjacent to the Jefferson National Forest. Bluefield is located at the base of East River Mountain in the Blue Ridge Mountains, with a total area of 7.6 square miles. The town developed from the railroad industry, with a need to serve the coal mines in Pocahontas, Virginia. The Town of Bluefield has been known by various names throughout the years.

In 1860 the town was called Pin Hook, in 1883 it was renamed to Harman and then later to Graham. In 1924 the Town of Graham took the name of Bluefield like Bluefield, West Virginia.

Figure B.1 shows the 2004 town limits of Bluefield, along with locations for structures, roads, and railroads. The original town limits consisted of the areas along Business Rt. 19 in the northern part of town. As the population of the area has grown, a series of boundary adjustments and annexations has expanded the Town south into the next valley along Rt. 460 and up the northern slope of East River Mountain to the county boundary with Bland County. Nicknamed the 'Virginia's Tallest Town", Bluefield elevations range from around 2,400 ft to almost 4,000 ft above sea level on East River Mountain. The census of 2000 indicates that the town has a population of 5,078 people. Because of the West Virginia state boundary to the east and the Bland County boundary to the south, any future growth of the Town will occur either to the west along Rt. 460 or north towards the Town of Pocahontas.

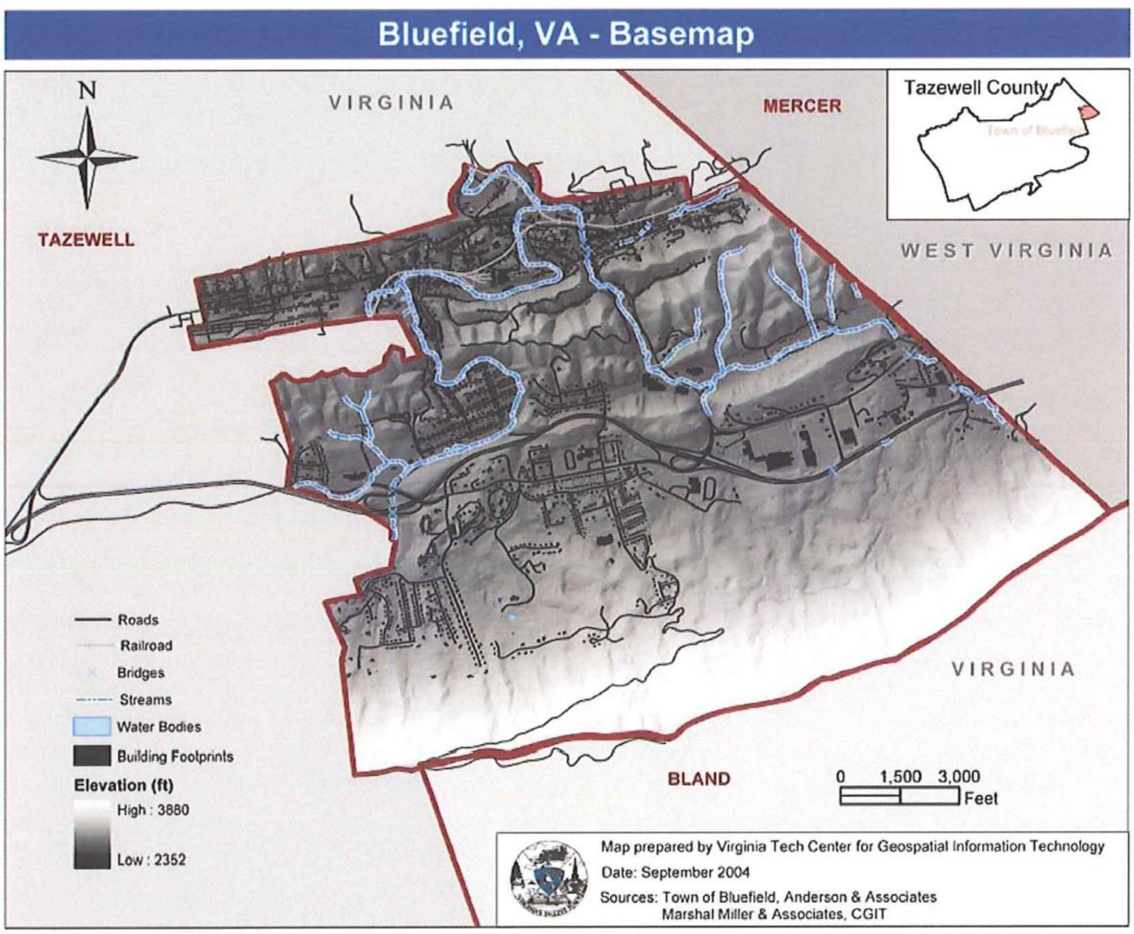


Figure B.1. Bluefield Base Map.

Note: All numbered figures in this Appendix are provided in a format for black and white reproduction. Full page, color versions of all figures are included at the end of this Appendix.

Watersheds

The Town of Bluefield has six major sub-watersheds within its boundaries. All of the sub-watersheds for Bluefield are included in the New River Basin. The watersheds include Mudfork, Wrights Valley Creek, Bluestone River, Beaver Pond Creek, Whitney Branch and Brush Fork. A majority of the town's water supply comes from the Bluestone River watershed. Figure B.2 illustrates the sub-watershed boundaries.

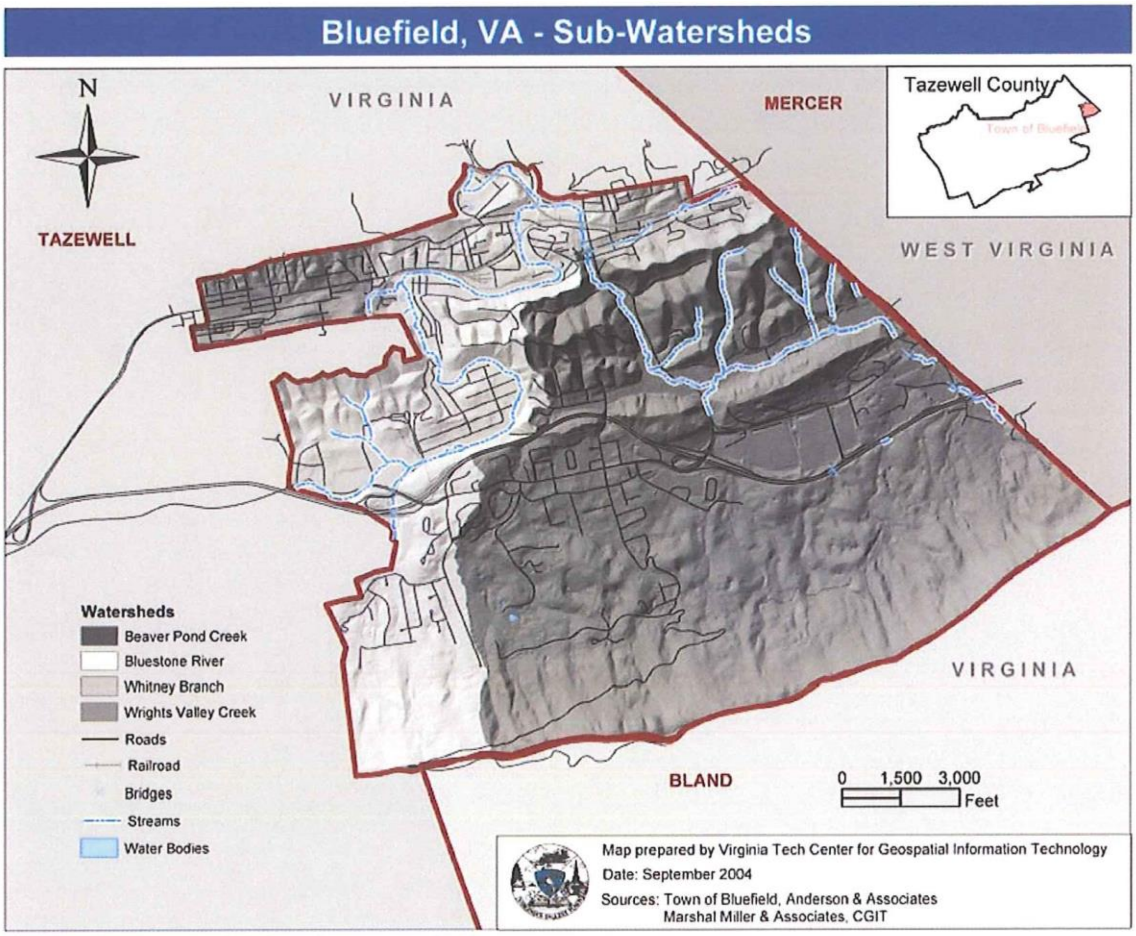


Figure B.2: Bluefield Sub-Watersheds

Critical Facilities

Town of Bluefield critical facilities were derived from the town's building records. Bridge locations were based on aerial photography and maps of roads, railroads, and streams. Structure values were located for specific areas and average neighborhood values were used in areas that structure values were not readily available and if no neighborhood value was available, the structure value from Census 2000 data was used for the average building value ($75,600). Figure B.3 details the location of critical facilities throughout town.

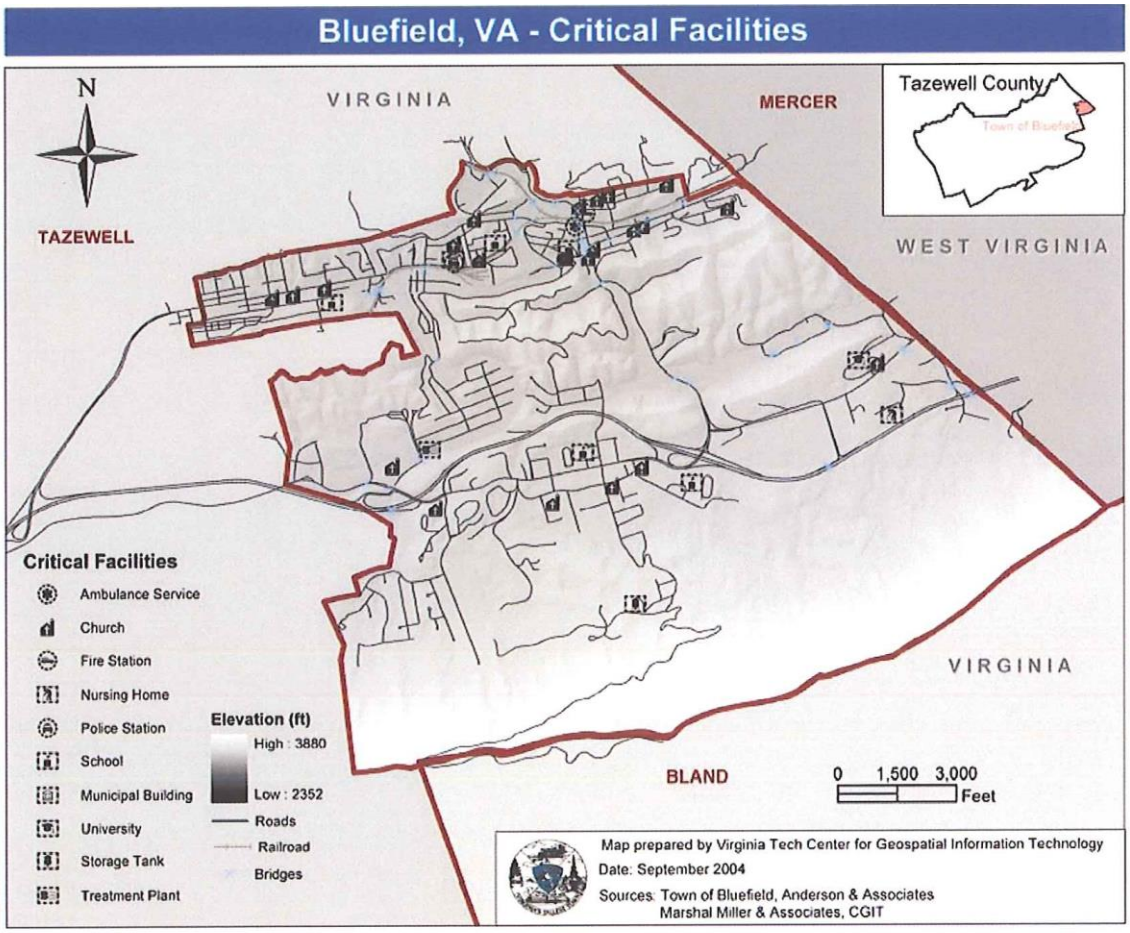


Figure B.3. Bluefield Critical Facilities

Section 2 - Hazard Identification

The FEMA guidelines emphasize using "available data" for this plan, especially for the Hazard Identification and Risk Assessment (HIRA). As mentioned earlier, this Appendix was developed by the Virginia Tech Center for Geospatial Information Technology, under a subcontract with Anderson and Associates of Blacksburg, Virginia. Besides the data provided by the Town of Bluefield, the following organizations all provided data used for this HIRA:Anderson and Associates, Inc.

- Bluefield Daily Telegraph
- Cumberland Plateau Planning District Commission (Virginia)
- Dewberry
- Federal Emergency Management Agency
- Marshall Miller and Associates
- Region I Planning and Development Council (West Virginia)
- Tazewell County, Virginia
- Tuck Engineering
- US Census Bureau
- US Geological Survey
- Virginia Department of Conservation and Recreation
- Virginia Department of Emergency Management
- Virginia Department of Transportation
- Virginia Geographic Information network
- Virginia Tech Center for Geospatial Information Technology
- Willis Engineering

Types of Hazards

While nearly all disasters are possible for any given area in the United States, the most likely hazards that could potentially affect the communities in the Cumberland Plateau Planning District generally include:

- Flooding
- Severe Winter Storms
- Wildfires
- Landslides
- Dam Failures
- Drought
- Earthquake
- Severe Wind
- Severe Thunderstorms
- Tornadoes
- Extreme Heat
- Karst

Probability of Hazards

The hazards that were dealt with are included in the Bluefield HIRA are listed in Table B.1. This is the same list of hazard types and levels as the CPPDC Plan. Analysis level was determined by the type of data available and the scale of data available for the analysis. Certain hazards were not dealt with as a result of the infrequency of occurrence. Dam failure, for example, was excluded from analysis as a result of no dams being located within the Town limits. Tornadoes were profiled but no analysis completed as a result of no recorded tornado touchdowns for the Town of Bluefield and also no touchdowns in Tazewell County.

Table B.1. Hazard Identifications (from CPPDC Plan).

Hazard Type	Hazard Level
Flooding	High
Sever Winter Storms	Medium-High
Wildfire	Medium-High
Landslides	Medium-High
Severe Thunderstorms/Hail Storms	Medium
Severe Wind	Medium
Earthquake	Medium
Dam/Levee Failure	Medium
Drought	Medium
Tornado	Low
Extreme Heat	Low
Karst Topography	Low

Federally Declared Disasters

Table B.2. lists the six recent federally declared disasters for the Tazewell County, most of which had an impact on the Town of Bluefield. The sections on each hazard will give more information about specific impacts in Bluefield.

Table B.2. Recent Federal Disasters in Tazewell County.

Disaster Number	Dates	Description	Amount Damage
FEMA-1386-DR	July 7 - 10, 2001	Heavy rains Saturday, July 7, 2001, and Sunday, July 8, 2001, caused extensive flooding in Tazewell County.	$15 million
FEMA-1406-DR	March 17, 2002	Heavy rain fell over the counties located in Southwest Virginia. The event caused flash flooding and mudslides, which resulted in the isolation of families from their homes, local evacuations, and significant damage to private and public property. Damage estimate totals at $8,151,765	$8 million
FEMA-1411-DR	April 28 - May 2, 2002	On the evening of 28 April a severe weather system entered Virginia from the west and, once across the Blue Ridge Mountains, developed into a series of tornadoes. Local emergencies were declared in Bedford City, and Bedford, Campbell, Greensville, and Shenandoah Counties. On 2 May 2002, continuing severe weather impacted Virginia. Wind, rain and flood damage was again widespread with the most severe damage occurring in the southwest part of the state. In Buchanan County, heaviest damage was northeast of Grundy in the vicinity of Hurley, and was due to flash flooding and mudslides. Damaging floodwaters and strong winds also impacted nearby Tazewell County.	$500,000
FEMA-1458-DR	February 15, 2003	A major winter storm struck Virginia beginning February 15 2003 causing major flooding in Southwest Virginia and significant ice and snowfall in the Shenandoah Valley and areas of Northern Virginia. The weather pattern continued to bring warmer temperatures, melting snow/ice and more heavy rainfall, which combined to cause more local flooding.	$175,000
FEMA-1502-DR	November 18 -19, 2003	A severe storm system moved into the Commonwealth of Virginia on November 18 and 19, 2003 dumping up to 4.28 inches of rain in 12 hours resulting in flash floods through the southwestern part of Virginia. Two young children in Buchanan County died when their home was washed away by a flash flood. Preliminary assessments indicated the most severe impacts were to single-family residences, manufactured homes and private access bridges. Several apartment buildings with major damage were also identified, as well as damage to sewer pipes and private wells.	$1.6 million
FEMA-1525-DR	May 24 - June 15, 2004	A system of severe storms began moving through Southwest Virginia on May 24, 2004. Flash flooding occurred on May 24-25 in Tazewell and Russell counties. Tornadoes damaged homes in Lee County on May 28. Flash floods impacted Buchanan County and several other counties in Southwest Virginia over the June 12-15 period. One flood-damaged road, Route 772 in Russell County, remains closed.	

Section 3 - Flooding

Hazard History

Table B.3. Bluefield Flood History (Source: FEMA, VDEM, Town of Bluefield, Bluefield Daily Telegraph).

	Damages
September 28, 1878	Bridges across the Bluestone River were washed away from impacts of flooding.
March 1, 1955	
January 29, 1957	Damages estimated over $100,000.
March 12, 1963	Damages to transportation infrastructure estimated over $7,000.
August 28, 1964	Damages estimated over $25,000. The Bluestone River was responsible for the flooding of College Avenue.
March 7, 1967	
December 30, 1969	
May 6, 1971	The downtown area impacted by this rain event caused 2.5 feet of flooding, from 1.74 inches of rain over the extent of two days. College Avenue was one of the roads inundated.
April 14, 1972	
April 4, 1977	The business district was incapacitated due to flooding. Virginia Street and College Avenue were some of the areas affected by the rain event. Traffic rerouted to the side streets, with voluntary evacuation of residents.
September 22, 1989	High winds (40 mph) and rain from tropical storm Hugo resulted in power outages and uprooted trees.
August 4, 2001	Thunderstorms during the afternoon and evening of the 4th produced hail up to dime size and flash flooding. Heavy thunderstorm rains caused Big Branch Creek to flood, 4 miles northwest of Bluefield. Heavy rain also flooded and closed several streets in Bluefield.
March 17-20, 2002	FEMA declared disaster (FEMA-1406-DR). Hockman Pike, in the mobile home park, was flooded due to the precipitation of March 20.
February 15, 2003	FEMA declared disaster (FEMA-1458-DR). A mix of rain, melting snow and sleet caused flooding and high water in many areas. Areas affected include Adria Road, South College Avenue. Sandbags were placed in front of businesses in the downtown area. Property damages to homes and businesses were very minimal as compared to past events.
November 19, 2003	FEMA declared disaster (FEMA-1502-DR). Four inches of precipitation resulted in many individuals leaving their homes. Virginia Avenue was closed due to the encroaching flood waters. Downtown businesses attempted to use sandbags to hold out the water. The Westgate shopping center and an apartment complex were evacuated. Approximately 40 houses, 12 mobile homes and 30 businesses sustained damages.
June 12, 2004	FEMA declared disaster (FEMA-1525-DR) During two hours of rain, Bluefield accumulated 2.37 inches of precipitation. Preliminary flood damage indicated that at least 20 houses and 12 businesses were impacted by the flooding. Areas affected include South College Avenue, Main Street (at intersection of Beaver Pond Creek and Whitney Branch), College Avenue, Stadium Drive and Leatherwood Lane.

Hazard Profile

The majority of flooding is flash flooding in the Town of Bluefield. Refer to the Cumberland Plateau Planning District Commission for the complete flooding hazard profile. No hurricanes have been recorded for the Town of Bluefield, but impacts from hurricanes have led to many secondary hazards. Some of these hazards include flash flooding, high winds and landslides, which are addressed later sections.

Hazard Areas

Figure B.4 illustrates the location of the floodplains throughout the Town of Bluefield, based FEMA FIRM base flood elevation and 2002 LIDAR elevation mapping.

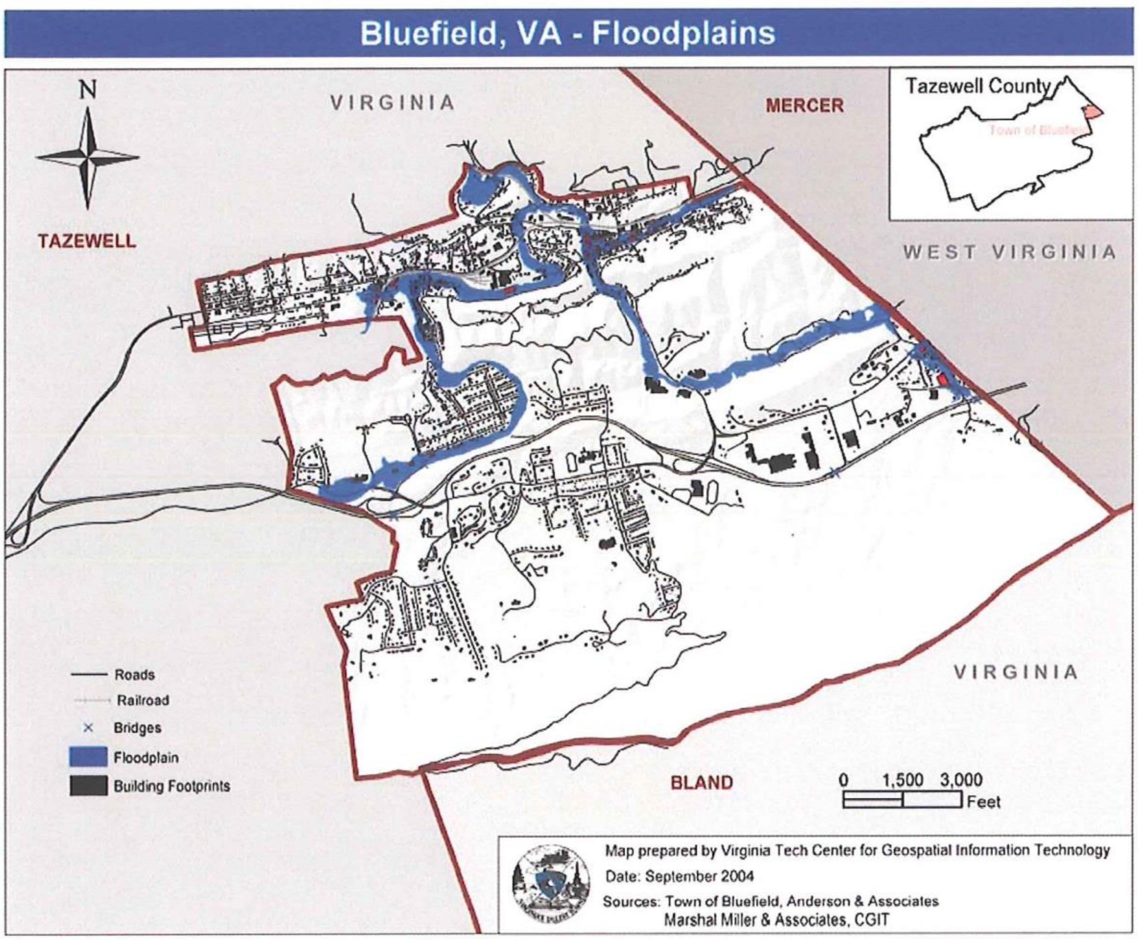


Figure B.4. Bluefield Floodplain Boundaries.

Vulnerability Analysis

Flooding is a major concern to the Town of Bluefield. Many homes and businesses are affected by flooding on an annual basis. Figure B.5. shows the location of critical facilities in the floodplains. From the analysis of buildings in the floodplain, 309 structures are at some risk of flooding with a total value of over $40 million (7% of the total building value for the town). From the buildings located in the floodplain, five of the structures are labeled critical facilities. Tables B.4- B.6 provide a breakdown of the risk from flooding and corresponding values for the structures.

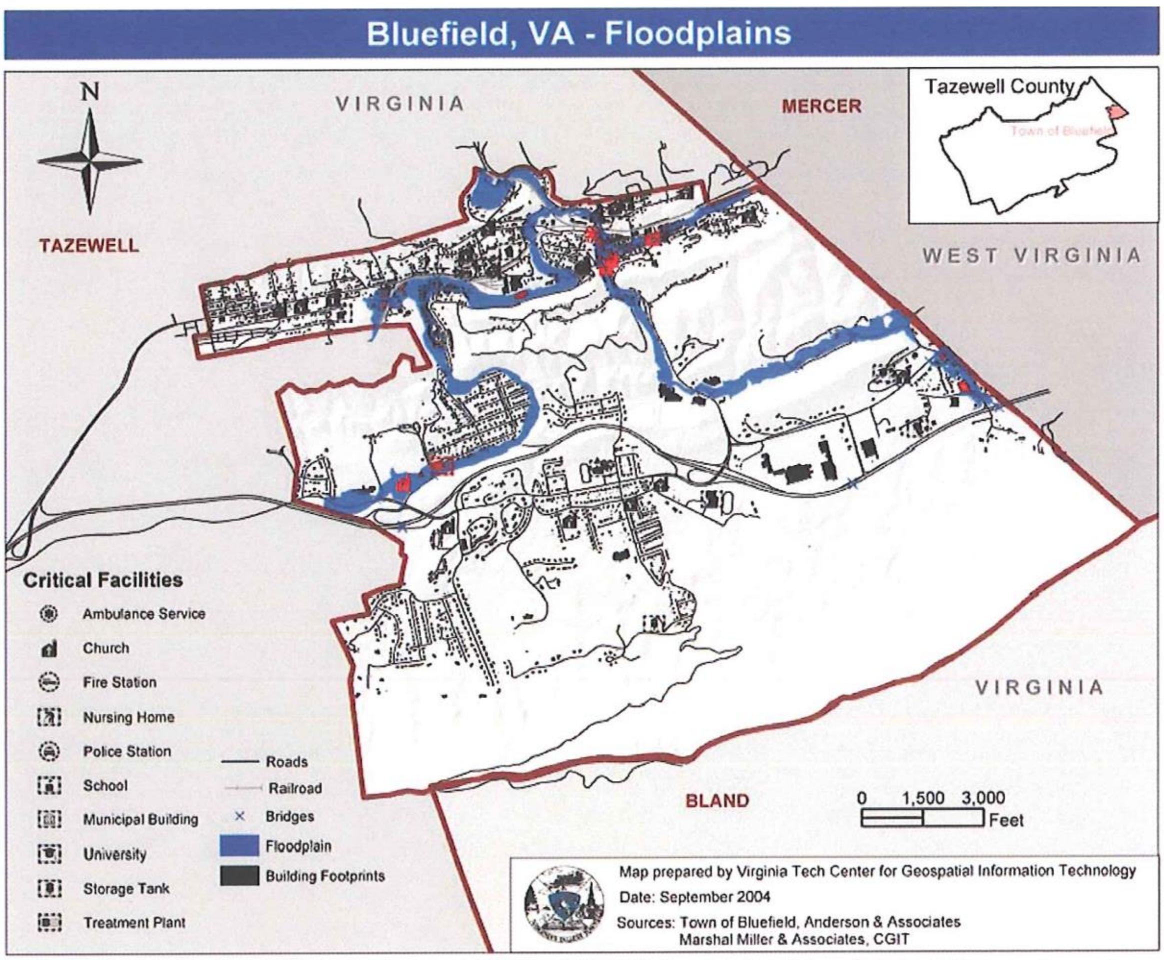


Figure B.5. Bluefield Structures and Critical Facilities in the Floodplain (shown in red).

Table B.4. Bluefield Structure Flood Risk Totals.

Infrastructure	FLOODPLAIN	NOT IN FLOODPLAIN	FEMA & TOWN BUY OUTS
Church	4	23	0
Fire Station	0	1	0
Nursing Home	0	1	0
Police	0	1	0
School	0	13	0
Municipal Building (Temporary)	0	1	0
University	0	23	0
Water Storage Tank	0	1	0
Water Treatment Plant	1	1	0
Non-Critical Infrastructure	304	2,854	11
GRAND TOTAL	**309**	2,919	**11**
% Structures in Risk Areas	10%	90.12%	0.34%

Table B.5. Bluefield Structure Flood Risk Values.

Infrastructure	Value in the Floodplain	Sum of Building Value not in the Floodplain	Sum of Building Total Value
Church	$2,223,700	$9,689,027	$11,912,727
Fire Station	$0	$35,400	$35,400
Nursing Home	$0	$75,600	$75,600
Police	$0	$75,600	$75,600
School	$0	$18,706,688	$18,706,688
Municipal Building (Temporary)	$0	$75,600	$75,600
University	$0	$185,299,500	$185,299,500
Water Storage Tank	$0	$77,057	$77,057
Water Treatment Plant	$2,175,000	$75,600	$2,250,600
Non-Critical Infrastructure	$35,697,100	$289,228,246	$324,925,346
GRAND TOTAL	**$40,095,800**	**$503,338,318**	**$543,434,118**
% BUILDING VALUE	7.38%	92.62%	

Table B.6. Known Critical Facilities in the Floodplain.

Facility Type	Location	Building Value
BAPTIST CHURCH / BURNED	401 VIRGINIA AVE	$882,400
PARKVIEW BAPTIST CHURCH	CHURCH HOCKMAN PIKE	$631,000
FIRST UNITED METHODIST CHURCH	200 S COLLEGE AVE	$528,300
GRAHAM PRESBYTERIAN CHURCH	140 S COLLEGE AVE	$182,000
TOWN WATER PLANT	104 PARKVIEW DR	$2,175,000
	TOTAL BUILDING VALUES	$4,398,700

Section 4 - Winter Storms

Hazard History

Table B.7. Bluefield Snowfall Totals (Source: Bluefield Daily Telegraph).

Date	Recorded Snowfall (inches)
December 11, 1944	27.5
February 19-27, 1947	35.75
November 24-26, 1950	19
March 12-14, 1993	25
January 6-8, 1996	23.6
January 28, 1998	24.7

Hazard Profile

Refer to the Cumberland Plateau Planning District Commission for the complete winter storm hazard profile.

Hazard Areas

No additional information for the Town of Bluefield, see CPPDC plan.

Vulnerability Analysis

No additional information for the Town of Bluefield, see CPPDC plan.

Secondary effects

Winter storms are an annual occurrence for the Town of Bluefield. Secondary hazards, such as snowmelts causing flooding, are a concern to the town. Flooding is addressed, in detail, in the flooding section of this report and the CPPDC plan.

Section 5 - Wildfire

Hazard History

Refer to the Cumberland Plateau Planning District Commission for the complete wildfire hazard history.

Hazard Profile

Refer to the Cumberland Plateau Planning District Commission for the complete wildfire hazard profile.

Hazard Areas

The Town of Bluefield has two distinct wildfire areas. Figure B.6. illustrates the fire zones for the Town of Bluefield. The town is dominated by the high risk zone for wildfires. Refer to the Cumberland Plateau Planning District Commission for the complete description of the wildfire hazard areas.

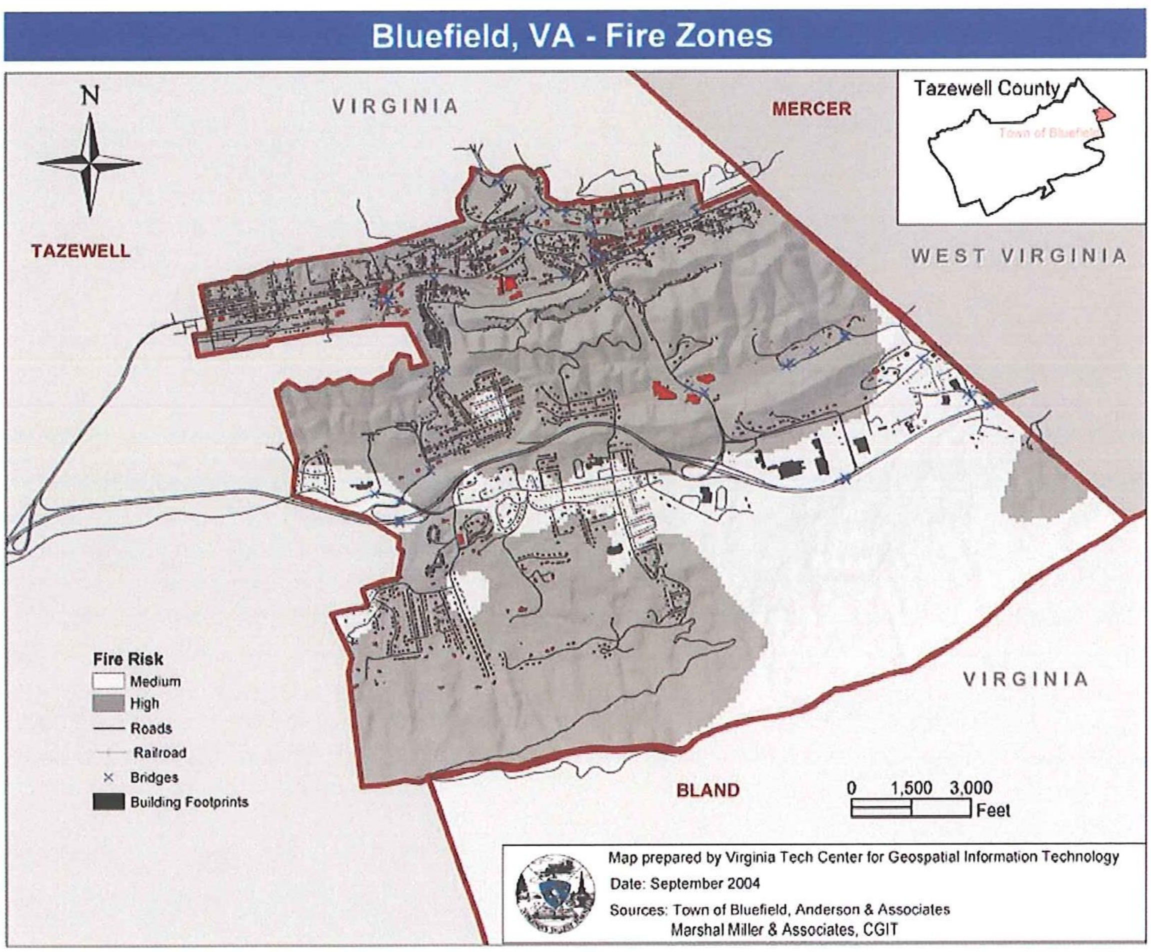


Figure B.6. Bluefield Fire Hazard Zones (based on Virginia Department of Forestry Fire Hazard Mapping with structures in high zone in red).

Vulnerability Analysis

All of the homes and businesses in the Town of Bluefield are in a Medium or High risk area for wildfires. Approximately 83% of the buildings in Bluefield are in a high risk area for wildfires, accounting for 61% of the building value for the town. Figure B.7. shows the location of critical facilities to wildfire risk areas. Most of the critical facilities are located in the high risk areas. The totals and values for these structures and critical facilities are listed in Tables B.8. and B.9.

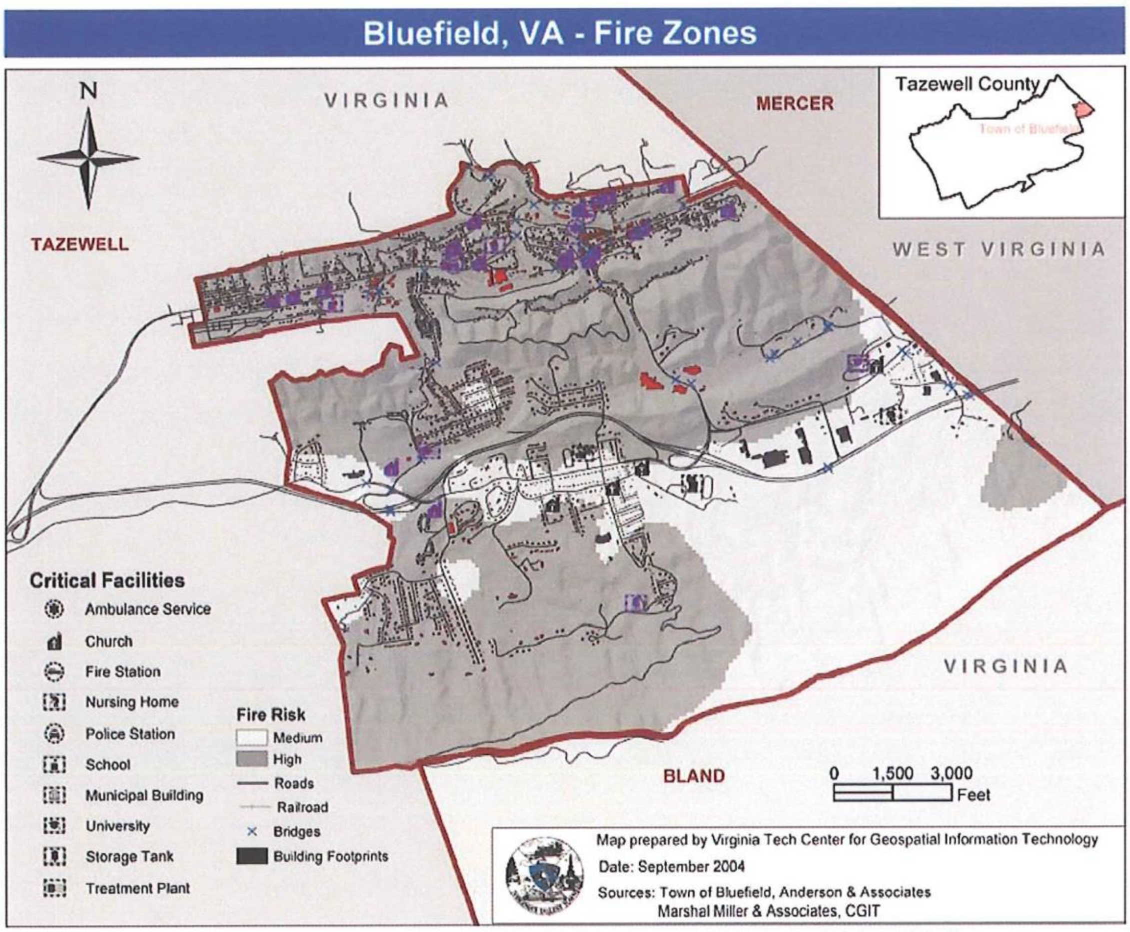


Figure B.7. Bluefield Fire Hazards for Structures and Critical Facilities (high zone structures shown in red, critical facilities in purple).

Table B.8. Bluefield Structure Fire Risk Totals.

Infrastructure	FIRE GRID CODE 1 - LOW	2 - MEDIUM	3 - HIGH
Church	0	4	23
Fire Station	0	0	1
Nursing Home	0	1	0
Police	0	0	1
School	0	3	10
Municipal Building *(Temporary)*	0	0	1
University	0	18	5
Water Storage Tank	0	0	1
Water Treatment Plant	0	0	2
Non-Critical Infrastructure	0	530	2,639
GRAND TOTAL	0	**556**	**2,683**
% Structures in Risk Areas	0%	17.17%	82.83%

Table B.9. Bluefield Structure Fire Risk Values.

Infrastructure	TOTAL BUILDING VALUES IN FIRE RISK ZONES 1 - LOW	2 - MEDIUM	3 - HIGH	TOTAL VALUE
Church	0	$8,493,712	$3,419,015	$11,912,727
Fire Station	0	$0	$35,400	$35,400
Nursing Home	0	$75,600	$0	$75,600
Police	0	$0	$75,600	$75,600
School	0	$4,660,000	$14,046,688	$18,706,688
Municipal Building (Temporary)	0	$0	$75,600	$75,600
University	0	$145,017,000	$40,282,500	$185,299,500
Water Storage Tank	0	$0	$77,057	$77,057
Water Treatment Plant	0	$0	$2,250,600	$2,250,600
Non-Critical Infrastructure	0	$56,188,565	$268,736,781	$324,925,346
GRAND TOTAL	**0**	**$214,434,877**	**$328,999,241**	**$543,434,118**
% BUILDING VALUE	0%	39.46%	60.54%	

Section 6 - Landslides and Karst

Note: Bluefield had available information about karst areas and sinkholes that was not included in the CPPDC Plan. This section will provide background information on karst not included in the CPPDC Plan.

Hazard History

Refer to the Cumberland Plateau Planning District Commission for the complete landslide hazard history.

Hazard Profile

Refer to the Cumberland Plateau Planning District Commission for the complete landslide hazard profile.

Land subsidence is the lowering of surface elevations due to changes made underground. The USGS notes that land subsidence is usually caused by human activity such as pumping of water, oil, or gas from underground reservoirs. Land subsidence often occurs in regions with mildly acidic groundwater and the geology is dominated by limestone, dolostone, marble or gypsum. Karst is the term used to refer to geology dominated by limestone and similar soluble rocks. The acidic groundwater dissolves the surrounding geology creating sinkholes. Sinkholes are classified as natural depressions of the land surface. Areas with large amounts of karst are characterized by the presence of sinkholes, sinking streams, springs, caves and solution valleys.

Marshall Miller and Associates, a local consulting firm, provided data for analysis.

Impacts

The USGS recognizes four major impacts caused by land subsidence:

1. changes in elevation and slope of streams, canals, and drains
2. damage to bridges, roads, railroads, storm drains, sanitary sewers, canals, and levees
3. damage to private and public buildings
4. failure of well casings from forces generated by compaction of fine-grained materials in aquifer systems

Predictability

Refer to the Cumberland Plateau Planning District Commission for the complete landslide predictability.

The most important current and future environmental issue with respect to karst is the sensitivity of karst aquifers to groundwater contamination. The effect of man on karst is most severe in cases where polluted surface waters enter karst aquifers. This problem is universal among all karst regions in the United States that underlie populated areas. The country's karstic groundwater problems are accelerated with the advent of (1) expanding urbanization, (2) misuse and improper disposal of environmentally hazardous chemicals, (3) shortage of suitable repositories for toxic waste (both household and industrial), and (4) ineffective public education on waste disposal and the sensitivity of the karstic groundwater system.

Occasionally the land surface in karst regions may collapse. Most of these events are triggered by man's activities in the karstic environment. Excessive pumping of groundwater from karstic aquifers may rapidly lower the water table and calls a sudden loss of buoyant forces that stabilize the roofs of cavernous openings. Man-induced changes in surface water flow and infiltration also may cause collapse. Most sinkholes that form suddenly occur where soil that overlies bedrock collapses into the pre-existing void.

Hazard Areas

The following maps provide information about the locations and severity of landslide and land subsidence from karst risks in Bluefield. Figure B.8. shows the USGS landslide zones in Bluefield from nationwide landslide mapping. Notice most of the town is either in the "Moderate Susceptibility/Low Incidence" category or the "Low Incidence" category. While these categories take into account national geologic mapping and national databases of landslide occurrence, these do not have the resolution for detailed, local slopes.

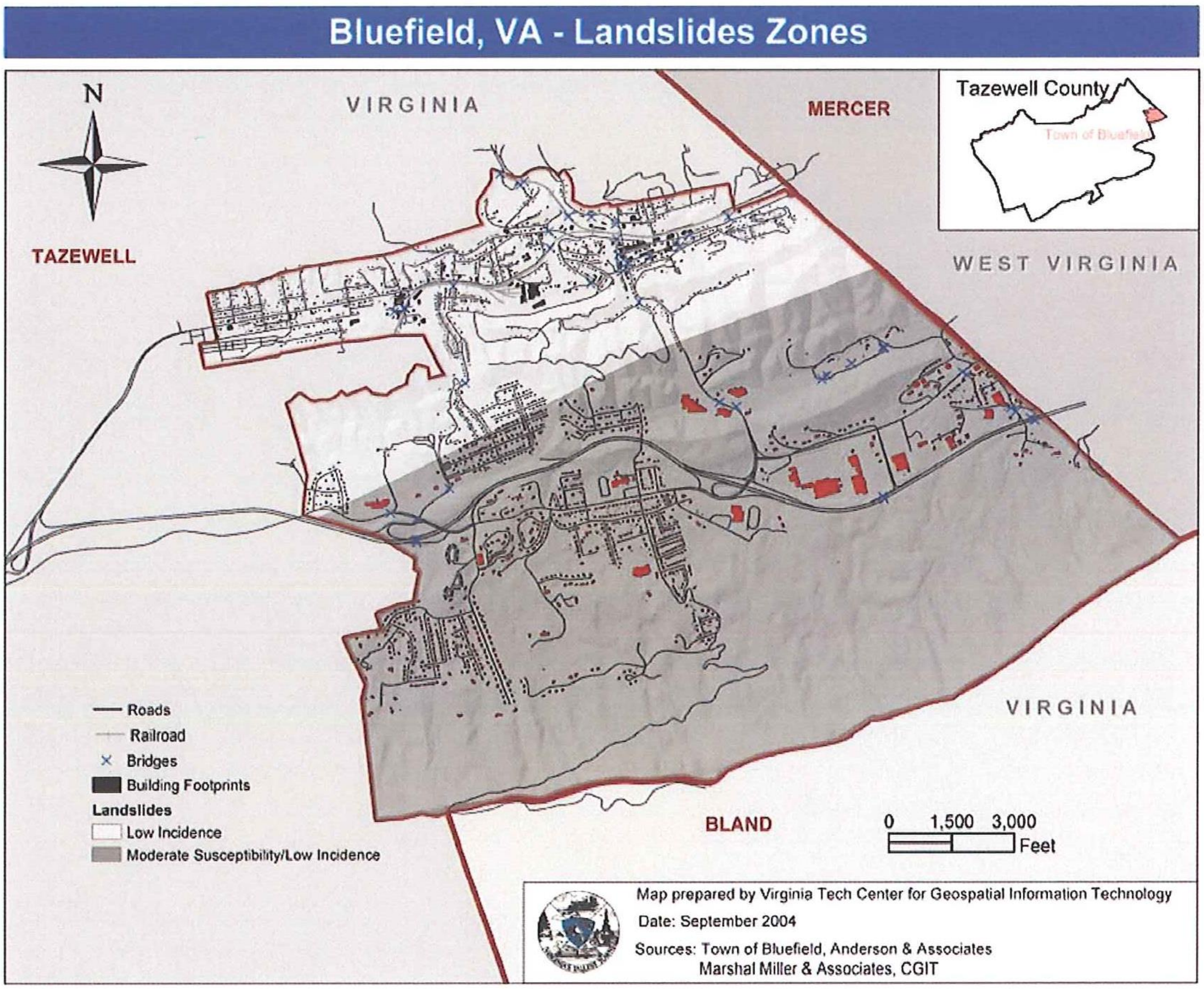


Figure B.8. Bluefield Landslide Zones (from USGS National Landslide Map, moderate susceptibility/low incidence structures shown in red).

Figure B. 9. shows three ranges of percent slope (0-15%, 15-30%, and 30%+) within Bluefield based off of 2002 LIDAR elevation data developed by Tuck Engineering.. The area with the highest slopes (30%) are expected to have the greatest landslide potential. These is especially true in location like road cuts along Rt. 460, where slopes approach 1

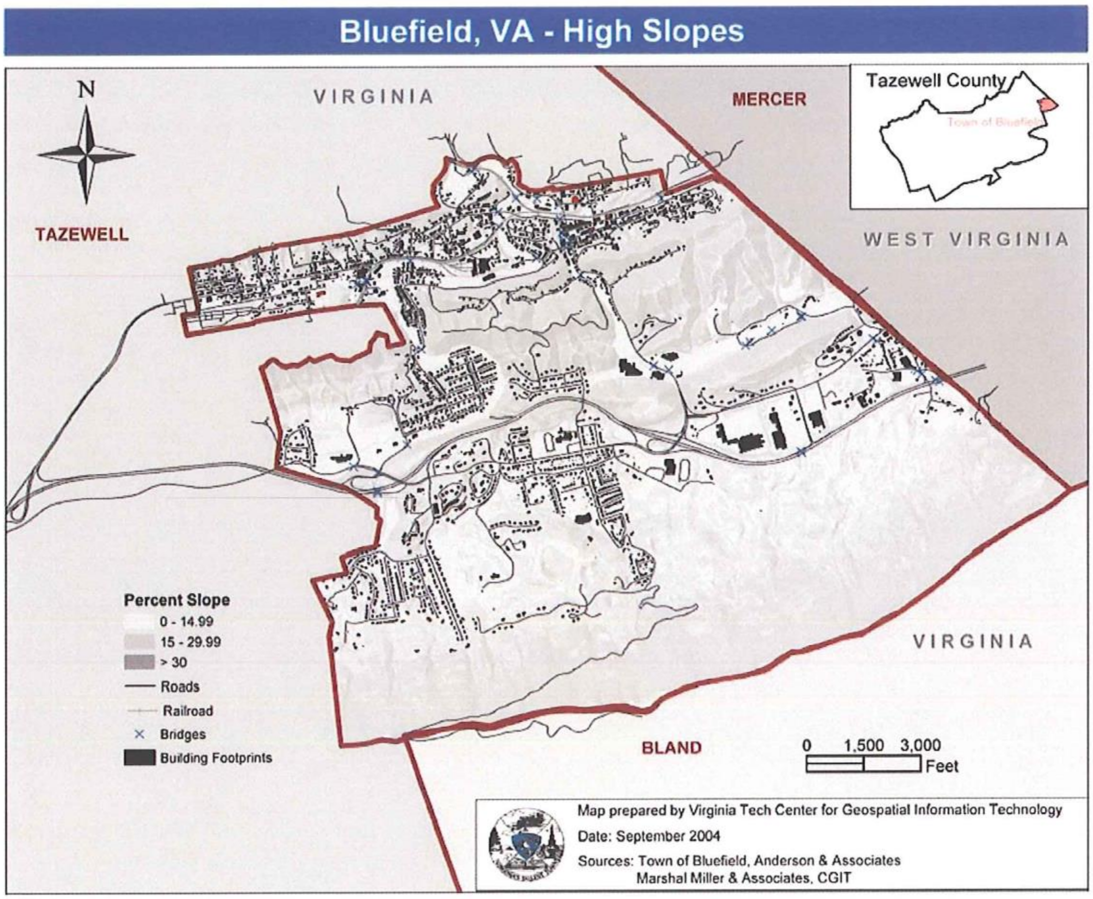


Figure B.9. Bluefield High Slopes (Source: 2002 LIDAR elevation data).

Figure B. 10. shows another way that the 2002 LIDAR elevation data can be interpreted to develop a sinkhole map for Bluefield. The areas with a substantial elevation depression that were not part of the regular drainage network were classified sinkholes. Notice most of the sinkhole are along the base of East River Mountain, south of Rt. 460. developed by Tuck Engineering.. The area with the highest slopes (30%) are expected to have the greatest landslide potential. These is especially true in location like road cuts along Rt. 460, where slopes approach 100%.

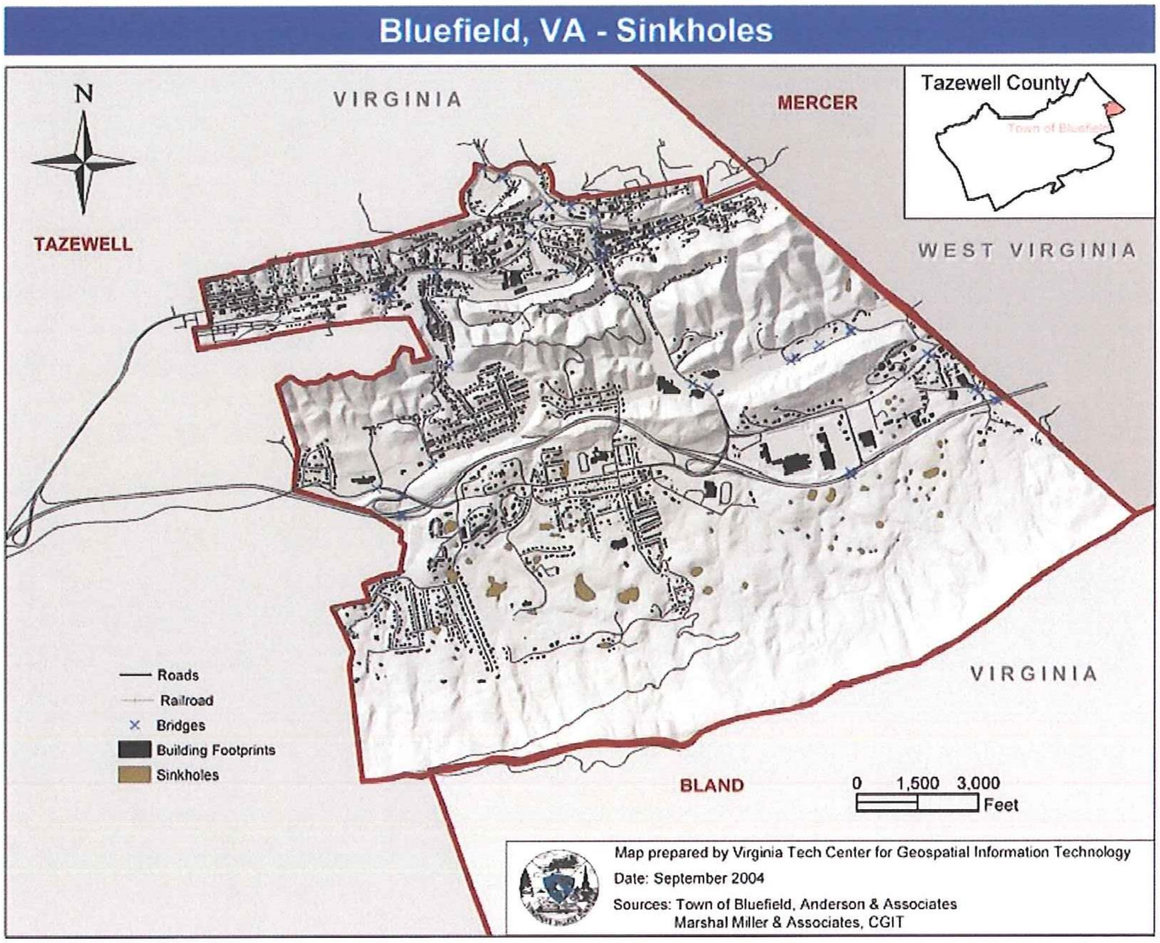
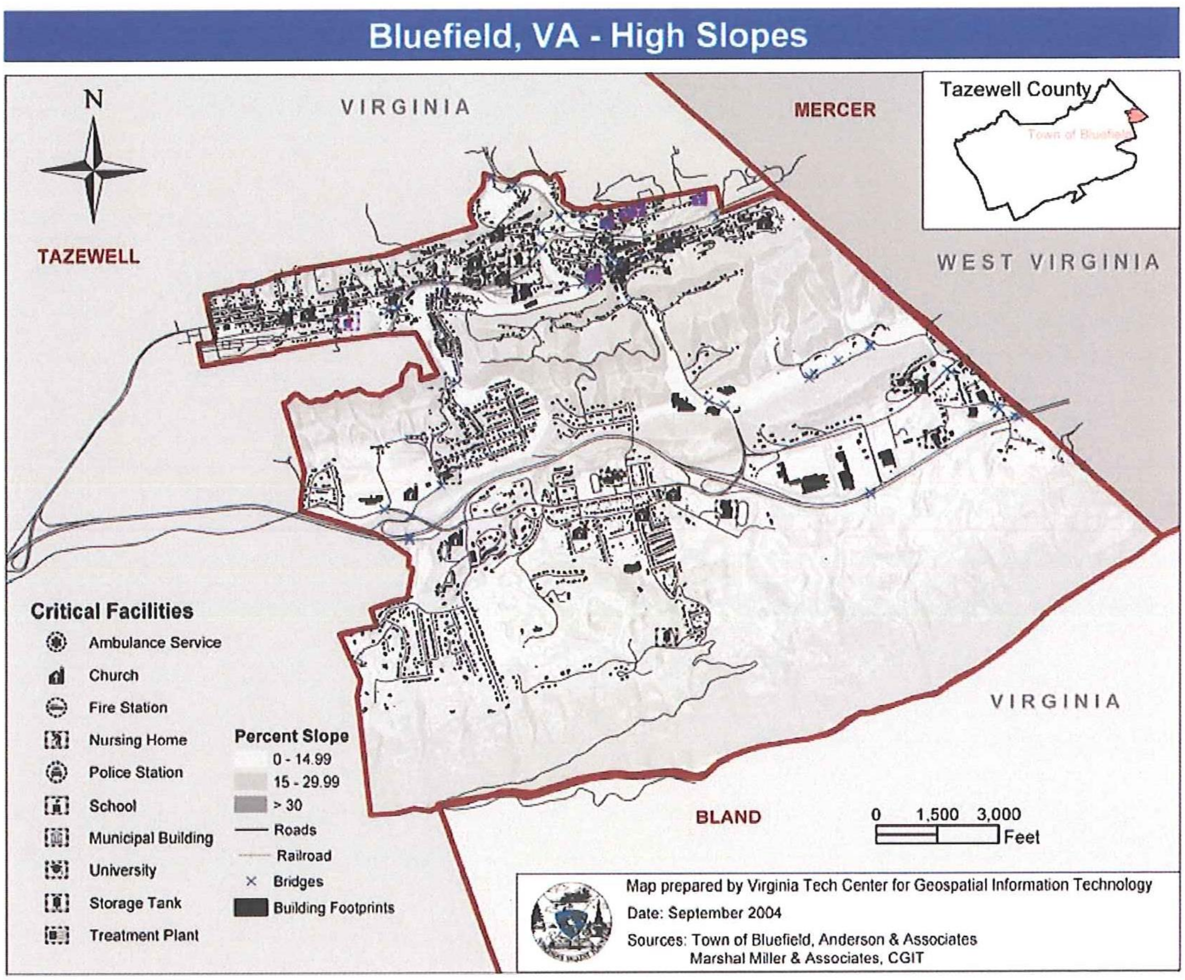


Figure B.10. Bluefield Sinkholes (Source: 2002 LIDAR elevation data).

Vulnerability Assessment

Landslides and karst topography are a medium risk to the residents and business owners in the Town of Bluefield. Structures that are built in an area of greater than 15% slope account for 31% of the total building value for structures in the Town of Bluefield, which can also be represented as 29% of the total buildings, as shown in Figure B. 11 and listed in Tables B.10 and B.1 1. Compared to landslide risk, risk from a building failure due to karst topography is rather small, with 0.37% of structures within 30 feet of known sinkholes, as shown in Figure B.12 in Tables B.12 and B.13. Developing in a karst landscape may pose significant problems without ordinances to limit development in high risk areas.



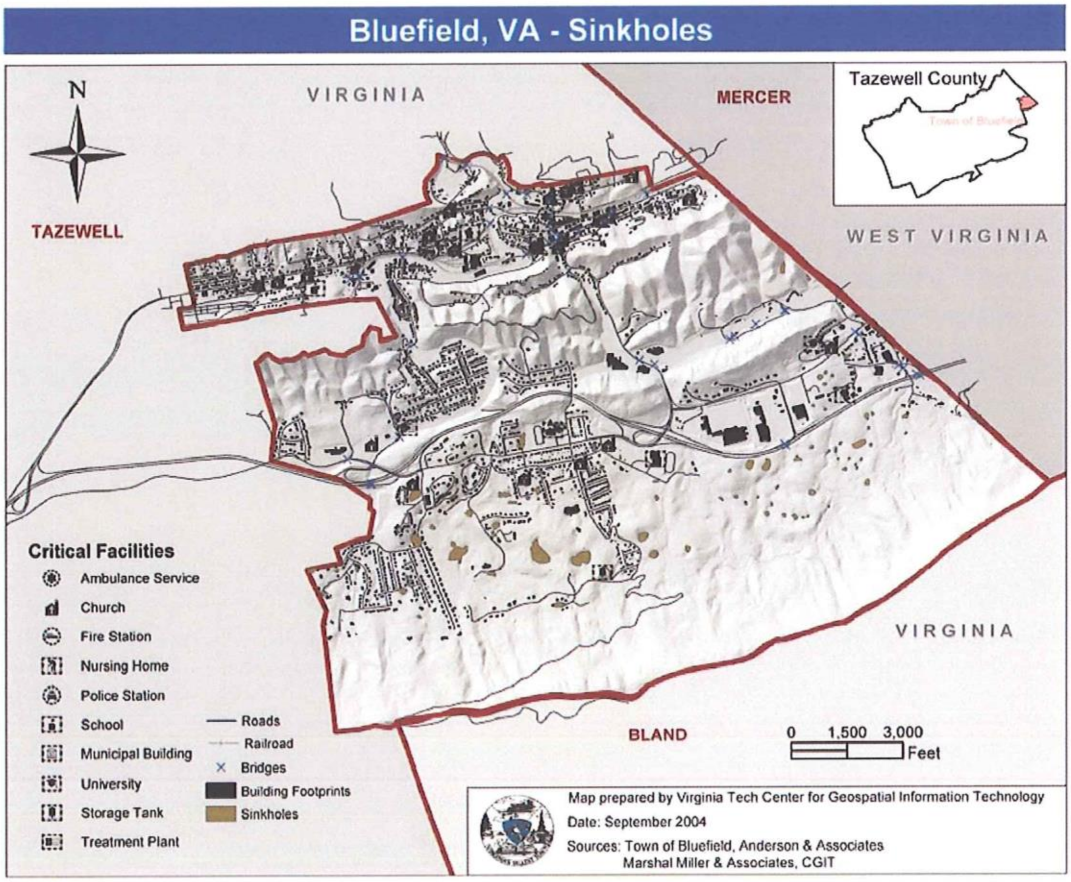
B. 11. Bluefield High Slope Hazards for Structures and Critical Facilities (Structures in >30% slope shown in red, critical facilities in purple).

Table B. 10. Bluefield Structure High Slope Risk Totals.

Infrastructure	TOTAL BUILDINGS COMPARED TO SLOPE		
	Greater than slope	Less than 15% slope	BUILDING 15% TOTAL
Church	9	18	27
Fire Station	0	1	1
Nursing Home	0	1	1
Police	0	1	1
School	3	10	13
Municipal Building	0	1	1
University	10	13	23
Water Storage Tank	0	1	1
Water Treatment Plant	0	2	2
Non-Critical Infrastructure	926	2243	3169
GRAND TOTAL	**948**	**2291**	**3239**
% Structures in Risk Areas	29.27%	70.73%	

Table B. 11. Bluefield Structure High Slope Risk Values.

Infrastructure	TOTAL BUILDING VALUES COMPARED TO SLOPE		
	Greater than slope	Less than 15% slope	TOTAL 15%
Church	$1,046,388	$10,866,339	$11,912,727
Fire Station	$0	$35,400	$35,400
Nursing Home	$0	$75,600	$75,600
Police	$0	$75,600	$75,600
School	$2,434,488	$16,272,200	$18,706,688
Municipal Building	$0	$75,600	$75,600
University	$80,565,000	$104,734,500	$185,299,500
Water Storage Tank	$0	$77,057	$77,057
Water Treatment Plant	$0	$2,250,600	$2,250,600
Non-Critical Infrastructure	$85,113,797	$239,811,549	$324,925,346
GRAND TOTAL	$169,159,673	**$374,274,445**	**$543,434,118**
% Structures in Risk Areas	31.13%	68.87%	



B.12. Bluefield Sinkhole Hazards for Structures and Critical Facilities (shown in red).

Table B.12. Bluefield Structure Sinkhole Risk Totals.

	TOTAL BUILDINGS WITHIN 30 FEET OF SINKHOLES		
Infrastructure	NO	YES	TOTAL BUILDINGS
Church	27	0	27
Fire Station	1	0	1
Nursing Home	1	0	1
Police	1	0	1
School	13	0	13
Municipal Building (Temporary)	1	0	1
University	23	0	23
Water Storage Tank	1	0	1
Water Treatment Plant	2	0	2
Non-Critical Infrastructure	3157	12	3169
GRAND TOTAL	**3227**	**12**	**3239**
% Structures in Risk Areas	99.63%	0.37%	

Table B.13. Bluefield Structure Sinkhole Risk Values.

	TOTAL BUILDING VALUE WITHIN 30 FEET OF SINKHOLES		
Infrastructure	NO	YES	**TOTAL VALUE**
Church	$11,912,727	$0	$11,912,727
Fire Station	$35,400	$0	$35,400
Nursing Home	$75,600	$0	$75,600
Police	$75,600	$0	$75,600
School	$18,706,688	$0	$18,706,688
Municipal Building (Temporary)	$75,600	$0	$75,600
University	$185,299,500	$0	$185,299,500
Water Storage Tank	$77,057	$0	$77,057
Water Treatment Plant	$2,250,600	$0	$2,250,600
Non-Critical Infrastructure	$323,657,204	$1,268,142	$324,925,346
GRAND TOTAL	**$542,165,976**	**$1,268,142**	**$543,434,118**
% Structures in Risk Areas	99.77%	0.23%	

Section 7 - Wind Events

Hazard History

Table B.14. Bluefield High Wind Events

	Damages
September 22, 1989	High winds (40mph) and rain from tropical storm Hugo resulted in power outages and uprooted trees.
September 4, 1993	Thunderstorms in southwest Virginia caused damage to homes and power lines. Property damages were estimated at $5 million (for Tazewell County).

There are no notable or recorded tornadoes for the Town of Bluefield.

Wind Zones

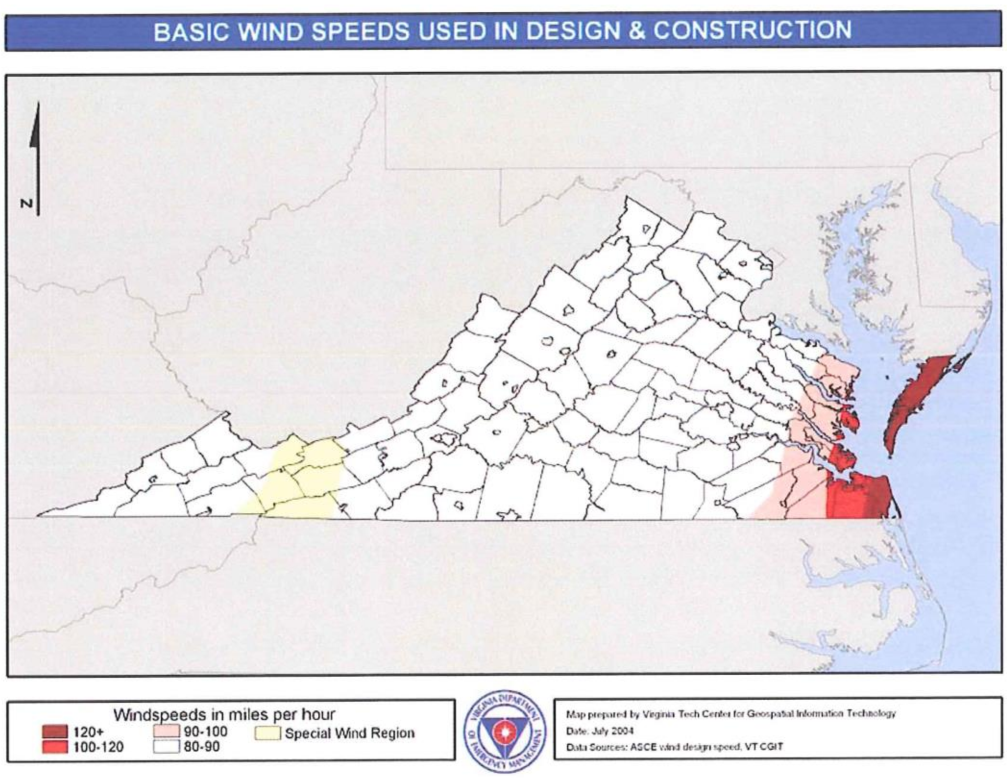


Figure B.13. 50-yr Design Wind Speeds for Virginia (from ASCE 7-98).

Figure B. 13. shows the basic design wind speed used for design and construction in Virginia. This map not only applies to windstorms, but also hurricane winds and tornado winds, as a basis for structural design based on potential wind loads. The Town of Bluefield is located in the "Special Wind Region" as a result of the mountainous terrain. In these regions, localities have the option of adopting more stringent wind load designs than the minimum national codes if local meteorological information supports this. Bluefield has not adopted any such wind design loads, so the 50-yr design wind speed is 80-90 mph.

Vulnerability Analysis

Refer to the Cumberland Plateau Planning District Commission for the complete wind event vulnerability analysis.

Design Wind Pressures

Refer to the Cumberland Plateau Planning District Commission for the complete wind event design wind pressures.

Building Types

Refer to the Cumberland Plateau Planning District Commission for the complete wind event building types.

Critical Facilities

Refer to the Cumberland Plateau Planning District Commission for the complete wind event critical facilities.

Estimating Losses

Refer to the Cumberland Plateau Planning District Commission for the complete wind event estimating losses.

Section 8 - Earthquakes

Hazard History

Table B.15. Bluefield Earthquake Events.

Date	Magnitude	Comments
March 9, 1828		Centered in Southwestern Virginia. Felt from Pennsylvania to South Carolina
May 31, 1897	Magnitude 5.8 Mfa NUT	Damages to houses in Bluefield West Virginia. Earthquake centered in Giles County, Virginia. Bluefield, West Virginia was about 40 km from the epicenter
May 3, 1897	Magnitude 4.3 Mfa NUT	Centered in Southwestern Virginia

Hazard Profile

Refer to the Cumberland Plateau Planning District Commission for the complete earthquake profile.

Hazard Areas

There are a few fault lines that run through the center of the Town of Bluefield. Marshall Miller and Associates, a local consulting firm, provided data for analysis, as shown in Figure B. 14.

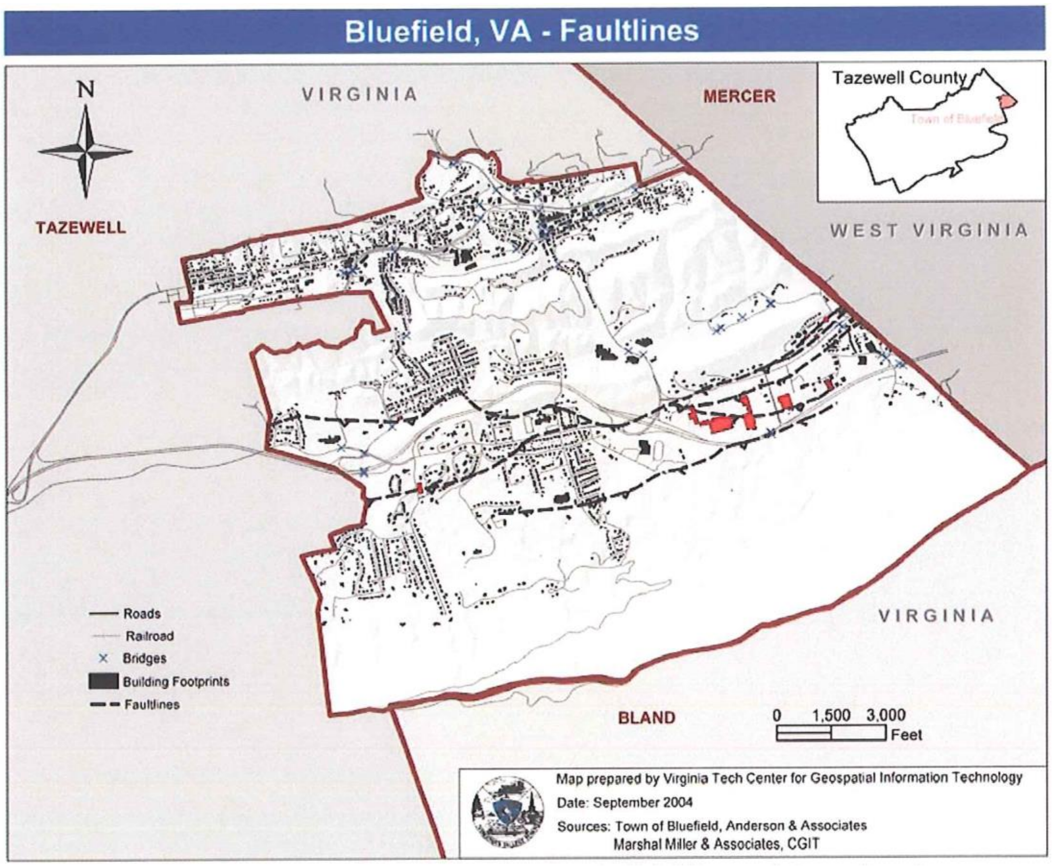
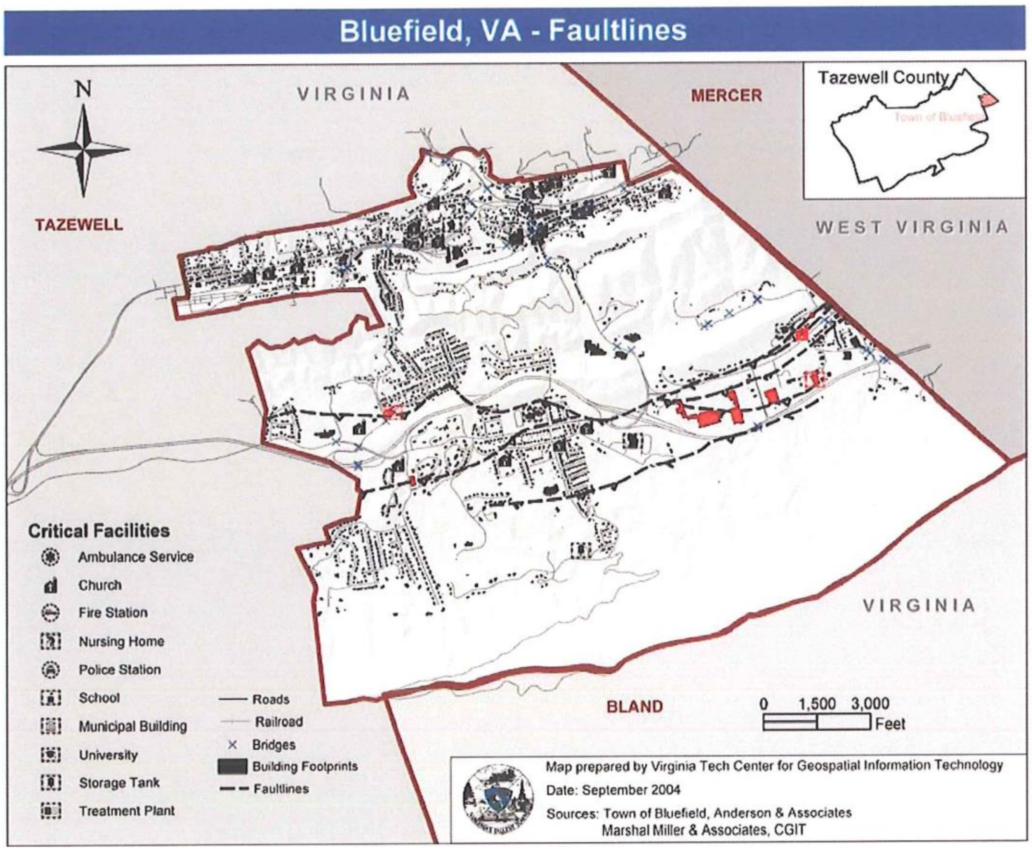


Figure B.14. Bluefield Fault Lines (Source: Marshall Miller and Associates).

Vulnerability Analysis

Figure B. 15. shows those structures and critical infrastructure that are located with 30 feet of these faults. Tables B.16. and B.17. detail the totals and values of these at-risk locations.



B. 15. Bluefield Fault Line Hazards for Structures and Critical Facilities (shown in red).

Table B.16. Bluefield Structure Fault Line Risk Totals.

	TOTAL BUILDINGS WITHIN 30 FEET OF FAULT LINES		
Infrastructure	**NO**	**YES**	**TOTAL BUILDINGS**
Church	26	1	27
Fire Station	1	0	1
Nursing Home	0	1	1
Police	1	0	1
School	13	0	13
Municipal Building (Temporary)	1	0	1
University	17	6	23
Water Storage Tank	1	0	1
Water Treatment Plant	1	1	2
Non-Critical Infrastructure	3095	74	3169
GRAND TOTAL	**3156**	**83**	**3239**
% Structures in Risk Areas	97.44%	2.56%	

Table B.17. Bluefield Structure Fault Line Risk Values.

	TOTAL BUILDING VALUE WITHIN 30 FEET OF FAULT LINES		
Infrastructure	NO	YES	**TOTAL VALUE**
Church	$3,856,227	$8,056,500	$11,912,727
Fire Station	$35,400	$0	$35,400
Nursing Home	$0	$75,600	$75,600
Police	$75,600	$0	$75,600
School	18706688	$0	$18,706,688
Municipal Building (Temporary)	$75,600	$0	$75,600
University	$136,960,500	$48,339,000	$185,299,500
Water Storage Tank	$77,057	$0	$77,057
Water Treatment Plant	$75,600	$2,175,000	$2,250,600
Non-Critical Infrastructure	$317,034,397	$7,890,949	$324,925,346
GRAND TOTAL	**$476,897,069**	**$66,537,049**	**$543,434,118**
% Structures in Risk Areas	87.76%	12.24%	

Section 9 - Drought

Hazard History

Table B.18. Recent Bluefield Droughts.

	Damages
1995	A drought, which started earlier in the summer, peaked in many sections of southwest, south- central and west-central Virginia during the first two weeks of September. The drought damaged crops and resulted in many lakes and rivers being well below normal levels. Governor George Allen declared a state of emergency for southwest, south-central and west-central Virginia because of the drought. Widespread significant rainfall on September 17 helped to alleviate the dry conditions.
1998 & 1999	Dry conditions started in July, subsided in August, started again in September, and continued through most of November. In most areas, crops were damaged or destroyed. Water levels in creeks, streams, rivers, and lakes were fairly low. Water levels in some shallow wells were low. Crop damages were estimated over $7.7 million. The drought ended in most areas with the arrival of heavy rain from the remnants of hurricane Dennis on the 4th and 5th of September.

Hazard Profile

Refer to the Cumberland Plateau Planning District Commission for the complete drought profile.

Vulnerability Analysis

Impacts from droughts in the Town of Bluefield are a major concern. Most of the town's water supply comes from surface water (or wells supplied by surface water) and as a result, droughts can be detrimental to the town in respect to the societal demands placed on the water resources. Most of Bluefield is serviced by the Town's water systems, with the treatment located on the Bluestone River. Some areas of town are supplied by a company in West Virginia, specifically the commercial strip along College Avenue. Small portions of town have their own water supply (i.e. well systems). The current Bluefield water system is near capacity and plans are already in place to expand the system throughout town. While there are connections to neighboring water systems, during a severe drought the Town would likely have some water supply issues.

Mitigation Strategy

The Town of Bluefield has been involved with the district mitigation planning efforts of the Cumberland Plateau Planning District Commission. The Bluefield Zoning Administrator (Derrick Ruble from 2002-2003 and Edward Moore from 2003-2004) have attended meetings with the Mitigation Advisory Committee and conveyed this information to the Bluefield Town Council (current members listed in Table B. 19).

Table B.19. 2004 Bluefield Town Council and Town Manager

Members	Position/Office
Donald Harris	Mayor
Rick Taylor	Vice Mayor
Tom Chaffins	Council member
Brent Chambers	Council member
Ed Shaffrey	Council member
Anglis Trigg Jr.	Council member
Todd Day	Town Manager

Bluefield Town Council decided for their mitigation strategy to use the same goals and objectives as the CPPDC Plan, and developed detailed implementation details for items specifically within Bluefield.

Goals, Objectives and Implementation

The Cumberland Plateau Planning District Commission's overarching Goal, as well as the individual goals, is listed below in Table B.20. These goals were reviewed by the planning district's Mitigation Advisory Committee. The committee evaluated the strengths and weaknesses of the planning district in terms of hazard mitigation.

Table B.20. Bluefield Mitigation Goals (from CPPDC Plan).

Overarching Planning District Goal: *"To develop and maintain disaster resistant communities that are less vulnerable to the economic and physical devastation associated with natural hazard events. "*
Goal 1:
Enhance the safety of residents and businesses by protecting new and existing development from the effects of hazards.
Goal 2:
Protect new and existing public and private infrastructure and critical facilities from the effects of hazards.
Goal 3:
Increase the Planning District communities floodplain management activities and participation in the National Flood Insurance Program.
Goal 4:
Ensure hazard awareness and risk reduction principles are institutionalized into the Planning District communities' daily activities, processes, and functions by incorporating it into policy documents and initiatives.
Goal 5:
Enhance community-wide understanding and awareness of community hazards.
Goal 6:
Publicize mitigation activities to reduce the area's vulnerability to hazards.

The CPPDC Plan takes these goals and identifies 13 actions for jurisdictions. Table B.21 lists the 8 actions that apply to the Town of Bluefield and the CPPDC priority for each of the actions. The tables also include the Town's priority (High, Moderate, Low) for each implementation action. The Town specific priorities were developed by Town staff based on the current Town goals of focusing on flooding and stormwater issues. The Town will work closely with Tazewell County and CPPDC staff on pursuing funding, implementing, and maintaining of both Town and Regional strategies. Bluefield plans to continue to actively participate in the CPPDC MAC. Due to funding and staff limitations with the Town, all future maintenance of the Bluefield portions of the Plan will stay with the CPPDC.

Table B.21. CPPDC Actions that Apply to Bluefield

Action	CPPDC Priority	Bluefield Priority	Comments
#1. Obtain official recognition of the Mitigation Advisory Committee by the Planning District's communities in order to help institutionalize and develop an ongoing mitigation program.	High	High	Due to funding and staff limitations with the Town, all future maintenance of the Bluefield portions of this Plan will stay with the CPPDC.
#2. Target FEMA's Repetitive Loss Properties, and other known repetitively flooded properties, throughout the Planning District for potential mitigation projects.	High	High	Most repetitively flooded properties in Bluefield not on FEMA Property List.
#3. Undertake educational outreach activities by developing and distributing brochures and education materials for FEMA's Repetitive Loss Properties with specific mitigation measures emphasizing acquisition, relocation and elevation.	High	Moderate	Bluefield will look to CPPDC for lead role on this action.
#4. Publicize the Virginia Department of Forestry' s *Money for Mitigation Program.* Utilize existing wildfire maps to prioritize project areas in the Planning District. Assist local residents, in priority areas, to reduce wildfire hazards through the use of funding from the *Money for Mitigation Program.*	High	Low	Small portion of Bluefield residents will qualify for this program.
#5. Develop a comprehensive compilation of landslide activity in the Planning District to be used as a planning tool for future infrastructure projects.	High	Low	Town will look to VDOT and CPPDC for lead roles for this action.
#6. Evaluate the Planning District's community floodplain ordinances and enforcement procedures that may be outdated for possible upgrades.	Moderate	Moderate	Town will update ordinances when new FEMA floodplains are adopted during next three years through FEMA Map Modernization Program.
#12. Investigate all critical facilities to evaluate their resistance to wind, fire, landslide and flood hazards. This study will examine all critical facilities within the Planning District communities and make recommendations as to ways in which the facilities can be strengthened or hardened.	Moderate	Moderate	Town will actively assist Tazewell County and CPPDC efforts for this action.
#13. Support Public Works initiatives to improve stormwater infrastructure throughout the area.	Moderate	High	Town is currently conducting stormwater master plan study.

Sources

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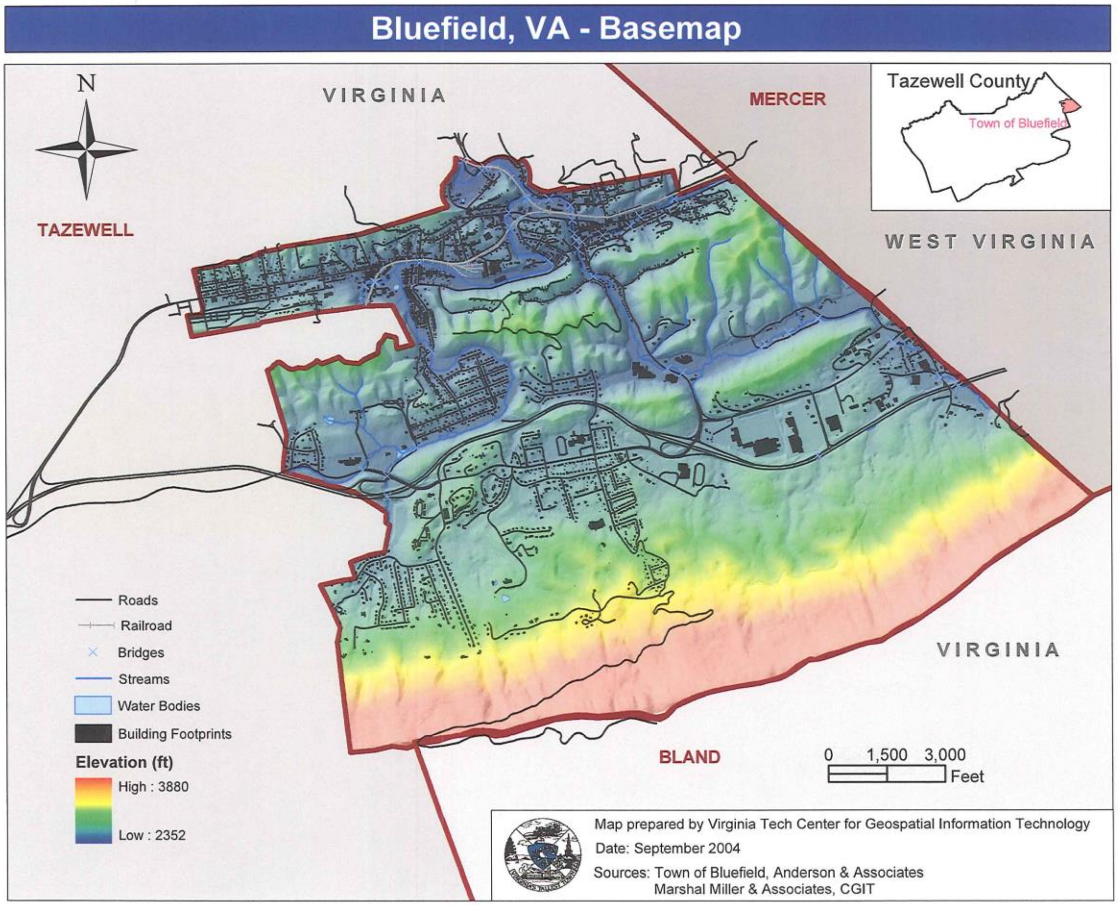
Bluefield, VA - Basemap
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Roads
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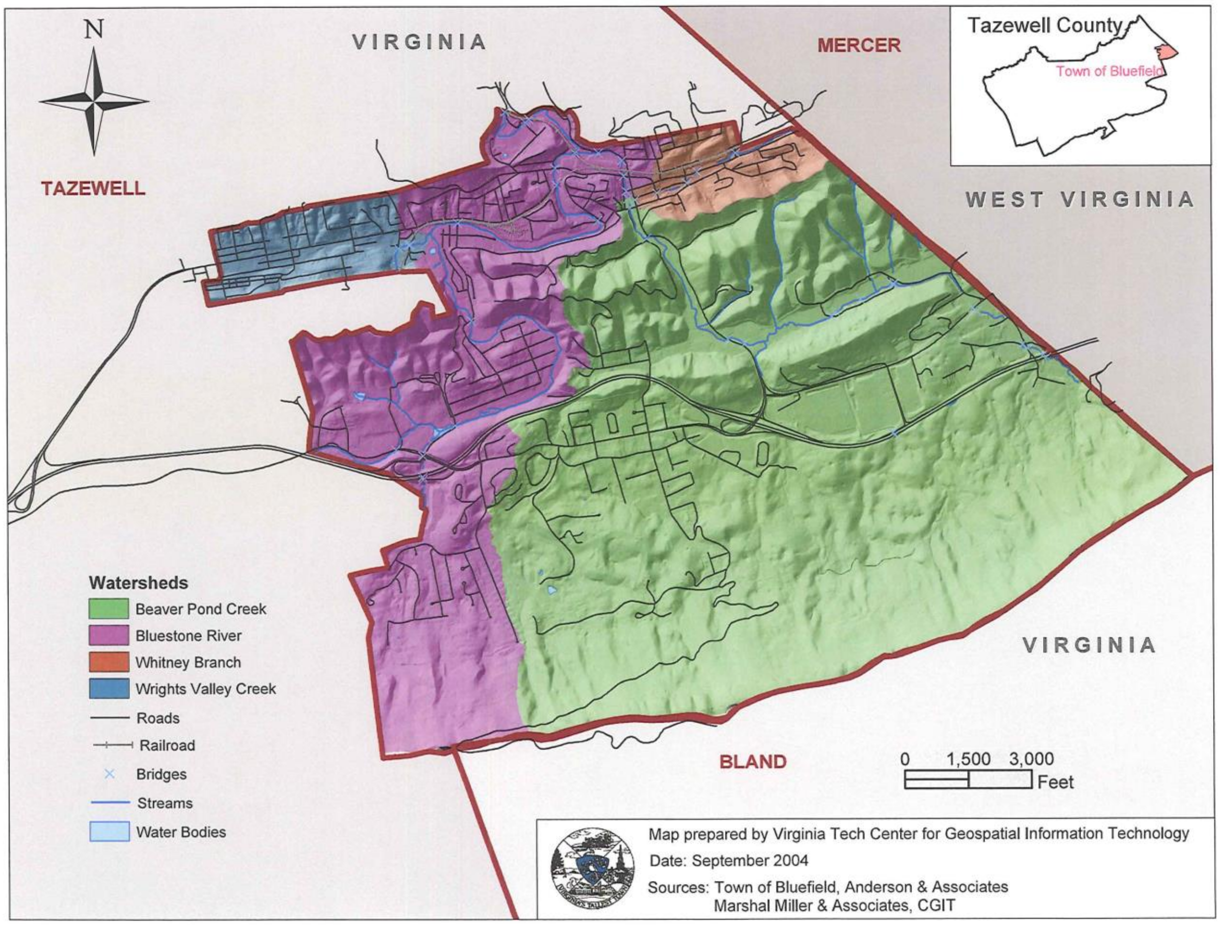
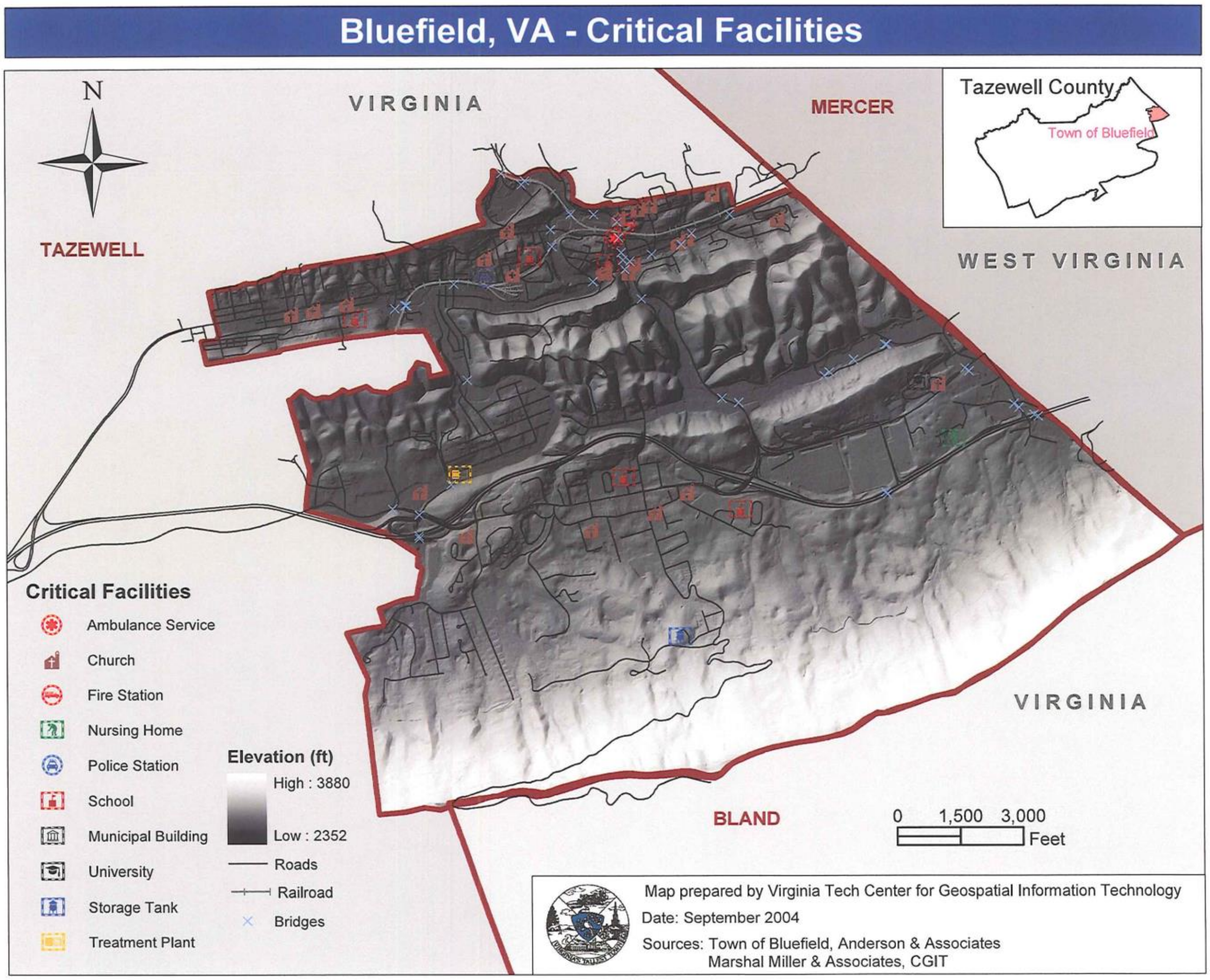
Streams
Water Bodies
Building Footprints
Elevation (ft)
High : 3880
Low : 2352
0 1,500 3,000
Feet
Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: September 2004
Sources: Town of Bluefield, Anderson & Associates
Marshal Miller & Associates, CGIT

Bluefield, VA - Sub-Watersheds




Bluefield, VA - Critical Facilities
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Critical Facilities
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Nursing Home
Police Station
School
Municipal Building
University
Storage Tank
Treatment Plant
Elevation (ft)
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Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: September 2004
Sources: Town of Bluefield, Anderson & Associates
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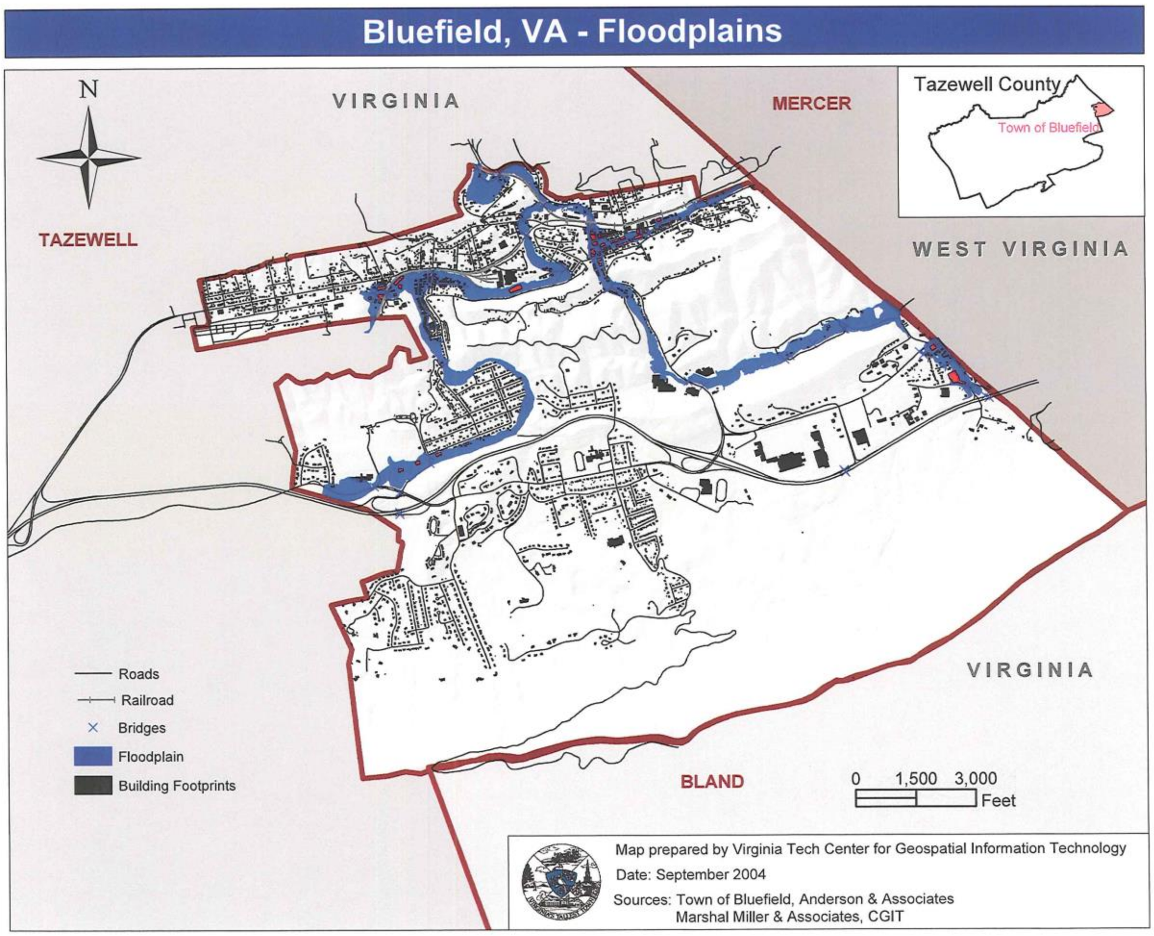
Bluefield, VA - Floodplains
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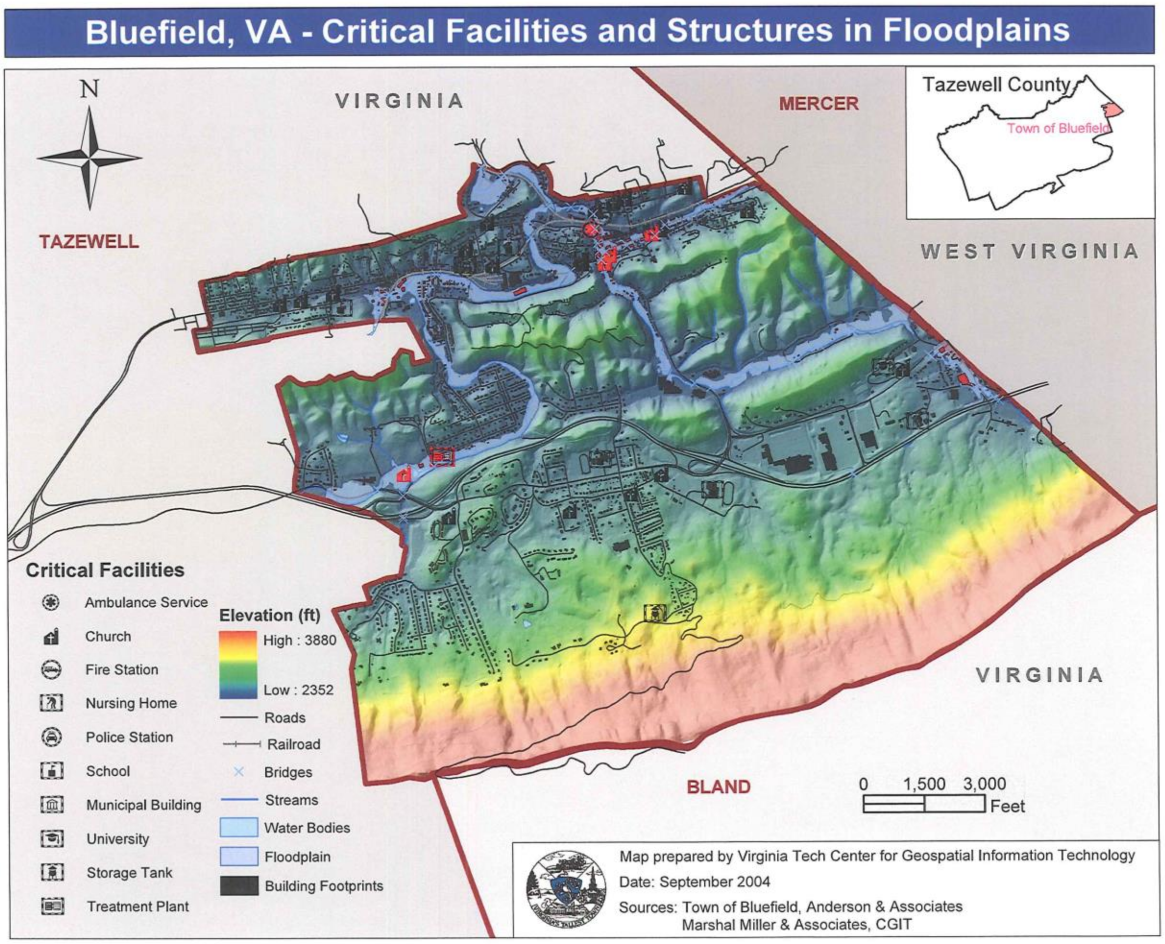
Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: September 2004
Sources: Town of Bluefield, Anderson & Associates
Marshal Miller & Associates, CGIT



Bluefield, VA - Critical Facilities and Structures in Floodplains
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Ambulance Service
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Nursing Home
Police Station
School
Municipal Building
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Storage Tank
Treatment Plant
Elevation (ft)
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Water Bodies
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Building Footprints
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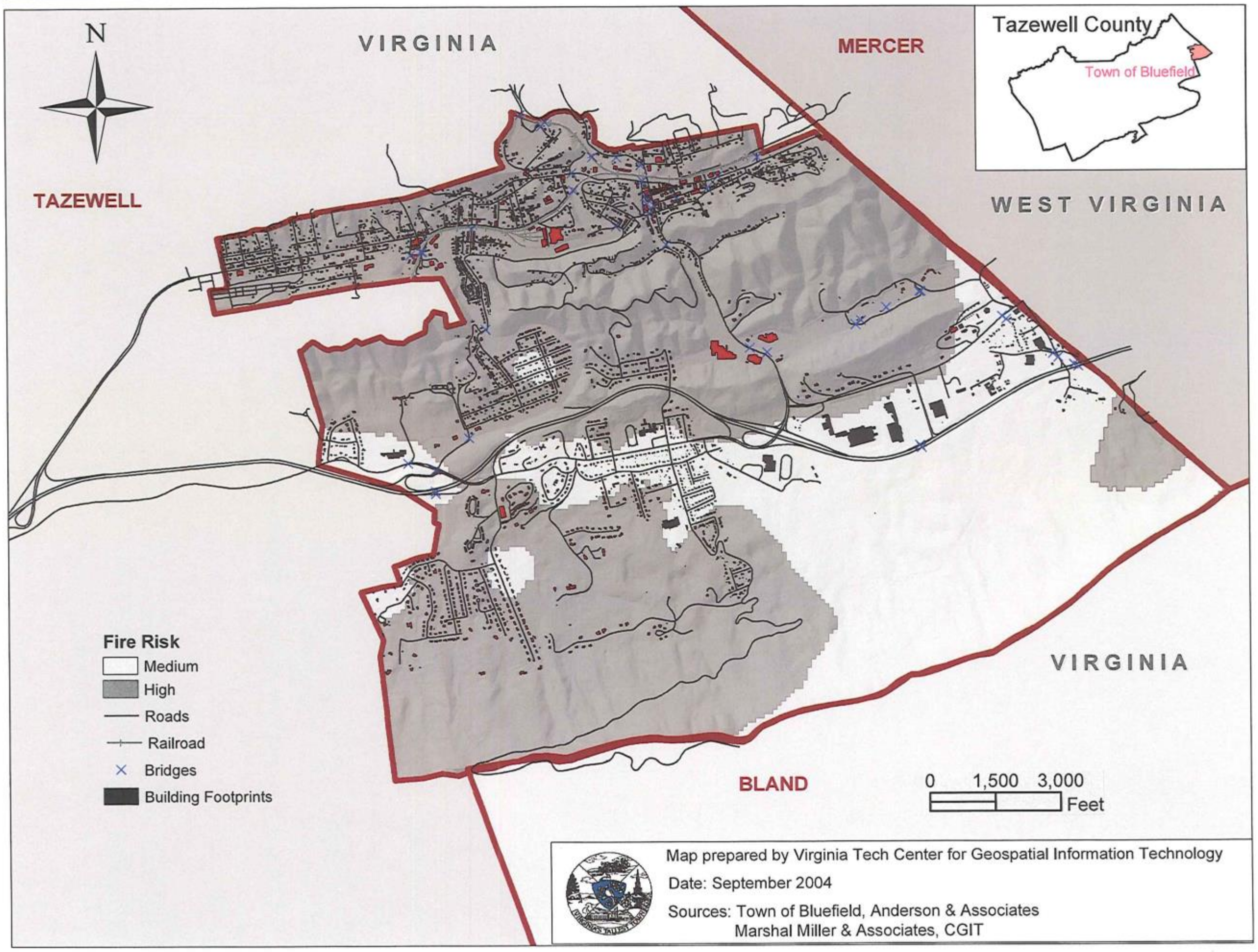
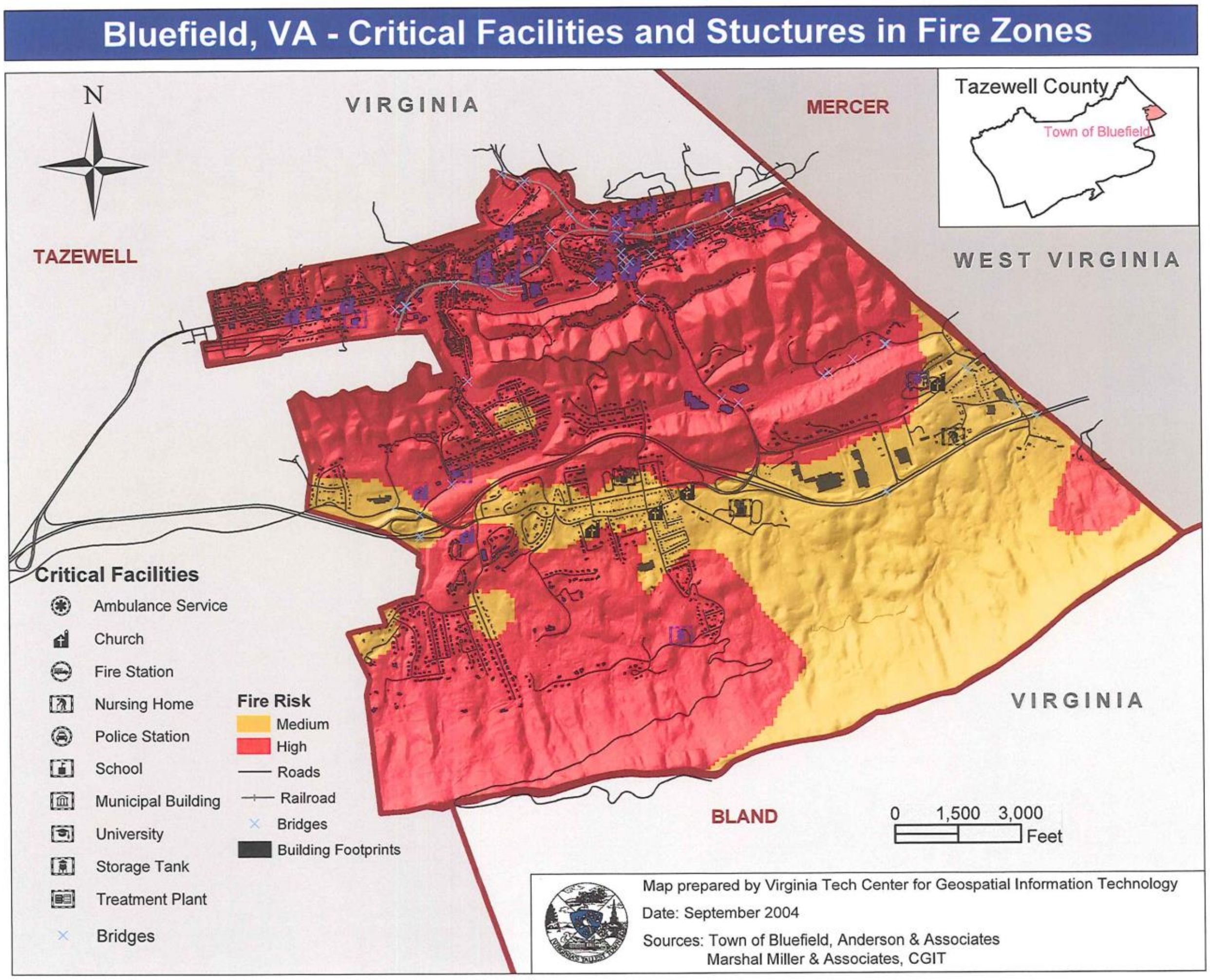
Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: September 2004
Sources: Town of Bluefield, Anderson & Associates
Marshal Miller & Associates, CGIT

Bluefield, VA - Fire Zones





Bluefield, VA - Critical Facilities and Stuctures in Fire Zones
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Nursing Home
Police Station
School
Municipal Building
University
Storage Tank
Treatment Plant
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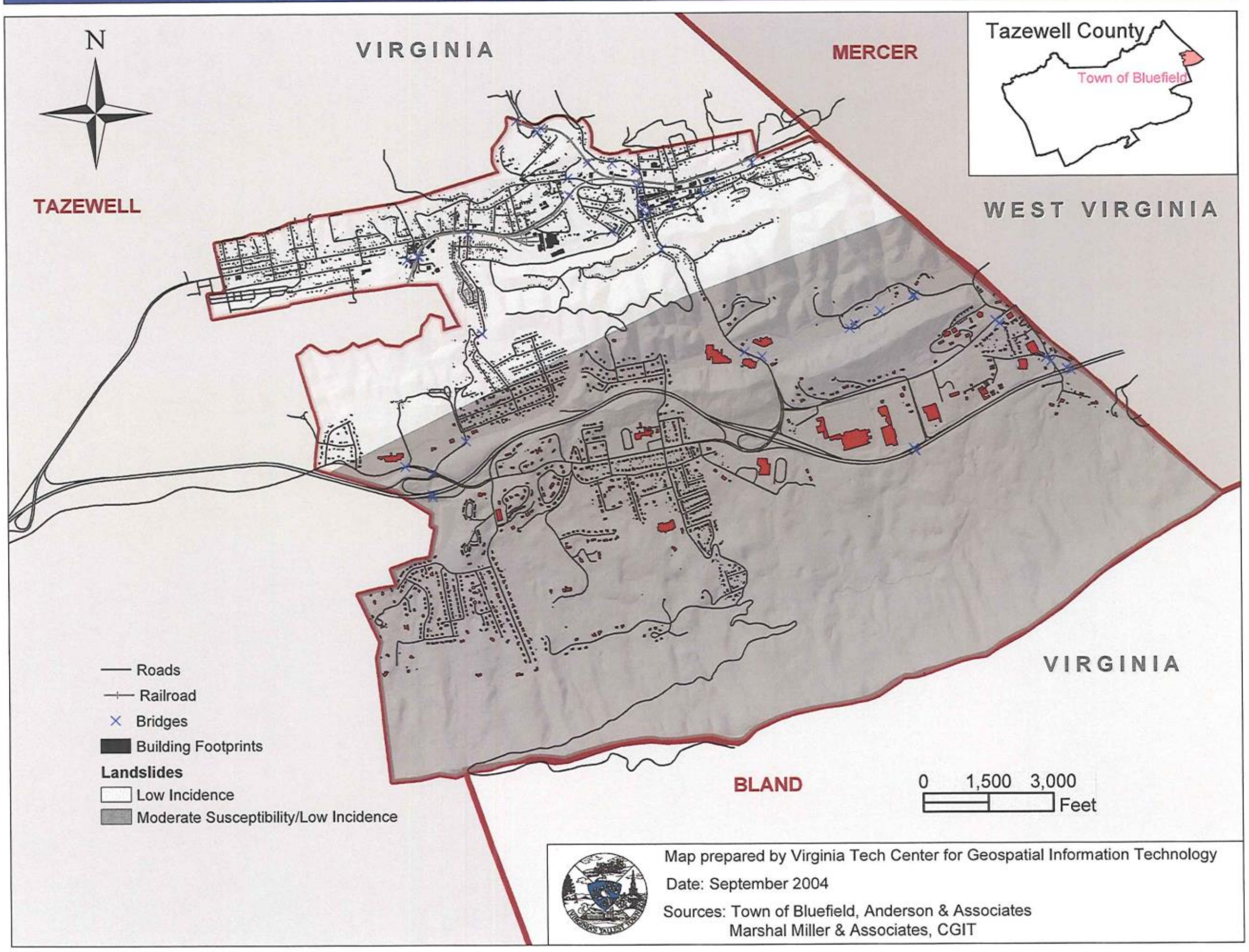
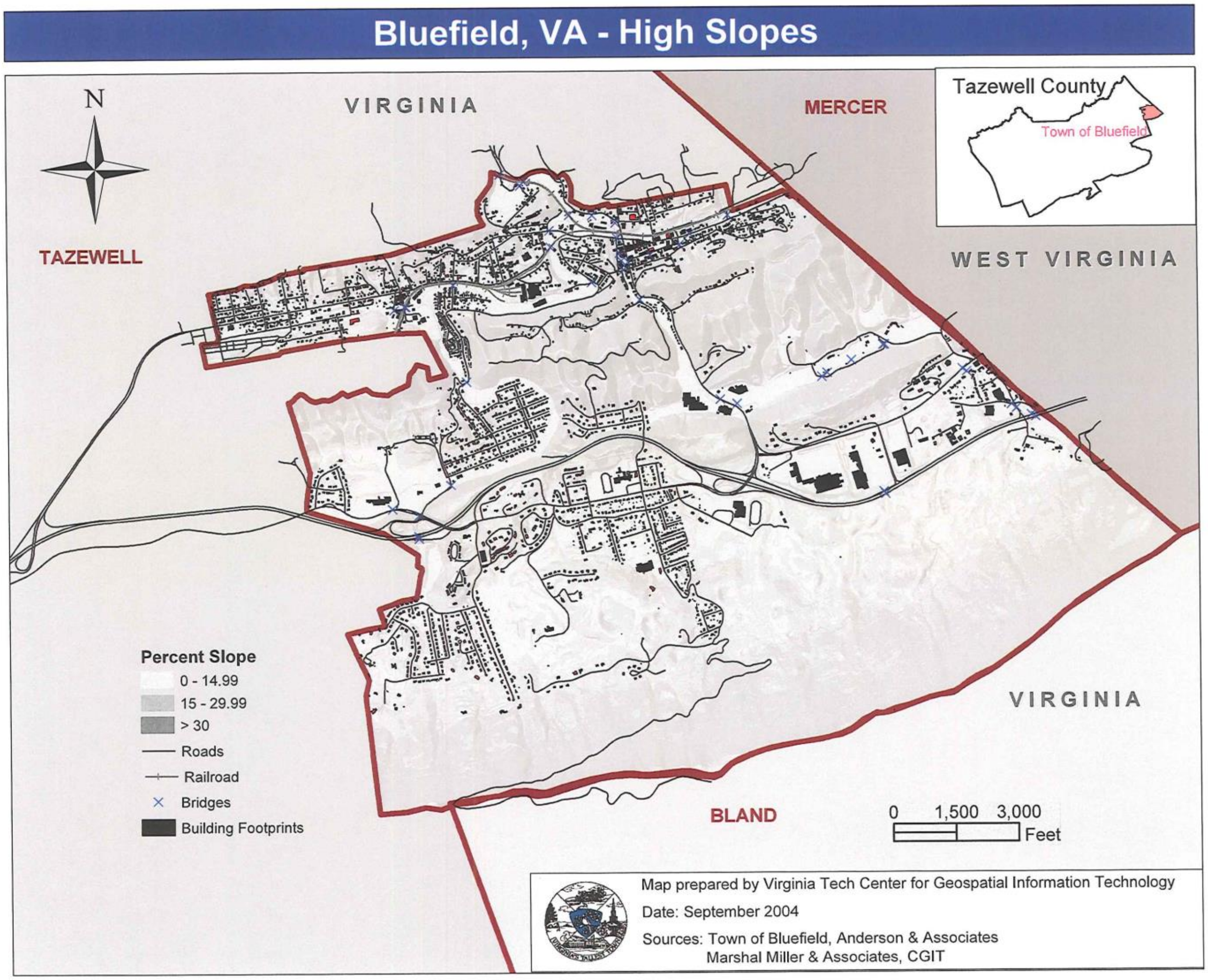
Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: September 2004
Sources: Town of Bluefield, Anderson & Associates
Marshal Miller & Associates, CGIT

Bluefield, VA - Landslides Zones




Bluefield, VA - High Slopes
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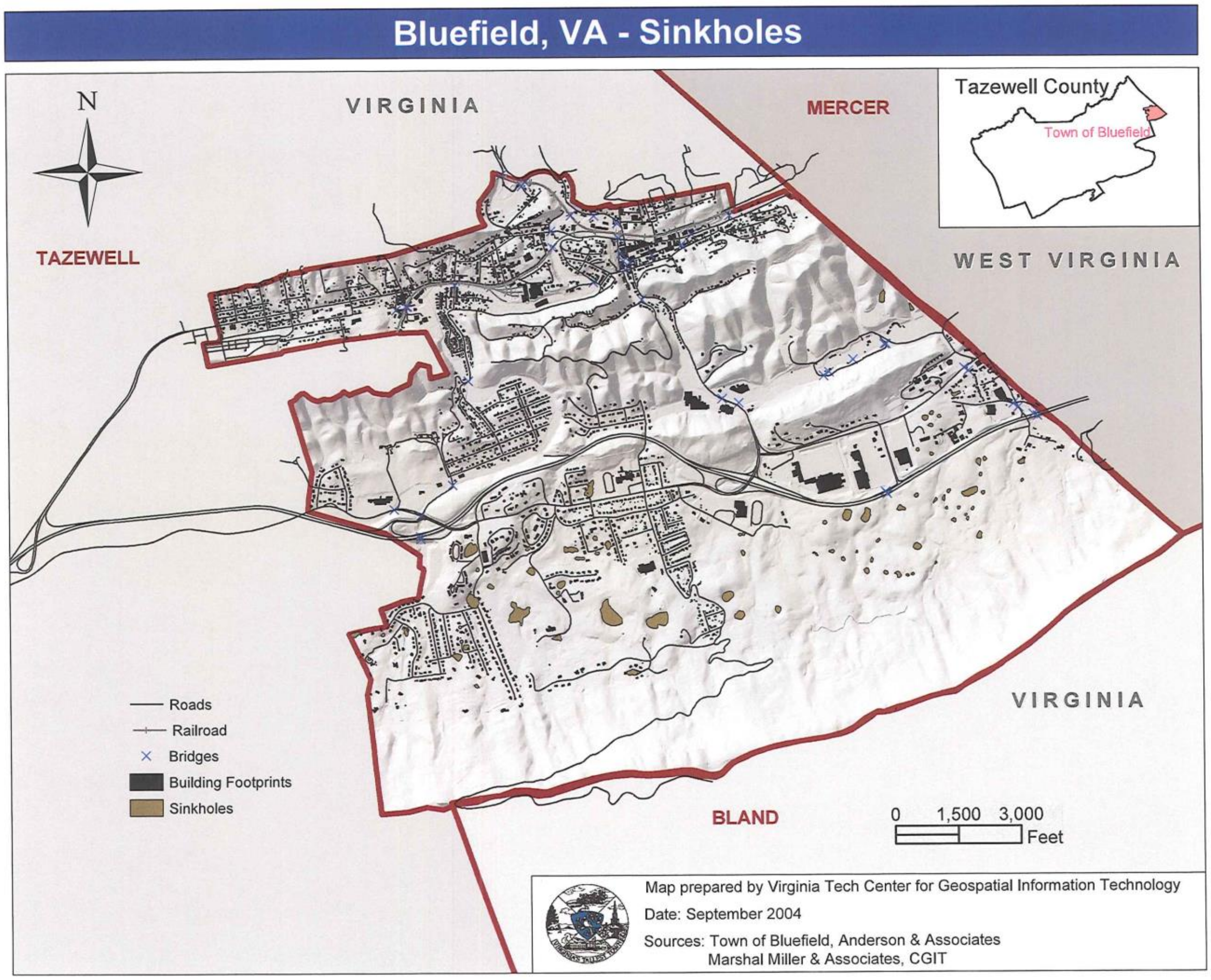
MERCER
Tazewell County
Town of Bluefield
TAZEWELL
WEST VIRGINIA
VIRGINIA
BLAND
Percent Slope
0 - 14.99
15 - 29.99
> 30
Roads
Railroad
Bridges
Building Footprints
0 1,500 3,000
Feet
Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: September 2004
Sources: Town of Bluefield, Anderson & Associates
Marshal Miller & Associates, CGIT


Bluefield, VA - Sinkholes
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Tazewell County
Town of Bluefield
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Roads
Railroad
Bridges
Building Footprints
Sinkholes
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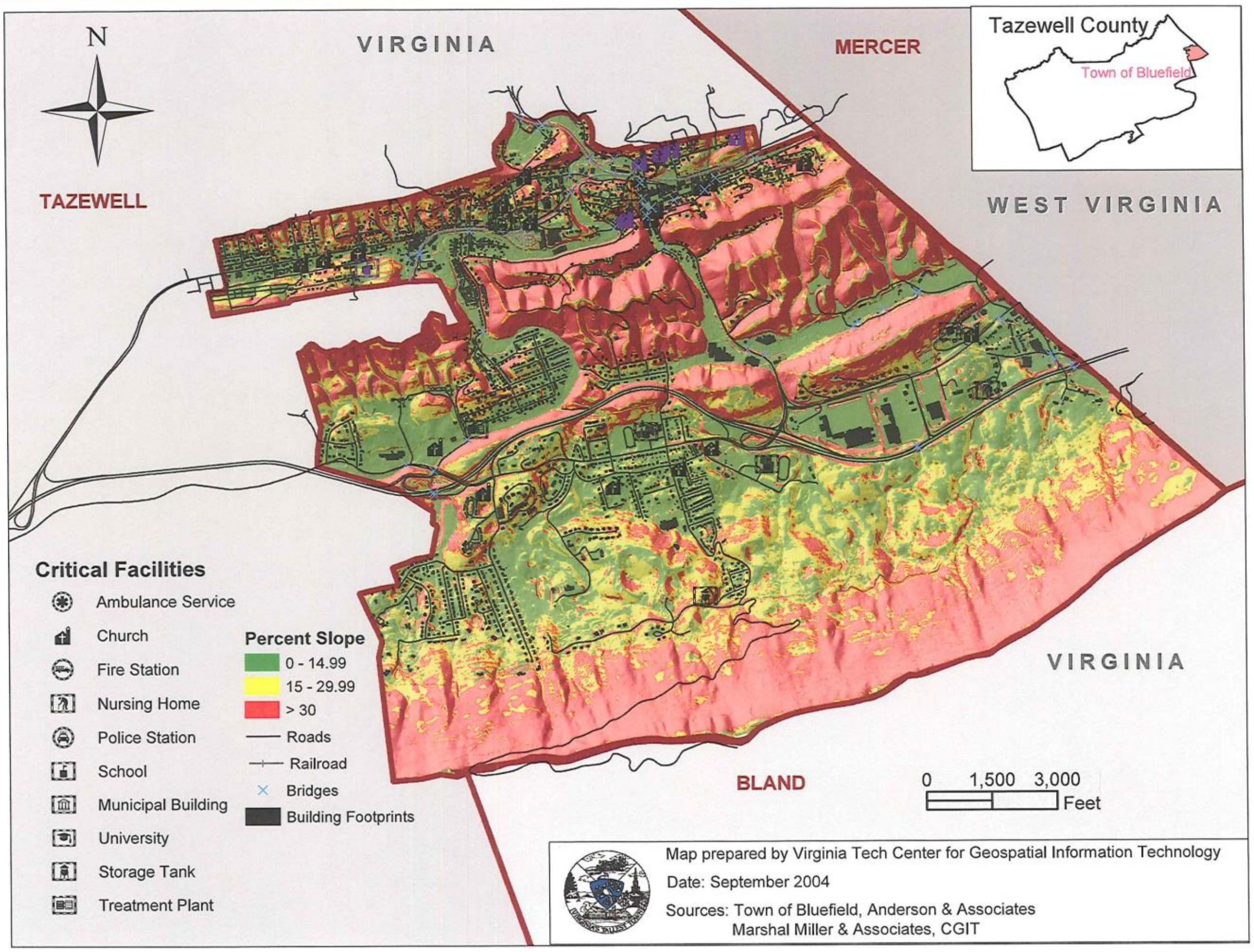
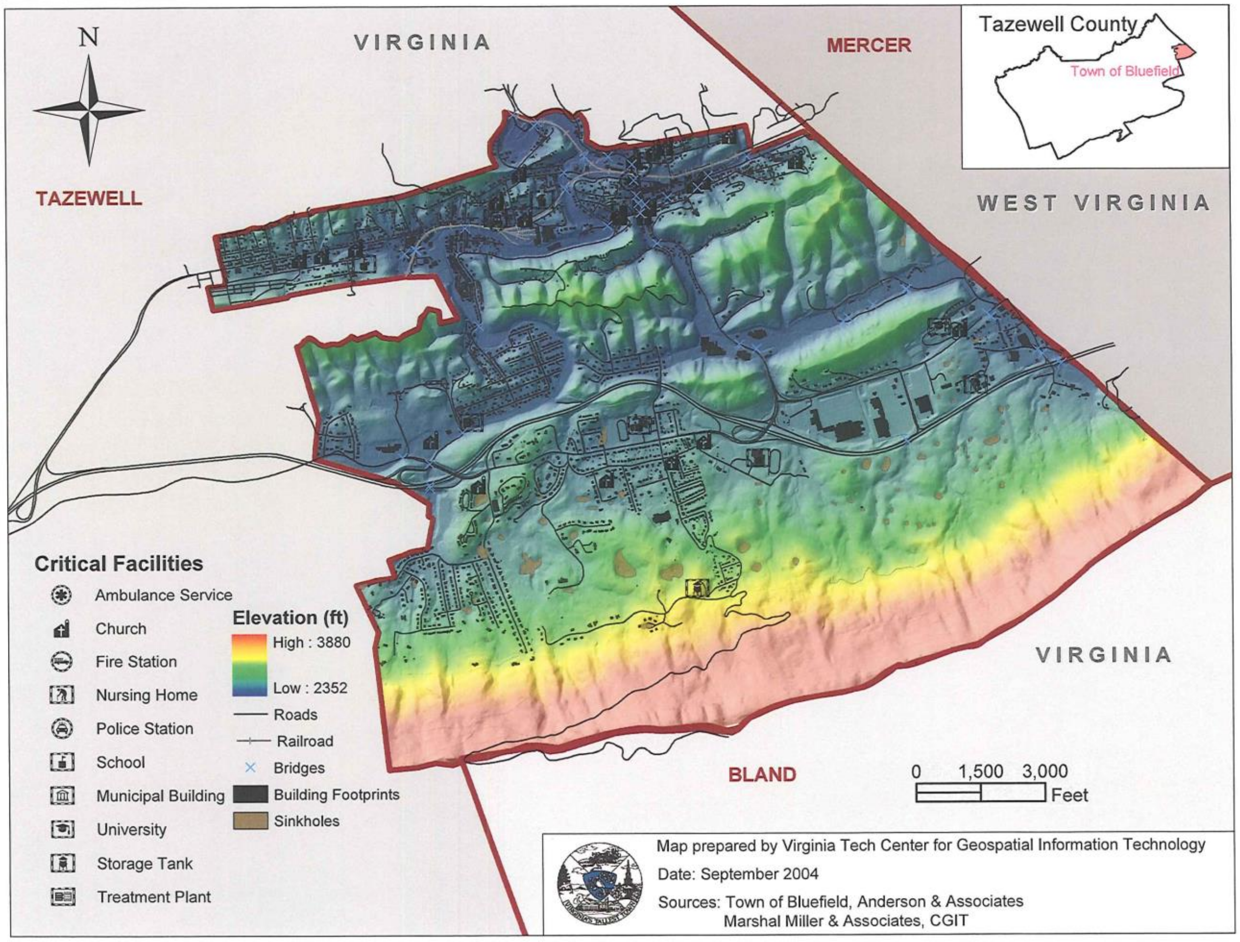
Feet
Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: September 2004
Sources: Town of Bluefield, Anderson & Associates
Marshal Miller & Associates, CGIT

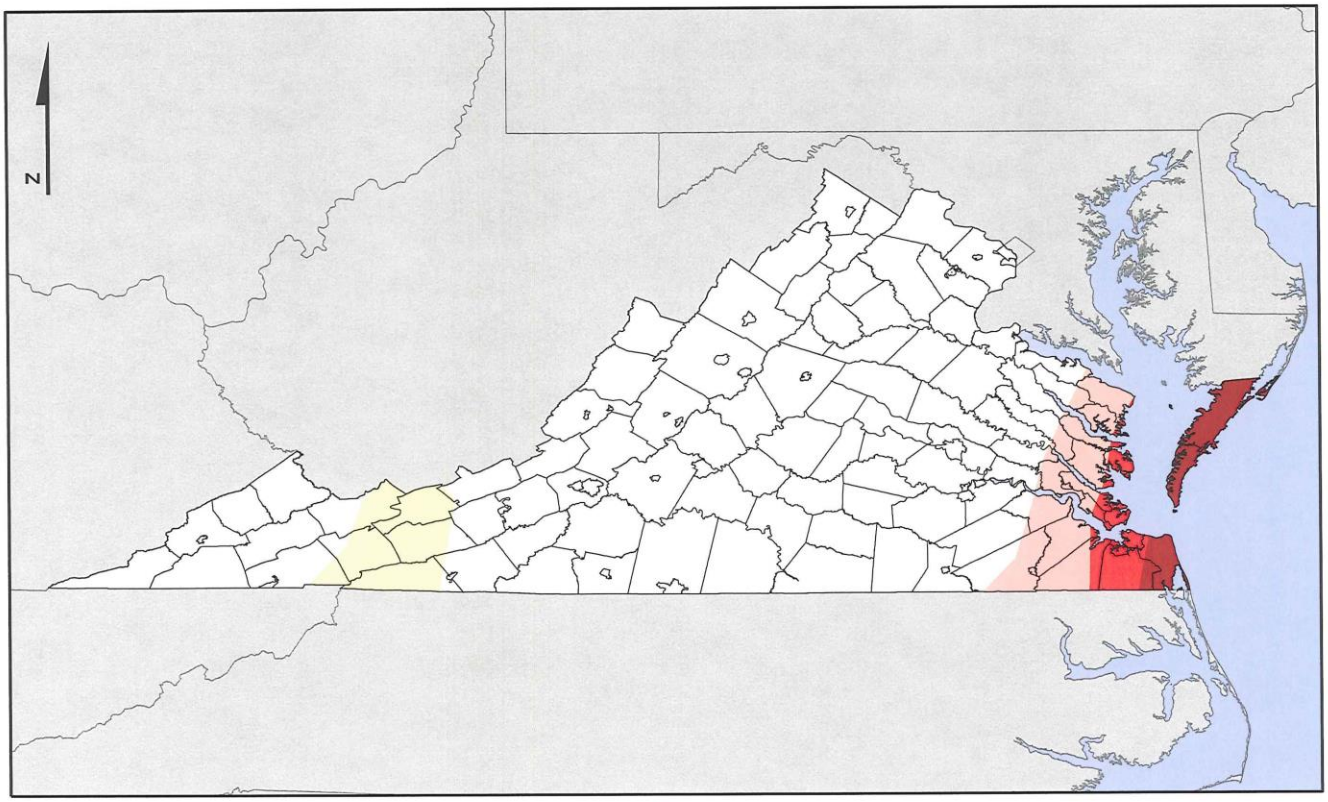
Bluefield, VA - Critical Facilities and Structures in High Slopes



Bluefield, VA - Critical Facilities and Structures near Sinkholes



BASIC WIND SPEEDS USED IN DESIGN & CONSTRUCTION



Windspeeds in miles per hour

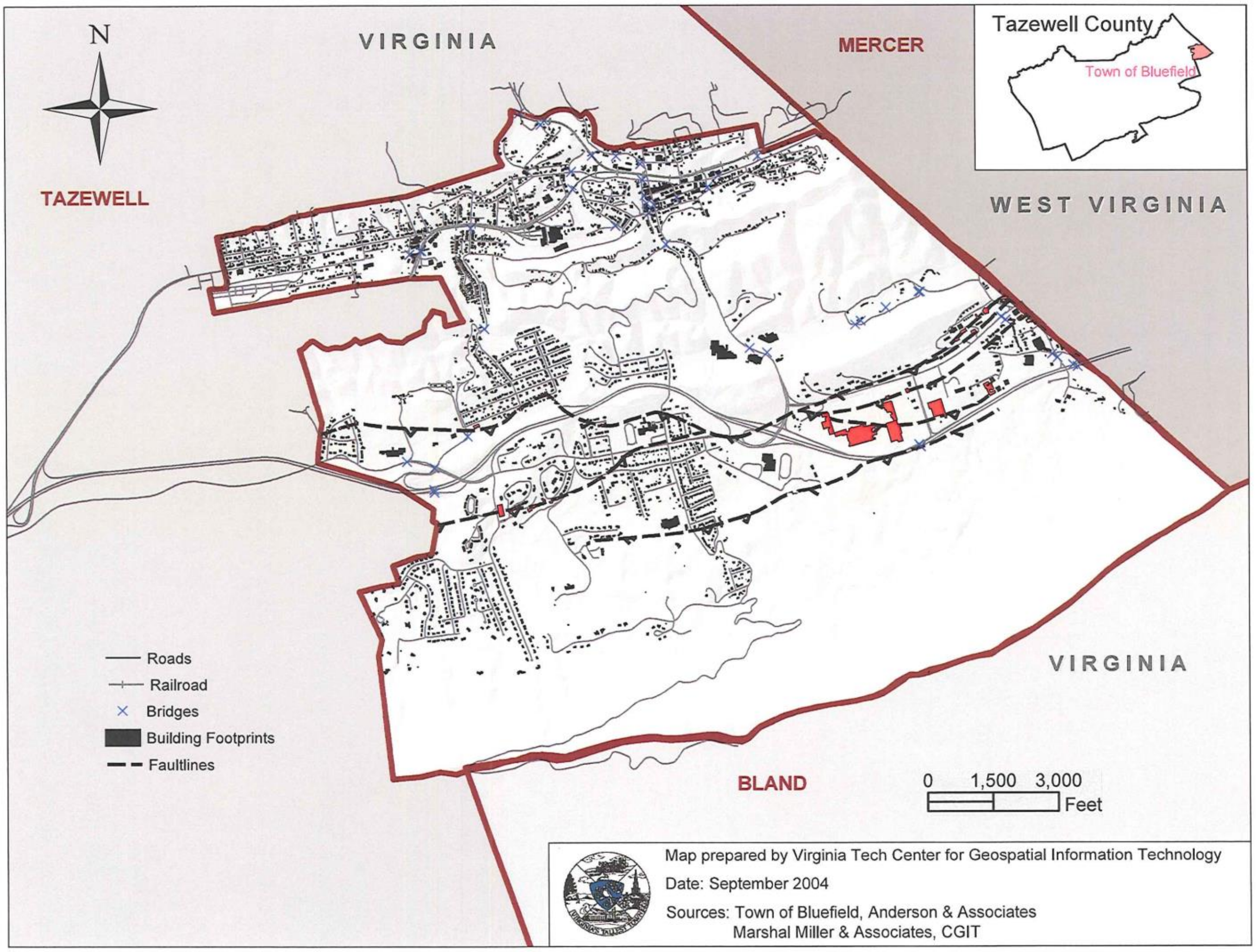
- 120+
- 100-120
- 90-100
- 80-90
- Special Wind Region

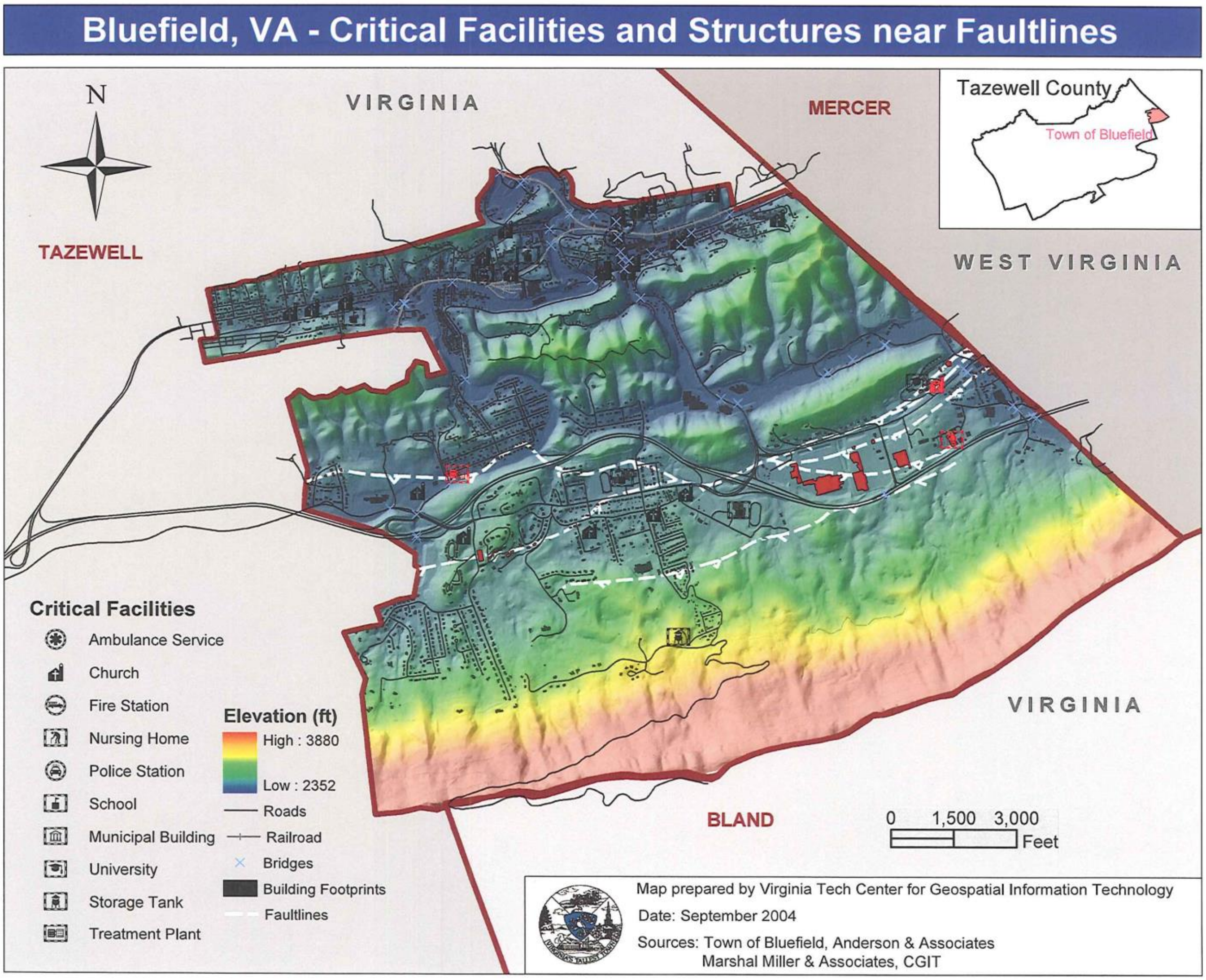
Map prepared by Virginia Tech Center for Geospatial Information Technology

Date: July 2004

Data Sources: ASCE wind design speed, VT CGIT

Bluefield, VA - Faultlines





Bluefield, VA - Critical Facilities and Structures near Faultlines
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VIRGINIA
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Tazewell County
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TAZEWELL
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BLAND
Critical Facilities
Ambulance Service
Church
Fire Station
Nursing Home
Police Station
School
Municipal Building
University
Storage Tank
Treatment Plant
Elevation (ft)
High : 3880
Low : 2352
Roads
Railroad
Bridges
Building Footprints
Faultlines
0 1,500 3,000
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Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: September 2004
Sources: Town of Bluefield, Anderson & Associates
Marshal Miller & Associates, CGIT

Appendix C - Mitigation Alternatives

General Multi-Hazard Mitigation Alternatives

The mitigation alternatives selected should be linked to the Planning District's goals and objectives, and must address each jurisdiction's hazard risks and vulnerability outlined in the plan's Hazard Identification and Risk Assessment. The following is a list of potential mitigation measures not specific to one hazard, which can benefit a community's overall hazard reduction efforts.

Comprehensive Plans

Comprehensive plans address how and where a community should grow by guiding the rate, intensity, form, and quality of physical development. These plans address land use, economic development, transportation, recreation, environmental protection, the provision of infrastructure, and other municipal functions. Comprehensive plans help to guide other local measures such as capital improvement programs, zoning ordinances, subdivision ordinances and other community policies and programs. By integrating hazard considerations into the plan, mitigation would become integrated with community functions and could therefore be an institutionalized part of a jurisdiction's planning efforts.

Density and development patterns should reflect the Planning District communities' ability to protect their jurisdictions, the environment, and the ability to evacuate the area. Development management tools should be incorporated into the local policies that address the location, density, and use of land, with a particular emphasis on development within high-risk areas. Efforts should be made to keep people and property out of high-hazard areas whenever possible. Particularly hazardous areas could be used for recreational uses, open space, or wildlife refuges.

Capital Budget Plans

Capital budget plans typically provide for the future and ongoing provision of public facilities and infrastructure. These plans can be vital tools in keeping new development out of high-hazard areas by limiting the availability of public infrastructure. Public facilities can often be relocated to less hazardous areas in the aftermath of a disaster. Public utilities also can be relocated, or they can be upgraded or floodproofed. Power and telephone lines can be buried underground.

In order to maximize the gravity flow area of wastewater treatment plants, the facilities are often located at the lowest elevation in the community. If this point lies within a floodplain for example, consideration may be given to relocating or floodproofing such facilities. New locations for critical facilities should not be in hazard-prone areas, or in areas where their function may be impaired by a given hazard event (i.e., where water can flood the access roads). Critical facilities should be designed and/or retrofitted in order to remain functional and safe before, during, and after a hazard event.

Zoning

Zoning is by far the most common land use control technique used by local governments. While a useful tool for regulating and restricting undesirable land uses, zoning has a somewhat more limited benefit when it comes to mitigation. Zoning is most effective on new development rather than existing development, which does little to address the pre-existing development in hazardous areas. Communities with a large amount of undeveloped land will benefit much more than older, more established communities. Even for new development, the issuance of variances, special use permits, rezoning, and the failure to enforce existing codes, however, will weaken zoning's ability to prevent certain types of building practices.

Building Codes

Building codes regulate the design, construction, and maintenance of construction within most communities. These regulations prescribe standards and requirements for occupancy, maintenance, operation, construction, use, and appearance of buildings. Building codes are an effective way to ensure than new and extensive re-development projects are built to resist natural hazards. In Virginia, communities are required by law to adopt and enforce the Uniform Statewide Building Code, which has provisions for wind, water, and seismicity.

Public Outreach and Education Programs

Educating the public about what actions they can take to protect themselves and their property from the effects of natural hazards can be an effective means for reducing losses. These types of programs could target public officials, citizens, businesses, or the local construction trade. The program could cover preparedness, recovery, mitigation, and general hazard awareness information. The information could be presented in a variety of ways, from workshops, brochures, advertisements, or local media. Potential outreach and education topics include:

- Code Awareness Training
- Sheltering and Evacuation
- Flood Insurance
- School Information (Primary, Secondary, Colleges, and Universities)
- New Homeowner/Resident Information
- Emergency Preparedness for Families, Businesses, and Tourists
- Driver Safety in Disasters

- Special Needs Outreach
- Hazard Mitigation for Homeowners (including manufactured homes and trailers), Renters, and Businesses

Vegetative Maintenance

Vegetative maintenance is the pruning and maintenance of trees, bushes, and other vegetation that could increases threats to power lines during storms, or could act as fuels during wildfires. This could be applied in limited areas that have a significant vulnerability to these hazards, such as an easement or along the urban-wildland interface.

Vegetative Planting and Treatment

Vegetative planting and treatments can help to capture and filter runoff and can reduce landslides. Perennial vegetation includes grass, trees, and shrubs, which cover the soil, reduce water pollution, slow the rate of runoff, increase filtration, and prevent erosion. This type of land treatment includes maintaining trees, shrubberies, and the vegetative cover, terracing (i.e., a raised bank of earth with vertical sloping sides and a flat top to reduce surface runoff), stabilizing slopes, grass filter strips, contour plowing, and strip farming (i.e., the growing of crops in rows along a contour). Other potential options include vegetated swales, infiltration ditches, and permeable paving blocks.

Hazard-Specific Alternatives

The following is a list of potential mitigation measures that tend to work better when applied to a specific hazard.

Flood

Flood mitigation measures can be classified as structural or non-structural. In simple terms, structural mitigation attempts to eliminate the possibility of flooding at a particular location. Non-structural mitigation removes the potentially effected people or property from the potentially flooded area. The following is a list of potential mitigation measures.

Floodplain Management Ordinances

Floodplain management ordinances are weakened by development pressures, a lack of suitable sites outside of the floodplain, community desires to be near the water, inability to effectively monitor floodplain management activities, or by land use planning policies that are encouraging development into floodplain areas. Plans or policies that place more properties at risk also are reducing the storage capacity and functions of the natural floodplains. Degradation of the floodplain in this way increases flood depths and affects the reliability of Flood Insurance Rate Maps. Structures built in floodplains, particularly those that do not utilize a freeboard (that exceeds the minimum Base Flood Elevation), are consequently even more vulnerable to damage by floods.

Acquisition

Acquisition involves the purchasing of a property that is cleared and permanently held as open space. Acquisition permanently moves people and property out of harm's way, increases floodplain capacities, recreation areas and open space, and can help to preserve wetlands, forests, estuaries and other natural habitats. Participation in federally-funded grant programs requires voluntary participation by the owner. Acquisition programs can be expensive to undertake, and the property will no longer accrue taxes for the community and must be maintained, but it is by far the most effective and permanent mitigation technique. Acquisition is most effective when targeting repetitive loss structures, extremely vulnerable structures, or other high-hazard areas.

Elevation

Elevation is the raising of a structure above the Base Flood Elevation. Elevation is often the best alternative for structures that must be built or remain in flood-prone areas, and is less costly than acquisition or relocation. However, elevating a structure can increase its vulnerability to high winds and earthquakes. Some building types are either unsuitable or cost-prohibitive to elevate.

Relocation

Relocation involves the moving of a building or facility to a less hazardous area, on either the same parcel or another parcel. This measure also moves people and property out of harm's way, and is a very effective measure overall. Some building types are either unsuitable or cost-prohibitive to relocate.

Stormwater Management Plans

New development that increases the amount of impervious surfaces affects the land's ability to absorb the water and can intensify the volume of peak flow runoff. Without efficient stormwater management, runoff could cause flooding, erosion, and water quality problems. Stormwater management plans should incorporate both structural and nonstructural measures in order to be most effective. Structural measures include retention and detention facilities that minimize the increase of runoff due to impervious surfaces and new development. Retention facilities allow stormwater to seep into the groundwater. Detention systems accumulate water during peak runoff periods that will be released at off-peak times. Nonstructural measures include establishing impervious surface limit policies and maintenance programs for existing drainage systems.

Dry Floodproofing

Dry floodproofing involves making all areas below the flood protection level watertight by strengthening walls, sealing openings, using waterproof compounds, or applying plastic sheeting on the walls. This method is not recommended for residential structures, but may work well for new construction, retrofitting, or repairing a non-residential structure. Due to pressure exerted on walls and floors by floodwater, dry floodproofing is effective on depths less than 2 to 3 feet. Floodproofing of basements is not recommended.

Wet Floodproofing

The opposite of dry floodproofing, wet floodproofing lets the floodwater actually enter a structure. This technique is effective on deeper flood depths, as it does not have the same potential to build up exterior pressure. Again, this method is not recommended for residential structures and may not be used for basements under new construction, substantial improvements, or substantially damaged structures.

Storm Drainage Systems

Mitigation efforts include the installation, re-routing, or increasing the capacity of storm drainage systems. Examples include the separation of storm and sanitary sewers, addition or increase in size of drainage or retention ponds, drainage easements, or creeks and streams.

Drainage Easements

Easements can be granted that enable regulated public use of privately owned land for temporary water retention and drainage areas.

Structural Flood Control Measures

Water can be channeled away from people and property with structural control measures such as levees, dams, or floodwalls. These measures also may increase drainage and absorption capacities. These structural control measures also may increase Base Flood Elevations and could create a false sense of security.

Basement Backflow Prevention

Planning District communities should encourage the use of check valves, sump pumps, and backflow prevention devices in homes and buildings, if the infrastructure allows.

Wind

Proper engineering and design of a structure can increase a structure's ability to withstand the lateral and uplift forces of wind. Building techniques that provide a continuous load path from the roof of the structure to the foundation are generally recommended.

Windproofing

Windproofing is the modification of the design and construction of a building to resist damages from wind events, and can help to protect the building's occupants from broken glass and debris. Windproofing involves the consideration of aerodynamics, materials, and the use of external features such as storm shutters. These modifications could be integrated into the design and construction of a new structure or applied to reinforce an existing structure. Manufactured homes, which tend to be vulnerable to the effects of extreme wind events, can be protected by anchoring the structures to their foundations. Mobile homes could be tied down to their pads in order to prevent them from being destroyed. Public facilities, critical infrastructure, and public infrastructure (such as signage and traffic signals) should all be windproofed in vulnerable areas. However, windproofing is not a viable mitigation technique to protect against tornadoes.

Community Shelters/Safe Rooms

Community shelters and concrete safe rooms can offer protection and reduce the risk to life. Locations for these shelters or safe rooms are usually in concrete buildings such as shopping malls or schools. Communities lacking basements and other protection nearby should consider developing tornado shelters.

Burying Power Lines

Buried power lines can offer uninterrupted power during and after severe wind events and storms. Burying power lines can significantly enhance a community's ability to recover in the aftermath of a disaster. Buried power lines are typically more expensive to maintain and are more vulnerable to flooding. Encouraging back-up power resources in areas where burial is not feasible will enable the continuity of basic operations (e.g., security, refrigeration, and heat) for businesses and facilities when there is a loss of power.

Available Mitigation Techniques

Prevention

Preventative activities are intended to keep hazard problems from getting worse. They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial. Examples of preventative activities include:

- Planning and Zoning
- Open space preservation
- Floodplain regulations
- Storm water management
- Drainage system maintenance
- Capital improvements programming
- Shoreline / riverine / fault zone setbacks

Property Protection

Property protection measures protect existing structures by modifying the building to withstand hazardous events, or removing structures from hazardous locations. Examples include:

- Acquisition
- Relocation
- Building elevation
- Critical facilities protection
- Retrofitting (i.e., windproofing, floodproofing, seismic design standards, etc.)
- Insurance
- Safe rooms

Natural Resource Protection

Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their mitigation functions. Such areas include floodplains, wetlands, and dunes. Parks, recreation or conservation agencies, and organizations often implement these measures. Examples include:

- Floodplain protection
- Riparian buffers
- Fire resistant landscaping
- Fuel Breaks
- Erosion and sediment control
- Wetland preservation and restoration

- Habitat preservation
- Slope stabilization

Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event. They are usually designed by engineers and managed or maintained by public works staff. Examples include:

- Reservoirs
- Levees / dikes / floodwalls / seawalls
- Diversions / Detention / Retention
- Channel modification
- Storm sewers
- Wind retrofitting
- Utility protection/upgrades

Emergency Services

Although not typically considered a "mitigation technique," emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:

- Warning systems
- Evacuation planning and management
- Sandbagging for flood protection
- Installing shutters for wind protection

Public Information and Awareness

Public Information and awareness activities are used to advise residents, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property. Examples of measures to educate and inform the public include:

- Outreach projects
- Speaker series / demonstration events
- Hazard map information
- Real estate disclosure

- Library materials
- School children education
- Hazard expositions
- Websites

APPENDIX D — PUBLIC ANNOUNCEMENTS

The following email was sent to contact the 4 counties' Emergency Managers in August 2018:

From: Charlie Perkins
Sent: Tuesday, August 28, 2018 1:38 PM
To: rthacker@dc911.org; jess.powers@russellcountyva.us; bart.chambers@buchanancounty-va.gov; dwhite@tazewellcounty.org
Cc: Shane Farmer
Subject: Hazard Mitigation Plan -- 2018 Update -- Cumberland Plateau PDC

Hello all,

The Cumberland Plateau Planning District Commission is required to update our district's Hazard Mitigation Plan every five years; the plan details all potential and past disasters, critical facilities, etc. in our four counties, allowing for emergency relief funding if/when any future disaster strikes.

As the counties' Emergency Managers, I will need the following information from you by September 12. Without providing this information for the updated plan, your county may be at risk of losing relief funding during future emergencies. The sooner I can receive this information, the better, so that if I need additional information or there is some confusion, we can clear all of that up by the due date for VDEM. We are currently working on a very short time-frame. Please send a brief reply to this email once you've received it, so that I can ensure everyone has received this information.

Please include the following information:

- List of all critical facilities in your county. Please also note any facilities in the floodplain or at risk from any other potential disaster (high wind, wildfire, etc). Critical facilities may also include bridges (esp. ones that are the only route in and out of a neighborhood), WTPs and other similar infrastructure that may be at risk.
- List all major disasters to affect your county since 2011.
- Please list any new potential threats to your county that may not have been listed prior to 2013 (ex. Algae bloom at Flanagan Dam).
- List any new ordinances by the county or localities related to emergency management, since 2000.
- List any Hazard Mitigation efforts undertaken by your county since 2013.
- Any current FEMA projects, or any began/completed since 2013.
- Please list any training that emergency crews may need in preparation for major catastrophes; funding may be made available to cover this training if we list it in the H.M.P.

Thank you for your time; if you would like a copy of the 2013 Hazard Mitigation Plan, let me know and I can send it your way for reference.

Charlie Perkins
Cumberland Plateau PDC
charlieperkins@bvu.net
276-889-8121

The following press release was published in several local newspapers to inform the public about an opportunity for commentary on the draft of this Hazard Mitigation Plan update:

Plateau Draft Hazard Mitigation Update Plan

Available on Website

The Cumberland Plateau Planning District Commission, in cooperation with local counties and towns, has been working to complete a Regional Hazard Mitigation Plan Update for the District. A draft of entire update plan is now available for public review and comments on the Planning District's website at www.cppdc.com, listed as "Regional Hazard Mitigation Plan" under the "Reports" section. Hard copies are available by request.

Completion and adoption of the Plan is required by the Virginia Department of Emergency Management (VDEM) and the Federal Emergency Management Agency (FEMA) in order for localities to be eligible for certain pre-disaster mitigation funds.

For more information, to submit your comments, or to request a hard copy of the plan, contact Charlie Perkins at 276-889-1778.

APPENDIX E — ADOPTION RESOLUTIONS