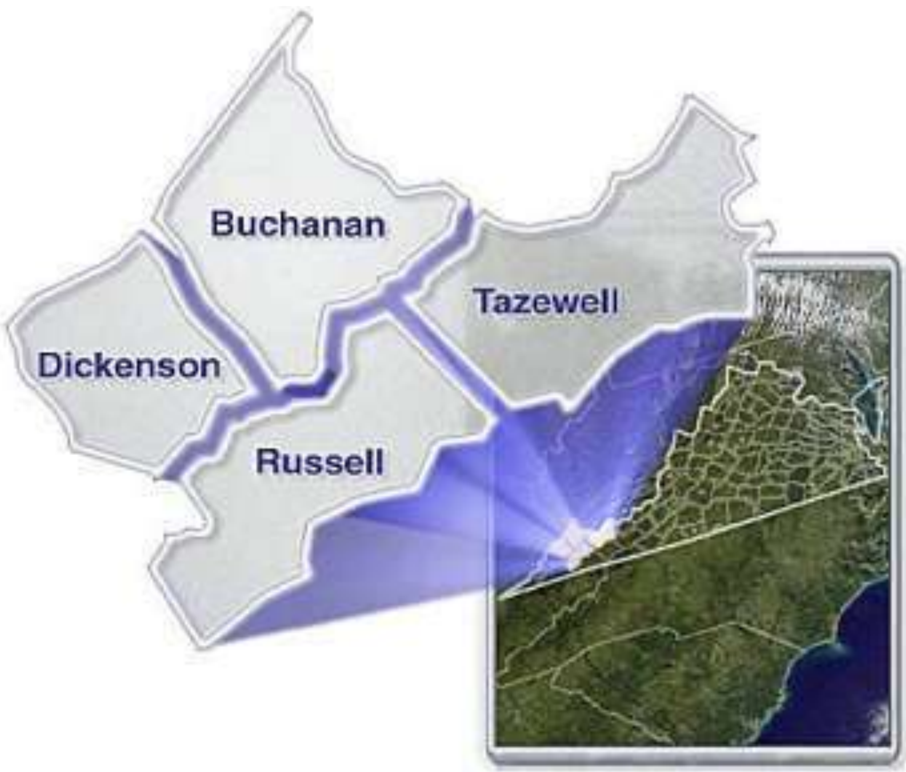
Cumberland Plateau Planning District Commission

Hazard Mitigation Plan Update

May, 2013



Cumberland Plateau Planning District Commission
Hazard Mitigation Plan

TABLE OF CONTENTS

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-High, Medium,*** and ***Low.*** In order to focus on the most significant hazards, only those assigned a level of **High** or **Medium-High** 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-High
Wildfire	Medium-High
Landslides	Medium-High
Severe Thunderstorms/Hail Storms	Medium
Severe Wind	Medium-High
Earthquake	Medium
Dam/Levee Failure	Medium
Drought	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.

The MAC reviewed the STAPLE/E Criteria (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) process to assist in selecting and prioritizing the most appropriate mitigation actions for the Cumberland Plateau Planning District. This methodology required that social, technical, administrative, political, legal, economic, and environmental considerations be taken into account when reviewing potential projects and policies. This process was used to help ensure that the most equitable and feasible actions would be undertaken based on local jurisdiction's capabilities. These actions are laid out with an implementation strategy and timeframes in Section VII of this plan.

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 2005-partial 2011.

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
4/20/11	Kick-off Meeting
7/11/2011	HMA Meeting
5/2012	Presentation of HIRA Findings
7/2012	Mitigation Strategy Development Meeting
8/2012	Second Mitigation Strategy Development Meeting
11/2012	Public Meeting

In September 2010, Cumberland Plateau Planning District Commission (Planning District) 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
Rufus Hood	Russell County Board of Supervisors, Administrator
Jim Spencer	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
Darrell Cantrell	Buchanan County PSA, Director
Ron Phillips	Dickenson County PSA, Director
Jerry Woods	Russell County PSA, Chairman
Dahmon Ball	Tazewell County PSA, Director
Andy Jones	Russell County Medical Center
Conrad Hill	VDOT
Steve Dye	Russell County Sheriff's Department
Richard Thacker	Dickenson County Emergency Services
Dr. Mark Estep	Southwest Virginia Community College
Todd Burns	AEP
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
Harry Ferguson	Russell County Assessor
Barbara Fuller	Southwest Virginia CC
David White	Tazewell County Emergency Services
Rick Chitwood	T & L
Henry Stinson	Russell County Highway & Safety Commission
Jess Powers	Russell County Emergency & Hazardous Material Coordinator
James Baker	T & L
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	
Doug Rose	Dickenson County Schools
Jerry Ward	Buchanan County Asst. Emergency Coordinator
Darrell Johnson	Castlewood Water & Sewage Authority
James R. Sutherland	Town of Clinchco, Mayor
C. H. Wallace	Town of Honaker, Mayor
Mike Duty	Town of Lebanon, Town Manager
Larry Yates	Town of Haysi, Mayor
David Sutherland	Town of Cleveland, Mayor
Johnathan Gibson	Town of Pocahontas, Mayor
Todd Day	Town of Tazewell, Town Manager
Mickey Rhea	Russell County Building Official
Roger Sword	Russell County Planning Commission
Toby Edwards	Cumberland Plateau Regional Waste Authority, Director
Dr. Brenda Lawson	Tazewell County Schools
Gary Jackson	Tazewell County Building Official
Dr. Brenda Hess	Russell County Schools, Superintendent
Tom Childress	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
Larry Ashby	Buchanan County Schools, Superintendent
Carl Turner	Dickenson County Building Official
Allen Compton	Dickenson County Planning Commission, Chairman
Bob Hammons	Dickenson County Sheriff’s Department
David Darden	Clinch Valley Medical Center, CEO
Joan Jamison	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
Bo Bise	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.

Other PDC's such as Mt. Rogers and Lenowisco were contacted and sought out for advice as they were working on updating the Hazard Mitigation plans for their localities.

In October, a copy of the Draft Hazard Mitigation Plan was made available in the County Administrators office in Buchanan, Dickenson, Russell, and Tazewell counties, and each of the town halls. Copies of the announcements notifying the public of the availability of the draft plan for review is included in Appendix D.

In addition, an open public meeting was held in November 2012 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 advertized 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 113,976 people live in the Cumberland Plateau Planning District. The population is spread out over 1,830 square miles resulting in a 62.28 people per square mile density. Tazewell County's density (86.68 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 2010 population for the planning area and the growth rates since 1970.

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

	CPPDC	Buchanan	Dickenson	Russell	Tazewell
Census 2010 Population					
Total	113,976	24,098	15,903	28,897	45,078
Change					
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%

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 2010 Census Cumberland Plateau's population is fairly balanced between the genders with 52% of the population being female. A breakdown of the population by race can be found in Table IV-2.

Table IV-2: Cumberland Plateau Planning District - Racial	
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%**

2010 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 16% 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 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 $17,629 is about seventy eight percent of the state per capita income of $31,313. About 19% of residents within the Cumberland Plateau planning area live below the poverty line. This rate is significantly higher than the national rate of 15.3% and the state rate of 11.1%. 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 46,950 housing units within the planning area. Approximately 5.8% are multi-family units. In Buchanan County, only 1.1% of the units are in multi-family dwellings while 7.3% of Tazewell County's units are in multi-family units. Over 77.6% 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 2010	9,968	6,590	11,943	18,449	46,950
Median value of owner-occupied housing units, ACS 2006 - 2010 Survey	$60,200 ACS 2008 - 2010 Survey	$71,300 ACS 2006 - 2010 Survey	$90,400 ACS 2008 - 2010 Survey	$82,600 ACS 2008 - 2010 Survey	$76,125
Homeownership rate, 2010	69% ACS 2008 - 2010	81% ACS 2006 - 2010	79% ACS 2008 - 2010	74% ACS 2008 - 2010	76%
Housing units in multi-unit structures, percent, 2010	1.1 % ACS 2008 - 2010 Survey	5% ACS 2006 - 2010 Survey	6.4% ACS 2008 - 2010 Survey	7.3% ACS 2008 - 2010 Survey	4.95%

**Number of Housing Units is Census 2010 and all other data is US Census Bureau American Community Survey Estimates*

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
  - Consolidation Coal Company
  - Buchanan County School Board
  - Dominion Coal Corporation
  - Rapoca Energy Company
  - Keen Mountain Correctional Institute
- Dickenson County
  - Dickenson County School Board
  - Paramont Coal Company
  - Dickenson Russell Coal
  - County of Dickenson
  - Food City

♦ Russell County

- Russell County School Board
- WalMart
- Cingular Wireless
- Mountain States Health Alliance
- County of Russell

♦ Tazewell County

- Tazewell County School Board
- WalMart
- Southwest Virginia Community College
- Cumberland Mountain Community Services
- Clinch Valley Community Hospital

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 2,160 million tons which would be mined out in 48 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, Richlands Municipal 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. A more in-depth analysis for the Town of Bluefield is included in Appendix B. It should be noted, however that a local jurisdiction's inclusion in the full Mitigation Plan is dependent on the community's participation in the remainder of the planning process.

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
- Severe Thunderstorms
- Severe Wind
- Severe Winter Storms
- Tornadoes
- Wildfires
- Extreme Heat

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-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* or *Medium-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-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

Table V-1 — Hazard Identification Results	
Karst Topography	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.

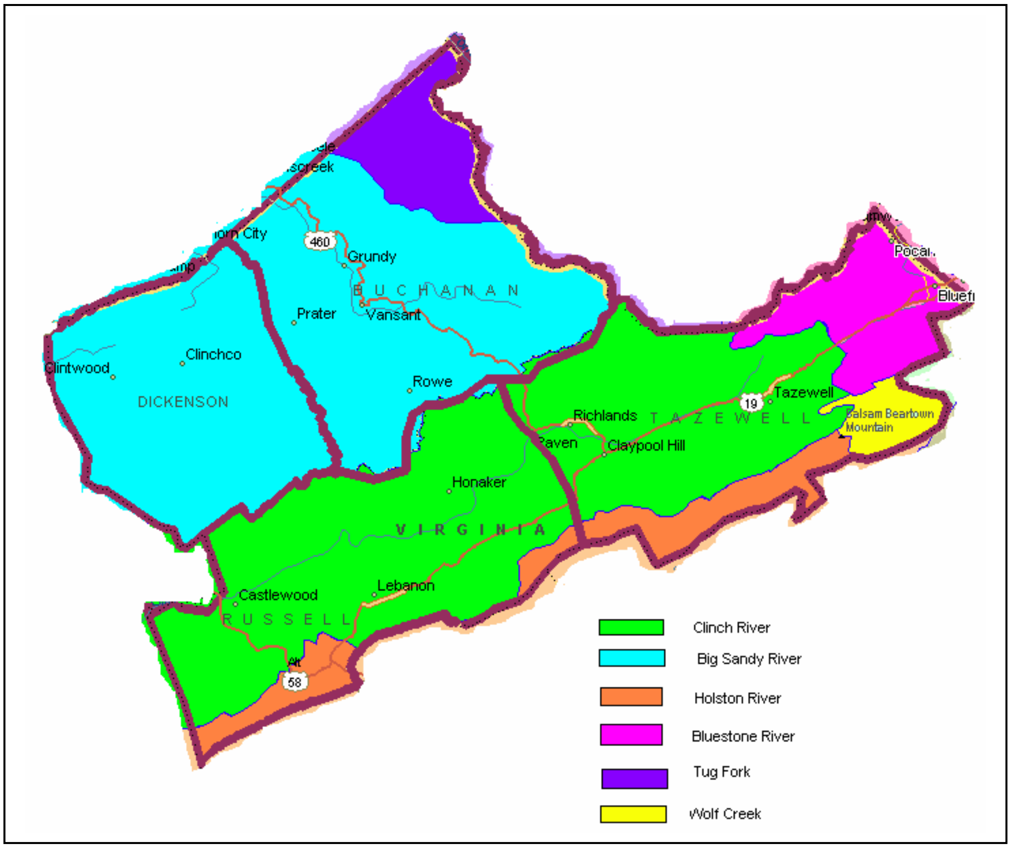


Figure V-1 — Cumberland Plateau Watersheds

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

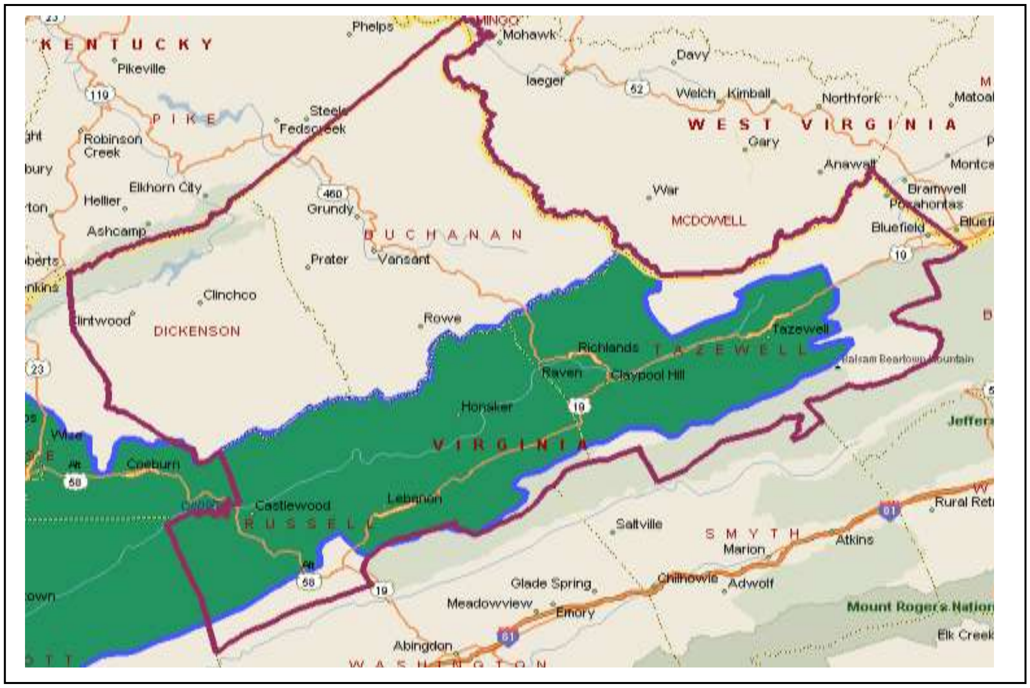


Figure V-2 — Clinch River Basin

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 F 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.

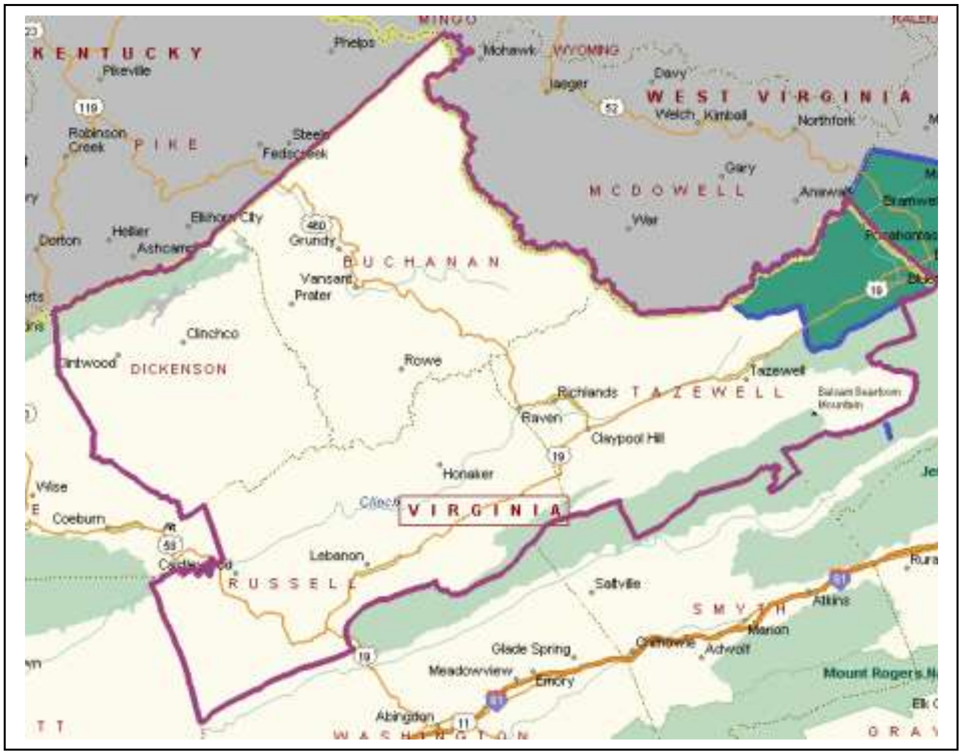


Figure V-4 — Bluestone River Basin

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 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

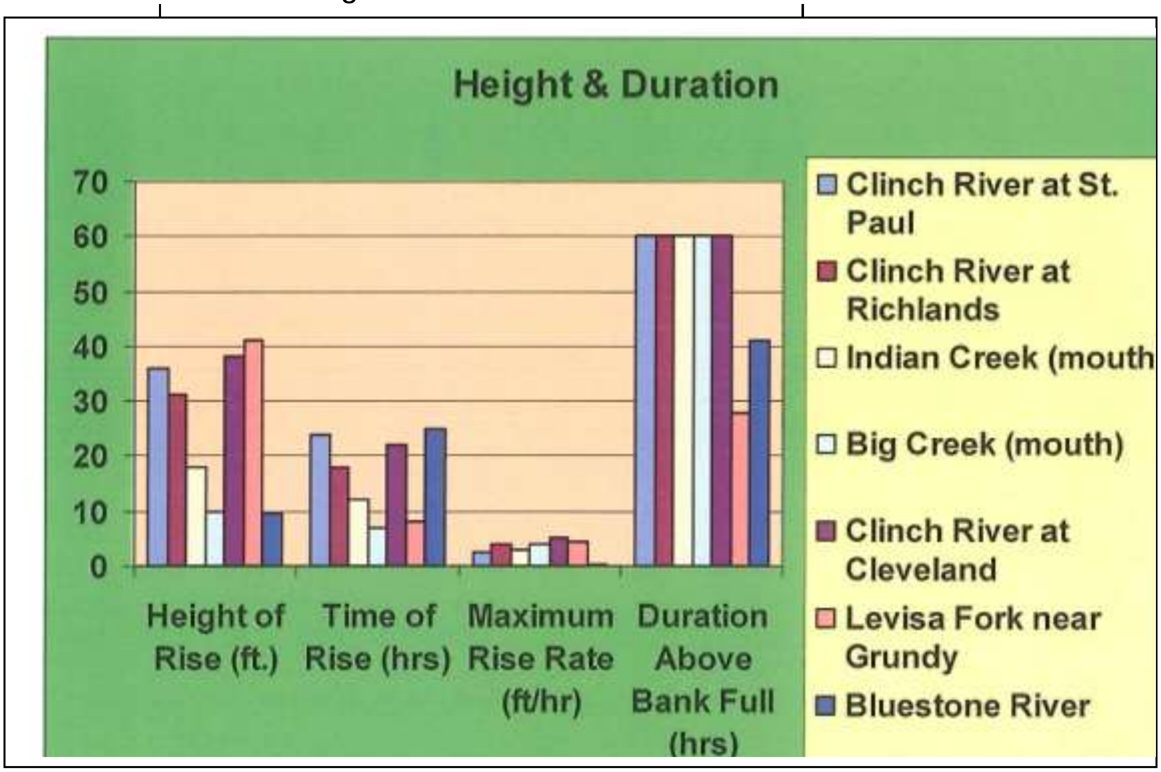
Historically, FEMA FIRMs have only been available as hard copy maps and not in digital format. However, in recent years FEMA has developed digital versions of the FIRMs. The maps have been incorporated into a GIS and can be found at the end of this section.

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.



- **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.

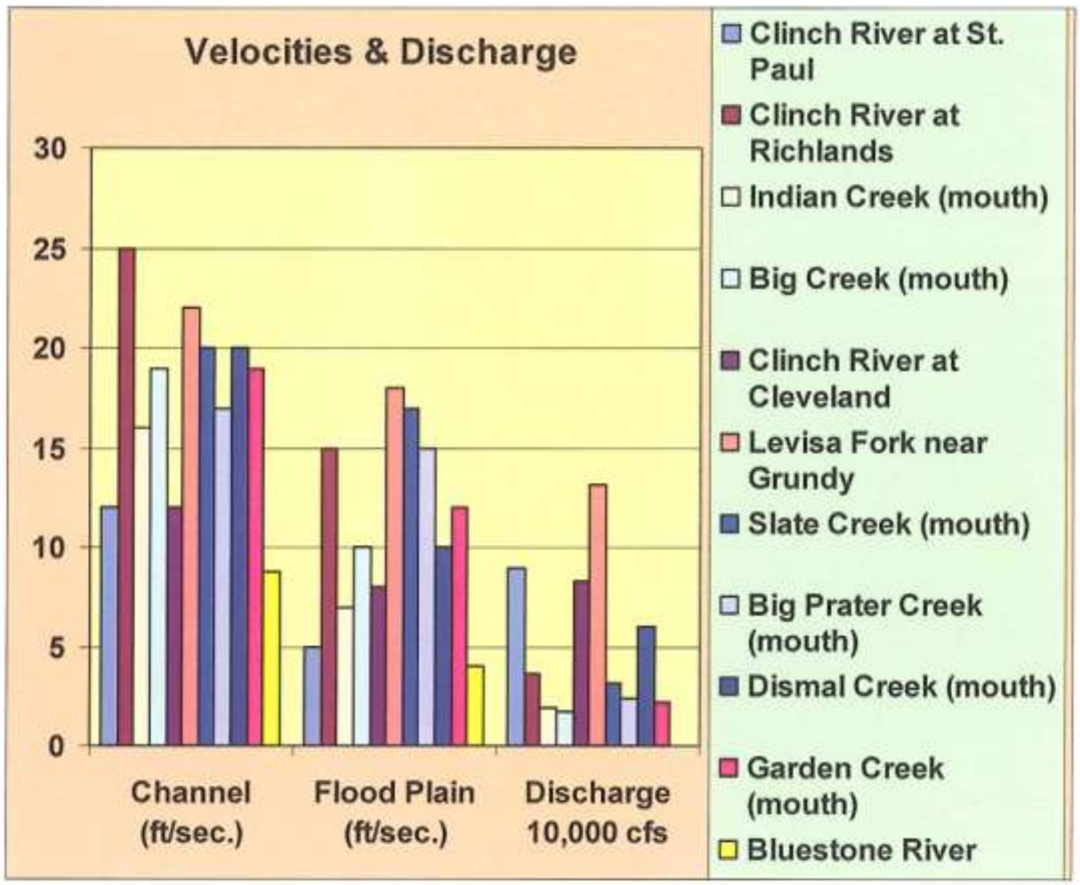


Table V-5 — River Basin Flood Velocities

- **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 that 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
Russell County	Government Building	Lebanon Town Hall
	School	Cleveland Elementary School
	Treatment Plant	Central Shop STP
	Treatment Plant	Cleveland STP
	Treatment Plant	Honaker STP
Tazewell County	Police	Richlands Police
	School	Raven Elementary School
	Fire and Rescue	Rescue 9
	Fire and Rescue	Rescue 10

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 2005-2011 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 southwestern Virginia have produced significant 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.

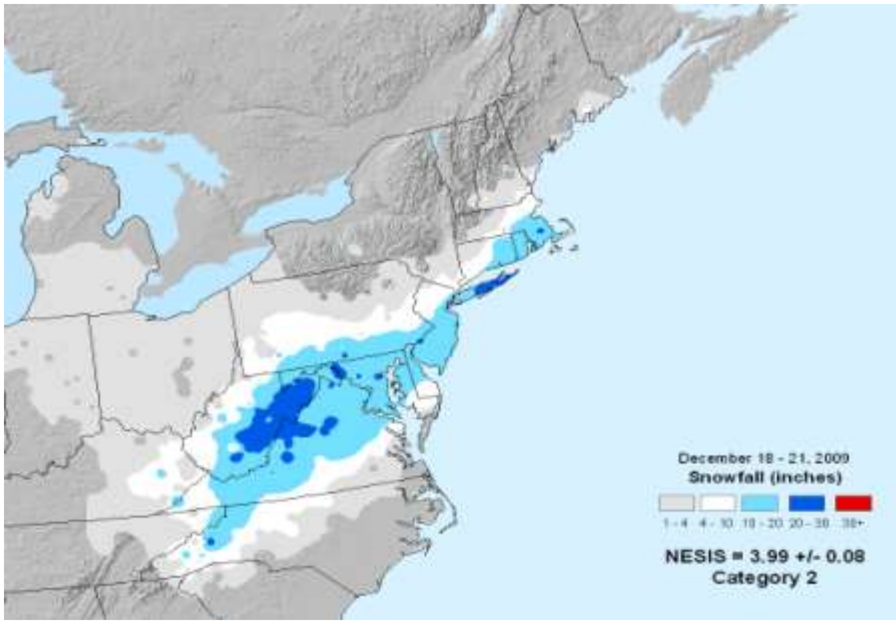


Figure V-6 — Snowfall Totals from 2009 Blizzard

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

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.

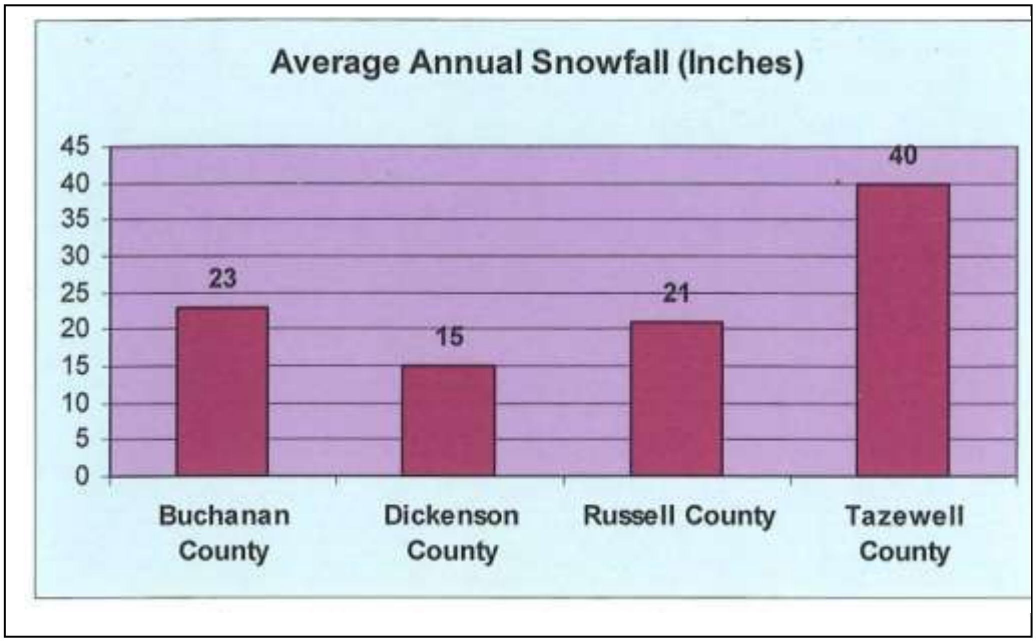


Figure V-7 — Average Annual Snowfalls

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 2005-2011 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 have been 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.

Railroad Buffer - 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.

Road Density and Developed Areas - 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 2005-2011 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 2005-2011 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 2005-2011 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.

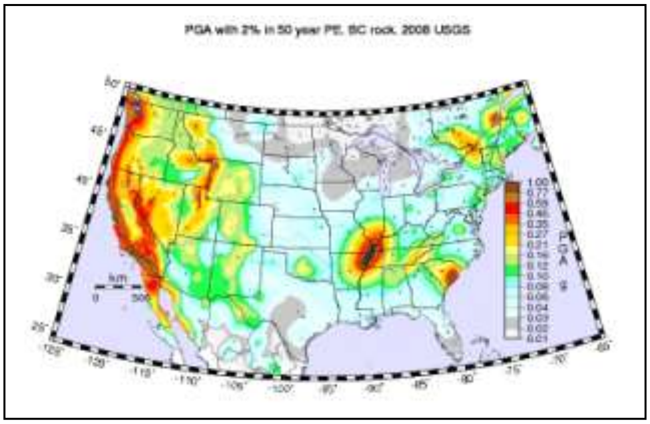


Figure V-9 — Earthquake Probability Map

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				
Scale	Intensity	Description of Effects	Maximum Acceleration (mm/sec)	Corresponding Richter Scale
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.

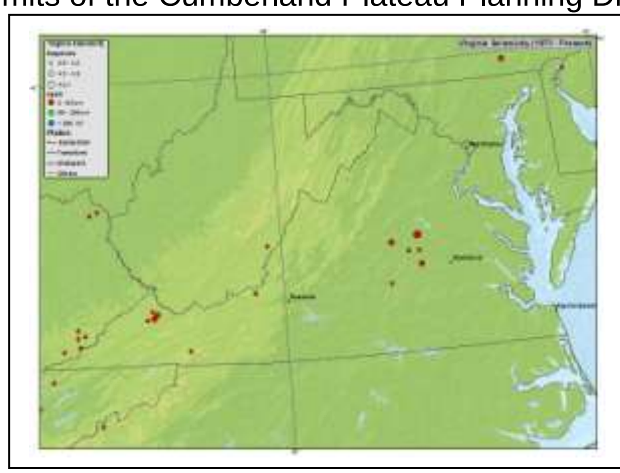
Table V-17 — Historic Earthquakes affecting Virginia			
Date	Location	Magnitude Intensity	Description
February 21, 1774	Virginia/NC	Unknown	Shock felt throughout area
December 1811 February 1812	New Madrid, MO	Intensity: VI Magnitude: 7.1-7.2	Small amount of damage due to low population density
March 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.

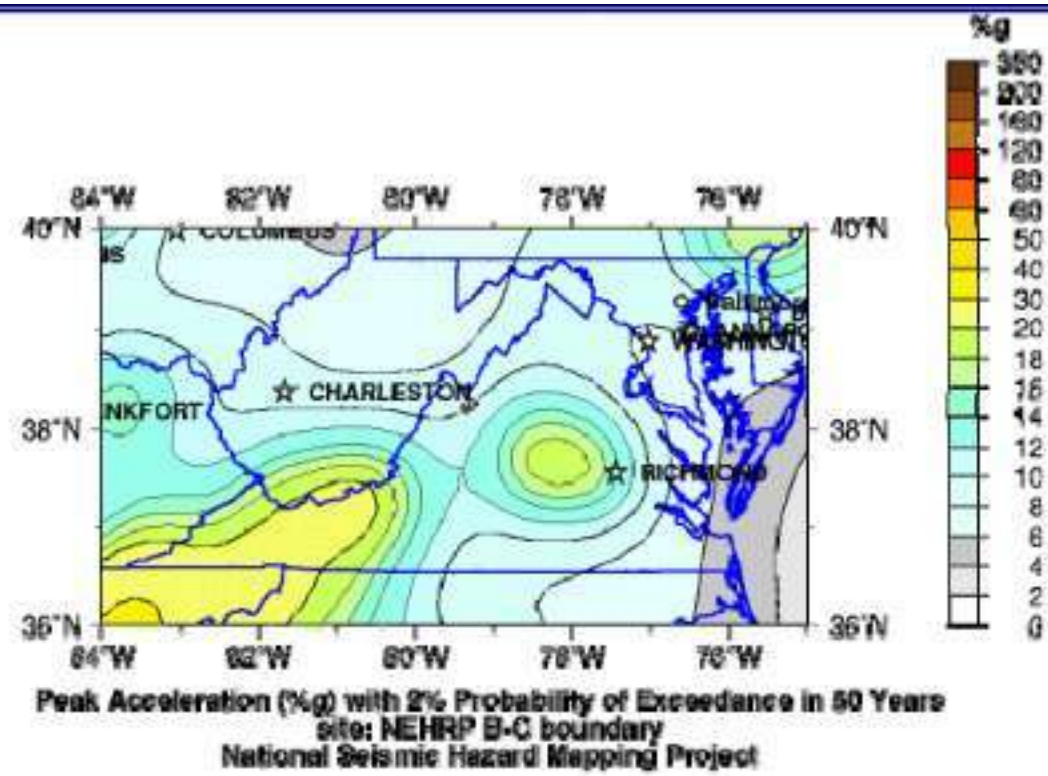


Figure V-11 — Peak Acceleration Probability Map of Virginia

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 2005-2011 can be found at the end of this document.

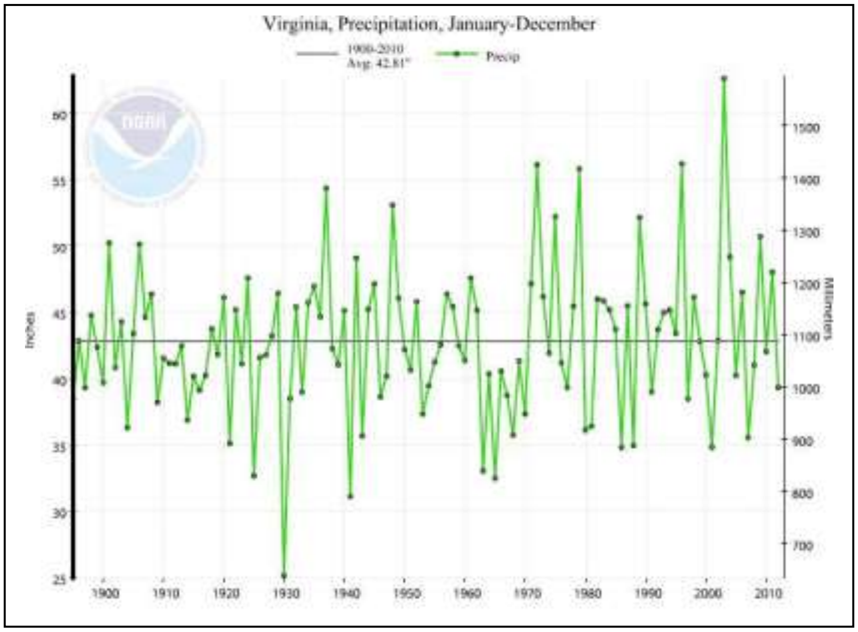
Drought

"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.



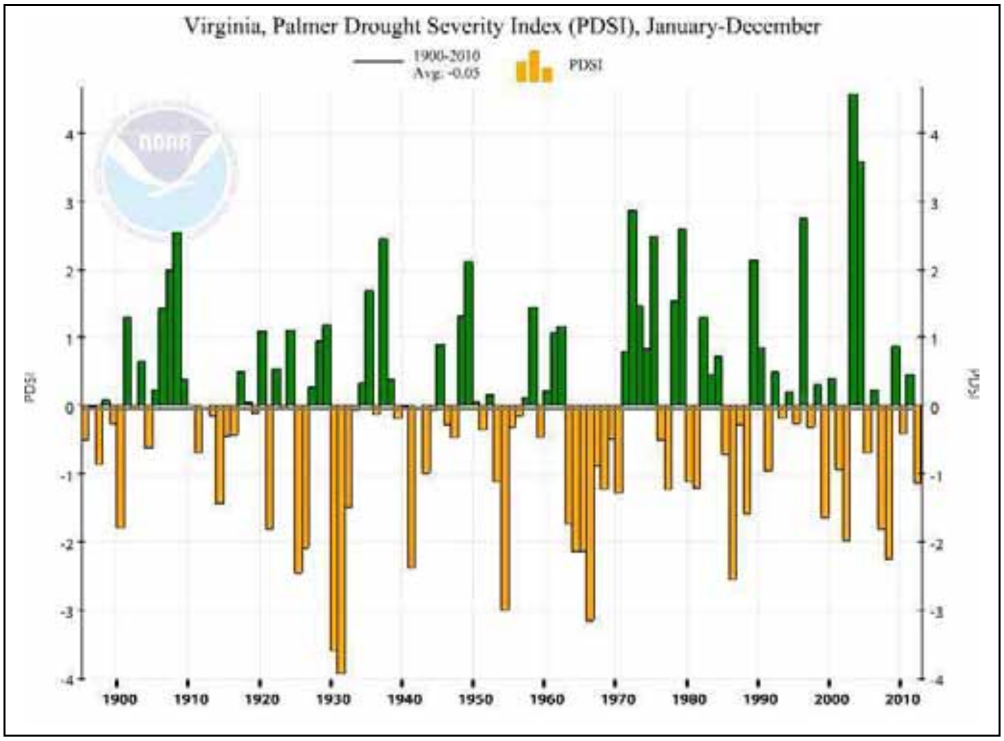
V-12 — Virginia Statewide Precipitation, January 1900-2010

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.

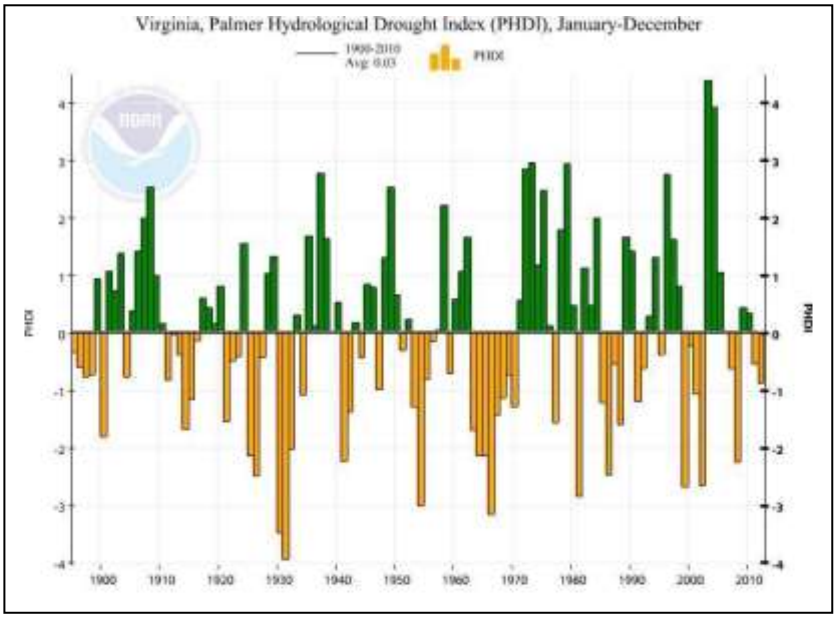
The most commonly used drought indicator is the Palmer Drought Index. This index was developed in the 1960s by the National Oceanic and Atmospheric Administration, and uses temperature and rainfall data to determine dryness. Negative numbers indicate drought, while positive numbers indicate surplus rainfall. 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

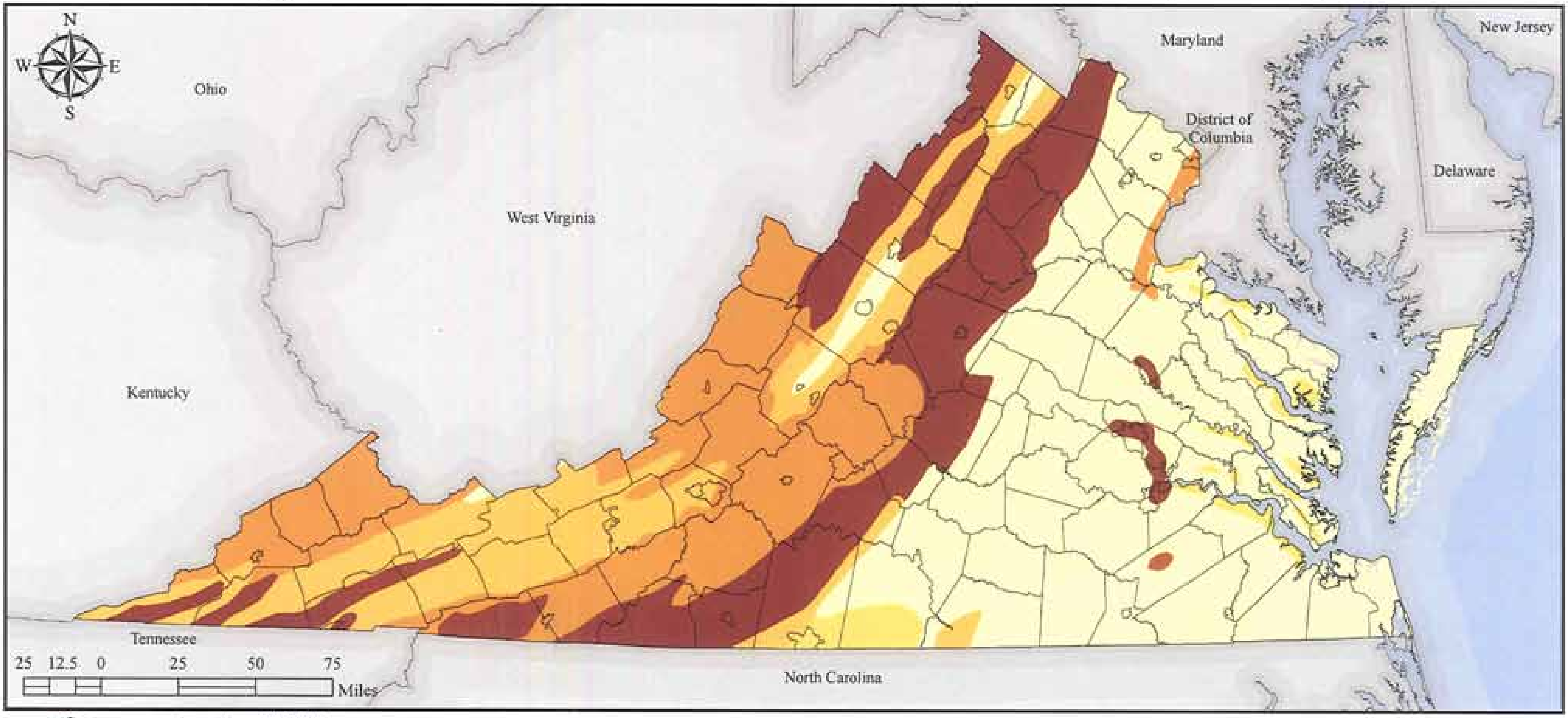
If a significant drought event were to occur, it could bring extensive economic, social, and environmental impacts to the Planning District. Commonly one of the most significant economic effects to a community is the agricultural impacts. Other economic effects could be felt by businesses that rely on 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 2005-2011 can be found at the end of this document.

Figure 3.12-1: Landslide Incidence and Susceptibility



VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

PROJECTION: *VA Lambert Conformal Conic North American Datum 1983*

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

DATA SOURCES:

USGS NLHP
VGIN Jurisdicational Boundaries
ESRI State Boundaries

LEGEND:

Landslide Categories

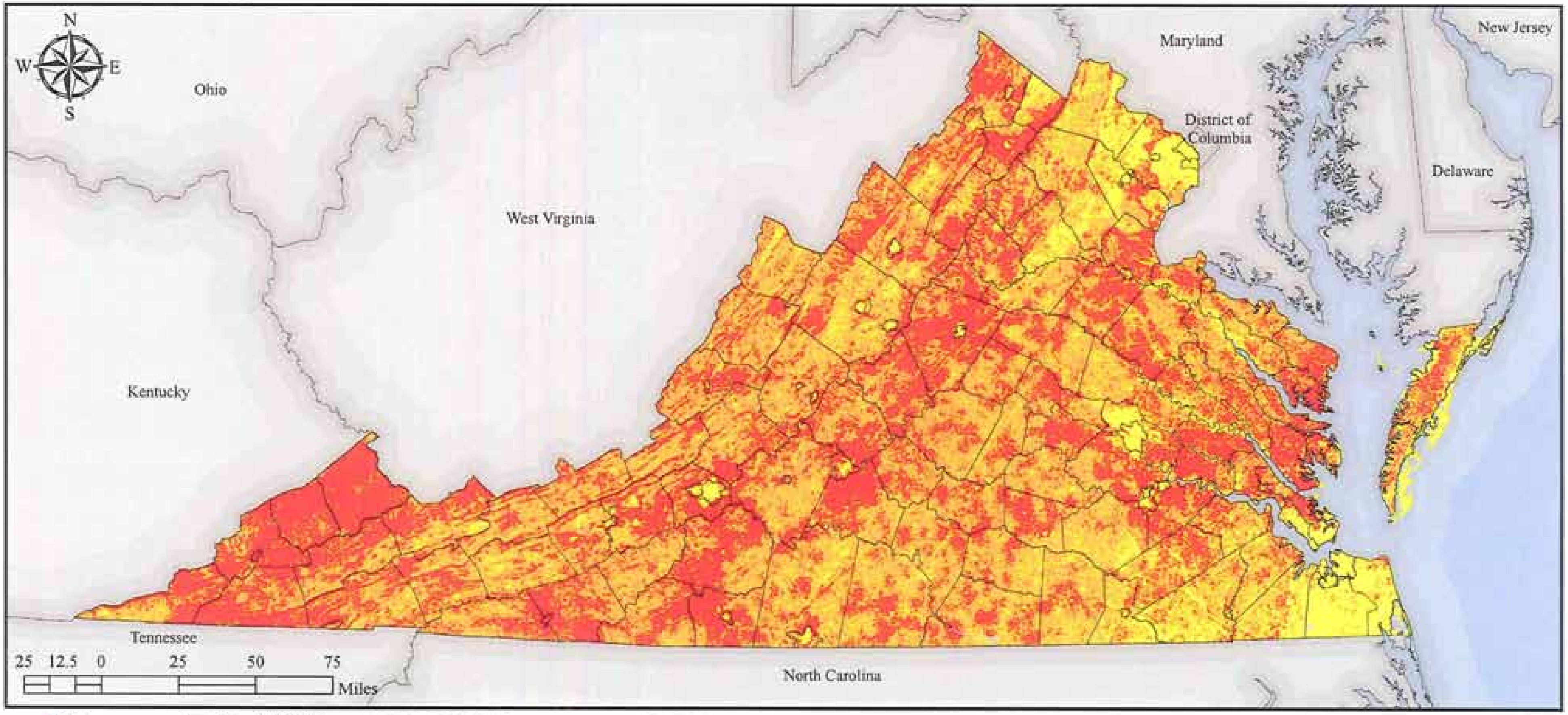
- High Susceptibility & Moderate Incidence
- High Susceptibility & Low Incidence
- High Incidence
- Moderate Susceptibility & Low Incidence
- Moderate Incidence
- Low Incidence

HAZARD IDENTIFICATION:

The Landslide Incidence and Susceptibility map layer shows areas of landslides and areas susceptible to future landsliding. Areas where large numbers of landslides have occurred and areas which are susceptible to landsliding have been delineated in this layer.

Landslides are defined to include most types of gravitational mass movement such as rockfalls, debris flows, and the failure of engineered soil materials.

Figure 3.11-1: VDOF Statewide Wildfire Risk Assessment



VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

PROJECTION: *VA Lambert Conformal Conic*
North American Datum 1983

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

DATA SOURCES:

VDOF Wildfire Risk Assessment
VGIN Jurisdicational Boundaries
ESRI State Boundaries

LEGEND:

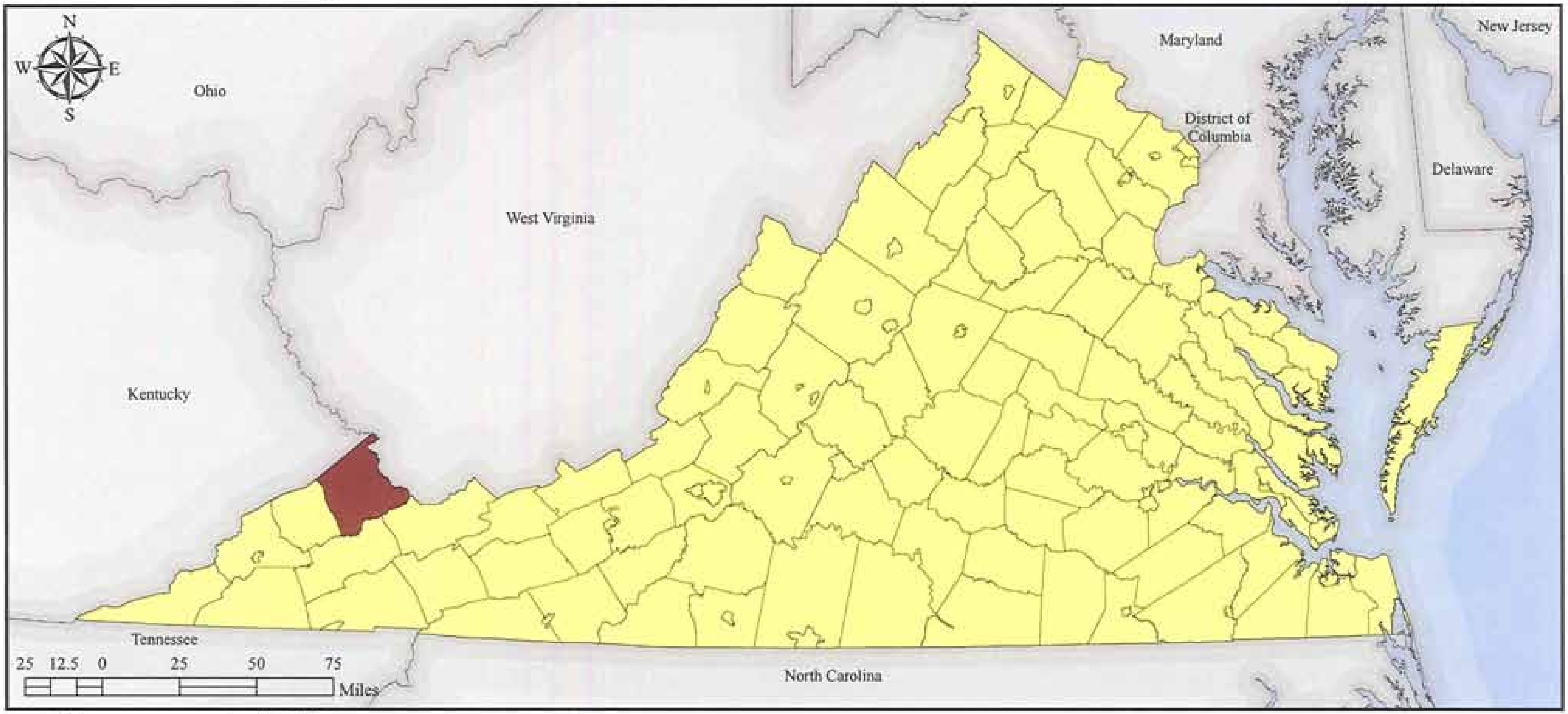
Wildfire Risk
- None (Water)
- Low
- Moderate
- High

HAZARD IDENTIFICATION:

Wildfire Risk Assessment model has been developed by the Virginia Department of Forestry. This model aims to identify areas which are more favorable to wildfire occurence and wildfire advancement.

Model inputs included: historical fire incidents, land cover (fuels surrogate), topographic characteristics, population density, and distance to roads.

Figure 3.3-8: Landslide Federal Declared Disasters



VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

DATA SOURCES:

FEMA & VDEM Declared Disasters
VGIN Jurisdicational Boundaries
ESRI State Boundaries

LEGEND:

Number of Declared Disasters (1964-2008)

- No Disaster Declaration
- 1

DATA IDENTIFICATION:

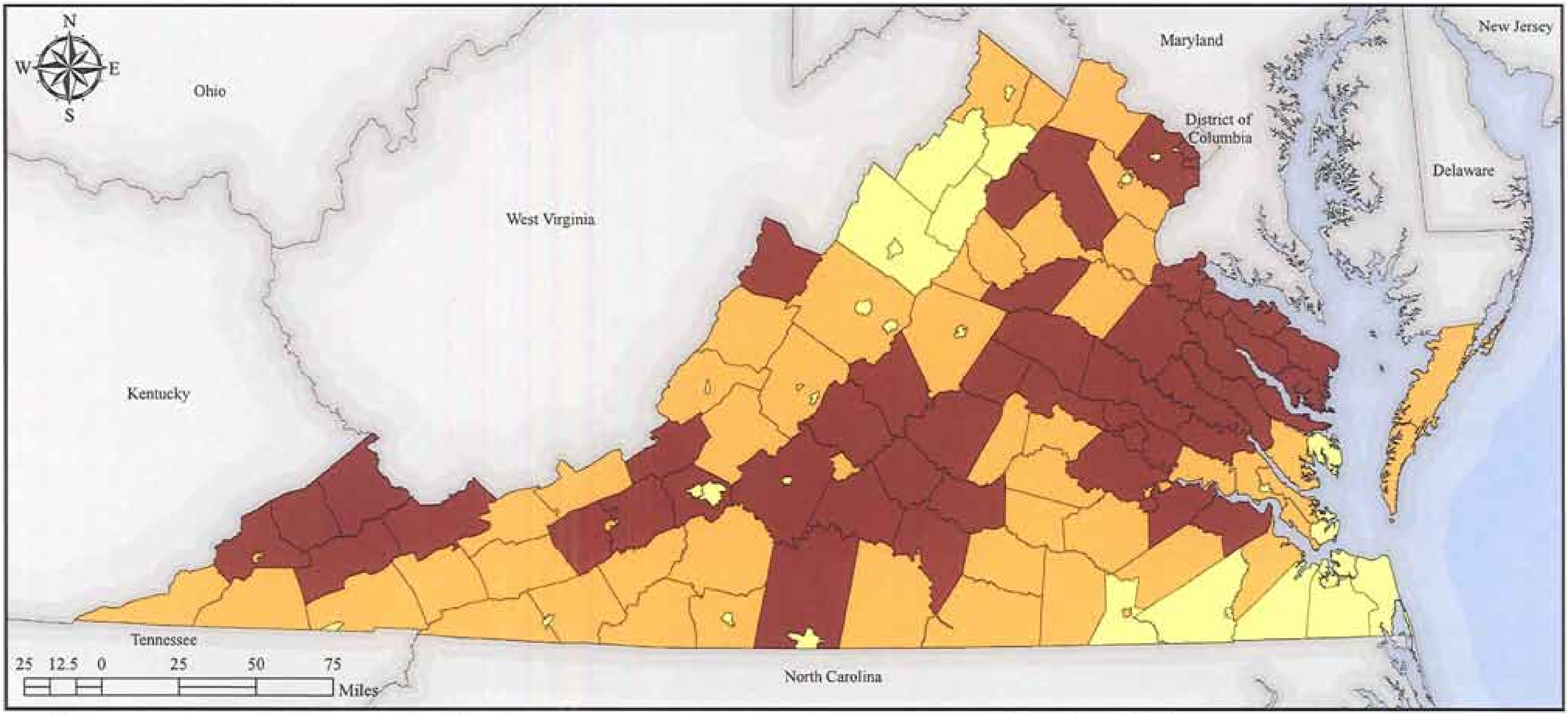
A declared federal disaster is any disaster in which Federal funding was allocated to a jurisdiction in the wake of a disaster incident. The sources and types of funding are not taken into account for this map.

The period of record for this map spans 1964 - 2008. Occurrences include total number of landslide related disaster declarations.

PROJECTION: *VA Lambert Conformal Conic North American Datum 1983*

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

Figure 3.3-6: Winter Storm Federal Declared Disasters



CGIT Center for Geospatial Information Technology

VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

PROJECTION: *VA Lambert Conformal Conic North American Datum 1983*

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent

DATA SOURCES:

FEMA & VDEM Declared Disasters
VGIN Jurisdicational Boundaries
ESRI State Boundaries

LEGEND:

Number of Declared Disasters (1964-2008)

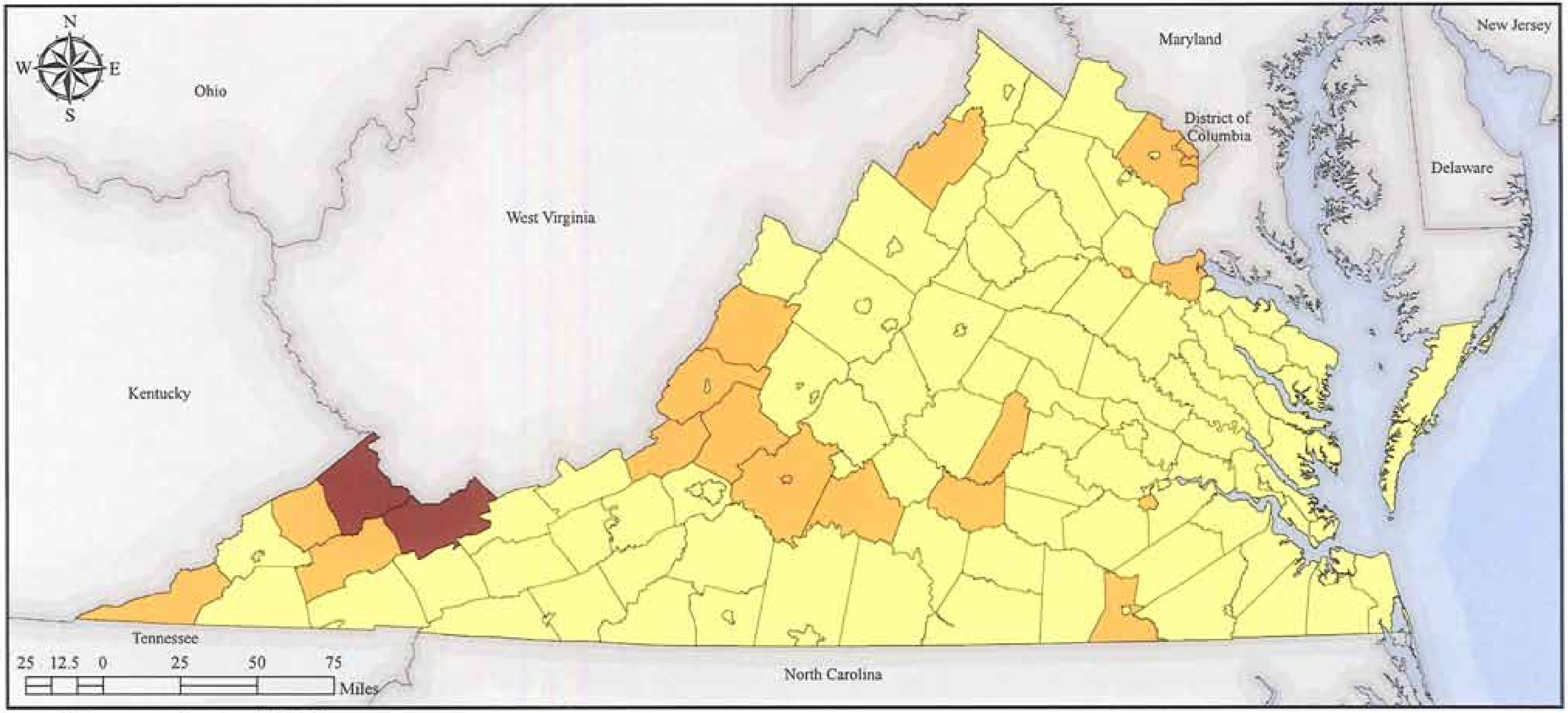
- 1 - 3
- 4
- 5 - 6

DATA IDENTIFICATION:

A declared federal disaster is any disaster in which Federal funding was allocated to a jurisdiction in the wake of a disaster incident. The sources and types of funding are not taken into account for this map.

The period of record for this map spans 1964 - 2008. Occurrences include total number of winter storm related disaster declarations.

Figure 3.3-5: Tornado Federal Declared Disasters



DATA SOURCES:

FEMA & VDEM Declared Disasters
VGIN Jurisdicational Boundaries
ESRI State Boundaries

PROJECTION: *VA Lambert Conformal Conic North American Datum 1983*

LEGEND:

Number of Declared Disasters (1964-2008)

- No Declared Disasters
- 1
- 2

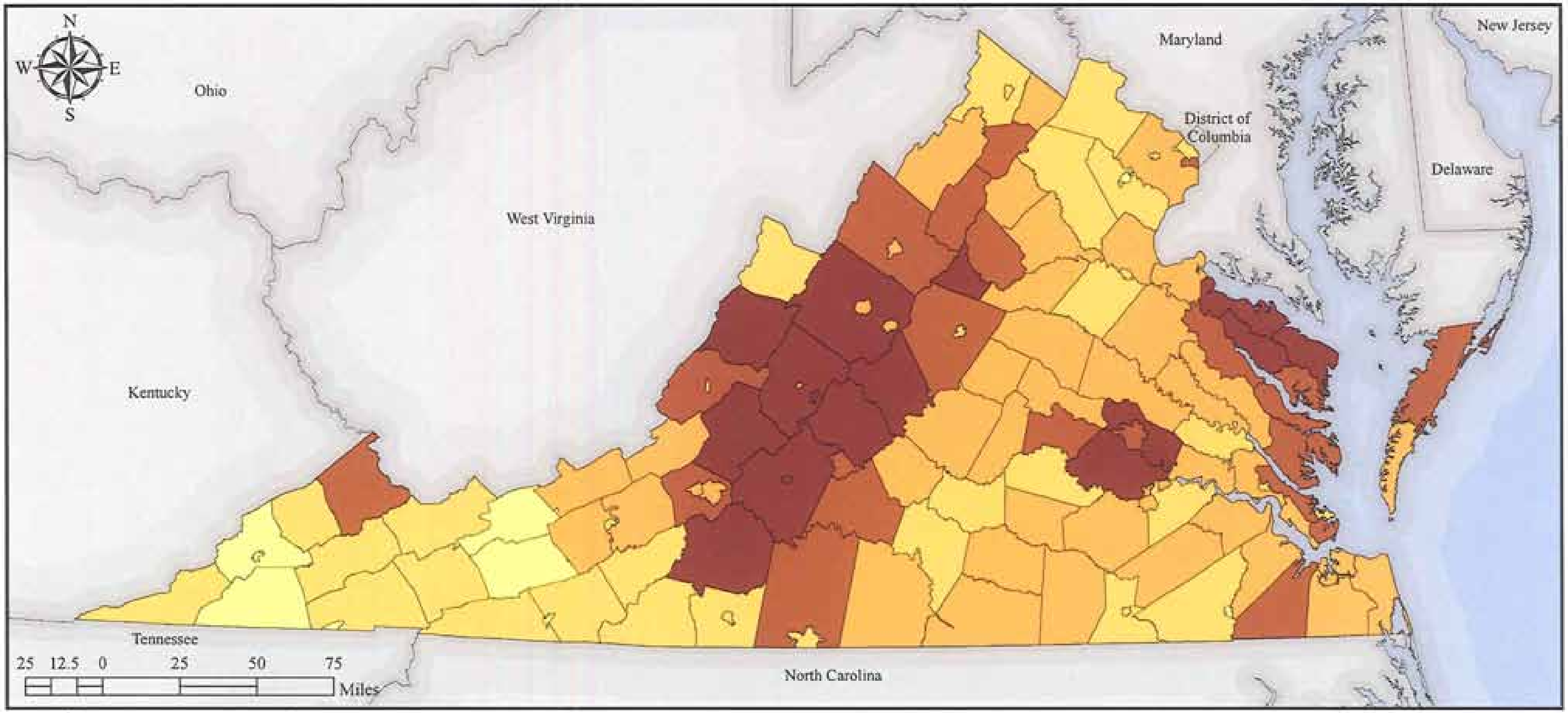
DATA IDENTIFICATION:

A declared federal disaster is any disaster in which Federal funding was allocated to a jurisdiction in the wake of a disaster incident. The sources and types of funding are not taken into account for this map.

The period of record for this map spans 1964 - 2008. Occurrences include tornado related declarations by jurisdiction. This includes all counties that recieved aid for a disaster that had tornado in its description hurricanes, tropical storms, and severe storms

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

Figure 3.3-4: Non-Rotational Wind Federal Declared Disasters



VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

PROJECTION: *VA Lambert Conformal Conic*
North American Datum 1983

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

DATA SOURCES:

FEMA & VDEM Declared Disasters
VGIN Jurisdicational Boundaries
ESRI State Boundaries

LEGEND:

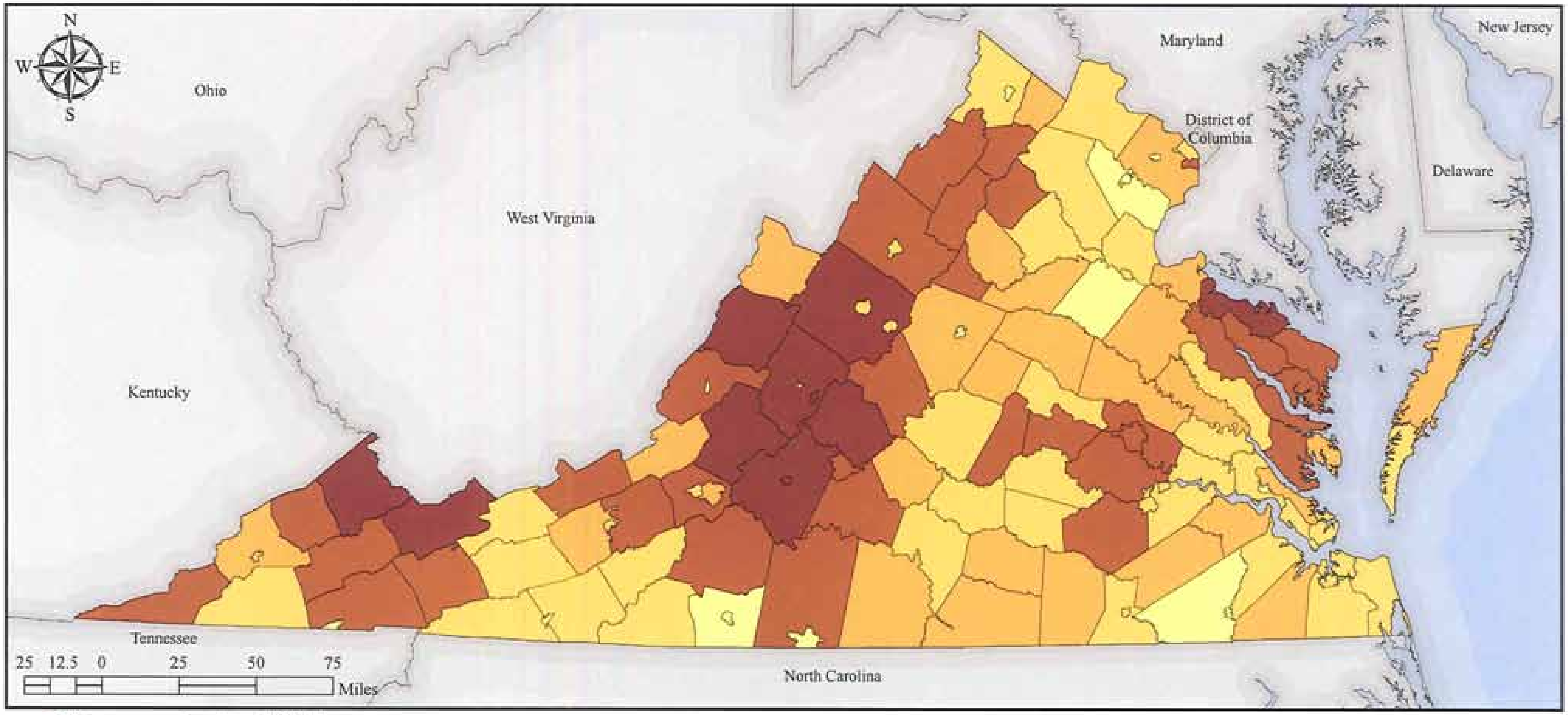
Number of Declared Disasters (1964-2008)

- 0 - 1
- 2 - 3
- 4 - 5
- 6
- 7 - 8

DATA IDENTIFICATION:

A declared federal disaster is any disaster in which Federal funding was allocated to a jurisdiction in the wake of a disaster incident. The sources and types of funding are not taken into account for this map.
The period of record for this map spans 1964 - 2008. Occurrences include non-rotational wind related events by jurisdiction. This could include wind events such as hurricanes, tropical storms, and severe storms

Figure 3.3-3: Flood Federal Declared Disasters



VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

PROJECTION: *VA Lambert Conformal Conic*
North American Datum 1983

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

DATA SOURCES:

FEMA & VDEM Declared Disasters
VGIN Jurisdicational Boundaries
ESRI State Boundaries

LEGEND:

Number of Declared Disasters (1964-2008)

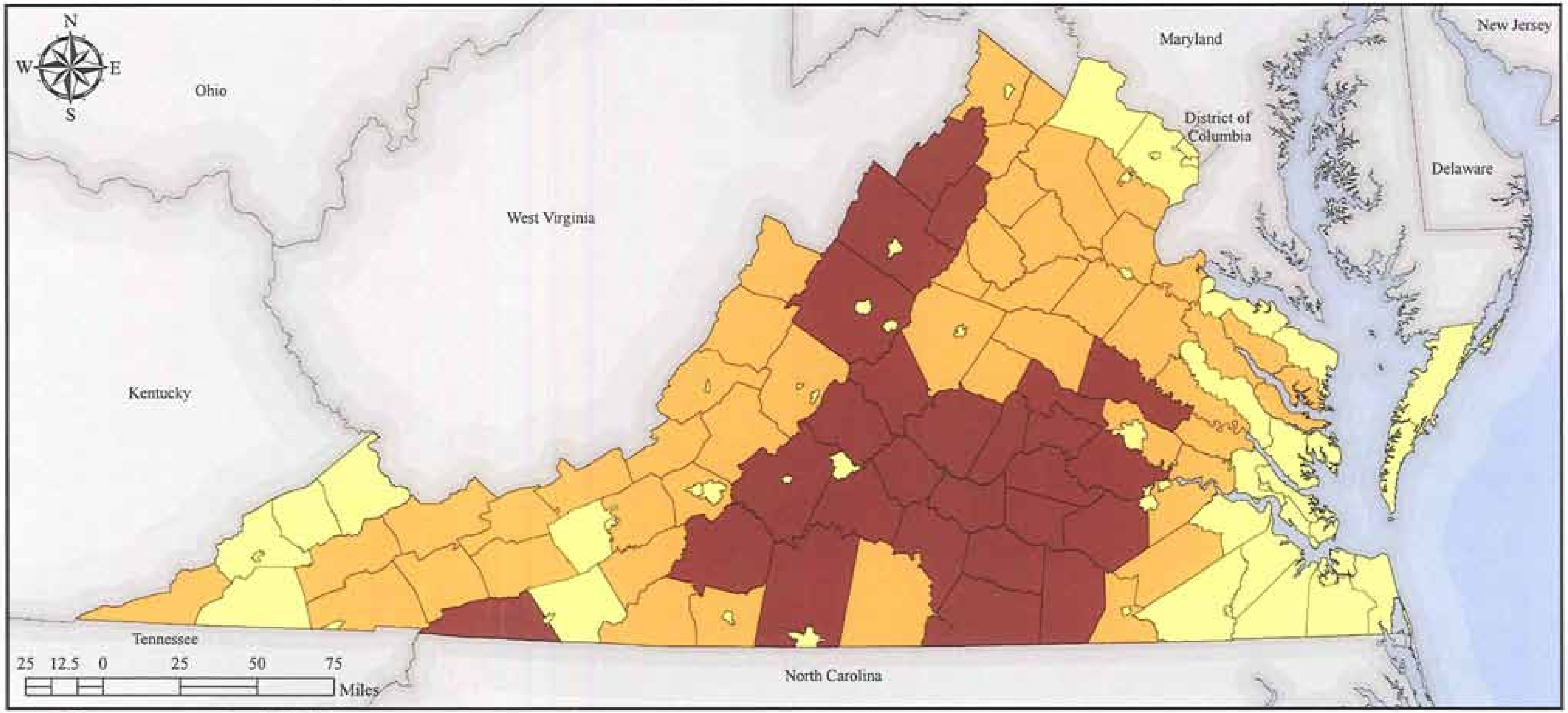
- 0 - 2
- 3 - 4
- 5
- 6 - 7
- 8 - 11

DATA IDENTIFICATION:

A declared federal disaster is any disaster in which Federal funding was allocated to a jurisdiction in the wake of a disaster incident. The sources and types of funding are not taken into account for this map.

The period of record for this map spans 1964 through 2008. Total occurrences, by jurisdiction, include flood related events, such hurricanes, snowelt, and thunderstorms.

Figure 3.3-2: Drought Federal Declared Disasters



VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

PROJECTION: *VA Lambert Conformal Conic North American Datum 1983*

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

DATA SOURCES:

FEMA & VDEM Declared Disasters
VGIN Jurisdictional Boundaries
ESRI State Boundaries

LEGEND:

Number of Declared Disasters (1964-2008)

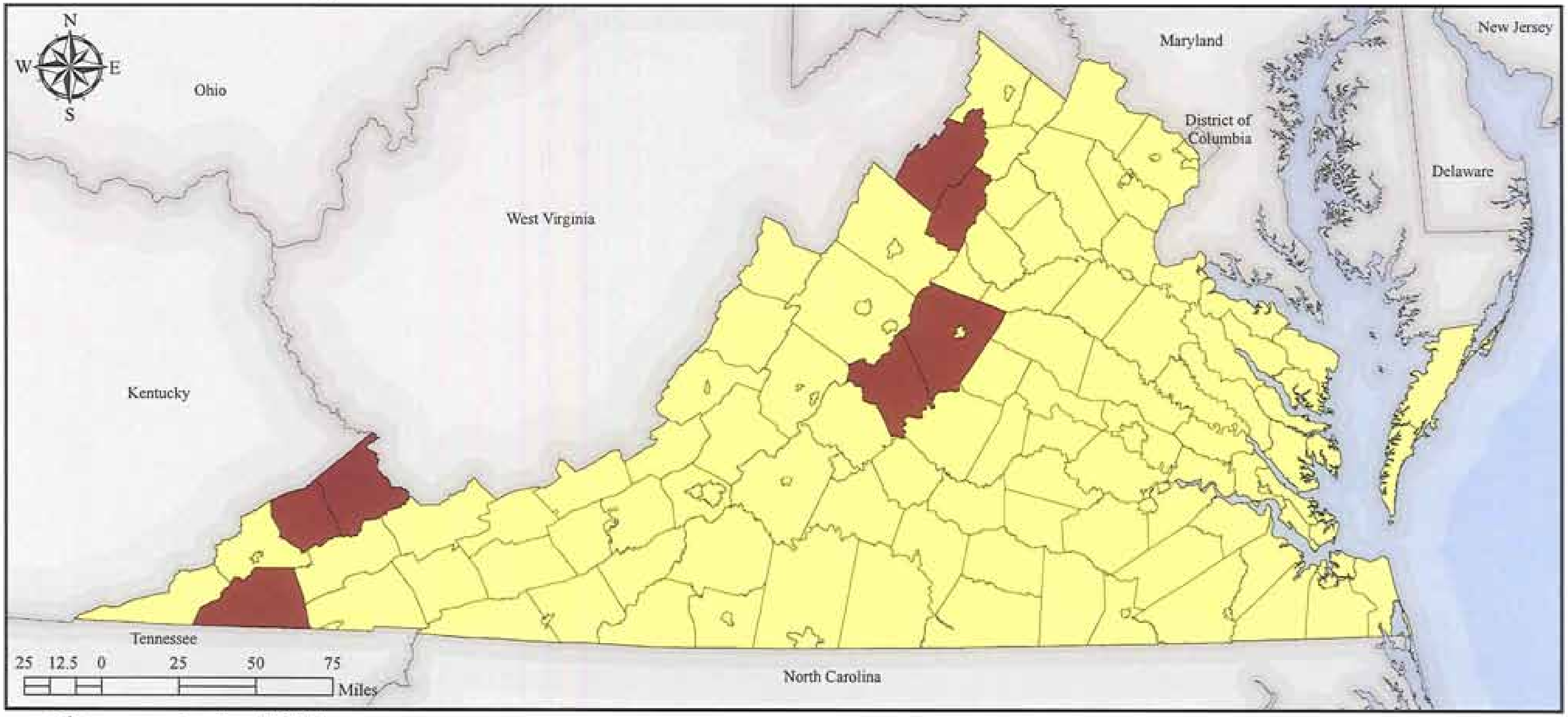
- No Declared Disasters
- 1
- 2

DATA IDENTIFICATION:

A declared federal disaster is any disaster in which Federal funding was allocated to a jurisdiction in the wake of a disaster incident. The sources and types of funding are not taken into account for this map.

The period of record for this map spans 1964 through 2008. Occurrences include total number of drought related disaster declarations by jurisdiction.

Figure 3.3-7: Wildfire Federal Declared Disasters



VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT

DATA SOURCES:

FEMA & VDEM Declared Disasters
VGIN Jurisdicational Boundaries
ESRI State Boundaries

PROJECTION: *VA Lambert Conformal Conic*
North American Datum 1983

DISCLAIMER: Majority of available hazard data is intended to be used at national or regional scales. The purpose of the data sets are to give general indication of areas that may be susceptible to hazards. In order to identify potential risk in the Commonwealth available data has been used beyond the original intent.

LEGEND:

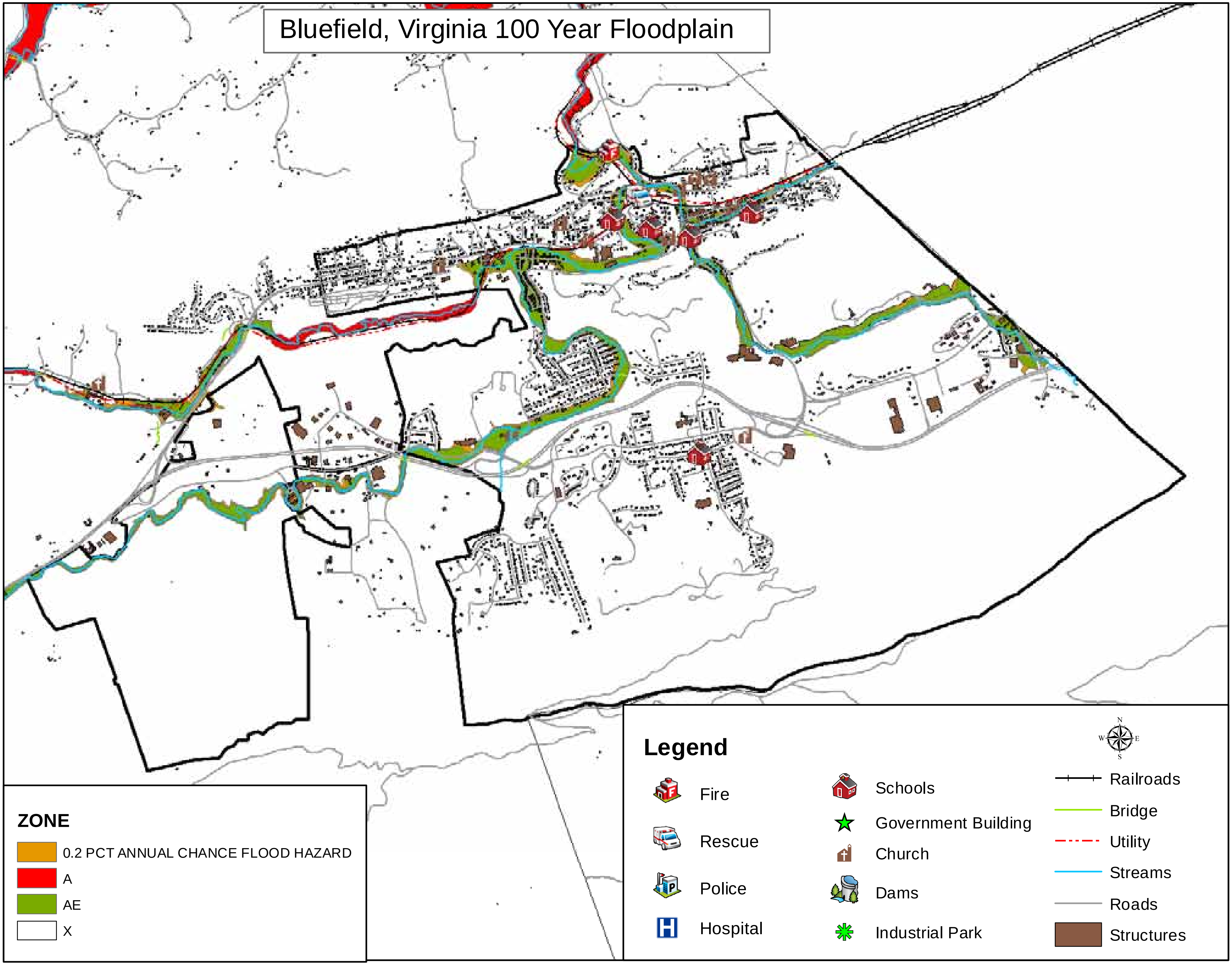
Number of Declared Disasters (1964-2008)

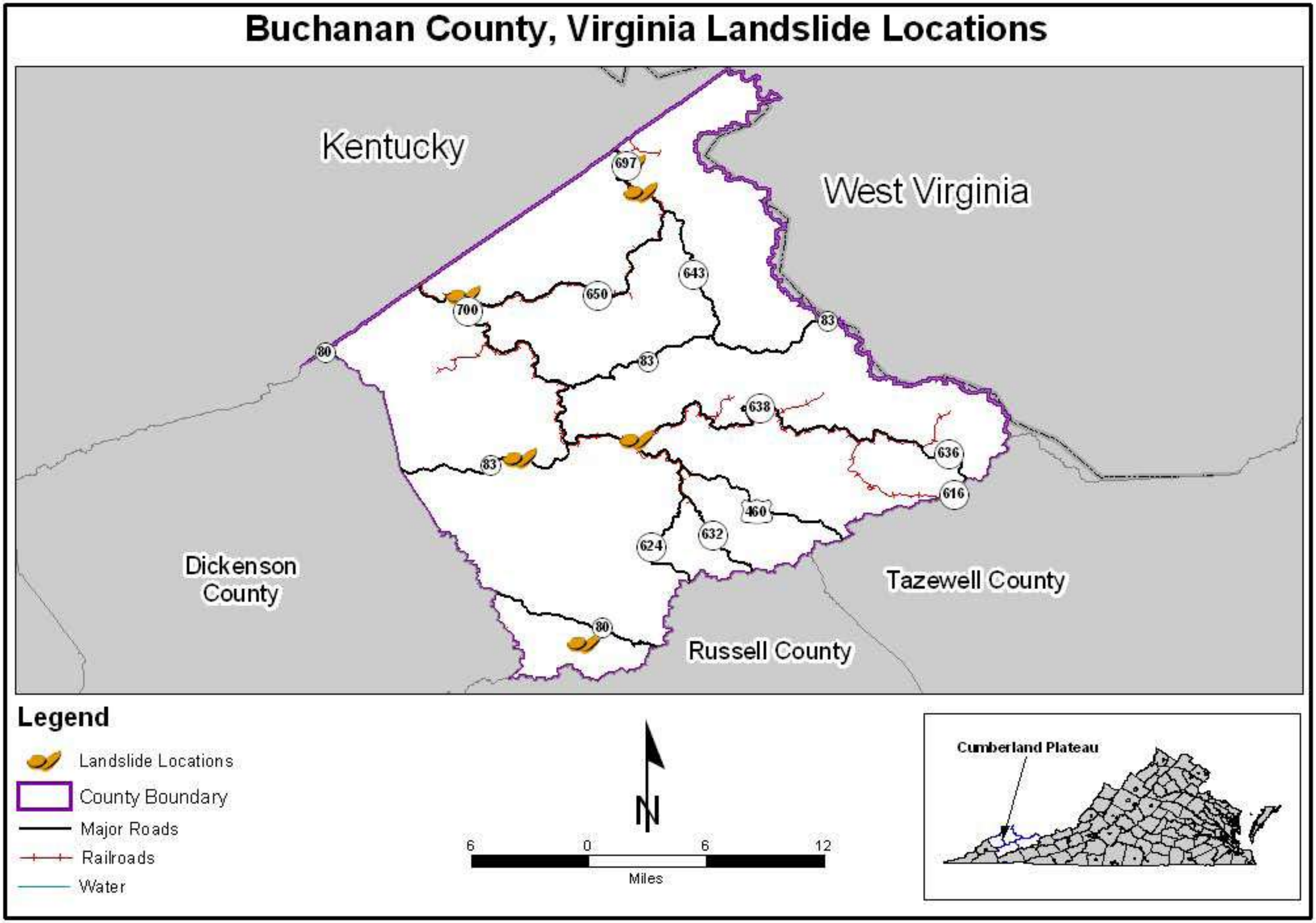
- No Disaster Declaration
- 1

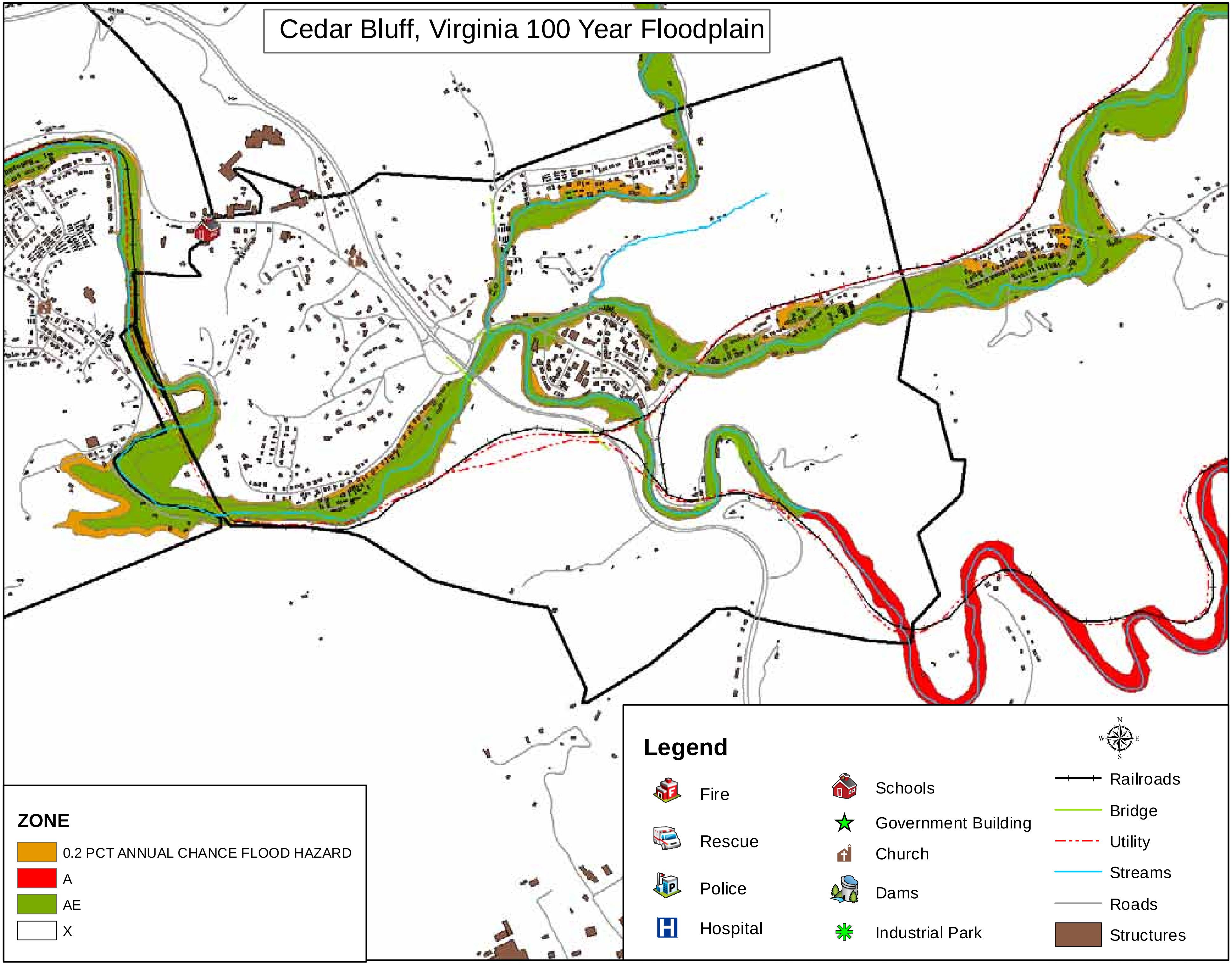
DATA IDENTIFICATION:

A declared federal disaster is any disaster in which Federal funding was allocated to a jurisdiction in the wake of a disaster incident. The sources and types of funding are not taken into account for this map.

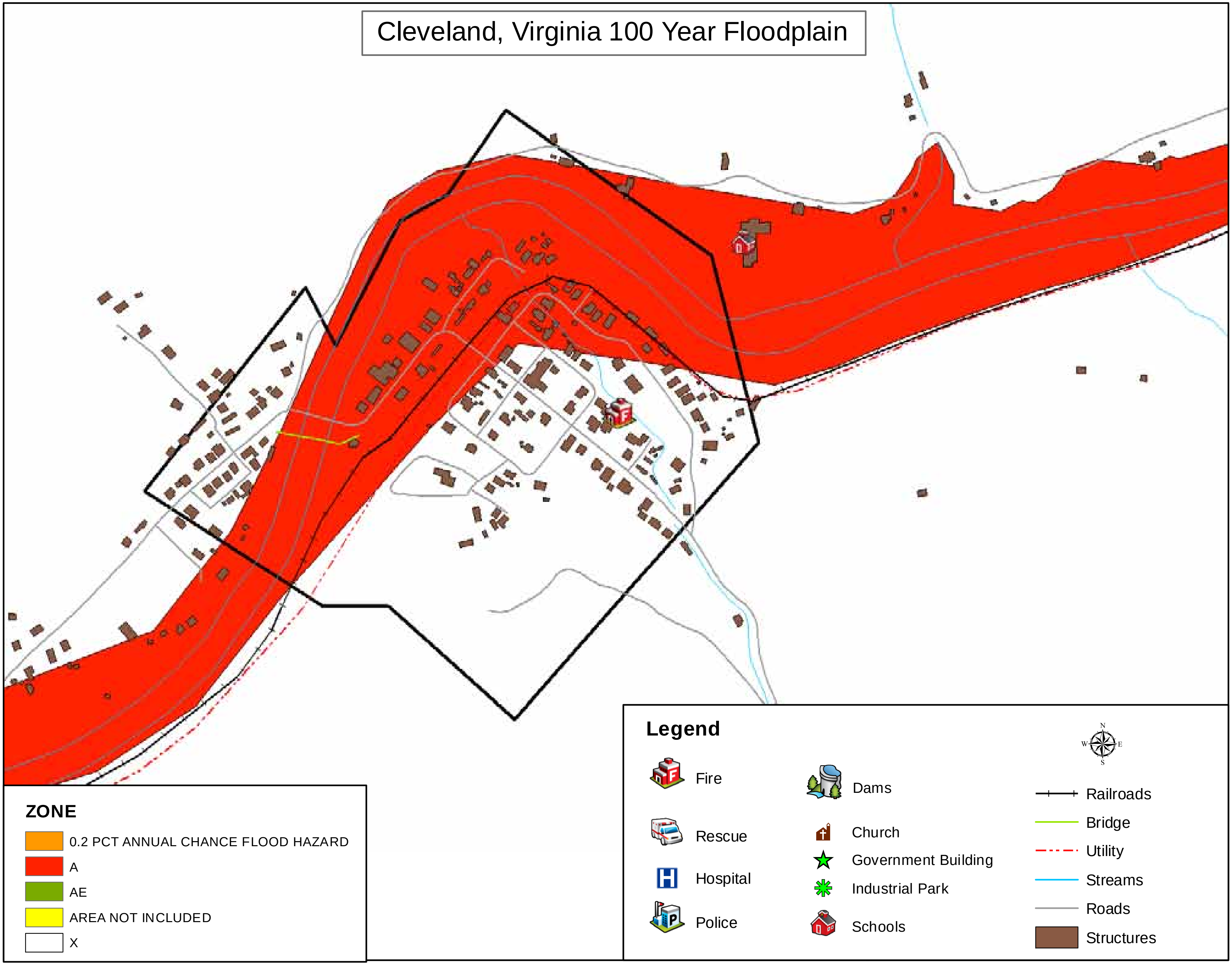
The period of record for this map spans 1964 - 2008. Occurrences include total number of wildfire related disaster declarations.

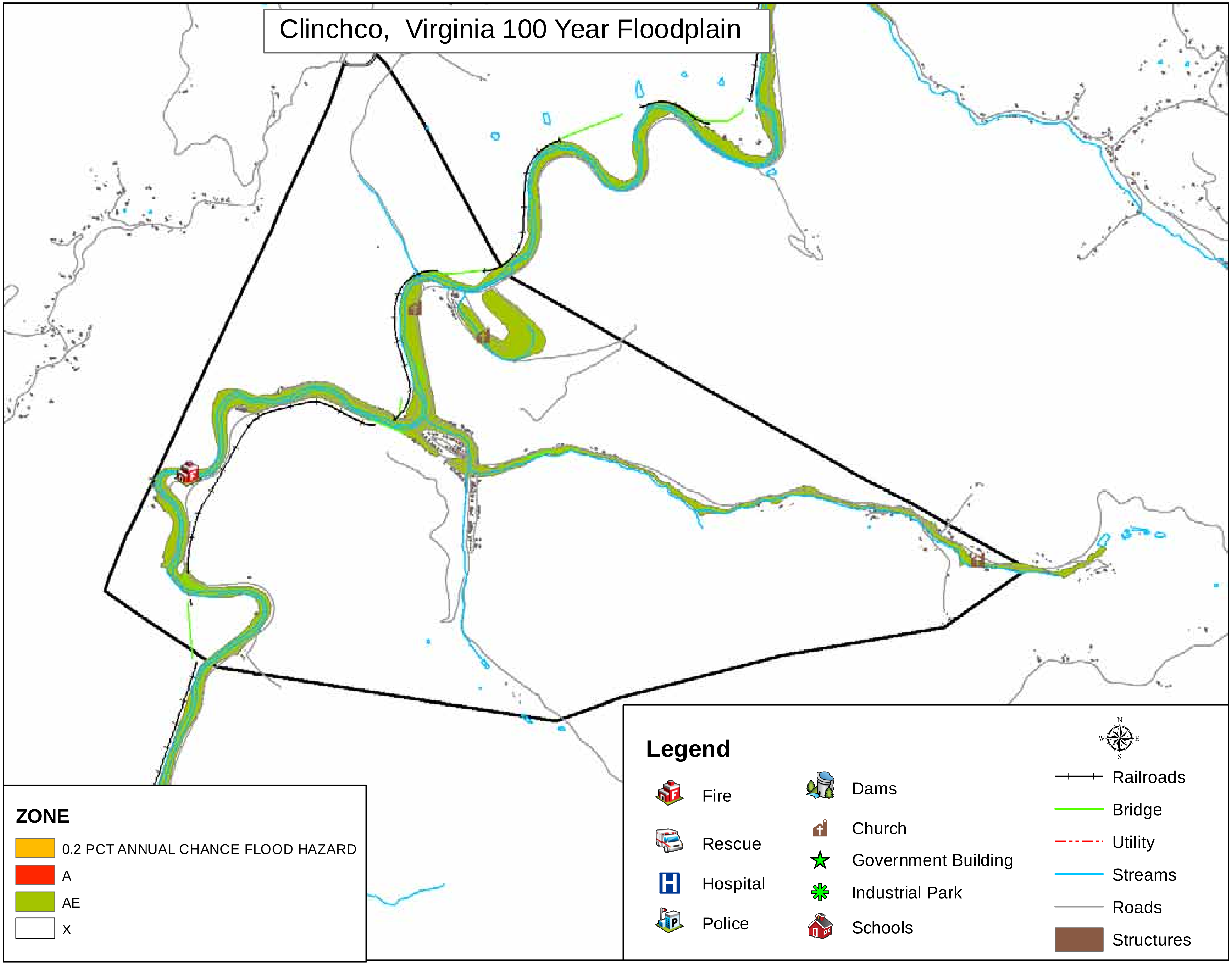

Bluefield, Virginia 100 Year Floodplain
ZONE
0.2 PCT ANNUAL CHANCE FLOOD HAZARD
A
AE
X
Legend
Fire
Rescue
Police
Hospital
Schools
Government Building
Church
Dams
Industrial Park
Railroads
Bridge
Utility
Streams
Roads
Structures
N
S
E
W

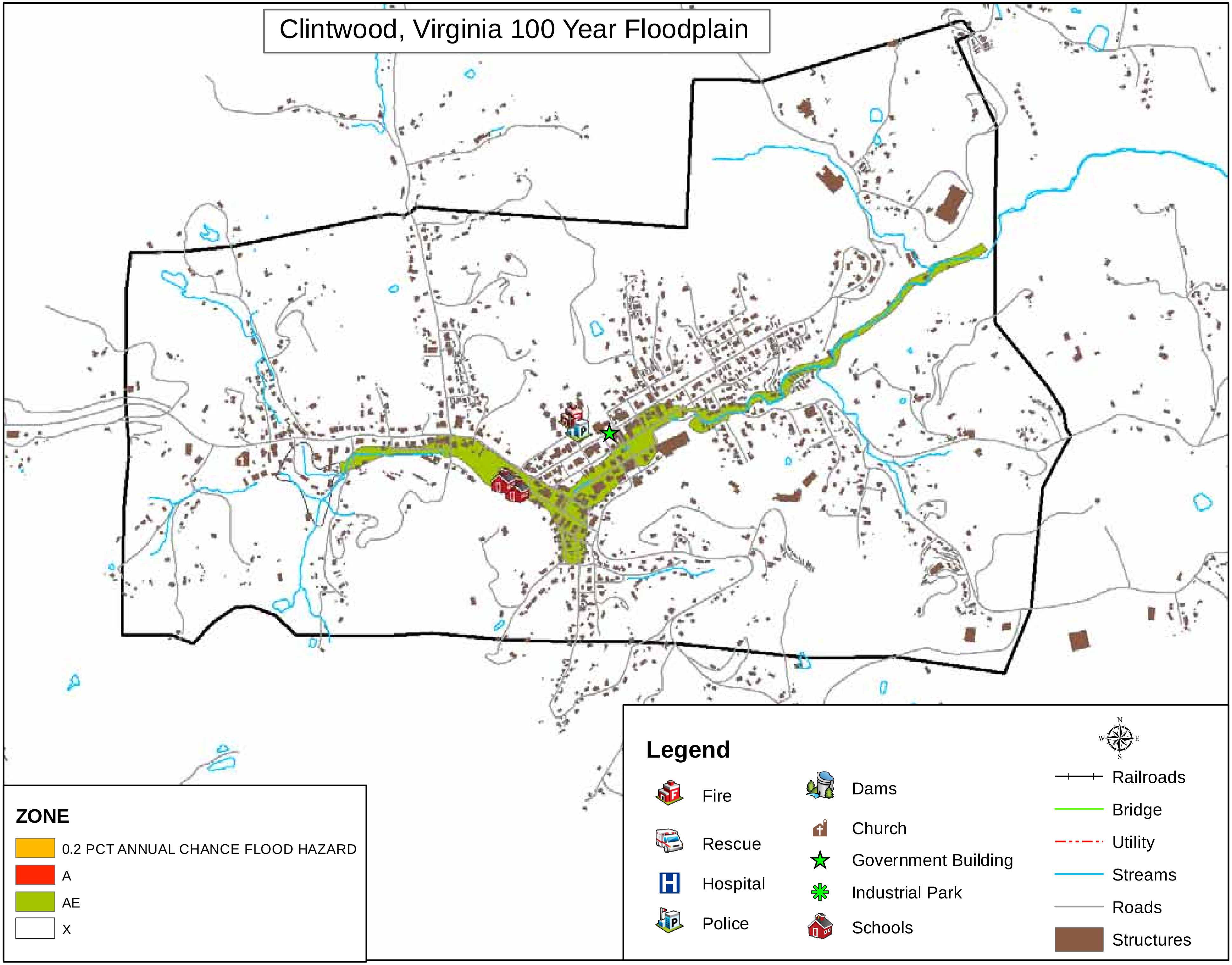

Buchanan County, Virginia Landslide Locations
Kentucky
West Virginia
Dickenson County
Tazewell County
Russell County
697
643
650
700
80
83
638
636
616
460
632
624
Legend
Landslide Locations
County Boundary
Major Roads
Railroads
Water
N
6
0
6
12
Miles
Cumberland Plateau



Cedar Bluff, Virginia 100 Year Floodplain
ZONE
0.2 PCT ANNUAL CHANCE FLOOD HAZARD
A
AE
X
Legend
Fire
Rescue
Police
Hospital
Schools
Government Building
Church
Dams
Industrial Park
Railroads
Bridge
Utility
Streams
Roads
Structures
N
S
E
W


Cleveland, Virginia 100 Year Floodplain
ZONE
0.2 PCT ANNUAL CHANCE FLOOD HAZARD
A
AE
AREA NOT INCLUDED
X
Legend
Fire
Rescue
Hospital
Police
Dams
Church
Government Building
Industrial Park
Schools
Railroads
Bridge
Utility
Streams
Roads
Structures
N
W
E
S


Clinchco, Virginia 100 Year Floodplain
ZONE
0.2 PCT ANNUAL CHANCE FLOOD HAZARD
A
AE
X
Legend
Fire
Rescue
Hospital
Police
Dams
Church
Government Building
Industrial Park
Schools
Railroads
Bridge
Utility
Streams
Roads
Structures
N
S
E
W


Clintwood, Virginia 100 Year Floodplain
ZONE
0.2 PCT ANNUAL CHANCE FLOOD HAZARD
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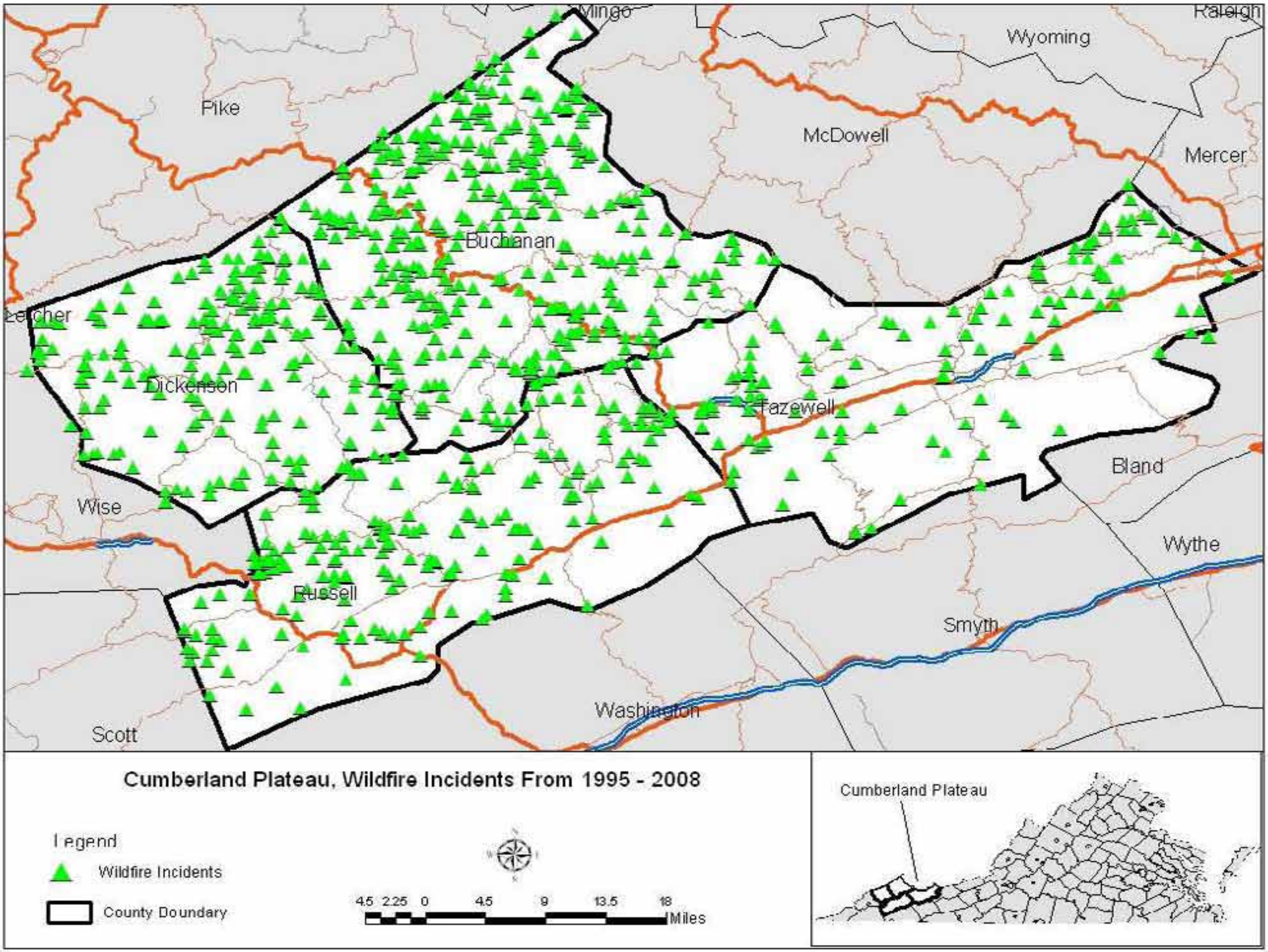
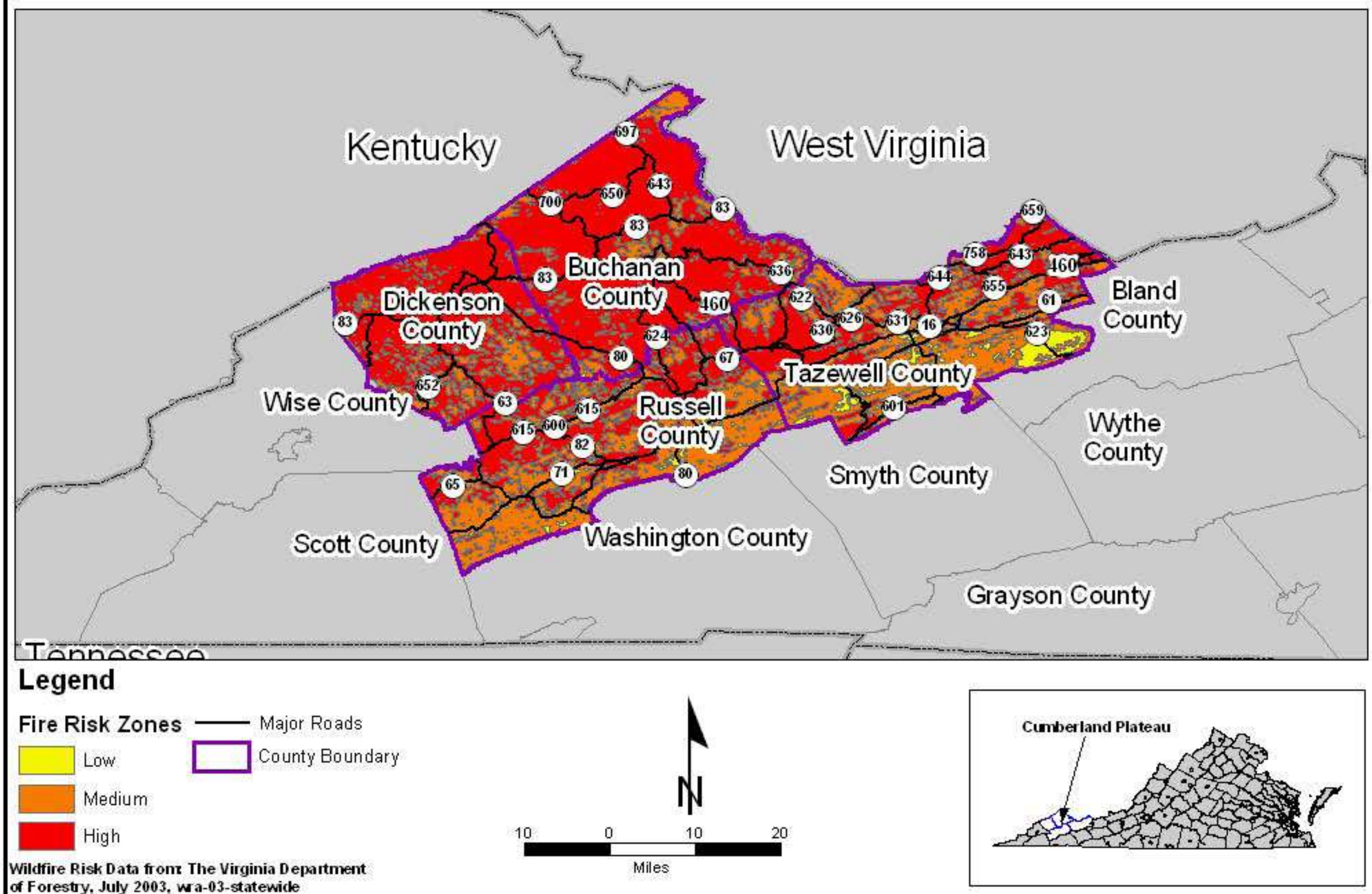
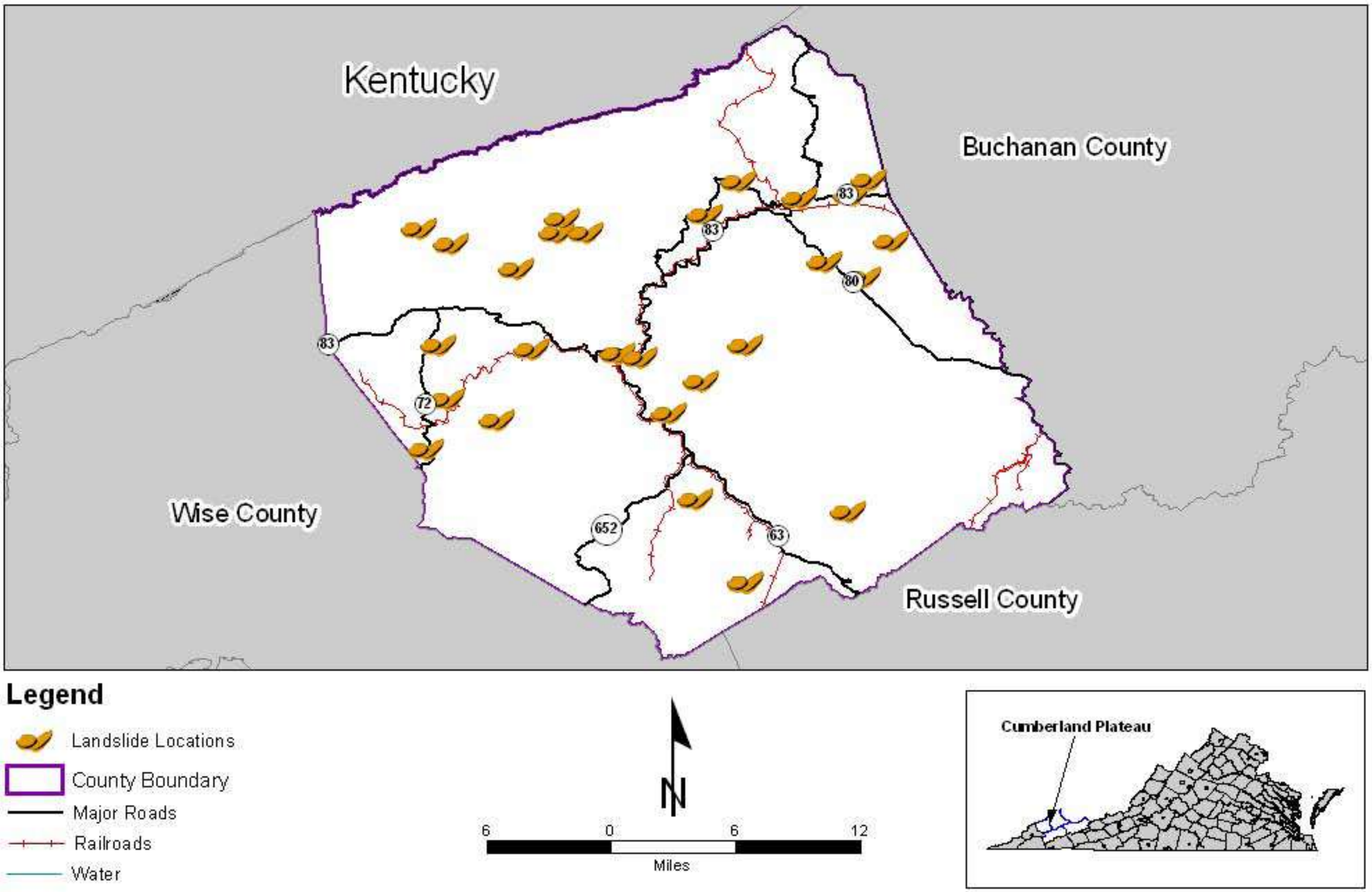

Mingo
Raleigh
Wyoming
Pike
McDowell
Mercer
Buchanan
Letcher
Dickenson
Tazewell
Bland
Wise
Wythe
Russell
Smyth
Washington
Scott
Cumberland Plateau, Wildfire Incidents From 1995 - 2008
Legend
Wildfire Incidents
County Boundary
4.5 2.25 0 4.5 9 13.5 18
Miles
Cumberland Plateau

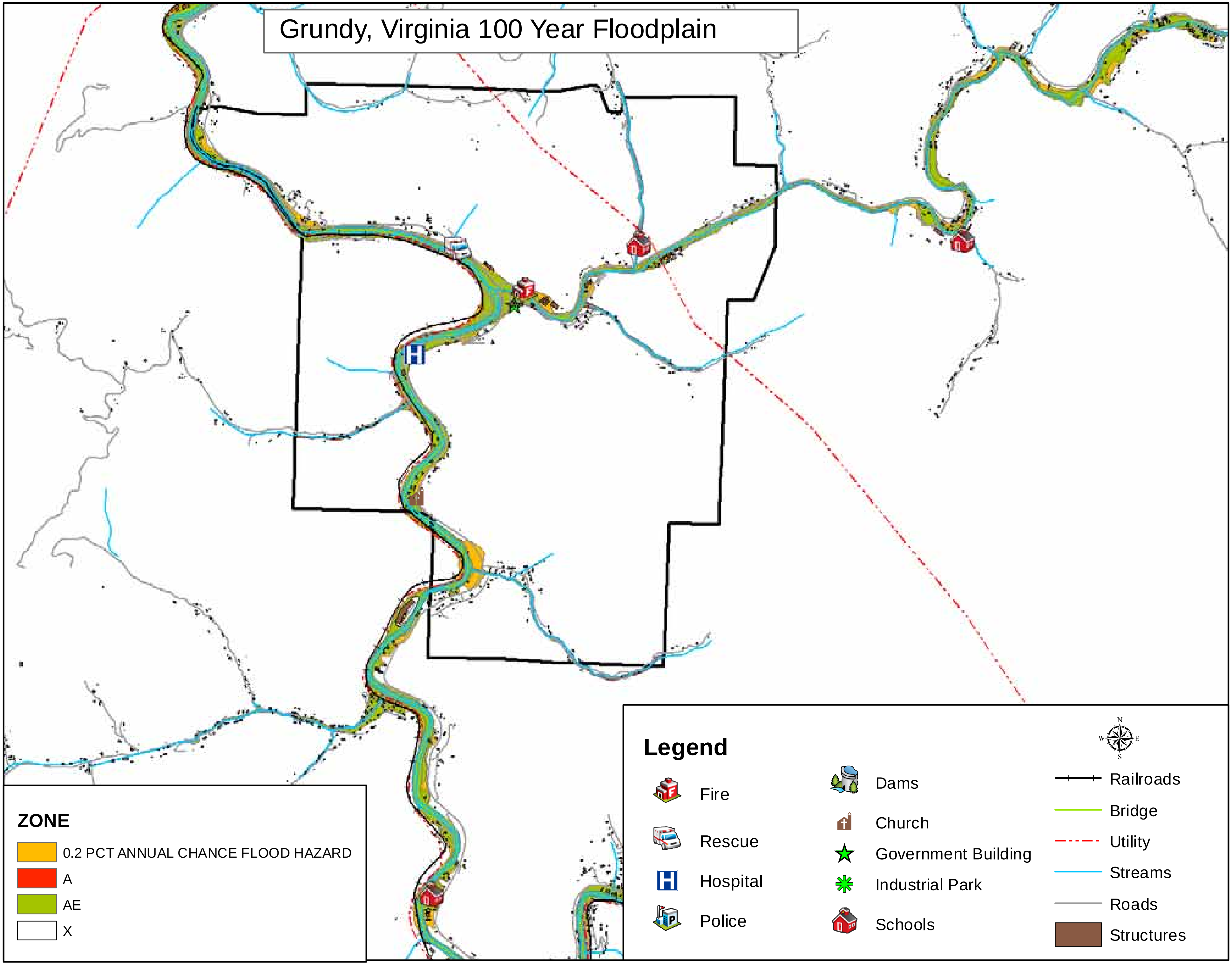
Cumberland Plateau, Virginia Fire Risk Zones



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

Dickenson County, Virginia Landslide Locations





Grundy, Virginia 100 Year Floodplain
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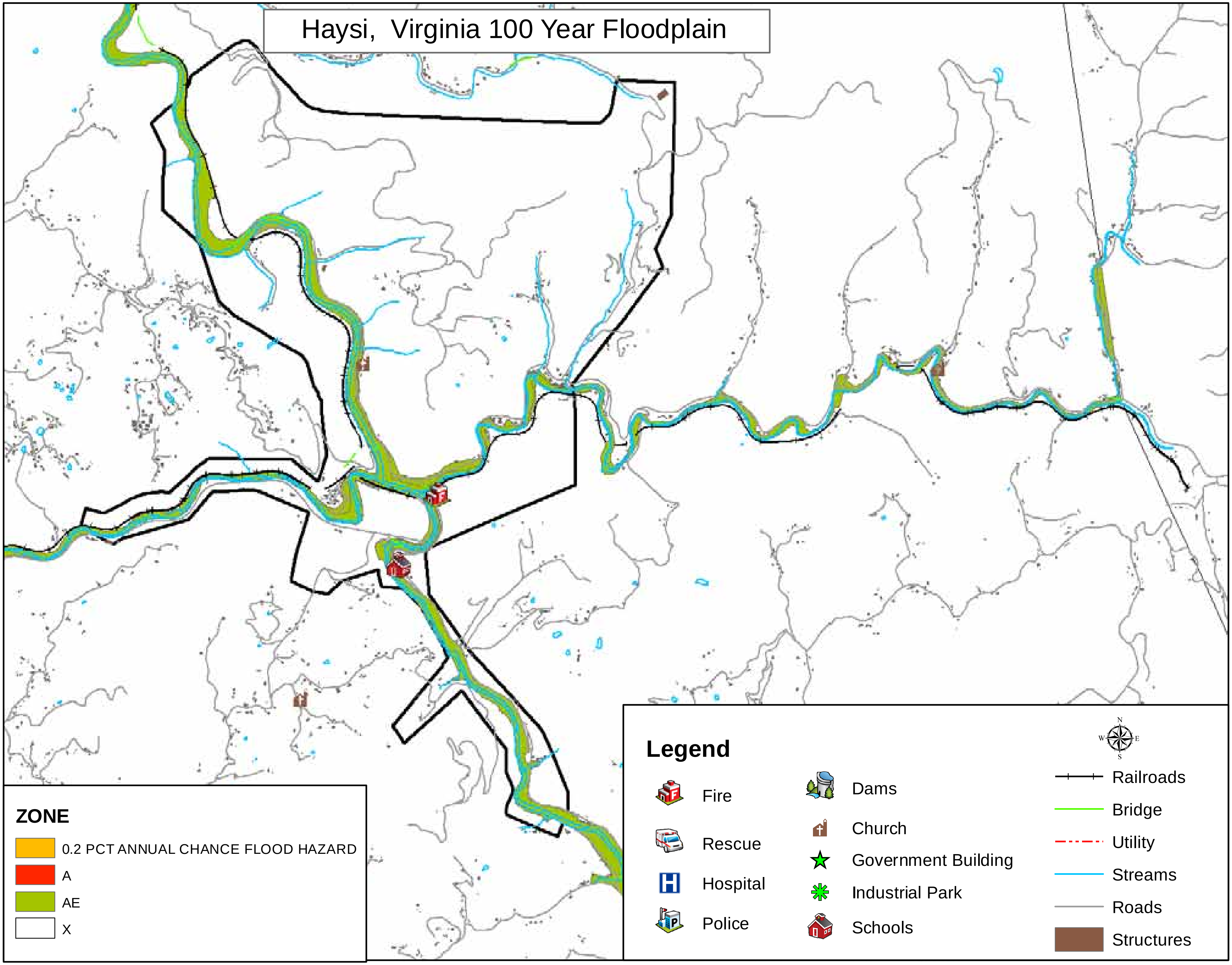
Haysi, Virginia 100 Year Floodplain
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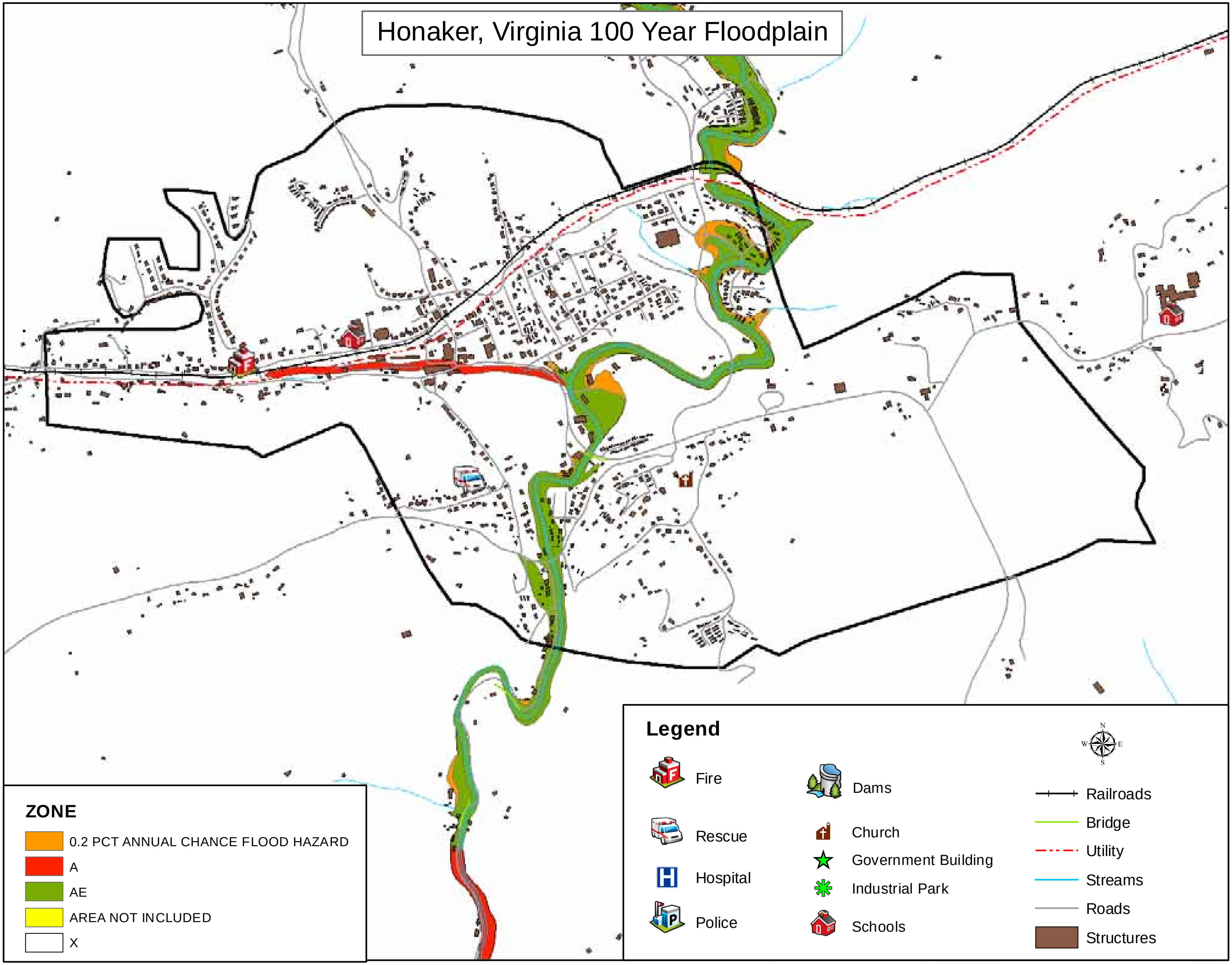

Honaker, Virginia 100 Year Floodplain
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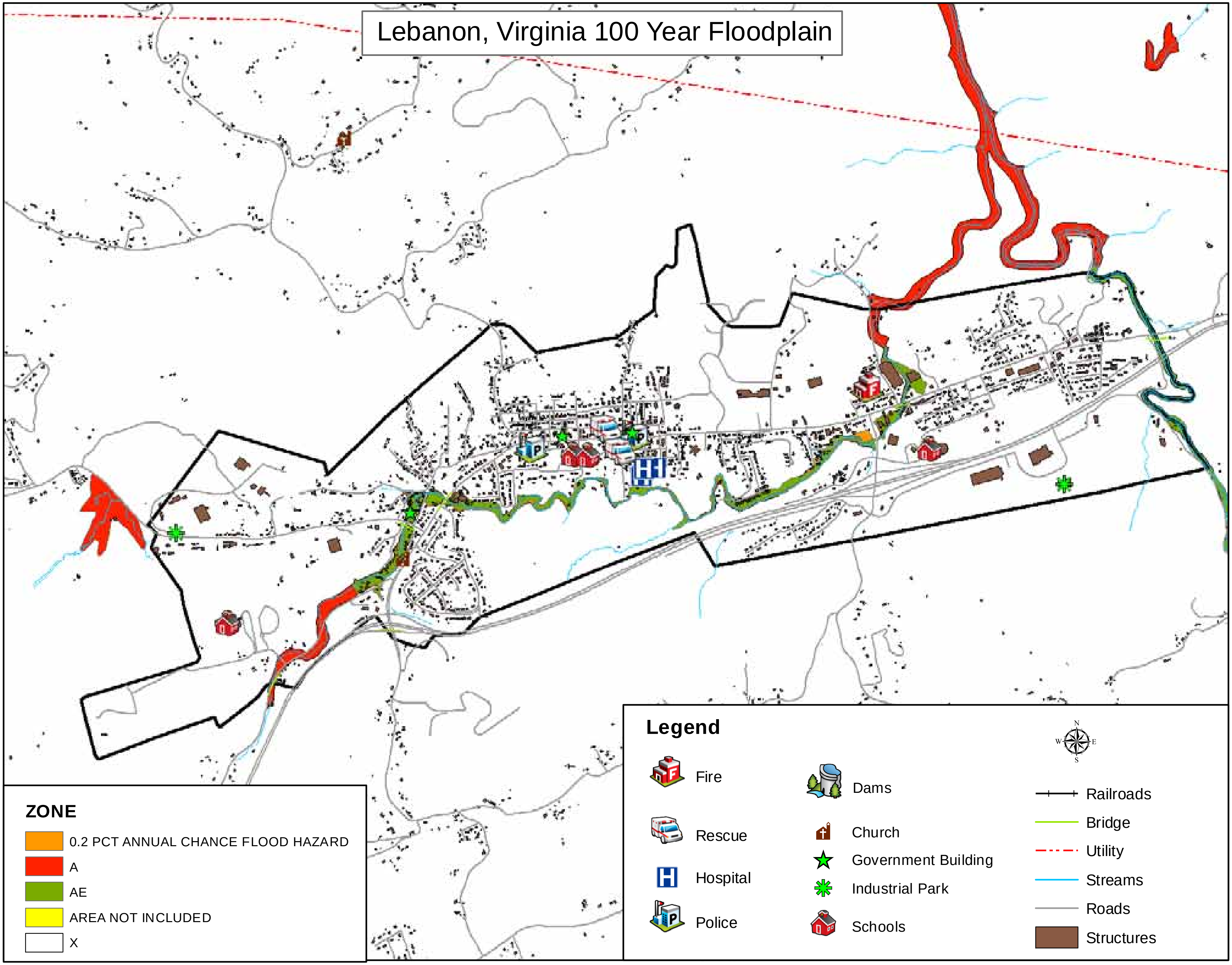

Lebanon, Virginia 100 Year Floodplain
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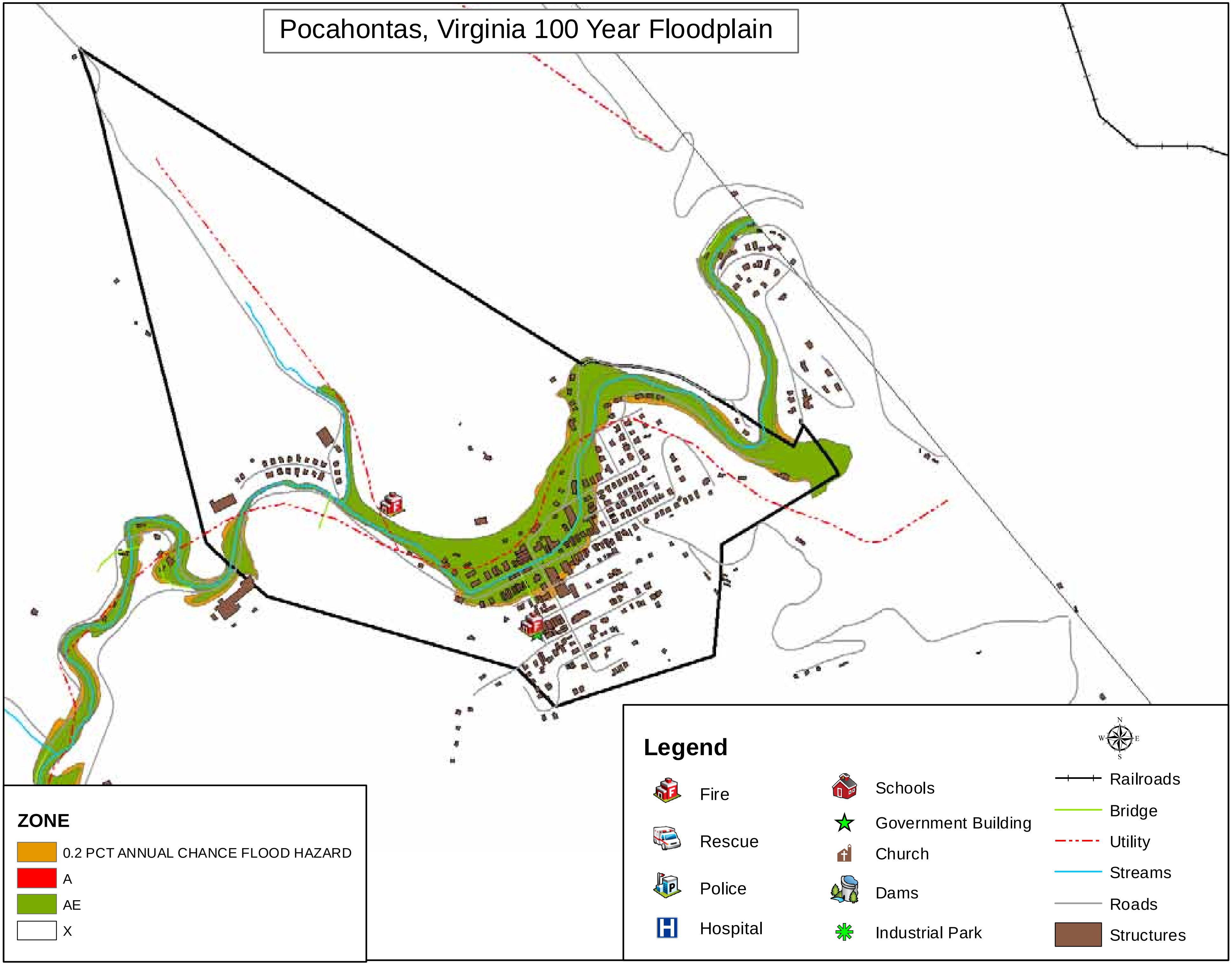
Pocahontas, Virginia 100 Year Floodplain
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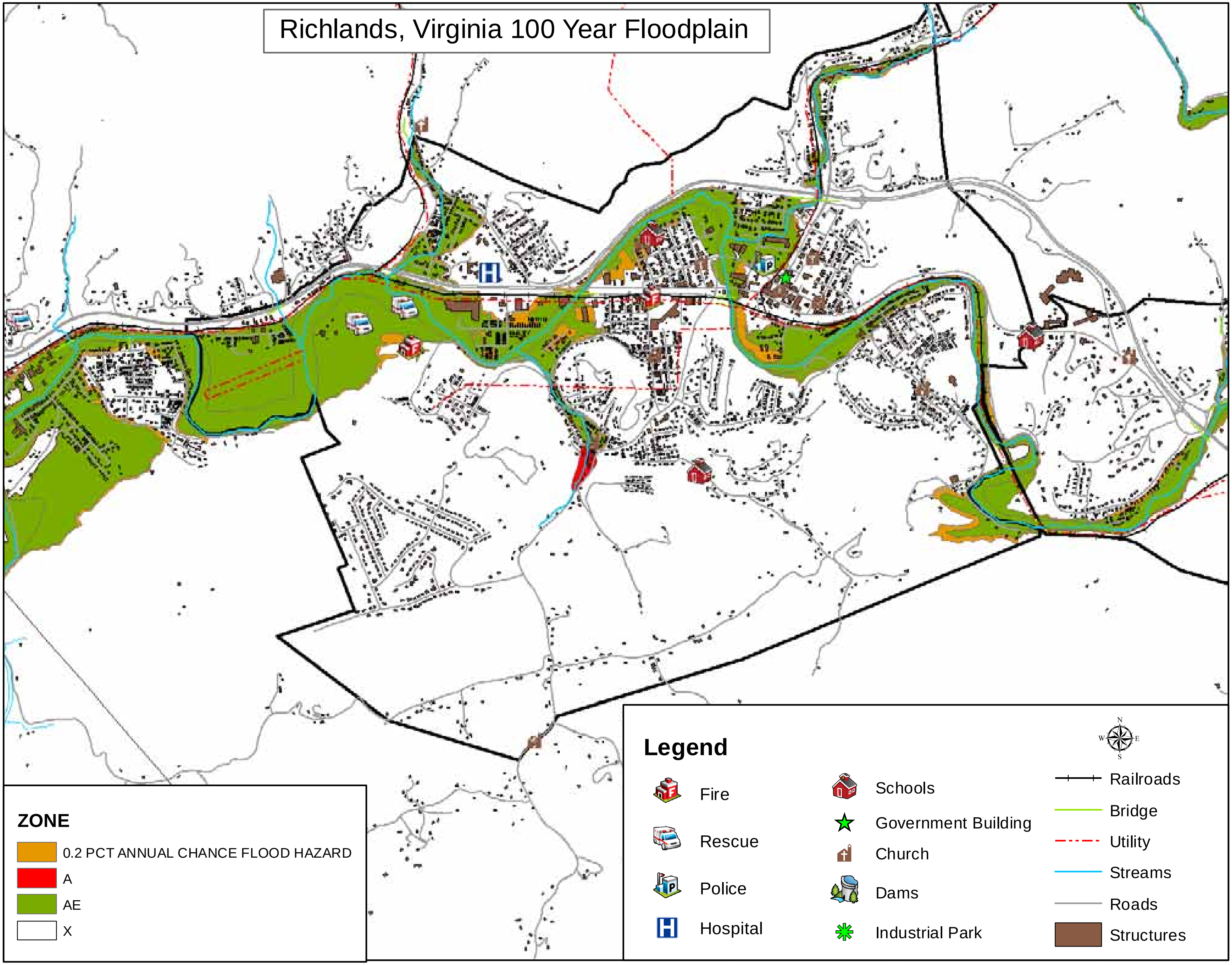

Richlands, Virginia 100 Year Floodplain
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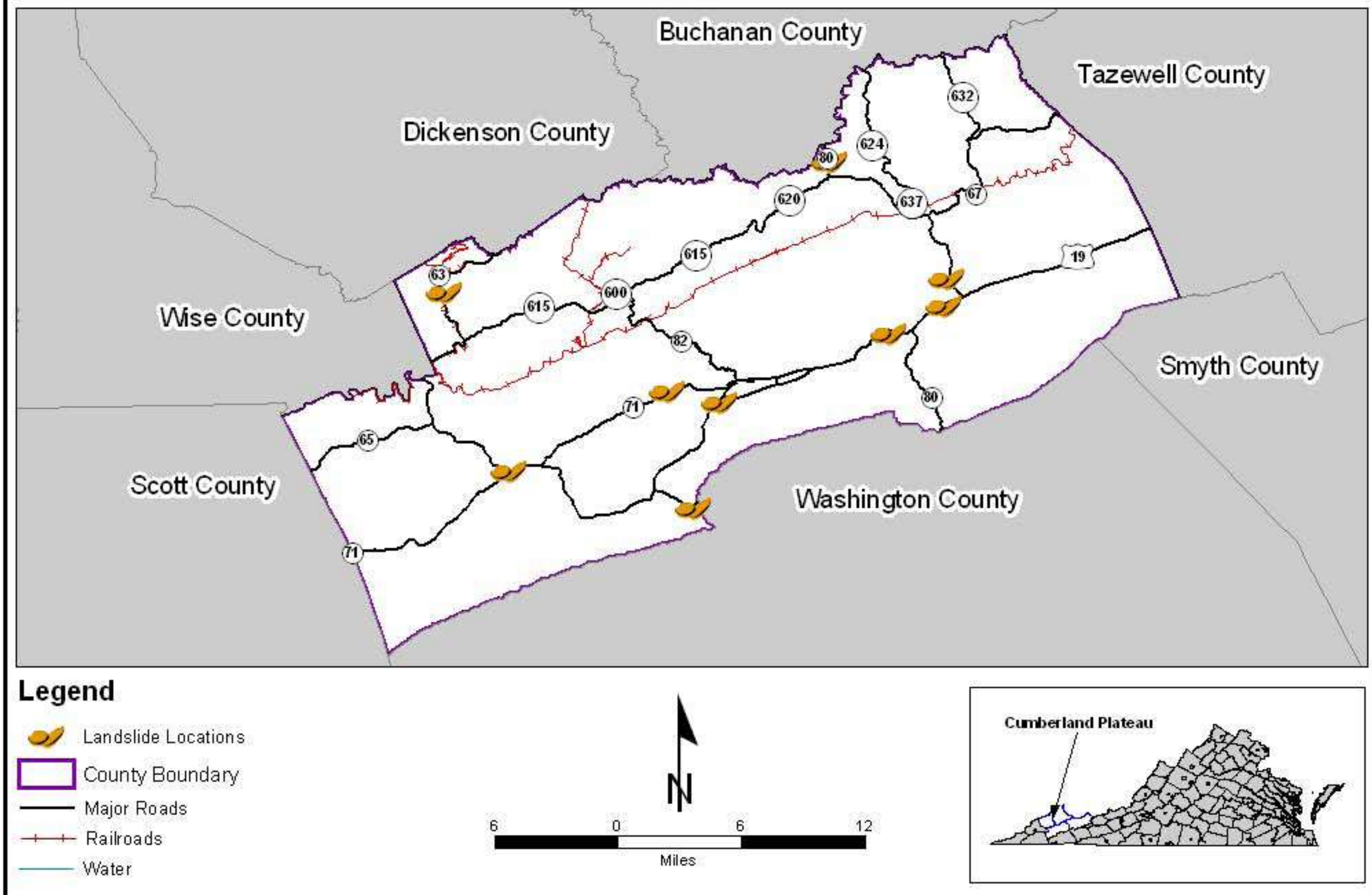
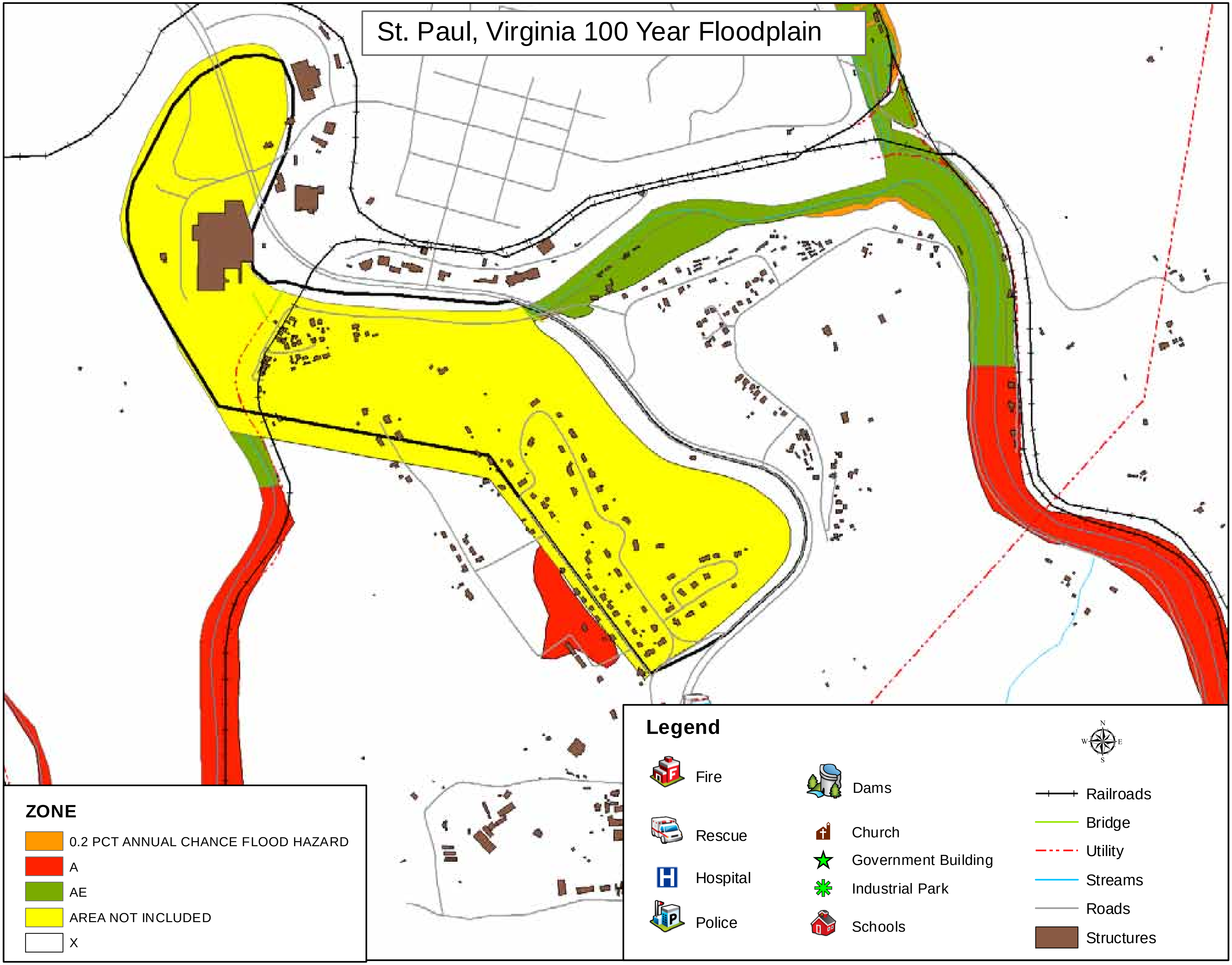
Russell County, Virginia Landslide Locations




St. Paul, Virginia 100 Year Floodplain
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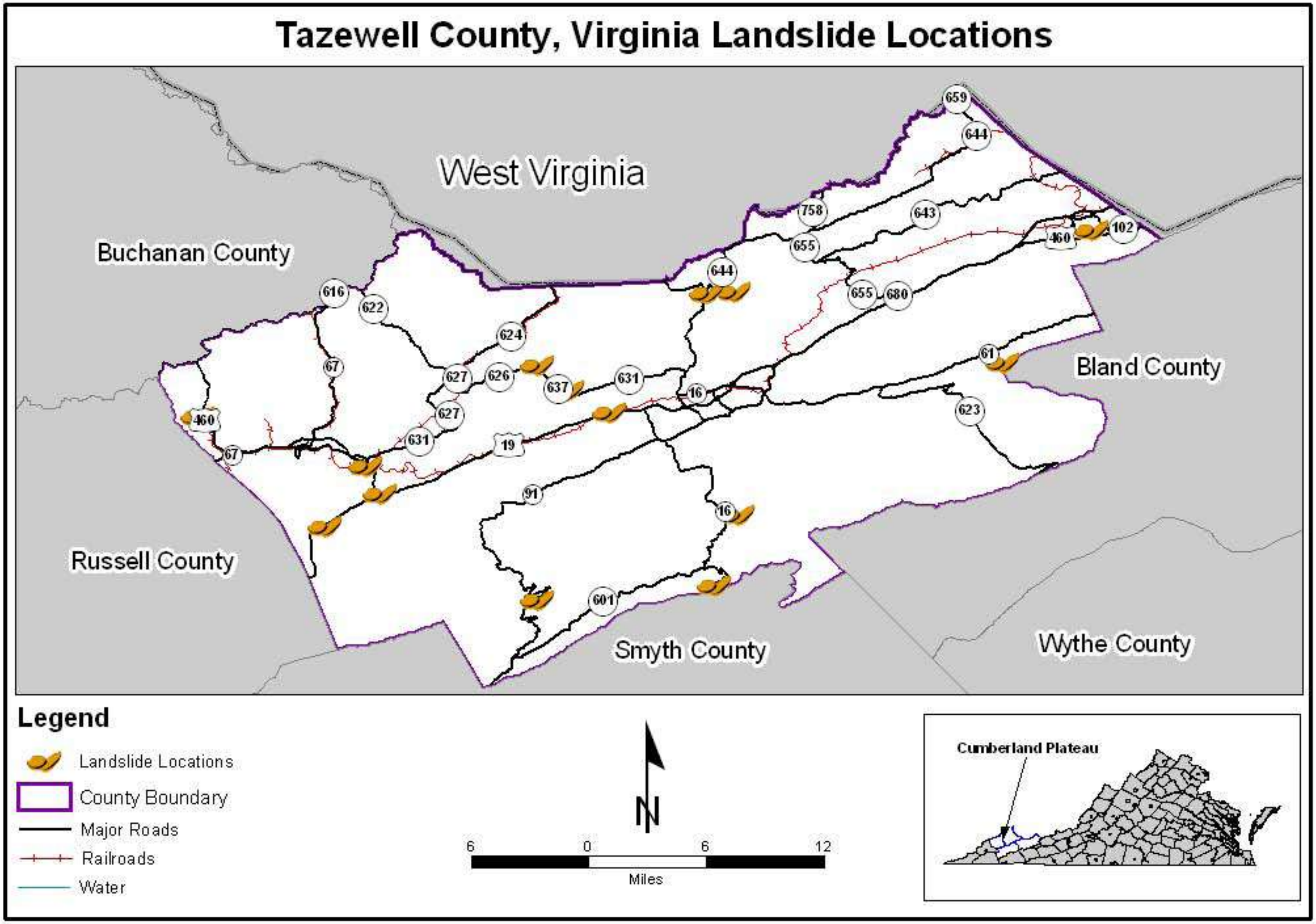
Tazewell County, Virginia Landslide Locations
West Virginia
Buchanan County
Bland County
Russell County
Smyth County
Wythe County
659
644
758
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102
460
655
644
616
622
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637
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631
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19
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Legend
Landslide Locations
County Boundary
Major Roads
Railroads
Water
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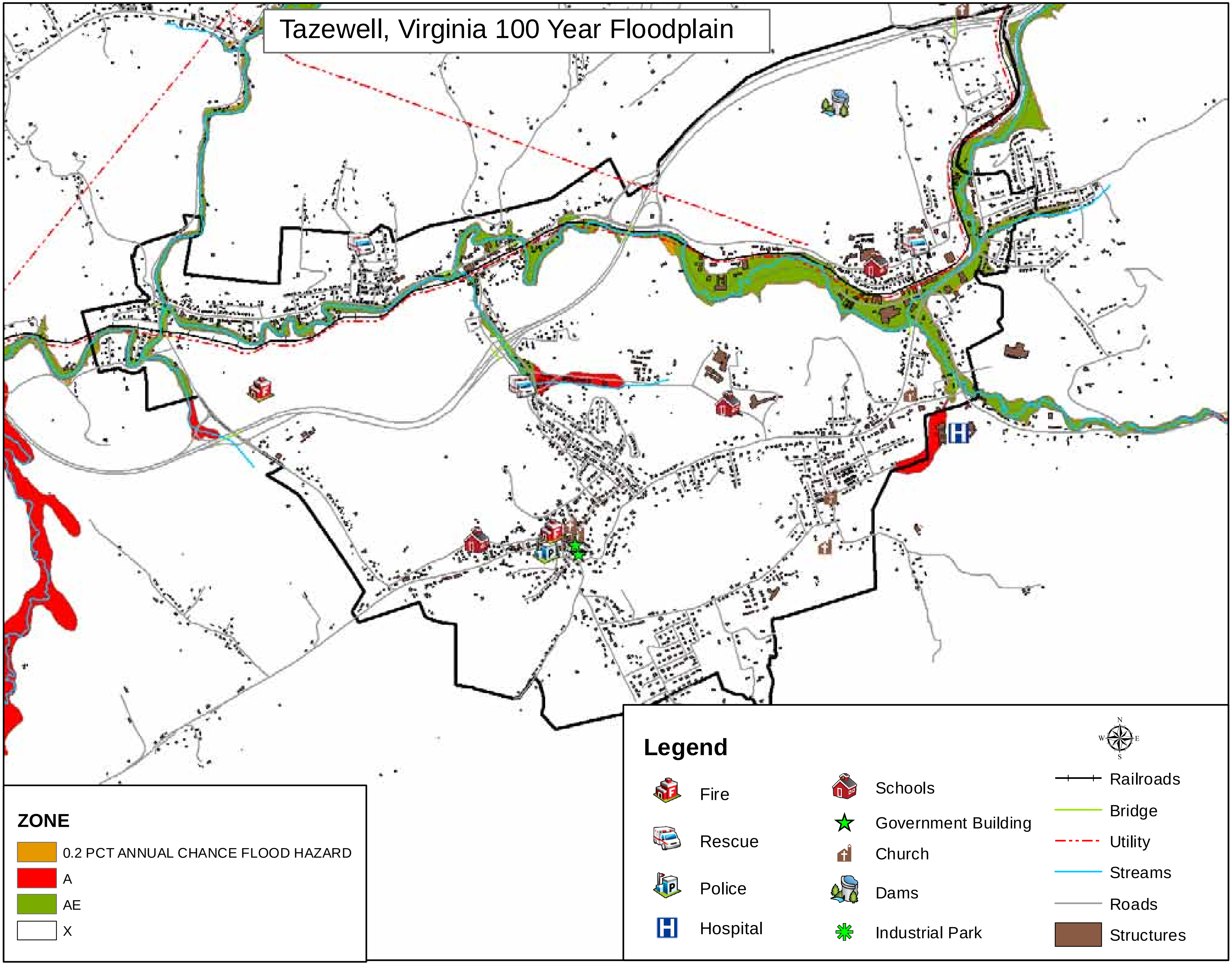
Miles
Cumberland Plateau


Tazewell, Virginia 100 Year Floodplain
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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	
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, For Fiscal Year 2012, the County has 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 has 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 has 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 has 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, Clintwood, 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.

Prioritizing Alternatives

The Mitigation Advisory Committee used the STAPLE/E Criteria (Social, Technical, Administrative, Political, Legal, Economic, and Environmental) to select and prioritize the most appropriate mitigation alternatives for the Planning District communities. This methodology requires that the social, technical, administrative, political, legal, economic, and environmental considerations be taken into account when reviewing potential actions for the area's jurisdictions to undertake. This process was used to help ensure that the most equitable and feasible actions would be undertaken based on a jurisdiction's capabilities.

Table VII-1, below, provides information regarding the review and selection criteria for alternatives.

Table VII-1 — STAPLE/E Review And Selection Criteria For Alternatives

Social

- IS THE PROPOSED ACTION SOCIALLY ACCEPTABLE TO THE COMMUNITY(S)?
- ARE THERE EQUITY ISSUES INVOLVED THAT WOULD MEAN THAT ONE SEGMENT OF A COMMUNITY IS TREATED UNFAIRLY?
- WILL THE ACTION CAUSE SOCIAL DISRUPTION?

Technical

- WILL THE PROPOSED ACTION WORK?
- WILL IT CREATE MORE PROBLEMS THAN IT SOLVES?
- DOES IT SOLVE A PROBLEM OR ONLY A SYMPTOM?
- IS IT THE MOST USEFUL ACTION IN LIGHT OF OTHER COMMUNITY(S) GOALS?

Administrative

- CAN THE COMMUNITY(S) IMPLEMENT THE ACTION?
- IS THERE SOMEONE TO COORDINATE AND LEAD THE EFFORT?
- IS THERE SUFFICIENT FUNDING, STAFF, AND TECHNICAL SUPPORT AVAILABLE?
- ARE THERE ONGOING ADMINISTRATIVE REQUIREMENTS THAT NEED TO BE MET?

Political

- **IS THE ACTION POLITICALLY ACCEPTABLE?**
- **IS THERE PUBLIC SUPPORT BOTH TO IMPLEMENT AND TO MAINTAIN THE PROJECT?**

Legal

- IS THE COMMUNITY(S) AUTHORIZED TO IMPLEMENT THE PROPOSED ACTION? IS THERE A CLEAR LEGAL BASIS OR PRECEDENT FOR THIS ACTIVITY?
- ARE THERE LEGAL SIDE EFFECTS? COULD THE ACTIVITY BE CONSTRUED AS A TAKING?
- IS THE PROPOSED ACTION ALLOWED BY A COMPREHENSIVE PLAN, OR MUST A COMPREHENSIVE PLAN BE AMENDED TO ALLOW THE PROPOSED ACTION?
- WILL THE COMMUNITY(S) BE LIABLE FOR ACTION OR LACK OF ACTION?
- WILL THE ACTIVITY BE CHALLENGED?

Economic

- WHAT ARE THE COSTS AND BENEFITS OF THIS ACTION?
- DO THE BENEFITS EXCEED THE COSTS?
- ARE INITIAL, MAINTENANCE, AND ADMINISTRATIVE COSTS TAKEN INTO ACCOUNT?
- HAS FUNDING BEEN SECURED FOR THE PROPOSED ACTION? IF NOT, WHAT ARE THE POTENTIAL FUNDING SOURCES (PUBLIC, NON-PROFIT, AND PRIVATE)?
- HOW WILL THIS ACTION AFFECT THE FISCAL CAPABILITY OF THE COMMUNITY(S)?
- WHAT BURDEN WILL THIS ACTION PLACE ON THE TAX BASE OR LOCAL ECONOMY?
- WHAT ARE THE BUDGET AND REVENUE EFFECTS OF THIS ACTIVITY?
- DOES THE ACTION CONTRIBUTE TO OTHER COMMUNITY GOALS, SUCH AS CAPITAL IMPROVEMENTS OR ECONOMIC DEVELOPMENT?
- WHAT BENEFITS WILL THE ACTION PROVIDE?

Environmental

- HOW WILL THE ACTION AFFECT THE ENVIRONMENT?
- WILL THE ACTION NEED ENVIRONMENTAL REGULATORY APPROVALS?
- WILL IT MEET LOCAL AND STATE REGULATORY REQUIREMENTS?

Table VII-1 — STAPLE/E Review And Selection Criteria For Alternatives
• Are endangered or threatened species likely to be affected?

The master grouping of alternatives the MAC chose from is included in the next section. These actions were then compiled into a master list that the MAC ranked in the original plan. The MAC used the same goals on a scale of 1 to 6 and the actions on a scale of 1 to 10, that we also used in the original plan. Ranking was done in order of relative priority based on the STAPLE/E criteria and the potential goal/action's ability to reduce vulnerability to natural hazards.

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.

Cumberland Plateau Planning District Commission Mitigation Actions

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.

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. August, 2013.

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. Will be completed by 2015.

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. To be completed by August, 2013.

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. Will be completed in 2014.

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: Within 2 years

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: Within 2 years

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.

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		Low

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

59 event(s) were reported in **Buchanan County, Virginia** between **01/01/2005** and **04/30/2011 (High Wind limited to speed greater than 0 knots).**

Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 VAZ003>004	02/27/2005	11:00 PM	Heavy Snow	N/A	0	0	0	**0**
2 VAZ003>004	03/01/2005	12:00 AM	Heavy Snow	N/A	0	0	0	0
3 Prater	05/13/2005	07:00 PM	Flash Flood	N/A	0	0	2K	**0**
4 Grundv	07/03/2005	03:00 PM	Tstm Wind	50 kts.	0	**0**	0	**0**
5 Home Creek	07/28/2005	07:30 PM	Flash Flood	N/A	0	**0**	5K	0
6 VAZ004	07/31/2005	08:50 PM	Flood	N/A	0	**0**	I OK	**0**
7 VAZ003>004	02/12/2006	12:00 AM	Heavy Snow	N/A	0	0	0	0
8 Thomas	04/03/2006	12:50 AM	Tstm Wind	50 kts.	0	0	IK	0
9 Hurley	04/15/2006	07:50 PM	Hail	0.75 in.	0	0	0	0
10 Grundv	07/14/2006	06:00 PM	Flash Flood	N/A	**0**	**0**	10K	**0**
11 Hurley	07/21/2006	09:37 PM	Tstm Wind	50 kts.	0	0	0	0
12 Grundy	07/21/2006	10:00 PM	Flash Flood	N/A	**0**	**0**	10K	0
13 Council	04/15/2007	03:00 AM	Flood	N/A	0	0	2K	OK
14 Grundv	06/05/2007	16:53 PM	Hail	0.75 in.	0	0	OK	OK
15VAZ003-004	08/01/2007	00:00 AM	Drought	N/A	0	0	OK	OK
16 Deskins	08/24/2007	14:50 PM	Hail	0.75 in.	0	0	OK	OK
17 Oakwood	08/25/2007	15:25 PM	Thunderstorm Wind	50 kts.	0	0	OK	OK
18VAZ003-004	09/01/2007	00:00 AM	Drought	N/A	0	0	OK	OK
19VAZ003-004	10/01/2007	00:00 AM	Drought	N/A	0	0	OK	OK
20 VAZ003 - 004	11/01/2007	00:01 AM	Drought	N/A	0	0	OK	OK
21 VAZ003-004	12/01/2007	00:00 AM	Drought	N/A	0	0	OK	OK
22 VAZ003 - 004	01/01/2008	00:00 AM	Drought	N/A	0	0	OK	OK
23 VAZ003 - 004	02/01/2008	00:00 AM	Drought	N/A	0	0	OK	OK
24 VAZ003 - 004	02/26/2008	22:00 PM	Winter Weather	N/A	0	0	OK	OK

25 Hurley	07/22/2008	17:55 PM	Thunderstorm Wind	50 kts.	0	0	OK	OK
26 VAZ003 - 004	10/14/2008	00:00 AM	Drought	N/A	0	0	OK	OK
27 VAZ003 - 004	11/01/2008	00:01AM	Drought	N/A	0	0	OK	OK
28 VAZ003 - 004	12/01/2008	00:00 AM	Drought	N/A	0	0	OK	OK
29 VAZ003 - 004	02/03/2009	15:30 PM	Heavy Snow	N/A	0	0	OK	OK
30 Harmon Jet	02/11/2009	17:45 PM	Thunderstorm Wind	55 kts.	0	0	OK	OK
31 Hurley	02/11/2009	17:50 PM	Thunderstorm Wind	50 kts.	0	0	15K	OK
32 Vansant	05/08/2009	20:10 PM	Hail	1.75 in.	0	0	OK	OK
33 Big Rock	05/09/2009	05:00 AM	Flood	N/A	0	0	25K	OK
34 Hurley	06/14/2009	21:00 PM	Thunderstorm Wind	43 kts.	0	0	2K	OK
35 VAZ003 - 004	12/09/2009	10:00 AM	High Wind	50 kts.	0	0	10K	OK
36 VAZ003 - 004	12/18/2009	13:00 PM	Heavy Snow	N/A	0	0	2.0M	OK
37 VAZ004	01/29/2010	19:00 PM	Heavy Snow	N/A	0	0	OK	OK
38 Grundy	04/05/2010	16:37 PM	Hail	1.00 in.	0	0	OK	OK
39 Grundy	04/05/2010	16:45 PM	Hail	0.75 in.	0	0	OK	OK
40 Pilgrim Knob	05/14/2010	15:50 PM	Hail	1.00 in.	0	0	OK	OK
41 Pearly	06/03/2010	15:30 PM	Flood	N/A	0	0	15K	OK
42 Grundy	06/14/2010	12:30 PM	Thunderstorm Wind	50 kts.	0	0	2K	OK

43 Grundv	06/21/2010	16:30 PM	Lightning	N/A	0	0	2K	OK
44 Vansant	06/21/2010	16:40 PM	Thunderstorm Wind	50 kts.	0	0	3K	OK
45 Grundv	06/22/2010	19:05 PM	Thunderstorm Wind	50 kts.	0	0	IK	OK
46 Bie Rock	07/17/2010	19:50 PM	Flash Flood	N/A	0	0	10K	OK
47 Vansant	08/04/2010	18:20 PM	Thunderstorm Wind	50 kts.	0	0	IK	OK

48 Grundv	08/04/2010	18:25 PM	Thunderstorm Wind	50 kts.	0	0	10K	OK
49 VAZ003 - 004	12/12/2010	07:00 AM	Heavy Snow	N/A	0	0	5K	OK
50 VAZ003 - 004	12/15/2010	23:00 PM	Winter Storm	N/A	0	0	2K	OK
51 VAZ003-004	12/25/2010	00:00 AM	Winter Weather	N/A	0	0	OK	OK
52 VAZ003 - 004	01/06/2011	23:00 PM	Winter Weather	N/A	0	0	OK	OK
53 VAZ003 - 004	01/11/2011	16:00 PM	Winter Weather	N/A	0	0	OK	OK
54 VAZ003 - 004	02/09/2011	16:00 PM	Winter Weather	N/A	0	0	OK	OK
55 VAZ003 - 004	03/06/2011	06:00 AM	Winter Weather	N/A	0	0	OK	OK
56 Hurlev	03/23/2011	19:00 PM	Thunderstorm Wind	50 kts.	0	0	IK	OK
57 Maxie	04/09/2011	13:35 PM	Hail	2.00 in.	0	0	10K	OK
58 Grundv	04/09/2011	13:45 PM	Hail	2.00 in.	0	0	10K	OK
59 Grundv	04/09/2011	15:00 PM	Thunderstorm Wind	50 kts.	0	0	15K	OK
TOTALS:					0	0	2.179M	0

Event: Heavy Snow
Begin Date: 27 Feb 2005,11:00:00 PM EST Begin Location; Not Known
End Date: 28 Feb 2005,11:59:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $0.0
Damage:
Crop Damage: $ 0.0
Description:
Mixed rain and wet snow fell initially on the 28th, before changing to all snow showers during the evening hours of the 28th. Elevation dependent snow accumulations on the 28th were 1 to 3 inches. However, accumulating snow showers continued into the 2nd of March. This yielded storm total accumulations of 3 to 10 inches.

Event: Heavy Snow
Begin Date: 01 Mar 2005,12:00:00 AM EST Begin Location: Not Known
End Date: 02 Mar 2005, 08:00:00 AM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0 Damage:
Crop Damage: $ 0.0
Description:
Snow showers continued from Februaiy 28th. The total storm accumulations of 3 to 10 inches, were highly elevation dependent.

Event: Flash Flood
Begin Date: 13 May 2005, 07:00:00 PM EST
Begin Location: 1 Mile East of Prater
Begin 37°13'N/82°W LAT/LON:
End Date: 13 May 2005, 08:00:00 PM EST End Location: 1 Mile East South East of Prater
End LAT/LON: 37°13'N / 82°11'W Magnitude: 0 Fatalities: 0 Injuries: 0

Property $ 2.0K Damage:
Crop Damage: $ 0.0
Description:
Laurel Branch flooded and closed roads. The stream is a small run of the War Fork of the Russell Prater Creek.

Event: Tstm Wind
Begin Date: 03 Jul 2005, 03:00:00 PM EST
Begin Location: 2 Miles North East of Grundy
Begin 37°18N/82°04'W LAT/LON:
End Date: 03 Jul 2005, 03:00:00 PM EST End Location: 2 Miles North East of Grundy
End LAT/LON: 37°18'N / 82°04'W Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.0 Damage;
Crop Damage: $ 0.0
Description:
Trees were blown down along Slate Creek.

Event: Flash Flood
Begin Date: 28 Jul 2005, 07:30:00 PM EST Begin Location: Home Creek
Begin 37°21'N / 82°05'W LAT/LON:
End Date: 28 Jul 2005, 08:30:00 PM EST End Location: Thomas End LAT/LON: 37°21'N / 82°11'W Magnitude: 0
Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: S 0.0Description:
Nearly stationary thunderstorms dumped isolated 2 to 2.5 inches of rain on Home Creek in less than 2 hours. Route 650 was flooded, but no dwellings were damaged.

Event: Flood
Begin Date: 31 Jul 2005, 08:50:00 PM EST
Begin Location: Not Known
End Date: 31 Jul 2005,11:00:00 PM EST
Magnitude: 0
Fatalities: 0
Injuries: 0
Property S10.0K Damage:
Crop Damage: $0.0
Description:
Minor flooding was seen along Linn Camp Creek and Harry Branch of Dismal Creek. A few houses were damaged along Harry Branch.

Event: Heavy Snow
Begin Date: 12 Feb 2006,12:00:00 AM EST Begin Location: Not Known
End Date: 12 Feb 2006, 01:00:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: S 0.0
Description:
These 2 Virginia counties were on the western fringe of the heavy snow accumulations, associated with a developing coastal storm. The snow began around 2230E on Friday the 10th, then continued through the day on the llth, before transitioning into lingering snow showers during the daylight hours of Sunday, the 12th. Heavy snow criteria was reached overnight Saturday into Sunday morning. Snow accumulations of 4 to 8 inches were common. Yet, due to the warm ground, snow accumulations were highly elevation dependent. A few river valley locations had only 3 to 4 inches, while in contrast, some of the higher elevations had 10 to 12 inches of snow.

Event: Tstm Wind
Begin Date: 03 Apr 2006,12:50:00 AM EST
Begin Location: Thomas
Begin 37°21^{t}N/82°ll'W LAT/LON:
End Date: 03 Apr 2006,12:55:00 AM EST End Location: Grundy End LAT/LON: 37°17^{f}N / 82°06'W Magnitude: 50 Fatalities: 0 Injuries: 0 Property $ 1.0K Damage:
Crop Damage: $0.0

Description:
Scattered locations along Route 460 had trees or large branches blown down.

Event: Hail
Begin Date: 15 Apr 2006, 07:50:00 PM EST
Begin Location: Hurley
Begin 37°25'N/82°02'W LAT/LON:
End Date: 15 Apr 2006, 07:50:00 PM EST End Location: Hurley End LAT/LON: 37°25'N / 82°02'W Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property $ 0.0 Damage:
Crop Damage: $ 0.0
Description: None Reported

Event: Flash Flood
Begin Date: 14 Jul 2006, 06:00:00 PM EST
Begin Location: Grundy
End Date: 14 Jul 2006, 07:30:00 PM EST
End Location: Vansant Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 10.0K Damage:
Crop Damage: $0.0
Description:
An automatic rain gauge near Grundy measured 2.7 inches of rain in 1 hour, and about 3.5 inches in 3 hours. Some of the streams that flooded include Popular Creek and Little Prater Creek. Water was over roads and private bridges.

Event: Tstm Wind
Begin Date: 21 Jul 2006, 09:37:00 PM EST
Begin Location: Hurley
Begin 37°25'N / 82°02'W LAT/LON:
End Date: 21 Jul 2006, 09:37:00 PM EST End Location: Hurley End LAT/LON: 37°25'N / 82°02'W Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.0 Damage:
Crop Damage: S 0.0
Description:
Several trees were blown down.

Event: Flash Flood
Begin Date: 21 Jul 2006,10:00:00 PM EST
Begin Location: Grundy
End Date: 21 Jul 2006,11:00:00 PM EST
End Location: Grundy Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: S 0.0
Description:
Water from small streams got into a few homes along Route 460.

Event: Flood
Begin Date: 15 Apr 2007, 03:00:00 AM EST
Begin Location: Council
Begin 37°04N / 82°04'W LAT/LON:
End Date: 15 Apr 2007, 07:00:00 AM EST End Location: Hurley End LAT/LON: 37°25'N / 82°01'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Minor flooding on small streams occurred in scattered locations throughout the county.
EPISODE NARRATIVE: Rain begain early on Saturday the 14th, then diminished during the day on the 15th. The rain was associated with a storm system developing over the southeastern United States that would eventually become a major coastal storm. The 36 hour rain amounts were over 3 inches in a few locations. Some preliminary totals included 3.2 inches from Grundy, Hurley, and Breaks Interstate Park. John Flannagan Lake measured 3.1 inches. Nora had 2.9 inches. Roads were impassible for a time on the 15th due to water and rock slides. A 20 foot section of a road near McClure was washed out. County officials reported no dwellings were flooded in both

Dickeiison and Buchanan Counties.

Event: Hail
Begin Date: 05 Jun 2007,16:53:00 PM EST
Begin Location: 3 Miles North of Grundy
Begin 37°19N/82°06'W
LAT7LON:
End Date: 05 Jun 2007,16:53:00 PM EST
End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Thunderstorms moved across northern Buchanan County from Kentucky, well in advance of a cold front.

Event: Drought
Begin Date: 01 Aug 2007, 00:00:00 AM EST Begin Location: Not Known
End Date: 31 Aug 2007,23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: The hot month of August helped drought conditions expand east, to include portions of southwest Virginia. Clintwood had its driest August since records began there in 1963, with 1.4 inches of rain for the month.

Event: Hail
Begin Date: 24 Aug 2007,14:50:00 PM EST
Begin Location: Deskins
Begin 37°12'N / 82°06'W LAT/LON:
End Date: 24 Aug 2007,14:50:00 PM EST
End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0 Property $ 0.0K Damage:
CropDamage:$0.0K
Description:
EPISODE NARRATIVE: A thunderstorm pulsed to severe limits.

Event: Thunderstorm Wind
Begin Date: 25 Aug 2007,15:25:00 PM EST
Begin Location: Oakwood
Begin 37°13'N/82°00'W LAT/LON:
End Date: 25 Aug 2007,15:25:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Trees fell onto power lines. EPISODE NARRATIVE: A few thunderstorms formed in the afternoon instability.

.
Event: Drought
Begin Date: 01 Sep 2007, 00:00:00 AM EST Begin Location: Not Known
End Date: 30 Sep 2007, 23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Drought conditions continued and generally intensified. The monthly rainfall was mostly 1 to 1.5 inches. Some locations had even less. For example, John Flannagan Dam recorded only 0.78 inches of rain. By the end of the month, more farm ponds, small streams, and shallow wells were becoming dry.

Event: Drought
Begin Date: 01 Oct 2007, 00:00:00 AM EST Begin Location: Not Known
End Date: 31 Oct 2007, 23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0

Property S 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: Much above normal temperatures, during the 1st and 2nd weeks of the month, helped peak the severity of the drought. Shallow wells were going diy. Drilling companies were reportedly running 3 to 4 months behind schedule with their requests for drilling new wells or deepening existing wells. The smaller feeder streams and farm ponds were mostly diy. Wildlife, especially the deer, were being stressed by the continuation of the drought. Much needed and widespread rain finally arrived on the 23rd through the 25th. During the last week of the month, as colder air arrived and the autumn foliage was peaking, drought conditions began to ease.

Event: Drought
Begin Date: 01 Nov 2007, 00:01:00 AM EST Begin Location: Not Known
End Date: 30 Nov 2007, 23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Drought conditions continued through November. However, the monthly rainfall of 2 to 3 inches began to lessen the effects of the drought. Surface water flow increased.

Event: Drought
Begin Date: 01 Dec 2007, 00:00:00 AM EST Begin Location: Not Known
End Date: 31 Dec 2007, 23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Monthly precipitation was mostly 2.5 to 3.5 inches, or about an inch below normal. John Flannagan Lake measured only 1.8 inches, for one of the least amounts. As is typical during the winter months, surface water flow continued to improve. However, the D2 and D3 drought intensities lingered, as the heavier December precipitation remained further to the north. The cooperative observer at Clintwood measured only 33.25 inches for the entire year. For this Dickenson County community, 2007 was the driest year since records began in 1963.

Event: Drought
Begin Date: 01 Jan 2008, 00:00:00 AM EST Begin Location: Not Known
End Date: 31 Jan 2008, 23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Total monthly precipitation was mostly from 2.25 to 3.5 inches, or about 1 to 1.5 inches drier than the average. Grundy measured around 2.2 inches, while Clintwood had around 2.4 inches. Along Long Ridge of Sandy Ridge in southern Dickenson County, nearly 3.4 inches was observed. The south and southeast downslope wind off of Powell and Stone Mountains, including High Knob, helped reduce the totals for Dickenson County. The ongoing drought from 2007 lingered, with D2 and D3 intensities.

Event: Drought
Begin Date: 01 Feb 2008, 00:00:00 AM EST
Begin Location: Not Known
End Date: 23 Feb 2008, 07:00:00 AM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: The waning drought from 2007, saw its classification improve out of the D2 categoiy during the month. Near normal precipitation amounts of 2.5 to 3.5 inches were common.

Event: Winter Weather
Begin Date: 26 Feb 2008, 22:00:00 PM EST Begin Location: Not Known
End Date: 28 Feb 2008, 04:00:00 AM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.OK
Description:

EPISODE NARRATIVE: In the wake of a low pressure storm system, upslope snow showers started during Tuesday night, the 26th, and continued into Thursday, the 28th. Deep moisture was in place with cloud tops to 10,000 feet, along with cyclonic flow. Accumulations of 2 to 4 inches were common across Buchanan and Dickenson Counties.

Event: Thunderstorm Wind
Begin Date: 22 Jul 2008,17:55:00 PM EST
Begin Location: Hurley
Begin 37°25'N/82°01'W LAT/LON:
End Date: 22 Jul 2008,17:55:00 PM EST End Location: Not Known Magnitude; 50 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Trees fell across roads. EPISODE NARRATIVE: Convection initiated during the late afternoon hours ahead of a mesoscale feature in Kentucky. The storms moved east into Virginia during the early evening hours. Bowing segments helped produce wind damage.

Event: Drought
Begin Date: 14 Oct 2008, 00:00:00 AM EST Begin Location: Not Known
End Date: 31 Oct 2008,23:59:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Drought conditions slowly intensified during the late summer and into the autumn. The drought classification reached D2 by mid October across Buchanan and Dickenson Counties. October rainfall was mostly 1.5 to 1.9 inches. Many small headwater streams or runs were not flowing. In the Birchleaf area of Dickenson County, springs were dry. Some of those springs were used to fill storage tanks for drinking water.

Event: Drought
Begin Date: 01 Nov 2008, 00:01:00 AM EST Begin Location: Not Known
End Date: 30 Nov 2008, 23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: November was not a wet month, with most monthly precipitation totals around 2.5 inches. Yet, with the vegetation now dormant, the surface water supply began to improve during the later half of the month. The rains during the middle of the month, plus the cold and light snows toward the end of November aided in this gradual improvement. However, the drought classification remained in the D2 categoiy for the month of November.

Event: Drought
Begin Date: 01 Dec 2008, 00:00:00 AM EST Begin Location: Not Known
End Date: 11 Dec 2008,12:00:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: A major precipitation event from late on the 9th through the 11th brought 2.5 to 3.5 inches of rain. The storm ended as a coating of snow late on the 11th into the morning of the 12th. The lingering effects of the late summer and autumn drought ended across Buchanan and Dickenson Counties with this event. As a result, the D2 drought classification also ended. For the whole month of December, precipitation totals were mostly between 4 and 5.5 inches.

Event: Heavy Snow
Begin Date: 03 Feb 2009,15:30:00 PM EST Begin Location: Not Known
End Date: 04 Feb 2009,17:00:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: A strong upper air disturbance triggered a relatively small but heavy band of snow. The snow moved east and southeast, out of Kentucky and into southwest Virginia, during the afternoon of the 3rd. Late that night and during the daylight hours of the 4th, lingering snow showers in the colder air added an additional fluffy

accumulation. Total snow accumulations of 4 to 8 inches were common.

Event: Thunderstorm Wind
Begin Date: 11 Feb 2009,17:45:00 PM EST
Begin Location: Harmon Jet
Begin 37°19'N / 82°10'W LAT7LON:
End Date: 11 Feb 2009,17:45:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Trees were blown down. EPISODE NARRATIVE: A strong low pressure center tracked from Missouri to Michigan. Meanwhile, its associated upper level trough pushed a cold front through far western Virginia near sunset. A fast moving band of rain, along and immediately ahead of the front, featured a narrow line of embedded showers. These convective showers helped mix down the winds that were located at 4 to 6 thousand feet above the ground. Surface wind gusts of 55 to 60 mph were common.

Event: Thunderstorm Wind
Begin Date: 11 Feb 2009,17:50:00 PM EST
Begin Location: Hurley
Begin 37°25'N/82°01'W LAT/LON:
End Date: 11 Feb 2009,17:50:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property S15.0K Damage:
Crop Damage: $ O.0K
Description:
EVENT NARRATIVE: Trees fell onto power lines. EPISODE NARRATIVE: A strong low pressure center tracked from Missouri to Michigan. Meanwhile, its associated upper level trough pushed a cold front through far western Virginia near sunset. A fast moving band of rain, along and immediately ahead of the front, featured a narrow line of embedded showers. These convective showers helped mix down the winds that were located at 4 to 6 thousand feet above the ground. Surface wind gusts of 55 to 60 niph were common.

Event: Hail
Begin Date: 08 May 2009,20:10:00 PM EST
Begin Location: 5 Miles West of Vansant
Begin 37°13'N/820lltW LAT/LON:
End Date: 08 May 2009,20:10:00 PM EST End Location: Not Known Magnitude: 1.75 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: A large thunderstorm complex moved from eastern Kentucky into West Virginia during the late afternoon on the 8th. In the wake of that feature, a strong upper air disturbance helped refire convection over southern Kentucky. Those thunderstorms moved east into far western Virginia just after dark. The upper air feature helped obtain rotation in the storms. An EFO tornado touched down just north of Clintwood with mainly tree damage. This was only the second recorded tornado for Dickenson County since 1950. The other was during the April 1974 outbreak. The storms lost their rotation later that evening, but a narrow broken train of showers and thunderstorms continued to roll east out of Kentucky and into southern West Virginia after midnight. This activity brushed Buchanan County. Northern Buchanan County received 1.75 to 2 inches of rain on a relatively wet ground. Small stream floodng was reported during the early monring hours of May 9th, but the severity was much less, compared to nearby counties in Kentucky and West Virginia.

Event: Flood
Begin Date: 09 May 2009, 05:00:00 AM EST
Begin Location: 2 Miles West South West of Big Rock
Begin 37°20'N/82°13'W LAT/LON:
End Date: 09 May 2009,12:00:00 PM EST End Location: 7 Miles North East of Kelsa End LAT/LON: 37°31fN / 81°58'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 25.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Small stream flooding, along with debris and mud slides, occurred along Route 643 and Knox Creek. EPISODE NARRATIVE: A large thunderstorm complex moved from eastern Kentucky into West Virginia during the late afternoon on the 8th. In the wake of that feature, a strong upper air disturbance helped refire convection over southern Kentucky. Those thunderstorms moved east into far western Virginia just after dark. The upper air feature helped obtain rotation in the storms. An EF0 tornado touched down just north of Clinrwood with mainly tree damage. This was only the second recorded tornado for Dickenson County since 1950. The other was during the April 1974 outbreak. The storms lost their rotation later that evening, but a narrow broken train of showers and thunderstorms continued to roll east out of Kentucky and into southern West Virginia after midnight. This activity brushed Buchanan County. Northern Buchanan County received 1.75 to 2 inches of rain on a relatively wet ground. Small stream floodng was reported during the early monring hours of May 9th, but the severity was much less, compared to nearby counties in Kentucky and West Virginia.

Event: Thunderstorm Wind
Begin Date: 14 Jun 2009, 21:00:00 PM EST
Begin Location: 1 Mile North of Hurley
Begin 37°26N/82°01'W LATYLON:
End Date: 14 Jun 2009, 21:30:00 PM EST End Location: 1 Mile East South East of Hurley
End LAT/LON: 37°24'N / 82°00'W Magnitude: 43 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: S O.0K
Description:
EVENT NARRATIVE: Winds of 40 to 50 mph caused some tree limbs to block roads in the Hurley vicinity.
EPISODE NARRATIVE: A storm pulsed to stronger levels during the late evening of the 14th in northern Buchanan County.

Event: High Wind
Begin Date: 09 Dec 2009,10:00:00 AM EST Begin Location: Not Known
End Date: 09 Dec 2009,17:00:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property S 10.0K Damage:
Crop Damage: $ 0.0KDescription:
EVENT NARRATIVE: Trees and large branches fell in scattered locations throughout the county. A fallen tree damaged a structure in Grundy. Electricity was out in about half the county. EPISODE NARRATIVE: After widespread rains, a strengthening low pressure system lifted northeast, through Michigan. Its central barometric pressure dropped below 29 inches of mercury. With cooling aloft and surface temperatures still in the 50s, surface winds increased during the late morning and continued through the afternoon. Wind gusts of 45 to 60 mph were common.

Event: Heavy Snow
Begin Date: 18 Dec 2009,13:00:00 PM EST Begin Location: Not Known
End Date: 19 Dec 2009,15:00:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 2.0M Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Ten single family homes had major damage in Dickenson County, while 17 homes had minor damage. Two mobile homes were destroyed. EPISODE NARRATIVE: Dickenson and Buchanan Counties were hit hard by heavy wet snow associated with a storm that moved out of the eastern Gulf of Mexico and across southern Georgia late Friday, the 18th. The storm then moved off the North Carolina coast early on the 19th. The precipitation started as rain in the river valleys during the early afternoon of the 18th, then switched over to heavy wet snow for the late afternoon and evening hours. The heavy wet snow was described as like walking in cement with huge flakes falling. Roads over the higher terrain quickly became impassible. Tree limbs began to snap when snow accumulations reached around 4 inches. By 1900E on the 18th, Nora on Long Ridge in Dickenson County already had a 7 inch accumulation. By 2000E, Clintwood measured 8 inches. By midnight, the heaviest snow rates were over, but less intense snow continued to fall until the afternoon on the 19th. The total snow accumulations from the storm were just 5 to 7 inches along some of the river valleys, such as near Grundy. Near Clintwood, the snow accumulation was 11 inches. However, amounts of 1 to 2 feet of snow were measured above 2000 feet. For example, Nora measured 16 inches. Governor Kaine declared a state of emergency for the entire Commonwealth. The pop, cracks, crashes, and boom sounds were heard as numerous tree branches and even whole trees fell to the ground. The worst impact of the storm, was the fact that the electricity was out for most residents for several days, including Christmas. Some residents had to wait almost until New Years Eve for their electricity to be restored. Refrigerated food was lost. The American Red Cross had shelters in Clintwood and Grundy.

Event: Heavy Snow
Begin Date: 29 Jan 2010,19:00:00 PM EST
Begin Location: Not Known
End Date: 30 Jan 2010,18:00:00 PM EST
Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: With low pressure well to the south and temperatures in the 20s, a dry snow accumulated from Friday evening the 29th, into Saturday the 30th. The heaviest snow rates were observed during the predawn hours on the 30th. Snow accumulations of 6 to 8 inches were common across both Dickenson and Buchanan Counties.

Event: Hail
Begin Date: 05 Apr 2010,16:37:00 PM EST
Begin Location: Grundy
Begin 37°16'N/82°06W LAT/LON:
End Date: 05 Apr 2010,16:37:00 PM EST End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: After temperatures reached into the 70s, along with dew points

near 60, showers and thunderstorms formed by late afternoon near a warm front.

Event: Hail
Begin Date: 05 Apr 2010,16:45:00 PM EST
Begin Location: Grundy
Begin 37°16'N / 82°06'W LAT/LON:
End Date: 05 Apr 2010,16:45:00 PM EST End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: After temperatures reached into the 70s, along with dew points
near 60, showers and thunderstorms formed by late afternoon near a warm front.

Event: Hail
Begin Date: 14 May 2010,15:50:00 PM EST Begin Location: Pilgrim Knob
Begin 37°15'N/81°55'W LAT/LON:
End Date: 14 May 2010,15:50:00 PM EST
End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: Short lines and clusters of thunderstorms formed ahead of a cold
front. Large hail occurred from the strongest storms during the late afternoon.

Event: Flood
Begin Date: 03 Jun 2010,15:30:00 PM EST
Begin Location: Pearly
Begin 37°16N/82°09W LAT/LON:
End Date: 03 Jun 2010,16:15:00 PM EST End Location: 3 Miles North West of Prater
End LAT/LON: 37°15'N / 82°14'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 15.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Between Vansant and the Diekenson County border, several roads were flooded by streams feeding into Russell Prater Creek. EPISODE NARRATIVE: A short line of heavy rain from thunderstorms trained west to east across eastern Diekenson County into western Buchanan County between 1430 and 1530E on the 3rd. Rain amounts of around 3 inches were likely from near Haysi to near Vicey and Prater.

Event: Thunderstorm Wind
Begin Date: 14 Jun 2010,12:30:00 PM EST
Begin Location: 1 Mile East of Grundy
Begin 37°16'N/82°09W
LAT/LON:
End Date: 14 Jun 2010,12:30:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Trees were blown down along Slate Creek Road. EPISODE
NARRATIVE: Thunderstorms pulsed briefly to severe Hmits during the afternoon.

Event: Lightning
Begin Date: 21 Jun 2010,16:30:00 PM EST
Begin Location: 1 Mile East South East of Grundy
Begin 37°16'N/82°05'W LAT/LON:
End Date: 21 Jun 2010,16:30:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: A transformer was hit along New House Road. EPISODE NARRATIVE: A mesoscale convective complex dropped southeast during peak heating through southwestern West Virginia and into Virginia.

Event: Thunderstorm Wind
Begin Date: 21 Jun 2010,16:40:00 PM EST
Begin Location: Vansant
Begin 37°13'N/82°06'W LAT/LON:
End Date: 21 Jun 2010,16:40:00 PM EST End Location: Mt Heron End LAT/LON: 37°10'N / 82°00'W Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 3.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Trees were blown down, blocking roads. EPISODE NARRATIVE: A mesoscale coiivective complex dropped southeast during peak heating through southwestern West Virginia and into Virginia.

Event: Thunderstorm Wind
Begin Date: 22 Jun 2010,19:05:00 PM EST
Begin Location: Grundy
Begin 37°16'N / 82°06'W LAT/LON:
End Date: 22 Jun 2010,19:05:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 1.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Trees were blown down onto roads. EPISODE NARRATIVE: Daytime heating and plenty of low level moisture helped form some late afternoon and evening thunderstorms in eastern Kentucky. They moved into Virginia and briefly pulsed to stronger levels.

Event: Flash Flood
Begin Date: 17 Jul 2010,19:50:00 PM EST
Begin Location: Big Rock
Begin 37°21N/82°12'W
LAT/LON:
End Date: 17 Jul 2010, 21:00:00 PM EST End Location: 1 Mile South West of Slate
End LAT/LON: 37°18lN / 81°59'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Streams around Big Rock, Harman and Grundy overflowed onto roads. One such example was Slate Creek flowing onto Route 83. Mudslides were also common. Grundy measured 2.44 inches of rain. EPISODE NARRATIVE: With the afternoon heating, convection formed on boundaries leftover from morning showers and thunderstorms.

Event: Thunderstorm Wind
Begin Date: 04 Aug 2010,18:20:00 PM EST
Begin Location: Vansant
Begin 37°13'N/82°06'W LAT/LON:
End Date: 04 Aug 2010,18:20:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 1.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Large branches were broken. EPISODE NARRATIVE: A thunderstorm complex formed in Ohio and intensified in southern West Virginia. This complex reached Virginia during the evening hours.

Event: Thunderstorm Wind
Begin Date: 04 Aug 2010,18:25:00 PM EST
Begin Location: Grundy
Begin 37°16'N/82°06'W LAT/LON:
End Date: 04 Aug 2010,18:25:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Trees fell onto power lines, resulting in electric outages. EPISODE NARRATIVE: A thunderstorm complex formed in Ohio and intensified in southern West Virginia. This complex reached Virginia

during the evening hours.

Event: Heavy Snow
Begin Date: 12 Dec 2010, 07:00:00 AM EST Begin Location: Not Known
End Date: 13 Dec 2010, 23:00:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 5.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: In the wake of a strong cold front, much colder air blew in during Sunday the 12th. Rain changed to snow early that morning. Banded upslope snow showers persisted into Monday evening the 13th, then diminished overnight. Accumulations of 6 to 10 inches were widespread across Dickenson and Buchanan Counties. Blowing snow occurred across the ridges on the 13th with temperatures only 10 to 15 degrees. Around 2000 customers were without electricity in Dickenson County on the 13th.

Event: Winter Storm
Begin Date: 15 Dec 2010, 23:00:00 PM EST Begin Location: Not Known
End Date: 16 Dec 2010,13:00:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: A strong warm air advection pattern developed as a weak surface low pressure tracked east from Arkansas to southwest Virginia. Snow accumulated 1 to 3 inches in Buchanan and Dickenson Counties then changed to freezing rain early on Thursday morning the 16th. A quarter to a half inch of ice accumulated before changing to light rain. The light rain diminished that Thursday afternoon.

Event: Winter Weather
Begin Date: 25 Dec 2010, 00:00:00 AM EST Begin Location: Not Known
End Date: 27 Dec 2010, 08:00:00 AM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Light snow fell early on Christmas morning. A uniform 1 to 2 inches of snow accumulated. After a lull Christmas afternoon, snow showers increased Christmas night. The snow showers became most widespread during the afternoon and evening hours of the 26th. This increase was in response to a developing coastal storm and its associated mid level support. The snow showers decreased by the morning hours of the 27th. An additional accumulation of 3 to 6 inches of fluffy dry snow was common over about a 36 hour period. However, in the highest elevations, a 36 hour snow accumulation of 6 to 10 inches was measured.

Event: Winter Weather
Begin Date: 06 Jan 2011, 23:00:00 PM EST Begin Location: Not Known
End Date: 08 Jan 2011,23:00:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Several rounds of snow showers were associated with the arrival of colder air from late Thursday evening the 6th into Saturday evening the 8th. The snow showers were the heaviest overnight Friday night, which was late on the 7th into the early hours of the 8th. The old December snow pack had mostly melted by New Years Day. This 48 hour episode brought new snow accumulations of 3 to 7 inches.

Event: Winter Weather
Begin Date: 11 Jan 2011,16:00:00 PM EST Begin Location: Not Known
End Date: 13 Jan 2011, 06:00:00 AM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: Colder air blew in during the overnight period of the 11th into the 12th. Snow showers continued into the early hours of the 13th. Snow accumulations were mostly 2 to 6 inches. Clintwood snow depth increased from 4 inches prior to the event to 9 inches. Nora had their snow depth increase from 3 inches to 8 inches. However, Grundy only saw their snow depth increase from 1 inch to 3 inches.

Event: Winter Weather
Begin Date: 09 Feb 2011,16:00:00 PM EST Begin Location: Not Known
End Date: 10 Feb 2011, 01:00:00 AM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: Buchanan and Dickenson Counties were on the northern fringe of the deeper moisture associated with a southern storm track. Snow accumulated only 2 to 4 inches. However, air temperatures were well below freezing. Road surfaces were also cold. Untreated surfaces were quickly coated, causing hazardous travel during the evening of the 9th.

Event: Winter Weather
egin Date: 06 Mar 2011, 06:00:00 AM EST Begin Location: Not Known
End Date: 06 Mar 2011,16:00:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: Rain amounts of over an inch were common late on Saturday the 5th. A strong cold front came through during the predawn hours of Sunday the 6th. A few hours in the wake of the surface front, the rain changed to wet snow. Snow accumulations were highly dependent on elevations. Snow accumulations ranged from an inch or 2 along the river valleys to around 4 inches above 2500 feet.

Event: Thunderstorm Wind
Begin Date: 23 Mar 2011,19:00:00 PM EST
Begin Location: Hurley
Begin 37°25N/82°01W LAT/LON:
End Date: 23 Mar 2011,19:00:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property S 1.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Trees were blown down. EPISODE NARRATIVE: This was a synoptic scale event. A strong north to south temperature gradient existed along the Interstate 70 corridor in Ohio. Low pressure moved out of Illinois in the morning, reaching western Pennsylvania by evening. Individual thunderstorm cells developed in western Ohio and southern Indiana around midday. This batch of showers and thunderstorms matured and consolidated before reaching into Virginia in the evening.

Event: Hail
Begin Date: 09 Apr 2011,13:35:00 PM EST
Begin Location: Maxie
Begin 37°18N/82°01W
LAT/LON:
End Date: 09 Apr 2011,13:35:00 PM EST End Location: Not Known Magnitude: 2.00 inches Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: A mesoscale convective complex moved southeast out of Indiana across eastern Kentucky and into southern West Virginia and western Virginia. With ample moisture, instability, and lift, new storms formed ahead of the initial complex. Several of the leading cells showed signs of mid level rotation, but that rotation did not translate to the lower levels.

Event: Hail
Begin Date: 09 Apr 2011,13:45:00 PM EST
Begin Location: Grundy
Begin 37°16N/82°06W LAT/LON:
End Date: 09 Apr 2011,13:45:00 PM EST End Location: Not Known Magnitude: 2.00 inches Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: S0.0K

Description:
EPISODE NARRATIVE: A mesoscale convective complex moved southeast out of Indiana across eastern Kentucky and into southern West Virginia and western Virginia. With ample moisture, instability, and lift, new storms formed ahead of the initial complex. Several of the leading cells showed signs of mid level rotation, but that rotation did not translate to the lower levels.

Event: Thunderstorm Wind
Begin Date: 09 Apr 2011,15:00:00 PM EST
Begin Location: 4 Miles North West of Grundy
Begin 37°19'N / 82°09'W LAT/LON:
End Date: 09 Apr 2011,15:00:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 15.0K Damage:
Crop Damage: $ 0.0K
Description:EVENT NARRATIVE: Trees fell onto power lines. A roof to an abandoned building was ripped off. EPISODE NARRATIVE: A inesoscale convective complex moved southeast out of Indiana across eastern Kentucky and into southern West Virginia and western Virginia. With ample moisture, instability, and lift, new storms formed ahead of the initial complex. Several of the leading cells showed signs of mid level rotation, but that rotation did not translate to the lower levels.

56 event(s) were reported in **Dickenson County, Virginia** between **01/01/2005** and **04/30/2011 (High Wind limited to speed greater than 0 knots).**

Location or County	Date	Time	Type	Mag	Dth		PrD	CrD
1 VAZ003>004	02/27/2005	11:00 PM	Heavy Snow	N/A	0	0	0	0
2 VAZ003>004	03/01/2005	12:00 AM	Heavy Snow	N/A	0	0	0	0
3 Haysi	05/13/2005	02:25 PM	Hail	1.75 in.	0	0	0	0
4 Clintwood	05/13/2005	03:00 PM	Hail	1.00 in.	0	0	0	0
5 Clintwood	05/13/2005	06:30 PM	Flash Flood	N/A	0	0	20K	0
6 Blowine Rock	08/14/2005	05:40 PM	Tstm Wind	50 kts.	0	0	0	0
7 VAZ003>004	02/12/2006	12:00 AM	Heavy Snow	N/A	0	0	0	0
8 Nora	06/02/2006	03:45 PM	Tstm Wind	50 kts.	0	0	0	0
9 Clintwood	06/11/2006	04:49 PM	Hail	0.88 in.	0	0	0	0
lOBirchleaf	06/27/2006	06:15 AM	Flash Flood	N/A	0	0	2K	0
11 BirchLeaf	06/27/2006	06:30 PM	Flash Flood	N/A	0	0	100K	0
12McClure	04/15/2007	03:00 AM	Flood	N/A	0	0	10K	OK
13 Clintwood	06/15/2007	13:35 PM	Hail	1.75 in.	0	0	OK	OK
14VAZ003-004	08/01/2007	00:00 AM	Drought	N/A	0	0	OK	OK
15 Nealv Ridse	08/03/2007	16:50 PM	Hail	1.75 in.	0	0	OK	OK

16Nealv Ridge	08/03/2007	16:50 PM	Thunderstorm Wind	50 kts.	0	0	OK	OK
17VAZ003-004	09/01/2007	00:00 AM	Drought	N/A	0	0	OK	OK
18 VAZ003-004	10/01/2007	00:00 AM	Drought	N/A	0	0	OK	OK
19VAZ003-004	11/01/2007	00:01 AM	Drought	N/A	0	0	OK	OK
20 VAZ003 - 004	12/01/2007	00:00 AM	Drought	N/A	0	0	OK	OK
21 VAZ003-004	01/01/2008	00:00 AM	Drought	N/A	0	0	OK	OK
22 VAZ003 - 004	02/01/2008	00:00 AM	Drought	N/A	0	0	OK	OK
23 VAZ003 - 004	02/26/2008	22:00 PM	Winter Weather	N/A	0	0	OK	OK
24 VAZ003 - 004	10/14/2008	00:00 AM	Drought	N/A	0	0	OK	OK
25 VAZ003 - 004	11/01/2008	00:01 AM	Drought	N/A	0	0	OK	OK
26 VAZ003 - 004	12/01/2008	00:00 AM	Drought	N/A	0	0	OK	OK
27 VAZ003 - 004	02/03/2009	15:30 PM	Heavy Snow	N/A	0	0	OK	OK
28 Clintwood	02/11/2009	17:45 PM	Thunderstorm Wind	52 kts.	0	0	15K	OK
29 Isom	05/08/2009	20:00 PM	Tornado	F0	0	0	5K	OK
30 Baden	06/04/2009	15:55 PM	Flash Flood	N/A	0	0	10K	OK
31 Russell Mart	06/17/2009	11:30 AM	Flash Flood	N/A	0	0	25K	OK
32 Havsi	06/17/2009	16:00 PM	Flash Flood	N/A	0	0	10K	OK
33 Clinchco	09/08/2009	16:19 PM	Hail	1.00 in.	0	0	OK	OK
34 VAZ003 - 004	12/09/2009	10:00 AM	High Wind	50 kts.	0	0	10K	OK
35VAZ003-004	12/18/2009	13:00 PM	Heavy Snow	N/A	0	0	2.0M	OK
36 VAZ003	12/25/2009	05:00 AM	High Wind	50 kts.	0	0	5K	OK
37 VAZ003	01/29/2010	18:00 PM	Heavy Snow	N/A	0	0	OK	OK
38 Clintwood	05/14/2010	16:15 PM	Hail	1.00 in.	0	0	OK	OK
39Birchleaf	05/14/2010	16:36 PM	Thunderstorm Wind	50 kts.	0	0	OK	OK
40 Trammel Gap	05/28/2010	14:50 PM	Hail	1.00 in.	0	0	OK	OK
41 Splashdam	06/03/2010	15:30 PM	Flash Flood	N/A	0	0	10K	OK
42 Clinchco	06/14/2010	12:30 PM	Thunderstorm Wind	50 kts.	0	0	2K	OK

43 Me Clure	06/21/2010	16:35 PM	Thunderstorm Wind	50 kts.	0	0	IK	OK
44 Honevcamp	08/05/2010	15:43 PM	Thunderstorm Wind	50 kts.	0	0	2K	OK
45 VAZ003 - 004	12/12/2010	07:00 AM	Heavy Snow	N/A	0	0	5K	OK
46 VAZ003 - 004	12/15/2010	23:00 PM	Winter Storm	N/A	0	0	2K	OK
47 VAZ003 - 004	12/25/2010	00:00 AM	Winter Weather	N/A	0	0	OK	OK
48 VAZ003 - 004	01/06/2011	23:00 PM	Winter Weather	N/A	0	0	OK	OK
49 VAZ003 - 004	01/11/2011	16:00 PM	Winter Weather	N/A	0	0	OK	OK
50 VAZ003 - 004	02/09/2011	16:00 PM	Winter Weather	N/A	0	0	OK	OK
51 VAZ003-004	03/06/2011	06:00 AM	Winter Weather	N/A	0	0	OK	OK
52 Blowing Rock	04/08/2011	17:13 PM	Hail	1.25 in.	0	0	OK	OK
53 Clintwood	04/08/2011	17:15 PM	Hail	1.00 in.	0	0	OK	OK
54 Clintwood	04/08/2011	23:15 PM	Hail	0.75 in.	0	0	OK	OK
55 Bartlick	04/09/2011	13:30 PM	Hail	0.88 in.	0	0	OK	OK
56 Clintwood	04/25/2011	15:45 PM	Hail	1.00 in.	0	0	OK	OK
				TOTALS:	0	0	2.234M	0

Event: Heavy Snow
Begin Date: 27 Feb 2005,11:00:00 PM EST Begin Location: Not Known
End Date: 28 Feb 2005,11:59:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: $ 0.0
Description:
Mixed rain and wet snow fell initially on the 28th, before changing to all snow showers during the evening hours of the 28th. Elevation dependent snow accumulations on the 28th were 1 to 3 inches. However, accumulating snow showers continued into the 2nd of March. This yielded storm total accumulations of 3 to 10 inches.

Event: Heavy Snow
Begin Date: 01 Mar 2005,12:00:00 AM EST Begin Location: Not Known
End Date: 02 Mar 2005, 08:00:00 AM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: $ 0.0
Description:
Snow showers continued from February 28th. The total storm accumulations of 3 to 10 inches, were highly elevation dependent.

Event: Hail
Begin Date: 13 May 2005, 02:25:00 PM EST
Begin Location: Haysi
Begin 37°13'N / 82°19'W LAT/LON:
End Date: 13 May 2005, 02:25:00 PM EST End Location: Haysi End LAT/LON: 37°13fN / 82°19fW Magnitude: 1.75 inches Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: $ 0.0
Description: None Reported

Event: Hail
Begin Date: 13 May 2005, 03:00:00 PM EST
Begin Location: Clintwood
Begin 37°09'N/82°28'W LAT/LON:
End Date: 13 May 2005, 03:00:00 PM EST End Location; Clintwood End LAT/LON: 37°09'N / 82°28'W Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: S 0.0
Description: None Reported

Event: Flash Flood
Begin Date: 13 May 2005, 06:30:00 PM EST Begin Location: Clintwood
Begin 37°09'N / 82°28'W LAT/LON:
End Date: 13 May 2005, 08:30:00 PM EST End Location: Haysi End LAT/LON: 37°13'N / 82°19'W Magnitude: 0 Fatalities: 0 Injuries: 0 Property S20.0K Damage:
Crop Damage: S 0.
Description:
Repetitive showers and thunderstorms dumped 1.9 to 3.5 inches of rain in the vicinity of Clintwood to Haysi and Birchleaf. A portion of Route 80 was damaged.

Event: Tstni Wind
Begin Date: 14 Aug 2005, 05:40:00 PM EST
Begin Location: Blowing Rock
Begin 37°14'N / 82°26'W LAT/LON:
End Date: 14 Aug 2005, 05:40:00 PM EST End Location: Blowing Rock End LAT/LON: 37°14'N / 82°26'W Magnitude: 50 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: $ 0.0
Description:
Several trees were blown down.

Event: Heavy Snow
Begin Date: 12 Feb 2006,12:00:00 AM EST
Begin Location: Not Known
End Date: 12 Feb 2006, 01:00:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: $ 0.0
Description:
These 2 Virginia counties were on the western fringe of the heavy snow accumulations, associated with a developing coastal storm. The snow began around 2230E on Friday the 10th, then continued through the day on the 11th, before transitioning into lingering snow showers during the daylight hours of Sunday, the 12th. Heavy snow criteria was reached overnight Saturday into Sunday morning. Snow accumulations of 4 to 8 inches were common. Yet, due to the warm ground, snow accumulations were highly elevation dependent. A few river valley locations had only 3 to 4 inches, while in contrast, some of the higher elevations had 10 to 12 inches of snow.

Event: Tstni Wind
Begin Date: 02 Jim 2006, 03:45:00 PM EST
Begin Location: 4 Miles South East of Nora
Begin 37°02'N/82°18'W LAT/LON:
End Date: 02 Jun 2006, 03:45:00 PM EST End Location: 4 Miles South East of Nora
End LAT/LON: 37°02'N / 82°18'W Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.0 Damage:
Crop Damage: S 0.0
Description:
Five apple trees were blown over and one Red Bud tree was split open along Sandy Ridge.

Event: Hail
Begin Date: 11 Jim 2006, 04:49:00 PM EST
Begin Location: Clintwood
Begin 37°09'N / 82°28'W LAT/LON:
End Date: 11 Jun 2006, 04:49:00 PM EST
End Location: Clintwood End LAT/LON: 37°09'N / 82°28'W Magnitude: 0.88 inches Fatalities: 0 Injuries: 0
Property $ 0.0 Damage:
Crop Damage: $ 0.0
Description: None Reported

Event: Flash Flood
Begin Date: 27 Jim 2006, 06:15:00 AM EST
Begin Location: Birchleaf
Begin 37°N/82°17W LAT/LON:
End Date: 27 Jun 2006, 07:30:00 AM EST End Location: Trammel End LAT/LON: 37°01'N / 82°18'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: $ 0.0
Description:
Small streams flooded Routes 80 and 63.
.
Event: Flash Flood
Begin Date: 27 Jun 2006, 06:30:00 PM EST
Begin Location: Birchleaf
Begin 37°N/82°17'W LAT/LON:
End Date: 27 Jun 2006, 09:00:00 PM EST
End Location: Clincheo End LAT/LON: 37°10'N / 82°22'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 100.0K Damage:
Crop Damage: S 0.0
Description:
Localized downpours trained over the Turner and Edwards Ridge vicinity between 1730 and 1900E. The ground was wet from previous rains. Rain estimates were on the order of 2 to 2.5 inches. Small streams flowing in different directions off the higher ridges briefly flooded. This included streams such as Road Branch, Turkey Branch, and Crooked Branch. One house along Road Branch sustained about $20,000 damage. Another home along Turkey Branch was damaged. Playground equipment and fencing were damaged at the elementary school along Crooked

Branch. Across this rugged terrain, mudslides affected several roads. Walk bridges were also damaged.

Event: Flood
Begin Date: 15 Apr 2007, 03:00:00 AM EST
Begin Location: Me Clure
Begin 37°06N/82°22W LAT7LON:
End Date: 15 Apr 2007, 07:00:00 AM EST End Location: Haysi End LAT/LON: 37°13'N / 82°19fW Magnitude: 0
Fatalities: 0 Injuries: 0
Property S 10.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Minor flooding of small streams was common during the early morning hours. EPISODE NARRATIVE: Rain begain early on Saturday the 14th, then diminished during the day on the 15th. The rain was associated with a storm system developing over the southeastern United States that would eventually become a major coastal storm. The 36 hour rain amounts were over 3 inches in a few locations. Some preliminary totals included 3.2 inches from Grundy, Hurley, and Breaks Interstate Park. John Flannagan Lake measured 3.1 inches. Nora had 2.9 inches. Roads were impassible for a time on the 15th due to water and rock slides. A 20 foot section of a road near McClure was washed out. County officials reported no dwellings were flooded in both Dickenson and Buchanan Counties.

Event: Hail
Begin Date: 15 Jun 2007,13:35:00 PM EST
Begin Location: 4 Miles South of Clintwood
Begin
LAT/LON:
End Date: 15 Jun 2007,13:35:00 PM EST
End Location: Not Known Magnitude: 1.75 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Golf ball size hail fell over Caney Ridge. EPISODE NARRATIVE: A few thunderstorms formed over southwest Virginia during the afternoon.

Event: Drought
Begin Date: 01 Aug 2007, 00:00:00 AM EST Begin Location: Not Known
End Date: 31 Aug 2007,23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0 Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: The hot month of August helped drought conditions expand east, to include portions of southwest Virginia. Clintwood had its driest August since records began there in 1963, with 1.4 inches of rain for the month.

Event: Hail
Begin Date: 03 Aug 2007,16:50:00 PM EST
Begin Location: Nealy Ridge
Begin 37°07'N/82°21W LAT/LON:
End Date: 03 Aug 2007,16:50:00 PM EST End Location: Not Known Magnitude: 1.75 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.OK
Description:
EVENT NARRATIVE: Hail as large as golfballs fell. EPISODE NARRATIVE: A thunderstorm developed near the Clintwood vicinity, then reached severe limits around Nealy Ridge.

Event: Thunderstorm Wind
Begin Date: 03 Aug 2007,16:50:00 PM EST
Begin Location: Nealy Ridge
Begin 37°07N/82°21W LAT/LON:
End Date: 03 Aug 2007,16:50:00 PM EST

End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Scattered locations along Routes 633 and 652 had trees blown down. EPISODE NARRATIVE: A thunderstorm developed near the Clintwood vicinity, then reached severe limits around Nealy Ridge.

Event: Drought
Begin Date; 01 Sep 2007, 00:00:00 AM EST Begin Location: Not Known
End Date: 30 Sep 2007,23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0KDescription:
EPISODE NARRATIVE: Drought conditions continued and generally intensified. The monthly rainfall was mostly 1 to 1,5 inches. Some locations had even less. For example, John Flannagan Dam recorded only 0.78 inches of rain. By the end of the month, more farm ponds, small streams, and shallow wells were becoming dry.

Event: Drought
Begin Date: 01 Oct 2007, 00:00:00 AM EST Begin Location: Not Known
End Date: 31 Oct 2007, 23:59:00 PM EST
End Location; Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Much above normal temperatures, during the 1st and 2nd weeks of the month, helped peak the severity of the drought. Shallow wells were going dry. Drilling companies were reportedly running 3 to 4 months behind schedule with their requests for drilling new wells or deepening existing wells. The smaller feeder streams and farm ponds were mostly dry. Wildlife, especially the deer, were being stressed by the continuation of the drought. Much needed and widespread rain finally arrived on the 23rd through the 25th. During the last week of the month, as colder air arrived and the autumn foliage was peaking, drought conditions began to ease.

Event: Drought
Begin Date: 01 Nov 2007, 00:01:00 AM EST Begin Location: Not Known
End Date: 30 Nov 2007, 23:59:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0KDescription:
EPISODE NARRATIVE: Drought conditions continued through November. However, the monthly rainfall of 2 to 3 inches began to lessen the effects of the drought. Surface water flow increased.

Event: Drought
Begin Date: 01 Dec 2007, 00:00:00 AM EST Begin Location: Not Known
End Date: 31 Dec 2007, 23:59:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Monthly precipitation was mostly 2.5 to 3.5 inches, or about an inch below normal. John Flannagan Lake measured only 1.8 inches, for one of the least amounts. As is typical during the winter months, surface water flow continued to improve. However, the D2 and D3 drought intensities lingered, as the heavier December precipitation remained further to the north. The cooperative observer at Clintwood measured only 33.25 inches for the entire year. For this Dickenson County community, 2007 was the driest year since records began in 1963.

Event: Drought
Begin Date: 01 Jan 2008, 00:00:00 AM EST Begin Location: Not Known
End Date: 31 Jan 2008, 23:59:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Total monthly precipitation was mostly from 2.25 to 3.5 inches, or about 1 to 1.5 inches drier than the average. Grundy measured around 2.2 inches, while Clintwood had around 2.4 inches. Along Long Ridge of Sandy Ridge in southern Dickenson County, nearly 3.4 inches was observed. The south and southeast downslope wind off of Powell and Stone Mountains, including High Knob, helped reduce the totals for Dickenson County. The ongoing drought from 2007 lingered, with D2 and D3 intensities.

Event: Drought
Begin Date: 01 Feb 2008, 00:00:00 AM EST Begin Location: Not Known
End Date: 23 Feb 2008, 07:00:00 AM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: The waning drought from 2007, saw its classification improve out of the D2 category during the month. Near normal precipitation amounts of 2.5 to 3.5 inches were common.

Event: Winter Weather
Begin Date: 26 Feb 2008, 22:00:00 PM EST Begin Location: Not Known
End Date: 28 Feb 2008, 04:00:00 AM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0KDescription:
EPISODE NARRATIVE: In the wake of a low pressure storm system, upslope snow showers started during Tuesday night, the 26th, and continued into Thursday, the 28th. Deep moisture was in place with cloud tops to 10,000 feet, along with cyclonic flow. Accumulations of 2 to 4 inches were common across Buchanan and Dickenson Counties.

Event: Drought
Begin Date: 14 Oct 2008, 00:00:00 AM EST Begin Location: Not Known
End Date: 31 Oct 2008, 23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: Drought conditions slowly intensified during the late summer and into the autumn. The drought classification reached D2 by mid October across Buchanan and Dickenson Counties. October rainfall was mostly 1.5 to 1.9 inches. Many small headwater streams or runs were not flowing. In the Birchieaf area of Dickenson County, springs were dry. Some of those springs were used to fill storage tanks for drinking water.

Event: Drought
Begin Date; 01 Nov 2008, 00:01:00 AM EST Begin Location: Not Known
End Date: 30 Nov 2008, 23:59:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: November was not a wet month, with most monthly precipitation totals around 2.5 inches. Yet, with the vegetation now dormant, the surface water supply began to improve during the later half of the month. The rains during the middle of the month, plus the cold and light snows toward the end of November aided in this gradual improvement. However, the drought classification remained in the D2 category for the month of November.

Event: Drought
Begin Date: 01 Dec 2008, 00:00:00 AM EST Begin Location: Not Known
End Date: 11 Dec 2008,12:00:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: A major precipitation event from late on the 9th through the 11th brought 2.5 to 3.5 inches of rain. The storm ended as a coating of snow late on the 11th into the morning of the 12th. The lingering effects of the late summer and autumn drought ended across Buchanan and Dickenson Counties with this event. As a result, the D2 drought classification also ended. For the whole month of December, precipitation totals were mostly between 4 and 5.5 inches.

Event: Heavy Snow
Begin Date: 03 Feb 2009,15:30:00 PM EST Begin Location: Not Known
End Date: 04 Feb 2009,17:00:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0KDescription:
EPISODE NARRATIVE: A strong upper air disturbance triggered a relatively small but heavy band of snow. The snow moved east and southeast, out ofKentueky and into southwest Virginia, during the afternoon of the 3rd. Late that night and during the daylight hours of the 4th, lingering snow showers in the colder air added an additional fluffy accumulation. Total snow accumulations of 4 to 8 inches were common.
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Event: Thunderstorm Wind
Begin Date: 11 Feb 2009,17:45:00 PM EST
Begin Location: Clintwood
Begin 37°09'N / 82°28'W LAT/LON:
End Date: 11 Feb 2009,17:45:00 PM EST
End Location: Not Known Magnitude: 52 Fatalities: 0 Injuries: 0
Property $ 15.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Trees fell onto power lines. EPISODE NARRATIVE: A strong low pressure center tracked from Missouri to Michigan. Meanwhile, its associated upper level trough pushed a cold front through far western Virginia near sunset. A fast moving band of rain, along and immediately ahead of the front, featured a narrow line of embedded showers. These convective showers helped mix down the winds that were located at 4 to 6 thousand feet above the ground. Surface wind gusts of 55 to 60 mph were common.

Event: Tornado
Begin Date: 08 May 2009, 20:00:00 PM EST
Begin Location: 1 Mile North West oflsom
Begin 37°11'N/82°28'W LAT/LON:
End Date: 08 May 2009, 20:03:00 PM EST End Location: 1 Mile North of Isom
End LAT/LON: 37°ll[f]N / 82°28'W Length: 1.00 Mile Width: 100 Yards Magnitude: F0 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage: Crop Damage: S0.0K
Description:
EVENT NARRATIVE: An EF0 tornado touch down intermittently along its path just north of Clintwood. Its path started near Fairview Road then ended after passing Bear Pen Road. Trees were uprooted. One tree fell on a mobile home. Two other homes had minor roof damage. There were no injuries or deaths. EPISODE NARRATIVE: A large thunderstorm complex moved from eastern Kentucky into West Virginia during the late afternoon on the 8th. In the wake of that feature, a strong upper air disturbance helped refire convection over southern Kentucky. Those thunderstorms moved east into far western Virginia just after dark. The upper air feature helped obtain rotation in the storms. An EF0 tornado touched down just north of Clintwood with mainly tree damage. This was only the second recorded tornado for Dickenson County since 1950. The other was during the April 1974 outbreak. The storms lost their rotation later that evening, but a narrow broken train of showers and thunderstorms continued to roll east out of Kentucky and into southern West Virginia after midnight. This activity brushed Buchanan County. Northern Buchanan County received 1.75 to 2 inches of rain on a relatively wet ground. Small stream floodng was reported during the early morning hours of May 9th, but the severity was much less, compared to nearby counties in Kentucky and West Virginia.

Event: Flash Flood
Begin Date: 04 Jun 2009,15:55:00 PM EST
Begin Location: Baden
Begin 37°07'N/82°31'W LAT/LON:
End Date: 04 Jun 2009,16:55:00 PM EST End Location: 1 Mile North West of Norland
End LAT/LON: 37°10'N / 82°32'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Localized downpours of 1 to 2 inches fell in less than an hour. The area was wet from rains of the previous day. Water flowed off hillsides and carried debris onto roads. Georges Fork flooded Route 83 near the mouth of Cooks Fork. EPISODE NARRATIVE: A cold front was sinking south through Kentucky and southwest Virginia on the 4th. Slow moving thunderstorms formed across Kentucky and moved through Dickenson County late in the afternoon.

Event: Flash Flood
Begin Date: 17 Jun 2009,11:30:00 AM EST
Begin Location: Russell Mart
LAT/LON:
End Date: 17 Jun 2009,13:30:00 PM EST End Location: 1 Mile South West of Isom
End LAT/LON: 37°10'N / 82°28'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 25.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Rains of 1 to 2 inches fell over wet soils during the late morning into the early afternoon, causing small streams to flood roads. EPISODE NARRATIVE: A frontal boundary ran from central Indiana, on southeast, across southeast Kentucky and into southwest Virginia. Clusters of showers and thunderstorms rode southeast along this boundary.

Event: Flash Flood
Begin Date: 17 Jun 2009,16:00:00 PM EST
Begin Location: Haysi
Begin 37°13'N/82°19'W LATYLON:
End Date; 17 Jun 2009,16:30:00 PM EST
End Location: 1 Mile West North West of Georges Fork
End LAT/LON: 37°09'N / 82°31'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Another round of showers and thunderstorms moved through during the late afternoon. This caused minor stream flooding. Some of the same roads that were blocked earlier in the day, were flooded again. EPISODE NARRATIVE: A frontal boundary ran from central Indiana, on southeast, across southeast Kentucky and into southwest Virginia. Clusters of showers and thunderstorms rode southeast along this boundary.

Event; Hail
Begin Date: 08 Sep 2009,16:19:00 PM EST
Begin Location: 2 Miles South West of Clinchco
Begin 37°09'N / 82°24'W LAT/LON:
End Date: 08 Sep 2009,16:19:00 PM EST End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: A slow moving upper air low pressure caused freezing levels to lower. A thunderstorm pulsed briefly to severe limits.

Event: High Wind
Begin Date: 09 Dec 2009,10:00:00 AM EST Begin Location: Not Known
End Date: 09 Dec 2009,17:00:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: $ 0.0KDescription:
EVENT NARRATIVE: Trees and large branches fell in scattered locations throughout the county. A fallen tree damaged a structure in Grundy. Electricity was out in about half the county. EPISODE NARRATIVE: After widespread rains, a strengthening low pressure system lifted northeast, through Michigan. Its central barometric pressure dropped below 29 inches of mercury. With cooling aloft and surface temperatures still in the 50s, surface winds increased during the late morning and continued through the afternoon. Wind gusts of 45 to 60 inph were common.

Event: Heavy Snow
Begin Date: 18 Dec 2009,13:00:00 PM EST Begin Location: Not Known
End Date: 19 Dec 2009,15:00:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 2.0M Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Ten single family homes had major damage in Dickenson County, while 17 homes had minor damage. Two mobile homes were destroyed. EPISODE NARRATIVE: Dickenson and Buchanan Counties were hit hard by heavy wet snow associated with a storm that moved out of the eastern Gulf of Mexico and across southern Georgia late Friday, the 18th. The storm then moved off the North Carolina coast early on the 19th. The precipitation started as rain in the river valleys during the early afternoon of the 18th, then switched over to heavy wet snow for the late afternoon and evening hours. The heavy wet snow was described as like walking in cement with huge flakes falling. Roads over the higher terrain quickly became impassible. Tree limbs began to snap when snow accumulations reached around 4 inches. By 1900E on the 18th, Nora on Long Ridge in Dickenson County already had a 7 inch accumulation. By 2000E, Clintwood measured 8 inches. By midnight, the heaviest snow rates were over, but less intense snow continued to fall until the afternoon on the 19th. The total snow accumulations from the storm were just 5 to 7 inches along some of the river valleys, such as near Grundy. Near Clintwood, the snow accumulation was 11 inches. However, amounts of 1 to 2 feet of snow were measured above 2000 feet. For example, Nora measured 16 inches. Governor Kaine declared a state of emergency for the entire Commonwealth. The pop, cracks, crashes, and boom sounds were heard as numerous tree branches and even whole trees fell to the ground. The worst impact of the storm, was the fact that the electricity was out for most residents for several days, including Christmas. Some residents had to wait almost until New Years Eve for their electricity to be restored. Refrigerated food was lost. The American Red Cross had shelters in Clintwood and Grundy.

Event: High Wind
Begin Date: 25 Dec 2009, 05:00:00 AM EST
Begin Location: Not Known
End Date: 25 Dec 2009,13:00:00 PM EST
End Location: Not Known
Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: A light pole was blown down in Clintwood. Scattered power outages also occurred. EPISODE NARRATIVE: A strong south and southeast flow existed across the mountainous counties during the morning hours on Christmas.
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Event: Heavy Snow
Begin Date: 29 Jan 2010,18:00:00 PM EST
Begin Location: Not Known
End Date: 30 Jan 2010,18:00:00 PM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:

EPISODE NARRATIVE: With low pressure well to the south and temperatures in the 20s, a dry snow accumulated from Friday evening the 29th, into Saturday the 30th. The heaviest snow rates were observed during the predawn hours on the 30th. Snow accumulations of 6 to 8 inches were common across both Dickenson and Buchanan Counties.

Event: Hail
Begin Date: 14 May 2010,16:15:00 PM EST
Begin Location: 1 Mile West of Clintwood
Begin 37°09'N / 82°29'W LAT/LON:
End Date: 14 May 2010,16:15:00 PM EST End Location: Not Known Magnitude: 1.00 inches
Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: Short lines and clusters of thunderstorms formed ahead of a cold front. Large hail occurred from the strongest storms during the late afternoon.

Event: Thunderstorm Wind
Begin Date: 14 May 2010,16:36:00 PM EST
Begin Location: Birchleaf
Begin 37°10'N/82°16'W LAT/LON:
End Date: 14 May 2010,16:36:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Large branches were snapped off. EPISODE NARRATIVE: Short lines and clusters of thunderstorms formed ahead of a cold front. Large hail occurred from the strongest storms during the late afternoon.

Event: Hail
Begin Date: 28 May 2010,14:50:00 PM EST
Begin Location; Trammel Gap
Begin 36°58N / 82°19'W LAT/LON:
End Date: 28 May 2010,14:50:00 PM EST End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Quarter size hail fell in West Dante. EPISODE NARRATIVE: With a weak wind flow and daytime heating, thunderstorms formed first over the West Virginia mountains, then later in the afternoon over southwest Virginia. Localized downpours were common. One storm briefly pulsed to severe levels over Dickenson County.

Event: Flash Flood
Begin Date: 03 Jun 2010,15:30:00 PM EST
Begin Location: Splashdam
Begin 37°13N/82°19'W LAT/LON:
End Date: 03 Jun 2010,16:15:00 PM EST End Location: 4 Miles East North East of Haysi
End LAT/LON: 37°14'N / 82°15'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 10.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Small streams Hooded several roads in the Haysi vicinity. This included the small feeder branches and runs, such as Doe Branch, that flow into Russell Prater Creek. EPISODE NARRATIVE: A short line of heavy rain from thunderstorms trained west to east across eastern Diekenson County into western Buchanan County between 1430 and 1530E on the 3rd. Rain amounts of around 3 inches were likely from near Haysi to near Vicey and Prater.

Event: Thunderstorm Wind
Begin Date: 14 Jun 2010,12:30:00 PM EST
Begin Location: Clinchco
Begin 37°10N/82°22'W LAT/LON:
End Date: 14 Jun 2010,12:30:00 PM EST End Location: Haysi End LAT/LON: 37°13'N / 82°19'W Magnitude: 50

Fatalities: 0 Injuries: 0
Property $2.OK Damage:
Crop Damage: $ O.OK
Description:
EVENT NARRATIVE: Trees were blown down. EPISODE NARRATIVE: Thunderstorms pulsed briefly to severe limits during the afternoon.

Event: Thunderstorm Wind
Begin Date: 21 Jun 2010,16:35:00 PM EST
Begin Location: Me Clure
Begin 37°06'N / 82°22'W LAT/LON:
End Date: 21 Jun 2010,16:35:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property S 1.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Trees were blown down. EPISODE NARRATIVE: A mesoscale coiivective complex dropped southeast during peak heating through southwestern West Virginia and into Virginia.

Event: Thunderstorm Wind
Begin Date: 05 Aug 2010,15:43:00 PM EST
Begin Location: 1 Mile North West of Honeycamp
Begin 37°08N/82°29'W LAT/LON:
End Date: 05 Aug 2010,15:43:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Trees were blown down along Route 72. EPISODE NARRATIVE: Thunderstorms moved across Kentucky during the morning hours and into southern West Virginia during the early afternoon. By mid and late afternoon, tall thunderstorms were affecting portions of far western Virginia.

Event: Heavy Snow
Begin Date: 12 Dec 2010, 07:00:00 AM EST Begin Location: Not Known
End Date: 13 Dec 2010, 23:00:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: In the wake of a strong cold front, much colder air blew in during Sunday the 12th. Rain changed to snow early that morning. Banded upslope snow showers persisted into Monday evening the 13th, then diminished overnight. Accumulations of 6 to 10 inches were widespread across Dickenson and Buchanan Counties. Blowing snow occurred across the ridges on the 13th with temperatures only 10 to 15 degrees. Around 2000 customers were without electricity in Dickenson County on the 13th.

Event: Winter Storm
Begin Date: 15 Dec 2010,23:00:00 PM EST
Begin Location: Not Known
End Date: 16 Dec 2010,13:00:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: A strong warm air advection pattern developed as a weak surface low pressure tracked east from Arkansas to southwest Virginia. Snow accumulated 1 to 3 inches in Buchanan and Dickenson Counties then changed to freezing rain early on Thursday morning the 16th. A quarter to a half inch of ice accumulated before changing to light rain. The light rain diminished that Thursday afternoon.

Event: Winter Weather
Begin Date: 25 Dec 2010, 00:00:00 AM EST
Begin Location: Not Known
End Date: 27 Dec 2010, 08:00:00 AM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0KDescription:
EPISODE NARRATIVE: Light snow fell early on Christmas morning. A uniform 1 to 2 inches of snow accumulated. After a lull Christinas afternoon, snow showers increased Christmas night. The snow showers became most widespread during the afternoon and evening hours of the 26th. This increase was in response to a developing coastal storm and its associated mid level support. The snow showers decreased by the morning hours of the 27th. An additional accumulation of 3 to 6 inches of fluffy dry snow was common over about a 36 hour period. However, in the highest elevations, a 36 hour snow accumulation of 6 to 10 inches was measured.

Event: Winter Weather
Begin Date: 06 Jan 2011, 23:00:00 PM EST Begin Location: Not Known
End Date: 08 Jan 2011, 23:00:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0KDescription:
EPISODE NARRATIVE: Several rounds of snow showers were associated with the arrival of colder air from late Thursday evening the 6th into Saturday evening the 8th. The snow showers were the heaviest overnight Friday night, which was late on the 7th into the early hours of the 8th. The old December snow pack had mostly melted by New Years Day. This 48 hour episode brought new snow accumulations of 3 to 7 inches.

Event: Winter Weather
Begin Date: 11 Jan 2011,16:00:00 PM EST
Begin Location: Not Known
End Date: 13 Jan 2011, 06:00:00 AM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: Colder air blew in during the overnight period of the 11th into the 12th. Snow showers continued into the early hours of the 13th. Snow accumulations were mostly 2 to 6 inches. Clintwood snow depth increased from 4 inches prior to the event to 9 inches. Nora had their snow depth increase from 3 inches to 8 inches. However, Grundy only saw their snow depth increase from 1 inch to 3 inches.

Event: Winter Weather
Begin Date: 09 Feb 2011,16:00:00 PM EST Begin Location: Not Known
End Date: 10 Feb 2011, 01:00:00 AM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: Buchanan and Dickenson Counties were on the northern fringe of the deeper moisture associated with a southern storm track. Snow accumulated only 2 to 4 inches. However, air temperatures were well below freezing. Road surfaces were also cold. Untreated surfaces were quickly coated, causing hazardous travel during the evening of the 9th.

Event: Winter Weather
Begin Date: 06 Mar 2011, 06:00:00 AM EST Begin Location: Not Known
End Date: 06 Mar 2011,16:00:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S 0.0K
Description:

EPISODE NARRATIVE: Rain amounts of over an inch were common late on Saturday the 5th. A strong cold front came through during the predawn hours of Sunday the 6th. A few hours in the wake of the surface front, the rain changed to wet snow. Snow accumulations were highly dependent on elevations. Snow accumulations ranged from an inch or 2 along the river valleys to around 4 inches above 2500 feet.

Event: Hail
Begin Date: 08 Apr 2011,17:13:00 PM EST
Begin Location: Blowing Rock
Begin 37°I3<N/82°25rW
LAT/LON:
End Date: 08 Apr 2011,17:13:00 PM EST
End Location: Not Known Magnitude: 1.25 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: An east to west front sliced through central West Virginia and southern Ohio on the 8th. A band of rain was seen during the morning along and north of the front. However, new convection formed during the early afternoon south of the front. The steering flow was from the northwest at about 35 to 40 mph. A few thunderstorm cells reached western Virginia during the late afternoon. Despite the fast flow, hail was the main element, rather than damaging wind gusts. Another thunderstorm cluster passed through later that night, with considerable lightning and small hail.

Event: Hail
Begin Date: 08 Apr 2011,17:15:00 PM EST
Begin Location: 1 Mile East of Clintwood
LAT/LON:
End Date: 08 Apr 2011,17:15:00 PM EST End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Dime to quarter size hail covered the ground. EPISODE NARRATIVE: An east to west front sliced through central West Virginia and southern Ohio on the 8th. A band of rain was seen during the morning along and north of the front. However, new convection formed during the early afternoon south of the front. The steering flow was from the northwest at about 35 to 40 mph. A few thunderstorm cells reached western Virginia during the late afternoon. Despite the fast flow, hail was the main element, rather than damaging wind gusts. Another thunderstorm cluster passed through later that night, with considerable lightning and small hail.

Event: Hail
Begin Date: 08 Apr 2011, 23:15:00 PM EST
Begin Location: Clintwood
Begin 37°09'N / 82°28'W LAT/LON:
End Date: 08 Apr 2011, 23:15:00 PM EST
End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: An east to west front sliced through central West Virginia and southern Ohio on the 8th. A band of rain was seen during the morning along and north of the front. However, new convection formed during the early afternoon south of the front. The steering flow was from the northwest at about 35 to 40 mph. A few thunderstorm cells reached western Virginia during the late afternoon. Despite the fast flow, hail was the main element, rather than damaging wind gusts. Another thunderstorm cluster passed through later that night, with considerable lightning and small hail.

Event: Hail
Begin Date: 09 Apr 2011,13:30:00 PM EST
Begin Location: 1 Mile South West of Bartlick
Begin 37°13tN/82°20tW LAT/LON:
End Date: 09 Apr 2011,13:30:00 PM EST End Location: Not Known Magnitude:
0.88 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:

Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: A mesoscale convective complex moved southeast out of Indiana across eastern Kentucky and into southern West Virginia and western Virginia. With ample moisture, instability, and lift, new storms formed ahead of the initial complex. Several of the leading cells showed signs of mid level rotation, but that rotation did not translate to the lower
levels.

Event: Hail
Begin Date: 25 Apr 2011,15:45:00 PM EST
Begin Location: Clintwood
Begin 37°09'N / 82°28'W LAT/LON:
End Date: 25 Apr 2011,15:45:00 PM EST End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:EPISODE NARRATIVE: In the warm sector, south and east of a nearly stationary front, one cluster of thunderstorms formed late in the day across southwest Virginia into southern West Virginia.

82 event(s) were reported in Russell County, Virginia between 01/01/2005 and 04/30/2011 (High Wind limited to speed greater than 0 knots).

.

Location or County	**Date**	**Time**	**Type**	**Mag**	**Dth**		**PrD**	**CrD**
1 VAZ001>002- 005>006 - 008	01/29/2005	12:00 AM	Ice Storm	N/A	0	0	0	0
2VAZ001>002- 005>006 - 008	02/28/2005	04:30 AM	Heavy Snow	N/A	0	0	0	0
3VAZ001 -005>006 -008	03/16/2005	12:00 AM	Heavy Snow	N/A	0	0	0	0
4 Castlewood	04/22/2005	01:30 PM	Tstm Wind	65 kts.	0	0	5K	0
5 Honaker	05/13/2005	05:10 PM	Tstm Wind	60 kts.	0	0	12K	0
6 Honaker	05/13/2005	05:45 PM	Flash Flood	N/A	0	0	0	0
7 Northeast Portion	05/13/2005	08:00 PM	Flash Flood	N/A	0	0	0	0
8 Lebanon	05/14/2005	04:45 PM	Tstm Wind	60 kts.	0	0	6K	0
9 Honaker	05/14/2005	05:05 PM	Tstm Wind	55 kts.	0	0	3K	0
10 Cleveland	07/01/2005	04:45 PM	Tstm Wind	55 kts.	0	0	3K	0
11 Countvwide	07/28/2005	O3:3OPM	Tstm Wind	60 kts.	0	0	3OK	0
12 Countvwide	07/28/2005	04:15 PM	Tstm Wind	60 kts.	0	0	35K	0

13 Castlewood	08/05/2005	04:30 PM	Tstm Wind	60 kts.	0	0	20K	0
14 Lebanon	08/06/2005	04:30 PM	Tstm Wind	65 kts.	0	0	20K	0
15 Countvwide	08/16/2005	03:30 PM	Tstm Wind	45 kts.	0	**0**	20K	0
16VAZ001>002-005>006 - 008	01/14/2006	11:00 AM	Heavy Snow	N/A	0	0	0	0
17VAZ001>002-005>006 - 008	02/11/2006	12:00 PM	Heavy Snow	N/A	0	**0**	0	0
18 VAZ001>002-005>006 - 008	02/17/2006	10:00 AM	Heavy Snow	N/A	0	0	0	**0**
19 Cleveland	04/07/2006	07:30 PM	Tstm Wind	60 kts.	0	0	10K	0
20 Castlewood	04/25/2006	05:16 PM	Tstm Wind	60 kts.	0	**0**	5K	0
21 Lebanon	05/26/2006	05:05 PM	Tstm Wind	65 kts.	0	0	25K	**0**
22 Cleveland	05/26/2006	06:18 PM	Tstm Wind	60 kts.	**0**	**0**	15K	0
23 Lebanon	05/26/2006	06:22 PM	Tstm Wind	60 kts.	**0**	**0**	15K	0
24 Lebanon	06/11/2006	10:42 PM	Tstm Wind	65 kts.	**0**	**0**	25K	0
25 Honaker	07/04/2006	02:05 PM	Flash Flood	N/A	0	0	0	**0**
26 Honaker	07/04/2006	07:23 PM	Tstm Wind	**60** kts.	**0**	**0**	**3K**	0
27 Honaker	07/18/2006	08:40 PM	Tstm Wind	60 kts.	0	0	15K	**0**
28 Lebanon	07/28/2006	05:15 PM	Tstm Wind	60 kts.	0	0	3K	0
29 Lebanon	07/28/2006	05:20 PM	Tstm Wind	60 kts.	**0**	0	15K	**0**
30 Countvwide	08/07/2006	11:45 AM	Tstm Wind	55 kts.	**0**	0	8K	**0**
31 VAZ006	12/01/2006	11:30 AM	High Wind	60 kts.	**0**	0	10K	**OK**
32VAZ001 -006-008	02/18/2007	02:00 AM	Heavy Snow	N/A	**0**	0	OK	**OK**

33 Lebanon	04/03/2007	22:35 PM	Thunderstorm Wind	50 kts.	0	0	20K	OK
34 Castlewood	07/31/2007	16:00 PM	Thunderstorm Wind	68 kts.	0	0	OK	OK
35 Castlewood	07/31/2007	20:00 PM	Thunderstorm Wind	70 kts.	0	0	OK	OK
36 Honaker	08/24/2007	14:30 PM	Thunderstorm Wind	55 kts.	0	0	10K	OK
37 VAZ001 - 005>006 - 008	01/16/2008	20:00 PM	Heavy Snow	N/A	0	0	OK	OK
38 JesseesMill	06/09/2008	18:35 PM	Thunderstorm Wind	60 kts.	0	0	18K	OK
39 Castlewood	06/16/2008	21:20 PM	Hail	0.88 in.	0	0	OK	OK
40 Castlewood	06/16/2008	21:20 PM	Thunderstorm Wind	52 kts.	0	0	8K	OK
41 Lebanon	07/06/2008	21:07 PM	Hail	0.75 in.	0	0	OK	OK
42 Coulwood	08/02/2008	13:50 PM	Thunderstorm Wind	50 kts.	0	0	IK	OK
43 Hamlin	02/11/2009	17:49 PM	Thunderstorm Wind	58 kts.	0	0	10K	OK
44 Coulwood	02/11/2009	17:59 PM	Tornado	F0	0	0	3OK	OK
45 Slabtown	02/11/2009	18:05 PM	Thunderstorm Wind	62 kts.	0	0	20K	OK
46 Lebanon	05/08/2009	21:25 PM	Tornado	F0	0	0	OK	OK
47 Lebanon	05/08/2009	21:27 PM	Tornado	F2	0	0	OK	OK
48 Lebanon	05/08/2009	21:35 PM	Thunderstorm Wind	60 kts.	0	0	OK	OK
49 Castlewood	06/09/2009	17:19 PM	Hail	0.88 in.	0	0	OK	OK
50 Lebanon	06/11/2009	16:00 PM	Thunderstorm Wind	55 kts.	0	0	8K	OK
51 Castlewood	06/16/2009	18:55 PM	Tornado	F0	0	0	5K	OK
52 Willow Spe	06/16/2009	19:20 PM	Thunderstorm Wind	55 kts.	0	0	3K	OK
53 Lebanon	06/16/2009	19:35 PM	Thunderstorm Wind	60 kts.	0	0	20K	OK

54 Gardner	06/17/2009	16:10 PM	Thunderstorm Wind	55 kts.	0	0	5K	OK
55 Slabtown	06/17/2009	16:49 PM	Thunderstorm Wind	60 kts.	0	0	20K	OK
56 Banners Corner	06/17/2009	17:25 PM	Thunderstorm Wind	55 kts.	0	0	5K	OK
57 Carterton	06/17/2009	18:00 PM	Thunderstorm Wind	55 kts.	0	0	5K	OK
58 Gibsonville	09/26/2009	14:00 PM	Flood	N/A	0	0	OK	OK
59 VAZ001 - 005>006 - 008	12/18/2009	19:00 PM	Heavy Snow	N/A	0	0	43 5K	OK
60 VAZ006 - 008	12/25/2009	08:00 AM	High Wind	**55** kts.	0	0	5K	OK
61 VAZ006	01/29/2010	15:45 PM	Heavy Snow	N/A	0	0	OK	OK
62 VAZ006	02/05/2010	18:25 PM	High Wind	65 kts.	0	0	20K	OK
63 VAZ001 -006- 008	02/09/2010	23:00 PM	Heavy Snow	N/A	0	0	OK	OK
64 Lebanon	05/28/2010	14:20 PM	Thunderstorm Wind	55 kts.	0	0	12K	OK
65 Lebanon	05/28/2010	16:10 PM	Flash Flood	N/A	0	0	OK	OK
66 Castlewood	06/12/2010	20:50 PM	Flood	N/A	0	0	5K	OK
67 Lebanon	06/14/2010	13:00 PM	Thunderstorm Wind	50 kts.	0	0	3K	OK
68 Lebanon	06/14/2010	13:10PM	Thunderstorm Wind	55 kts,	0	0	5K	OK
69 Castlewood	06/15/2010	17:30 PM	Flash Flood	N/A	0	0	5K	OK
70 Lebanon	06/21/2010	17:25 PM	Thunderstorm Wind	55 kts.	0	0	5K	OK
71 Lebanon	06/22/2010	17:30 PM	Thunderstorm Wind	52 kts.	0	0	3K	OK
72 Honaker	08/04/2010	19:00 PM	Thunderstorm Wind	55 kts.	0	0	3K	OK
73 Dante	08/05/2010	15:54 PM	Thunderstorm Wind	55 kts.	0	0	5K	**OK**
74 VAZ006	11/29/2010	22:00 PM	High Wind	50 kts.	0	0	OK	OK
75 VAZ001 -	12/12/2010	20:00 PM	Heavy Snow	N/A	0	0	OK	OK

005>006 - 008								
76 VAZ002 - 005 - 006	12/25/2010	00:00 AM	Heavy Snow	N/A	0	0	10K	OK
77 VAZ006	02/01/2011	22:00 PM	High Wind	60 kts.	0	0	8K	OK
78 Hansonville	02/28/2011	15:05 PM	Flood	N/A	0	0	25K	OK
79 Rosedale	03/23/2011	19:15 PM	Hail	1.75 in.	0	0	OK	OK
80 Lebanon	04/09/2011	00:05 AM	Hail	1.00 in.	0	0	OK	OK
81 Castlewood	04/09/2011	13:40 PM	Thunderstorm Wind	50 kts.	0	0	OK	OK
82 Lebanon	04/09/2011	15:20 PM	Hail	1.00 in.	0	0	OK	OK
				TOTALS:	0	0	1.040M	0

Event: Ice Storm
Begin Date: 29 Jan 2005,12:00:00 AM EST
Begin Location: Not Known
End Date: 29 Jan 2005,11:59:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: $ 0.0
Description:
A low pressure system spread moist air above a cold air mass in place at the surface across Southwest Virginia creating a mixture of freezing rain and sleet in the lower elevations and a mixture of sleet and snow in the higher terrain. Much of the area ended up with ice accumulation around one quarter inch with parts of Russell and Wise counties measuring around one half to as much as one inch of ice accumulation. The ice accumulation downed trees and power lines across the region.

Event: Heavy Snow
Begin Date: 28 Feb 2005, 04:30:00 AM EST
Begin Location: Not Known
End Date: 28 Feb 2005, 09:00:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0 Damage:
Crop Damage: $ 0.0
Description:
3-8 inches of snow A winter storm dumped heavy snow across extreme southwest Virginia. 8 inches of snow was reported in Russell County and 3 to 6 inches was reported across the rest of southwest Virginia.

Event: Heavy Snow
Begin Date: 16 Mar 2005,12:00:00 AM EST
Begin Location: Not Known
End Date: 16 Mar 2005, 09:30:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0 Damage:
Crop Damage: $ 0.0
Description:
A clipper type storm system produced two to five inches of snow in the higher elevations of Southwest Virginia from midnight through 930 am EST. In this time range, the greatest amount of snow fell across Lee and Wise counties.

Event: Tstm Wind
Begin Date: 22 Apr 2005, 01:30:00 PM EST
Begin Location: Castlewood
Begin 36°53'N / 82°18'W LAT/LON:
End Date: 22 Apr 2005, 01:40:00 PM EST End Location: Castlewood End LAT/LON: 36°53'N / 82°18'W
Magnitude: 65 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: $ 0.0
Description:
Several trees down in Castlewood area. Two trees down in Deputy Sheriffs yard.

Event: Tstm Wind
Begin Date: 13 May 2005, 05:10:00 PM EST
Begin Location: Honaker
Begin 37°01'N/81°59W LAT/LON:
End Date: 13 May 2005, 05:10:00 PM EST End Location: Honaker End LAT/LON: 37°01'N / 81OS9'W Magnitude: 60 Fatalities: 0 Injuries: 0
Property S 12.0K Damage:
Crop Damage: S 0.0

Description:
Several trees were reported down around Honaker

Event: Flash Flood
Begin Date: 13 May 2005, 05:45:00 PM EST
Begin Location: Honaker
Begin 37°01'N / 81°59'W LAT/LON:
End Date: 13 May 2005, 06:50:00 PM EST End Location: Honaker End LAT/LON: 37°01'N / 81°59'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: $ 0.0
Description:
Several roads washed out around Honaker.

Event: Flash Flood
Begin Date: 13 May 2005, 08:00:00 PM EST Begin Location: Northeast Portion
Begin 36°56'N/82°05W LAT/LON:
End Date: 13 May 2005, 09:00:00 PM EST End Location: Northeast Portion End LAT/LON: 36°56'N / 82°05'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: S 0.0
Description:
Several roads impassable.

Event: Tstm Wind
Begin Date: 14 May 2005, 04:45:00 PM EST Begin Location: Lebanon
Begin 36°54'N / 82°05'W LAT/LON:
End Date: 14 May 2005, 04:45:00 PM EST End Location: Lebanon End LAT/LON: 36°54'N / 82°05'W Magnitude: 60 Fatalities: 0 Injuries: 0
Property S 6.0K Damage:
Crop Damage: $ 0.0
Description:
Several large limbs downed power lines across the eastern half of the county.

Event: Tstm Wind
Begin Date: 14 May 2005, 05:05:00 PM EST
Begin Location: 1 Mile East of Honaker
Begin 37°01'N / 81°58W
LAT/LON:
End Date: 14 May 2005, 05:05:00 PM EST End Location: 1 Mile East South East of Honaker
End LAT/LON: 37°01'N / 81°58(W Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 3.0K Damage:
Crop Damage: $ 0.0
Description:
One tree was reported down on route 67 one mile east of Honaker.

Event: Tstm Wind
Begin Date: 01 Jul 2005, 04:45:00 PM EST
Begin Location: Cleveland
Begin 36°57N/82°10W LAT/LON:
End Date: 01 Jul 2005,04:45:00 PM EST
End Location: Cleveland End LAT/LON: 36°57'N / 82°10'W Magnitude: 55 Fatalities: 0 Injuries; 0
Property $ 3.0K Damage:
Crop Damage: $ 0.0
Description:
A tree was reported down along highway 58.

Event: Tstm Wind
Begin Date: 28 Jul 2005, 03:30:00 PM EST
Begin Location: Countywide
Begin 36°56'N / 82°05'W

LAT/LON:
End Date: 28 Jul 2005, 03:40:00 PM EST End Location: Countywide End LAT/LON: 36°56'N / 82°05'W Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ 30.0K Damage:
Crop Damage: $ 0.0
Description:
Several trees and power lines were downed across the county.

Event: Tstm Wind
Begin Date: 28 Jul 2005, 04:15:00 PM KST
Begin Location: Countywide
Begin 36°56N/82°05'W LATYLON:
End Date: 28 Jul 2005, 04:25:00 PM EST End Location: Countywide End LAT/LON: 36°56'N / 82°05'W Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ 35.0K Damage:
Crop Damage: $ 0.0
Description:
Numerous trees and power lines were downed across the county.

Event: Tstm Wind
Begin Date: 05 Aug 2005, 04:30:00 PM EST
Begin Location: Castlewood
Begin 36°53'N / 82°18'W LATVLON:
End Date: 05 Aug 2005, 04:45:00 PM EST
End Location: Castlewood End LAT/LON: 36°53'N / 82°18'W Magnitude: 60 Fatalities: 0 Injuries;
Property $ 20.0K Damage:
Crop Damage: S 0.0
Description:
A few trees down on powerlines in Castlewood area.

Event: Ice Storm
Begin Date: 29 Jan 2005,12:00:00 AM EST
Begin Location: Not Known
End Date: 29 Jan 2005,11:59:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0 Damage:
Crop Damage: $ 0.0
Description:
A low pressure system spread moist air above a cold air mass in place at the surface across Southwest Virginia creating a mixture of freezing rain and sleet in the lower elevations and a mixture of sleet and snow in the higher terrain. Much of the area ended up with ice accumulation around one quarter inch with parts of Russell and Wise counties measuring around one half to as much as one inch of ice accumulation. The ice accumulation downed trees and power lines across the region.

Event: Heavy Snow
Begin Date: 28 Feb 2005, 04:30:00 AM EST
Begin Location: Not Known
End Date: 28 Feb 2005, 09:00:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: $ 0.0
Description:
3-8 inches of snow A winter storm dumped heavy snow across extreme southwest Virginia. 8 inches of snow was reported in Russell County and 3 to 6 inches was reported across the rest of southwest Virginia.

Event: Tstm Wind
Begin Date: 06 Aug 2005, 04:30:00 PM EST
Begin Location: Lebanon

Begin 36°54'N / 82°05'W LAT/LON: End Date: 06 Aug 2005, 04:45:00 PM EST
End Location: Lebanon End LAT/LON: 36°54'N / 82°05'W Magnitude: 65 Fatalities: 0 Injuries: 0
Property S 20.0K Damage:
Crop Damage: $ 0.0
Description:
Numerous trees and powerlines down in and around Cleveland and across the rest of the county.

Event: Tstm Wind
Begin Date: 16 Aug 2005, 03:30:00 PM EST
Begin Location: Countywide
Begin 36°56'N / 82°05'W
LAT/LON:
End Date: 16 Aug 2005, 03:50:00 PM EST End Location: Countywide End LAT/LON: 36°56'N / 82°05'W
Magnitude: 45 Fatalities: 0 Injuries: 0
Property $ 20.0K Damage:
Crop Damage: $ 0.0
Description:
A few trees and powerlines down across the county. Reported by American Power

Event: Heavy Snow
Begin Date: 14 Jan 2006,11:00:00 AM EST
Begin Location: Not Known
End Date: 14 Jan 2006,11:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property S 0.0 Damage:
Crop Damage: S 0.0
Description:
Heavy snow began overnight on the 13th and continued into the 14th. Snowfall of 3 to 4 inches with isolated 5 inch amounts reported over Southwest Virginia.

Event; Heavy Snow
Begin Date; 11 Feb 2006,12:00:00 PM EST
Begin Location: Not Known
End Date: 12 Feb 2006, 03:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0 Damage:
Crop Damage: S 0.0
Description:
A strong storm system moved across the Tennessee valley and appalachian region and deposited an average of 4 to 6 inches of snow with locally greater amounts in the highest terrain.

Event: Heavy Snow
Begin Date: 17 Feb 2006,10:00:00 AM EST
Begin Location: Not Known
End Date: 18 Feb 2006, 04:00:00 PM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0 Damage:
Crop Damage: $0.0
Description:
3 to 6 inches of snow. A winter storm hit extreme southwest Virginia. 3 to 6 inches of snow fell

in the higher elevations, while 1 to 2 inches was reported in the valley.

Event: Tstm Wind
Begin Date: 07 Apr 2006, 07:30:00 PM EST
Begin Location: Cleveland
Begin 36°57'N / 82°10'W LAT/LON:
End Date: 07 Apr 2006, 07:40:00 PM EST
End Location: Cleveland End LAT/LON: 36°57'N / 82°10'W Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: $ 0.0
Description:
A few trees down near Cleveland.

Event: Tstm Wind
Begin Date: 25 Apr 2006, 05:16:00 PM EST
Begin Location: Castlewood
Begin 36°53'N / 82°18'W LAT/LON: End Date: 25 Apr 2006, 05:30:00 PM EST
End Location: Castlewood End LAT/LON: 36°53'N / 82°18'W Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: $ 0.0
Description:
Three trees down in Castlewood.

Event: Tstm Wind
Begin Date: 26 May 2006, 05:05:00 PM EST
Begin Location: Lebanon
Begin 36°54'N/82°05'W LAT7LON:
End Date: 26 May 2006, 05:15:00 PM EST
End Location: Lebanon End LAT/LON: 36°54'N / 82°05'W Magnitude: 65 Fatalities: 0 Injuries: 0
Property $ 25.0K Damage:
Crop Damage: $ 0.0
Description:
Trees and power lines were reported down across the county.

Event: Tstm Wind
Begin Date: 26 May 2006, 06:18:00 PM EST
Begin Location: Cleveland
Begin 36°57'N / 82°10'W LAT/LON:
End Date: 26 May 2006, 06:18:00 PM EST End Location: Cleveland End LAT/LON: 36°57'N / 82°10'W
Magnitude: 60 Fatalities: 0 Injuries: 0
Property S 15.0K Damage:
Crop Damage: $0.0
Description:
Several trees were reported down in Cleveland.

Event: Tstm Wind
Begin Date: 26 May 2006, 06:22:00 PM EST
Begin Location: Lebanon
Begin 36°54'N / 82°05'W LAT/LON:
End Date: 26 May 2006, 06:22:00 PM EST End Location: Lebanon End LAT/LON: 36°54'N / 82°05'W Magnitude:
60 Fatalities: 0 Injuries: 0
Property S 15.0K Damage:
Crop Damage: $ 0.0
Description:
Several trees were reported down in Lebanon.

Event: Tstm Wind
Begin Date: 11 Jun 2006,10:42:00 PM EST
Begin Location: Lebanon
Begin 36°54N/82°05'W LAT/LON:

End Date: 11 Jun 2006,10:50:00 PM EST
End Location: Lebanon End LAT/LON: 36°54'N / 82°05'W Magnitude: 65 Fatalities: 0 Injuries: 0
Property S 25.0K Damage:
Crop Damage: $ 0.0
Description:
A roof was blown off a building in the city of Lebanon. Several trees down along Main Street.

Event: Flash Flood
Begin Date: 04 Jul 2006, 02:05:00 PM EST
Begin Location: Honaker
End Date: 04 Jul 2006, 03:00:00 PM EST
End Location: Honaker Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0 Damage:
Crop Damage: $ 0.0
Description:
Several creeks out of banks and some low lying roads closed temporarily from heavy thunderstorm rains estimated at around two inches per hour in rugged terrain.
.

Event: Tstm Wind
Begin Date: 04 Jul 2006, 07:23:00 PM EST
Begin Location: 6 Miles East North East of Honaker
Begin 37°03'N / 81°53'W LAT/LON:
End Date: 04 Jul 2006, 07:23:00 PM EST End Location: 6 Miles East North East of Honaker
End LAT/LON: 37°03'N / 81°53'W Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ 3.0K Damage:
Crop Damage: $ 0.0
Description:
One tree was reported down in the Givens vicinity.

Event: Tstm Wind
Begin Date: 18 Jul 2006, 08:40:00 PM EST
Begin Location: Honaker
Begin 37°01'N/81°59'W LAT/LON:
End Date: 18 Jul 2006, 08:40:00 PM EST End Location: Honaker End LAT/LON: 37°01'N / 81°59'W Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ 15.0K Damage:
Crop Damage: $ 0.0
Description:
Several trees were reported down in Honaker.

Event: Tstm Wind
Begin Date: 28 Jul 2006, 05:15:00 PM EST Begin Location: Lebanon
Begin 36°54'N / 82°05'W LAT/LON:
End Date: 28 Jul 2006, 05:15:00 PM EST
End Location: Lebanon End LAT/LON: 36°54'N / 82°05'W Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ 3.0K Damage:
Crop Damage: $ 0.0Description:
A tree was reported down on Jessie Mill Road in Lebanon.

Event: Tstm Wind
Begin Date: 28 Jul 2006, 05:20:00 PM EST
Begin Location: Lebanon
Begin 36°54'N / 82°05'W LAT/LON:
End Date: 28 Jul 2006, 05:20:00 PM EST End Location: Lebanon End LAT/LON: 36°54'N / 82°05'W Magnitude; 60 Fatalities: 0 Injuries: 0
Property S 15.0K Damage:
Crop Damage: S 0.0
Description:
Several trees were reported down south of Lebanon.

Event: Tstm Wind
Begin Date: 07 Aug 2006,11:45:00 AM EST
Begin Location: Countywide
Begin 36°56'N / 82°05'W
LAT/LON:
End Date: 07 Aug 2006,12:15:00 PM EST End Location: Countywide End LAT/LON: 36°S6fN / 82°05'W
Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 8.0K Damage:
Crop Damage: $ 0.0
Description:
Several trees and large limbs down countywide.

Event: High Wind
Begin Date: 01 Dec 2006,11:30:00 AM EST
Begin Location: Not Known
End Date: 01 Dec 2006,12:00:00 PM EST
End Location: Not Known
Magnitude: 60 Fatalities: 0 Injuries: 0
Property $10.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Two trees were blown down in the Dante area. EPISODE NARRATIVE: A strong cold front tracked across the region bringing high non-thunderstorm winds to southwest Virginia.

Event: Heavy Snow
Begin Date: 18 Feb 2007, 02:00:00 AM EST
Begin Location: Not Known
End Date: 18 Feb 2007, 05:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Snow 3 to 5 inches deep was reported across the higher elevations of the county. EPISODE NARRATIVE: A winter storm dumped heavy snow across southwest Virginia. Up to 8 inches of snow was reported across the higher elevations. 1 to 2 inches of snow was reported in the valley.

Event: Thunderstorm Wind
Begin Date: 03 Apr 2007,22:35:00 PM EST
Begin Location: Lebanon
Begin 36°54'N / 82°04'W LAT/LON:
End Date: 03 Apr 2007, 22:35:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 20.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Several trees were reported down throughout the county. EPISODE NARRATIVE: A squall line moved through the mid south on its way into Southwest Virginia and Eastern Tennessee. A large bow developed on the line late in the evening as it approached the Cumberland Plateau. Damage was predominantly created by straight line winds. However, an EFl Tornado also developed on the Cumberland Plateau in Claiborne county.

Event: Thunderstorm Wind
Begin Date: 31 Jul 2007,16:00:00 PM EST
Begin Location: 1 Mile East of Castlewood
Begin 36°52N/82°17W
LAT/LON:
End Date: 31 Jul 2007,16:00:00 PM EST End Location: Not Known Magnitude: 68 Fatalities: 0 Injuries: 0

Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: A few homes had shingles damaged and several trees were reported down. This was reported by the sheriffs office dispatch. EPISODE NARRATIVE: Pulse severe convection developed during the afternoon across Southwest Virginia resulting in one fatality in Russell County.

Event: Thunderstorm Wind
Begin Date: 31 Jul 2007, 20:00:00 PM EST
Begin Location: Castlewood
Begin 36°52'N / 82°18'W LAT/LON:
End Date: 31 Jul 2007, 20:00:00 PM EST
End Location: Not Known Magnitude: 70 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: One fatality occurred when the roof was blown off the Pizza Town Restaurant onto a car that was stopped in the eastbound lane of Route 58 waiting for the green light from a traffic signal. The traffic signal also fell damaging another car stopped at the intersection but did not result in any injuries to the occupants. The main damage occurred near the intersection of Memorial Drive and Highway 58. The National Weather Service survey team found trees either up-rooted or snapped off in an area approximately one mile long and a half mile wide in the vicinity of the intersection. EPISODE NARRATIVE: Pulse severe convection developed during the afternoon across Southwest Virginia resulting in one fatality in Russell County.

Event: Thunderstorm Wind
Begin Date: 24 Aug 2007, 14:30:00 PM EST
Begin Location: Honaker
Begin 37°01N/81°58'W LAT/LON:
End Date: 24 Aug 2007, 14:50:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 10.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: The Virginia Department of Transportation reported several trees downed by thunderstorm winds in and around Honaker. EPISODE NARRATIVE: Isolated severe thunderstorm developed during the afternoon hours as the surface temperatures rose into the 90s and instability increased across southwest Virginia. Storm reports consisted of damaging winds.

Event: Heavy Snow
Begin Date: 16 Jan 2008, 20:00:00 PM EST
Begin Location: Not Known
End Date: 17 Jan 2008, 07:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Heavy snows fell in the higher elevations of southwest Virginia overnight with up to 4 inches reported. EPISODE NARRATIVE: A low pressure system moved northeast during the early morning hours from the Gulf of Mexico producing two to four inches of snowfall in the higher terrain across Southwest Virginia, East Tennessee, and Southwest North Carolina
.
Event: Thunderstorm Wind
Begin Date: 09 Jun 2008,18:35:00 PM EST
Begin Location: 1 Mile West of Jessees Mill
Begin 36°54N/82°W
LAT/LON:
End Date: 09 Jun 2008,18:40:00 PM EST End Location: Not Known Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ 18.0K Damage:
Crop Damage: S0.0K

Description:
EVENT NARRATIVE: Dispatch reported numerous trees downed by thunderstorm winds in the northwest portion of the county. EPISODE NARRATIVE: With unstable conditions in place over the area, scattered severe thunderstorms developed during the afternoon and evening hours across southwest Virginia. The storm reports were for thunderstorm wind damage, but golfball-size hail was reported at Coeburn in Wise Co.

Event: Hail
Begin Date: 16 Jun 2008, 21:20:00 PM EST
Begin Location: 1 Mile East of Castlewood
Begin 36°52'N / 82°17'W LAT/LON:
End Date: 16 Jun 2008, 21:22:00 PM EST End Location: Not Known Magnitude: 0.88 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: SO.0K
Description:
EVENT NARRATIVE: Dispatch reported nickel-size hail in Castlewood. EPISODE NARRATIVE: An upper level trough triggered scattered severe thunderstorms across southwest Virginia during the evening hours. Storm reports contained both damaging thunderstorm winds and large hail.

Event: Thunderstorm Wind
Begin Date: 16 Jun 2008, 21:20:00 PM EST
Begin Location: 1 Mile East of Castlewood
Begin 36°52'N / 82°17'W LAT7LON:
End Date: 16 Jun 2008, 21:23:00 PM EST End Location: Not Known Magnitude: 52 Fatalities: 0 Injuries: 0
Property S 8.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Dispatch reported multiple trees downed by thunderstorm winds in Castlewood. EPISODE NARRATIVE: An upper level trough triggered scattered severe thunderstorms across southwest Virginia during the evening hours. Storm reports contained both damaging thunderstorm winds and large hail.

Event: Hail
Begin Date: 06 Jul 2008, 21:07:00 PM EST
Begin Location: Lebanon
Begin 36°54'N / 82°04'W LAT/LON:
End Date: 06 Jul 2008, 21:07:00 PM EST End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Penny size hail was reported in Lebanon. EPISODE NARRATIVE: A closed low over Eastern Kentucky and dry air aloft in the vicinity of the Southern Appalachians generated sufficient instability for isolated convection which resulted in wind damage.

Event: Thunderstorm Wind
Begin Date: 02 Aug 2008,13:50:00 PM EST
Begin Location: 2 Miles East South East of Coulwood
Begin 36°58'N / 82°02'W LAT/LON:
End Date: 02 Aug 2008,13:52:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property S1.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Dispatch reported a tree downed by thunderstorm winds on New Garden Road near Honaker. EPISODE NARRATIVE: A cold front tracked across extreme southwest Virginia during the afternoon hours producing scattered thunderstorms along it. A few storms became severe with damaging thunderstorm winds reported.

Event: Thunderstorm Wind
Begin Date: 11 Feb 2009,17:49:00 PM EST
Begin Location: 1 Mile North North West of Hamlin
Begin 36°56'N/82°W LAT/LON:
End Date: 11 Feb 2009,17:55:00 PM EST
End Location: Not Known Magnitude: 58 Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: A HAM radio operator reported several trees downed by thunderstorm winds along Highway 63 near Castlewood. EPISODE NARRATIVE: A strong cold front tracked across southwest Virginia during the afternoon and evening hours. A squall line formed ahead of it producing widespread wind damage over the area. A tornado was also reported in Russell County.

Event: Tornado
Begin Date: 11 Feb 2009,17:59:00 PM EST
Begin Location: 1 Mile North East of Coulwood
Begin 36°59'N / 82°03'W LAT/LON:
End Date: 11 Feb 2009,18:02:00 PM EST End Location: Not Known Length: 4.00 Miles Width: 200 Yards
Magnitude: F0 Fatalities: 0 Injuries: 0
Property $ 30.0K Damage: Crop Damage: S0.0K
Description:
EVENT NARRATIVE: An EF0 tornado tracked 4.2 miles near Honaker. The width of the path was 200 yards. The maximum wind speed estimate was around 70 mph. Several trees were downed and one barn had its roof dislodged. EPISODE NARRATIVE: A strong cold front tracked across southwest Virginia during the afternoon and evening hours. A squall line formed ahead of it producing widespread wind damage over the area. A tornado was also reported in Russell County.

Event: Thunderstorm Wind
Begin Date: 11 Feb 2009,18:05:00 PM EST
Begin Location: 1 Mile North East of Slabtown
Begin LAT/LON:
End Date: 11 Feb 2009,18:10:00 PM EST End Location: Not Known Magnitude: 62 Fatalities: 0 Injuries: 0
Property $ 20.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported numerous trees and powerlines downed by thunderstorm winds countywide. EPISODE NARRATIVE: A strong cold front tracked across southwest Virginia during the afternoon and evening hours. A squall line formed ahead of it producing widespread wind damage over the area. A tornado was also reported in Russell County
.

Event: Thunderstorm Wind
Begin Date: 11 Feb 2009,18:05:00 PM EST
Begin Location: 1 Mile North East of Slabtown
Begin 36°54'N/82°05W LAT/LON:
End Date: 11 Feb 2009,18:10:00 PM EST End Location: Not Known Magnitude: 62 Fatalities: 0 Injuries: 0
Property $ 20.0K Damage:
Crap Damage: S0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported numerous trees and powerlines downed by thunderstorm winds countywide. EPISODE NARRATIVE: A strong cold front tracked across southwest Virginia during the afternoon and evening hours. A squall line formed ahead of it producing widespread wind damage over the area. A tornado was also reported in Russell County.

Event: Tornado
Begin Date: 08 May 2009, 21:25:00 PM EST
Begin Location: 1 Mile North West of Lebanon
Begin 36°54'N/82°05'W LAT/LON:
End Date: 08 May 2009, 21:25:00 PM EST End Location: Not Known Magnitude: F0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ O.0K

Description:
EVENT NARRATIVE: An EF0 tornado briefly touched down about one mile northwest of Lebanon. The path length was one tenth of a mile and the path width was 20 yards. Maximum wind speed was 65 miles an hour. EPISODE NARRATIVE: A highly organized mesoscale convective vorticity maximum with strong low to mid tropospheric flow coupled with moderate instability resulted in the development of discrete supercellular thunderstorms. These storms produced a long-lived tornado across Northeast Tennessee late in the afternoon and another long duration tornado across Southwest Virginia later in the evening.

Event: Tornado
Begin Date: 08 May 2009, 21:27:00 PM EST
Begin Location: 8 Miles East North East of Lebanon
Begin LAT/LON:
End Date: 08 May 2009,21:29:00 PM EST End Location: Not Known Length: 1.00 Mile Width: 250 Yards
Magnitude: F2 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: A tornado touched down about eight miles east-northeast of Lebanon, Virginia with maximum wind speeds of 125 miles an hour. The path length was 1.1 mile and maximum width was 250 yards. Approximately 100 trees were snapped and uprooted along the tornado path. In addition...;! well constructed wooden barn was completely destroyed and while a home incurred moderate damage. EPISODE NARRATIVE: A highly organized mesoscale convective vorticity maximum with strong low to mid tropospheric flow coupled with moderate instability resulted in the development of discrete supercelhilar thunderstorms. These storms produced a long-lived tornado across Northeast Tennessee late in the afternoon and another long duration tornado across Southwest Virginia later in the evening.

Event: Thunderstorm Wind
Begin Date: 08 May 2009, 21:35:00 PM EST
Begin Location: Lebanon
Begin 36°54'N/82°04W LAT/LON:
End Date: 08 May 2009, 21:35:00 PM EST End Location: Not Known Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ O.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Numerous trees were reported down in Lebanon. EPISODE NARRATIVE: A highly organized mesoscale convective vorticity maximum with strong low to mid tropospheric flow coupled with moderate instability resulted in the development of discrete supercellular thunderstorms. These storms produced a long-lived tornado across Northeast Tennessee late in the afternoon and another long duration tornado across Southwest Virginia later in the evening.

Event: Hail
Begin Date: 09 Jun 2009,17:19:00 PM EST
Begin Location: 1 Mile East of Castlewood
Begin 36°52'N / 82°17'W LAT/LON:
End Date: 09 Jun 2009,17:22:00 PM EST End Location: Not Known Magnitude: 0.88 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: The fire department officials reported nickle-size hail fell at the Castlewood Fire Station. EPISODE NARRATIVE: A boundary across southwest Virginia triggered isolated severe thunderstorms during the evening hours. Storm reports contained hail and damaging thunderstorm winds.

Event: Thunderstorm Wind
Begin Date: 11 Jim 2009,16:00:00 PM EST
Begin Location: Lebanon
Begin 36°54'N / 82°04'W LAT/LON:
End Date: 11 Jun 2009,16:10:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 8.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Law enforcement officials reported several trees downed by thunderstorm winds in Lebanon.

EPISODE NARRATIVE: A thunderstorm complex developed along a boundary and tracked across southwest Virginia bringing numerous thunderstorm wind damage reports.

Event: Tornado
Begin Date: 16 Jun 2009,18:55:00 PM EST
Begin Location: 5 Miles South of Castlewood
Begin LAT/LON:
End Date: 16 Jun 2009,19:00:00 PM EST
End Location: Not Known Magnitude: FO Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: An EF0 tornado touched down briefly south of Castlewood with a 20 yard path width and path length of two-tenths of a mile. The tornado produced maximum wind speeds at 70 mph. A few trees were downed due to the tornado. EPISODE NARRATIVE: A thunderstorm complex developed along a boundaiy and tracked across southwest Virginia bringing several thunderstorm wind damage reports. Three small tornadoes also developed.

Event: Tornado
Begin Date: 16 Jun 2009,18:55:00 PM EST
Begin Location: 5 Miles South of Castlewood
Begin 36°48N/82°18'W LAT/LON:
End Date: 16 Jun 2009,19:00:00 PM EST
End Location: Not Known Magnitude: F0 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: An EF0 tornado touched down briefly south of Castlewood with a 20 yard path width and path length of two-tenths of a mile. The tornado produced maximum wind speeds at 70 mph. A few trees were downed due to the tornado. EPISODE NARRATIVE: A thunderstorm complex developed along a boundary and tracked across southwest Virginia bringing several thunderstorm wind damage reports. Three small tornadoes also developed.

Event: Thunderstorm Wind
Begin Date: 16 Jim 2009,19:20:00 PM EST
Begin Location: 1 Mile North East of Willow Spg
Begin 36°46'N / 82°14'W LAT/LON:
End Date: 16 Jun 2009,19:30:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 3.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported two trees downed by thunderstorm winds southeast of Castlewood. EPISODE NARRATIVE: A thunderstorm complex developed along a boundary and tracked across southwest Virginia bringing several thunderstorm wind damage reports. Three small tornadoes also developed.

Event: Thunderstorm Wind
Begin Date: 16 Jun 2009,19:35:00 PM EST
Begin Location: Lebanon
Begin 36°54N/82°04'W LAT/LON:
End Date: 16 Jun 2009,19:45:00 PM EST End Location: Not Known Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ 20.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported numerous trees downed by thunderstorm winds in and around Lebanon and as far away as Honaker and Blackford. EPISODE NARRATIVE: A thunderstorm complex developed along a boundary and tracked across southwest Virginia bringing several thunderstorm wind damage reports. Three small tornadoes also developed.

Event: Thunderstorm Wind
Begin Date: 17 Jun 2009,16:10:00 PM EST
Begin Location: 1 Mile North of Gardner
Begin 37°02'N/81°57'W LAT/LON:
End Date: 17 Jun 2009,16:20:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Highway department officials reported several trees downed by thunderstorm winds northeast of Honaker. EPISODE NARRATIVE: Thunderstorm complex tracked along a boundary during the afternoon and evening hours. Most of the storm reports were for thunderstorm wind damage, but a few hail occurrences were also reported.

Event: Thunderstorm Wind
Begin Date: 17 Jun 2009,16:49:00 PM EST
Begin Location: 1 Mile West of Slabtown
Begin 36°54'N/82°06'W LAT/LON:
End Date: 17 Jun 2009,16:55:00 PM EST End Location: Not Known Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ 20.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Law enforcement officials reported numerous trees downed by thunderstorm winds countywide. EPISODE NARRATIVE: Thunderstorm complex tracked along a boundary during the afternoon and evening hours. Most of the storm reports were for thunderstorm wind damage, but a few hail occurrences were also reported.

Event: Thunderstorm Wind
Begin Date: 17 Jun 2009,17:25:00 PM EST
Begin Location: 1 Mile South West of Banners Corner
Begin 36°51'N/82°18'W LAT/LON:
End Date: 17 Jun 2009,17:35:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 5.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Law enforcement officials reported a few trees downed by thunderstorm winds southwest of Castlewood. EPISODE NARRATIVE: Thunderstorm complex tracked along a boundary during the afternoon and evening hours. Most of the storm reports were for thunderstorm wind damage, but a few hail occurrences were also reported.

Event: Thunderstorm Wind
Begin Date: 17 Jun 2009,18:00:00 PM EST
Begin Location: 1 Mile South of Carterton
Begin 36°52'N / 82°13'W LAT/LON:
End Date: 17 Jun 2009,18:10:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Law enforcement officials reported a few trees downed by thunderstorm winds east of Castlewood. EPISODE NARRATIVE: Thunderstorm complex tracked along a boundary during the afternoon and evening hours. Most of the storm reports were for thunderstorm wind damage, but a few hail occurrences were also reported.

Event: Flood
Begin Date: 26 Sep 2009,14:00:00 PM EST
Begin Location: Gibsonville
Begin 36°52N/82°10W
LAT/LON:
End Date: 26 Sep 2009, 21:00:00 PM EST End Location: 1 Mile South West of Spring City
End LAT/LON: 36°54'N / 82°07'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K

Description:
EVENT NARRATIVE: Areal flooding occurred along 71 just west of Lebanon, Virginia. Several inches to around a foot of water was over the road, with a few areas briefly impassable due to the flooding. EPISODE NARRATIVE: A nearly stationary front across the Tennessee valley region continued to aid in the development of very heavy rainfall that contributed to flash flooding that developed into a longer term areal flood event across southwest Virginia.

Event: Heavy Snow
Begin Date: 18 Dec 2009,19:00:00 PM EST
Begin Location: Not Known
End Date: 19 Dec 2009, 06:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 435.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Emergency Management reported amounts ranging from 10 to 12 inches of snow in valley areas in the county to 12 to 18 inches of snow in higher elevations throughout the county. EPISODE NARRATIVE: An area of low pressure tracked into the region from the south combined with cold air resulting in heavy snow across the area. This heavy snow event was the largest snowfall that has occurred across southwest Virginia since 1996. The heaviest snow fell over the higher elevations where 12-18 inches was reported. The valley locations received values ranging from 8 to 12 inches of snow.

Event: High Wind
Begin Date: 25 Dec 2009, 08:00:00 AM EST Begin Location: Not Known
End Date: 25 Dec 2009,12:00:00 PM EST
End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 5.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Law enforcement officials reported a few trees downed by non-thunderstorm winds at Damascus and Konnarock. EPISODE NARRATIVE: A strong low pressure tracked across southwest Virginia bringing damaging non-thunderstorm winds to the area in the morning hours on the 25th. The strongest winds occurred over the higher elevations.

Event: Heavy Snow
Begin Date: 29 Jan 2010,15:45:00 PM EST
Begin Location: Not Known
End Date: 30 Jan 2010,13:00:00 PM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Heavy snow occurred across the county, with eight to ten inches of snow reported in Lebanon, Virginia. EPISODE NARRATIVE: Heavy snow occurred across southwest Virginia, with snowfall amounts ranging from eight to twelve inches inches across the area.

Event: High Wind
Begin Date: 05 Feb 2010,18:25:00 PM EST
Begin Location: Not Known
End Date: 05 Feb 2010,19:30:00 PM EST
End Location: Not Known
Magnitude: 65 Fatalities: 0 Injuries: 0
Property S 20.0K Damage:
Crop Damage: S0.0K
Description:

EVENT NARRATIVE: Amateur radio personnel reported numerous and powerlines downed by non- thunderstorm winds in the Lebanon, Castlewood and Belfast areas. In addition, a carport was lifted onto a highway by the wind. EPISODE NARRATIVE: A strong pressure gradient brought damaging non-thunderstorm winds to mainly the higher elevations in southwest Virginia.

Event: Heavy Snow
Begin Date: 09 Feb 2010, 23:00:00 PM EST
Begin Location: Not Known
End Date: 10 Feb 2010, 20:00:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: A trained spotter reported 4 inches of snow fell at Pennington Gap. EPISODE NARRATIVE: An upper level disturbance tracked across the region dumping heavy snow across the area. Up to 14 of snow fell across the higher elevations, while 1 to 4 inches of snow was reported in the valley.

Event: Thunderstorm Wind
Begin Date: 28 May 2010,14:20:00 PM EST
Begin Location: 2 Miles South West of Lebanon
Begin 36°52'N/82°06'W LAT/LON:
End Date: 28 May 2010,14:30:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 12.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Six trees were blown down by thunderstorm winds. EPISODE NARRATIVE: Scattered large hail and damaging wind occurred along and ahead of a weak cold front that was moving into southwest Virginia.

Event: Flash Flood
Begin Date: 28 May 2010,16:10:00 PM EST
Begin Location: 3 Miles South West of Lebanon
Begin 36°52'N / 82°07W LAT/LON:
End Date: 28 May 2010,17:40:00 PM EST End Location: 1 Mile South South West of Gibsonville
End LAT/LON: 36°52'N / 82°10'W Magnitude: 0 Fatalities: 0 Injuries: 0 Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Several roads were reported to have several inches of water over the roads with flash flooding occurring in the central and southwest portions of the county. EPISODE NARRATIVE: Scattered large hail and damaging wind occurred along and ahead of a weak cold front that was moving into southwest Virginia

Event: Flood
Begin Date: 12 Jun 2010, 20:50:00 PM EST
Begin Location: 1 Mile West of Castlewood
Begin 36°52'N/82°18'W LAT/LON:
End Date: 12 Jun 2010, 23:50:00 PM EST End Location: 1 Mile North West of Castlewood
End LAT/LON: 36°53'N / 82°18'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 5.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported US Highway 58 was flooded near Castlewood by heavy rain from a thunderstorm. EPISODE NARRATIVE: A slowing moving thunderstorms brought isolated heavy rain reports across southwest Virginia.

Event: Thunderstorm Wind
Begin Date: 14 Jim 2010,13:00:00 PM EST
Begin Location: Lebanon
Begin 36°54'N / 82°04'W LAT/LON:
End Date: 14 Jim 2010,13:05:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property S 3.0K Damage:
Crop Damage: $ 0.0K

Description:
EVENT NARRATIVE: Law enforcement personnel reported 1 tree and powerlines downed by thunderstorm winds in Lebanon. EPISODE NARRATIVE: A frontal boundary lingering across the region triggered isolated severe thunderstorms during the heat of the day.

Event: Thunderstorm Wind
Begin Date: 14 Jun 2010,13:10:00 PM EST
Begin Location: 15 Miles South West of Lebanon
Begin 36°45'N / 82°16'W LAT/LON:
End Date: 14 Jun 2010,13:15:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 5.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported several trees downed by thunderstorm winds along Grassy Creek Road southwest of Lebanon. EPISODE NARRATIVE: A frontal boundary lingering across the region triggered isolated severe thunderstorms during the heat of the day.

Event: Flash Flood
Begin Date: 15 Jun 2010,17:30:00 PM EST
Begin Location: 1 Mile South of Castlewood
Begin 36°52'N/82°18W LAT/LON:
End Date: 15 Jun 2010,18:30:00 PM EST End Location: 1 Mile East South East of Castlewood
End LAT/LON: 36°52'N / 82°17[f]W Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 5.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported several roads and streets in and around Castlewood covered by rain from slow moving thunderstorms. EPISODE NARRATIVE: A slowing moving thunderstorms brought isolated heavy rain reports across southwest Virginia.

Event: Thunderstorm Wind
Begin Date: 21 Jun 2010,17:25:00 PM EST
Begin Location: Lebanon
Begin 36°54'N / 82°04'W LAT/LON:
End Date: 21 Jun 2010,17:30:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported a few trees downed by thunderstorm winds across the southern portions of the county. EPISODE NARRATIVE: A hot and humid airmass across the area helped to trigger isolated severe thunderstorms during the late afternoon and evening hours.

Event: Thunderstorm Wind
Begin Date: 22 Jim 2010,17:30:00 PM EST
Begin Location: Lebanon
Begin 36°54'N/82°04'W LAT/LON:
End Date: 22 Jun 2010,17:32:00 PM EST End Location: Not Known Magnitude: 52 Fatalities: 0 Injuries: 0
Property S 3.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported a few trees downed by thunderstorm winds in Lebanon. EPISODE NARRATIVE: A weak boundary lingering across the area produced isolated severe thunderstorms during the evening hours.

Event: Thunderstorm Wind
Begin Date: 04 Aug 2010,19:00:00 PM EST
Begin Location: 2 Miles North West of Honaker
Begin 37°02N/82°00W LAT/LON:
End Date: 04 Aug 2010,19:05:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 3.0K Damage:
Crop Damage: S 0.0K

Description:
EVENT NARRATIVE: Law enforcement personnel reported 2 trees downed by thunderstorm winds near Honaker. EPISODE NARRATIVE: A boundary across the area triggered isolated severe thunderstorms during the late afternoon and evening hours.

Event: Thunderstorm Wind
Begin Date: 05 Aug 2010,15:54:00 PM EST
Begin Location: 1 Mile South South East of Dante
Begin 36°57'N/82°17W LAT/LON:
End Date: 05 Aug 2010,16:00:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported several trees downed by thunderstorm winds on Route 63 near Dante. EPISODE NARRATIVE: A boundary across the area triggered isolated severe thunderstorms during the afternoon and evening hours.

Event: High Wind
Begin Date: 29 Nov 2010, 22:00:00 PM EST
Begin Location: Not Known
End Date: 29 Nov 2010,22:00:00 PM EST
End Location; Not Known
Magnitude: 50 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Power lines were downed when a tree fell onto a mobile home between Rosedale and Belfast. EPISODE NARRATIVE: A strong low pressure system moved north across Middle Tennessee. The extremely tight pressure gradient between this low and an area of high pressure over the eastern seaboard caused powerful, damaging southeast winds to blow across the Southern Appalachian Mountains affecting this mountain chain and the adjacent foothills in the Great Valley.

Event: Heavy Snow
Begin Date: 12 Dec 2010, 20:00:00 PM EST Begin Location: Not Known
End Date: 13 Dec 2010,21:00:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported 5.5 inches of snow at Wise. EPISODE NARRATIVE: An upper level low brought heavy snow across southwest Virginia over a 2-day period. The higher elevations received up to 7 inches of snow while the valley had 1 to 3 inches.

Event: Heavy Snow
Begin Date: 25 Dec 2010, 00:00:00 AM EST
Begin Location: Not Known
End Date: 27 Dec 2010,12:00:00 PM EST
Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property S 10.0K Damage:
CropDamage:$0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported 6 inches of snow fell in Lebanon. EPISODE NARRATIVE: An area of low pressure tracked through region producing snow over a 3 day period. Generally 1 to 4 inches of snow was reported in the lower elevations, while up to 7.5 inches of snow fell across the higher elevations.

Event: High Wind
Begin Date: 01 Feb 2011, 22:00:00 PM EST
Begin Location: Not Known

End Date: 02 Feb 2011, 01:00:00 AM EST
Location: Not Known
Magnitude: 60 Fatalities: 0 Injuries: 0
Property S 8.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported a few trees downed by non-thunderstorm wind across the county. EPISODE NARRATIVE: A deep area of low pressure produced a strong gradient across southwest Virginia resulting in strong non-thunderstorm winds over the area.

Event: Flood
Begin Date: 28 Feb 2011,15:05:00 PM EST
Begin Location: Hansonville
Begin 36°49'N / 82°09'W
LATYLON:
End Date: 28 Feb 2011,18:05:00 PM EST End Location: Hansonville End LAT/LON: 36°49'N / 82°09'W
Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 25.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: The emergency manager reported flooding in several areas in Hansonville from slow moving thunderstorms. EPISODE NARRATIVE: A strong storm system triggered slow moving thunderstorms across southwest VA on the 28th. The storms brought heavy rain and flooding to many cities and rural areas.

Event: Hail
Begin Date: 23 Mar 2011,19:15:00 PM EST
Begin Location: 1 Mile South West of Rosedale
Begin 36°57'N/81°55'W LATYLON:
End Date: 23 Mar 2011,19:15:00 PM EST End Location: Not Known Magnitude: 1.75 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Golfball size hail was reported. EPISODE NARRATIVE: Severe convection developed ahead of a cold front during the late afternoon through late evening hours in an atmosphere characterized by high shear with a 40 to 50 knot low level jet and a 120 knot upper level jet but only weak to moderate instability.

Event: Hail
Begin Date: 09 Apr 2011, 00:05:00 AM EST
Begin Location: Lebanon
Begin 36°54'N / 82°04'W LAT/LON:
End Date: 09 Apr 2011, 00:08:00 AM EST
End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported early morning thunderstorms produced quarter-size hail in Lebanon. EPISODE NARRATIVE: Boundary across the area triggered scatter severe thunderstorms during the afternoon and evening hours on the 9th. Storm reports were for both large hail and damaging thunderstorm winds.

Event: Thunderstorm Wind
Begin Date: 09 Apr 2011,13:40:00 PM EST
Begin Location: 2 Miles South of Castlewood
Begin 36°51'N/82°18'W LAT/LON:
End Date: 09 Apr 2011,13:42:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Law enforcement personnel reported 1 tree downed by thunderstorms wind on Highway downed produced softball-size hail in Rogersville. EPISODE NARRATIVE: Boundary across the area triggered

scatter severe thunderstorms during the afternoon and evening hours on the 9th. Storm reports were for both large hail and damaging thunderstorm winds.

Event: Hail
Begin Date: 09 Apr 2011,15:20:00 PM EST
Begin Location: Lebanon
Begin 36°54'N / 82°04'W LAT/LON:
End Date: 09 Apr 2011,15:23:00 PM EST End Location: Not Known
Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property S 0.0K
Damage:
Crop Damage: $ 0.0K
Description:EVENT NARRATIVE: Law enforcement personnel reported thunderstorms produced quarter-size hail in Lebanon. EPISODE NARRATIVE: Boundary across the area triggered scatter severe thunderstorms during the afternoon and evening hours on the 9th. Storm reports were for both large hail and damaging thunderstorm winds.

146 event(s) were reported in Tazewell County, Virginia between 01/01/2005 and 04/30/2011 (High Wind limited to speed greater than 0 knots).

Location or County	Date	Time	Type	Mag	Dth		PrD	CrD
1 VAZ007-009>010 -014-017-022- 024-033>035-043- 045>046 - 059	01/29/2005	12:00 PM	Ice Storm	N/A	0	0	0	0
2 VAZ007 - 009>020 -022>024-032>035 - 043>047 - 058	02/28/2005	08:00 AM	Heavy Snow	N/A	0	0	0	0
3 Tazewell	07/27/2005	05:00 PM	Tstm Wind	60 kts.	0	0	0	0
4 Clavpool Hill	11/16/2005	04:25 AM	Tstm Wind	55 kts.	0	0	0	0
5 VAZ007 - 009>020 -022>024-032>035 - 043>045	01/14/2006	08:00 AM	High Wind	53 kts.	0	0	0	0
6 Richlands	04/17/2006	10:38 AM	Hail	1.00 in.	0	0	0	0
7 Cedar Bluff	04/17/2006	10:40 AM	Hail	0.75 in.	0	0	0	0
8 Richlands	04/17/2006	10:43 AM	Hail	1.75 in.	0	0	0	0
9 Tannersville	04/17/2006	10:45 AM	Tstm Wind	65 kts,	0	0	10K	0
10 Boissevain	06/01/2006	04:40 PM	Tstm Wind	60 kts.	0	0	IK	0

HClavpoolHill	06/11/2006	01:24 AM	Tstm Wind	60 kts.	0	0	3K	0
12 Tazewell	06/11/2006	11:12PM	Tstm Wind	57 kts.	0	0	2K	0
13 Pocahontas	07/18/2006	08:00 PM	Tstm Wind	55 kts.	0	0	10K	0
14 Clavoool Hill	07/18/2006	09:28 PM	Hail	0.88 in.	0	0	0	0
15 Richlands	07/18/2006	09:31PM	Tstm Wind	55 kts.	0	0	0	4K
16ClavDoolHill	07/18/2006	09:33 PM	Hail	0.75 in.	0	0	0	0
17 VAZ007	07/18/2006	11:05 PM	Landslide	N/A	0	0	0	0
18VAZ007-010	10/13/2006	00:30 AM	Frost/freeze	N/A	0	0	OK	OK
19VAZ007	10/16/2006	20:00 PM	High Wind	63 kts.	0	0	150 K	OK
20 VAZ007	11/15/2006	16:30 PM	High Wind	52 kts.	0	0	IK	OK
21 VAZ007-015	12/01/2006	13:30 PM	High Wind	52 kts.	0	0	3K	OK
22 VAZ007	12/25/2006	12:00 PM	High Wind	60 kts.	0	0	5K	OK
23 VAZ007	12/25/2006	12:45 PM	High Wind	52 kts.	0	0	OK	OK
24 VAZ007	01/09/2007	16:00 PM	Winter Weather	N/A	0	0	OK	OK
25 VAZ007	02/17/2007	12:00 PM	Heavy Snow	N/A	0	0	OK	OK
26 VAZ007	02/25/2007	06:15 AM	High Wind	52 kts.	0	0	OK	OK
27 VAZ007	03/01/2007	22:43 PM	High Wind	51 kts.	0	0	OK	OK
28 Tazewell	04/03/2007	00:00 AM	Thunderstor Wind	55 kts.	0	0	3K	OK
29 Amonate	06/05/2007	17:25 PM	Hail	1.00 in.	0	0	**IK**	OK
30 Tazewell	06/05/2007	17:43 PM	Hail	0.75 in.	0	0	OK	OK
31 PoundinaMill	06/08/2007	17:05 PM	Hail	0.75 in.	0	0	OK	OK

32 Tazewell	06/14/2007	15:00 PM	Thunderstorm Wind	52 kts.	0	0	OK	OK
33 Clavpool Hill	06/15/2007	14:08 PM	Hail	0.75 in.	0	0	IK	OK
34 Richlands	06/19/2007	17:25 PM	Hail	1.00 in.	0	0	2K	OK
35 Richlands	06/19/2007	17:25 PM	Thunderstorm Wind	52 kts.	0	0	2K	OK
36 Burkes Garden	06/24/2007	16:00 PM	Hail	0.88 in.	0	0	IK	OK
37 VAZ007 - 009 - 015	07/10/2007	00:00 AM	Drought	N/A	0	0	OK	2.0M
38 Richlands	08/02/2007	17:20 PM	Flash Flood	N/A	0	0	100K	OK
39 VAZ007 - 009 - 012-015	08/14/2007	00:00 AM	Drought	N/A	0	0	OK	OK
40 VAZ007 - 009 - 012>017- 043>045 - 058	09/01/2007	00:00 AM	Drought	N/A	0	0	OK	8.0M
41 VAZ007-009- 012>017- 043>045 - 058	10/01/2007	00:00 AM	Drought	N/A	0	0	OK	OK
42 VAZ007 - 009 - 015	11/01/2007	00:00 AM	Drought	N/A	0	0	OK	OK
43 VAZ007 - 009 - 012- 015>016- 043	12/01/2007	00:00 AM	Drought	N/A	0	0	OK	OK
44 VAZ007	12/23/2007	04:30 AM	High Wind	52 kts.	0	0	3K	OK
45 VAZ007 - 009 - 015-032-043-	01/01/2008	00:00 AM	Drought	N/A	0	0	OK	OK
46 VAZ007	01/01/2008	17:00 PM	Heavy Snow	N/A	0	0	OK	OK
47 Clavoool Hill	01/30/2008	01:30 AM	Thunderstorm Wind	50 kts.	0	0	OK	OK
48 VAZ007 - 009 - 015 - 032>033 - 043>047 - 058	02/01/2008	00:00 AM	Drought	N/A	0	0	OK	OK
49VAZ007-011- 022 - 058	02/10/2008	11:00 AM	High Wind	52 kts.	0	**0**	5K	OK
50VAZ007-015	02/26/2008	22:00 PM	Heavy Snow	N/A	0	**0**	OK	OK

51 VAZ007	05/11/2008	07:28 AM	High Wind	55 kts.	0	0	20K	OK
52 Richlands	06/10/2008	17:32 PM	Thunderstorm Wind	55 kts.	0	0	5K	OK
53 Bluefield	06/22/2008	18:20 PM	Hail	1.00 in.	0	0	OK	OK
54 Bluefield	06/22/2008	18:22 PM	Hail	1.00 in.	0	0	OK	OK
55 Bluefield	06/22/2008	18:24 PM	Hail	1.75 in.	0	0	OK	OK
56 Richlands	06/22/2008	18:30 PM	Thunderstorm Wind	50 kts.	0	0	2K	OK
57 River Jack	06/27/2008	12:00 PM	Thunderstorm Wind	50 kts.	0	0	IK	OK
58 Bluefield	07/23/2008	13:12 PM	Thunderstorm Wind	50 kts.	0	0	IK	OK
59VAZ007-010-013-022-034-045>047 - 059	08/19/2008	00:00 AM	Drought	N/A	0	0	OK	OK
60 VAZ007 - 009	10/14/2008	07:00 AM	Drought	N/A	0	0	OK	OK
61 VAZ007-009	11/01/2008	00:00 AM	Drought	N/A	0	0	OK	OK
62 VAZ007 - 009	12/01/2008	00:00 AM	Drought	N/A	0	0	OK	OK
63 VAZ007	02/03/2009	18:00 PM	Heavy Snow	N/A	0	0	OK	OK
64 Tazewell	02/11/2009	18:42 PM	Thunderstorm Wind	55 kts.	0	0	OK	OK
65VAZ007-019	02/11/2009	23:00 PM	High Wind	52 kts.	0	0	OK	OK
66 VAZ007	04/03/2009	15:45 PM	High Wind	50 kts.	0	0	IK	OK
67 Bluefield	05/08/2009	20:52 PM	Thunderstorm Wind	55 kts.	0	0	OK	OK
68 Richlands	06/02/2009	19:05 PM	Hail	0.88 in.	0	0	OK	OK
69 Richlands	06/04/2009	17:15 PM	Flash Flood	N/A	0	0	IK	OK
70 ClavDool Hill	06/17/2009	10:30 AM	Flash Flood	N/A	0	0	IK	OK
71 Cedar Bluff	07/09/2009	14:10 PM	Hail	0.75 in.	0	0	OK	OK
72 Cedar Bluff	07/09/2009	14:10 PM	Hail	0.75	0	0	OK	OK

				in.				
73 Fourwav	08/05/200 0	17:40 PM	Flash Flood	N/A	0	0	OK	OK
74 Tazewell	08/05/200 0	17:40 PM	Flash Flood	N/A n	0	0	2K	OK
75 Tazewell	08/05/200 0	17:40 PM	Flash Flood	N/A	0	0	2K	OK
76 Tazewell	09/09/200 9	12:00 PM	Hail	0.88 in.	0	0	OK	OK
77 Tazeweil	09/09/200 9	12:13 PM	Hail	0.88 in.	0	0	OK	OK
78 Tazewell	09/09/200 9	12:15 PM	Thunderstor m Wind	55 kts.	0	0	OK	OK
79 Tazewell	09/26/200 0	14:00 PM	Flash Flood	N/A	0	0	IK	OK
80 VAZ007	11/18/200 9	07:00 AM	High Wind	50 kts.	0	0	OK	OK
81 VAZ007	12/02/200 9	07:30 AM	High Wind	50 kts.	0	0	15K	OK
82 VAZ007	12/09/200 9	06:00 AM	High Wind	55 kts.	0	0	5K	OK
83 VAZ007	12/18/200 0	12:00 PM	Heavy Snow	N/A	0	0	OK	OK
84 VAZ007	12/25/200 9	07:45 AM	High Wind	50 kts.	0	0	5K	OK
85 VAZ007	01/24/201 0	06:31A M	High Wind	56 kts.	0	0	2K	OK
86VAZ007-O10- 012-017	01/29/201 0	19:00 PM	Heavy Snow	N/A	0	0	OK	OK
87 VAZ007 - 009>013 - 032	02/04/201 0	23:00 PM	Winter Storm	N/A	0	0	OK	OK
88 VAZ007	02/05/201 0	12:30 PM	High Wind	68 kts.	0	0	80K	OK
89 VAZ007 - 009 - 015-018	02/09/201 0	02:00 AM	Winter Storm	N/A	0	0	OK	OK
90VAZ007-015	02/24/201 0	16:00 PM	Winter Storm	N/A	0	0	OK	OK
91 Falls Mills	03/13/201 0	00:57 AM	Flash Flood	N/A	0	0	OK	OK
92 Bluefield	03/13/201 0	02:20 AM	Flash Flood	N/A	0	0	OK	OK
93 Yards	03/13/201 0	02:20 AM	Flash Flood	N/A	0	0	OK	OK
94 Yards	03/13/201 0	02:20 AM	Flash Flood	N/A	0	0	OK	OK
95 Yards	03/13/201 0	08:59 AM	Flash Flood	N/A	0	0	OK	OK

96 Yards	03/13/2010	08:59 AM	Flash Flood	N/A	0	0	OK	OK
97 Gose Mill	03/13/2010	09:40 AM	Flash Flood	N/A	0	0	OK	OK
98 Pisgah	04/05/2010	17:52 PM	Hail	0.75 in.	0	0	OK	OK
99 Bluefield	04/05/2010	17:55 PM	Hail	0.88 in.	0	0	OK	OK
100 Pocahontas	04/05/2010	18:00 PM	Hail	1.75 in.	0	0	2K	OK
101 Bluefield	05/14/2010	16:37 PM	Hail	0.88 in.	0	0	OK	OK
102 Jewell Ridee	05/14/2010	17:26 PM	Thunderstorm Wind	50 kts.	0	0	IK	OK
103 Richlands	05/15/2010	19:43 PM	Hail	0.88 in.	0	0	OK	OK
104Tazewell	06/12/2010	21:00 PM	Flash Flood	N/A	0	0	2K	OK
105 Pocahontas	06/13/2010	05:27 AM	Flash Flood	N/A	0	0	5K	OK
106Tazewell	06/14/2010	13:10 PM	Thunderstorm Wind	50 kts.	0	0	2K	OK
107 Richlands	06/22/2010	19:31PM	Thunderstorm Wind	55 kts.	0	0	5K	OK
108 Foot Of Jump	06/23/2010	14:45 PM	Thunderstorm Wind	50 kts.	0	0	2K	OK
109Adria	06/23/2010	14:59 PM	Thunderstorm Wind	50 kts.	0	0	IK	OK
110 Richlands	06/23/2010	15:04 PM	Thunderstorm Wind	55 kts.	0	0	2K	OK
111 Richlands	06/23/2010	15:15 PM	Thunderstorm Wind	50 kts.	0		2K	OK
112 Richlands	06/23/2010	15:35 PM	Flash Flood	N/A	0	0	6K	OK
113 Richlands	06/23/2010	15:35 PM	Thunderstorm Wind	65 kts.	0	0	8K	OK
114 Richlands	06/23/2010	15:50 PM	Thunderstorm Wind	55 kts.	0	**0**	3K	OK
115 Me Call Place	07/17/2010	11:22 AM	Flash Flood	N/A	0	0	OK	OK
116 Jewell Ridee	08/05/2010	14:55 PM	Thunderstorm Wind	50 kts.	0	0	3K	OK
117 Pounding Mill	08/05/2010	16:37 PM	Thunderstorm Wind	50 kts.	0	0	OK	OK

118 Cedar Bluff	08/05/2010	16:39 PM	Flash Flood	N/A	0	0	OK	OK
119 CLiffield	08/05/2010	16:42 PM	Thunderstorm Wind	50 kts.	0	0	2K	OK
120 Mouth Of	08/05/2010	16:42 PM	Thunderstorm Wind	55 kts.	0	0	2K	OK
121 Benbow	10/25/2010	08:50 AM	Thunderstorm Wind	50 kts.	0	0	OK	OK
122 Gose Mill	10/25/2010	08:55 AM	Thunderstorm Wind	50 kts.	0	0	OK	OK
123 Richlands	11/30/2010	23:30 PM	Flash Flood	N/A	0	0	OK	OK
124 Richlands	12/01/2010	00:00 AM	Flash Flood	N/A	0	0	OK	OK
125 VAZ007	12/04/2010	09:40 AM	Heavy Snow	N/A	0	0	OK	OK
126VAZ007-010	12/12/2010	06:00 AM	| Heavy Snow	N/A	0	0	OK	OK
127VAZ007-015	01/07/2011	09:00 AM	Heavy Snow	N/A	0	0	OK	OK
128VAZ007-015	01/11/2011	18:00 PM	Heavy Snow	N/A	0	0	OK	OK
129VAZ007	01/26/2011	10:00 AM	Winter Storm	N/A	0	0	OK	OK
130 VAZ007	02/01/2011	20:40 PM	High Wind	61 kts.	0	0	3K	OK
131 Richlands	02/28/2011	16:15 PM	Flash Flood	N/A	0	0	OK	OK
132 Me Call Place	02/28/2011	18:50 PM	Flood	N/A	0	0	OK	OK
133 Adria	02/28/2011	20:15 PM	Flood	N/A	0	0	OK	OK
134 Bandy	02/28/2011	20:15 PM	Flood	N/A	0	0	OK	OK
135 Richlands	02/28/2011	22:30 PM	Flood	N/A	0	0	OK	OK
136VAZ007	03/09/2011	16:04 PM	High Wind	52 kts.	0	0	5K	OK
137 Tazewell	04/08/2011	22:35 PM	Hail	0.75 in.	0	0	OK	OK
138 Bishop	04/09/2011	14:38 PM	Hail	LOO in.	0	0	OK	OK
139 VAZ007	04/15/2011	18:30 PM	High Wind	51 kts.	0	0	OK	OK
140 Birmingham	04/25/2011	14:19 PM	Thunderstorm Wind	50 kts.	0	0	IK	OK
141 Richlands	04/25/201	14:26 PM	Hail	0.75 in.	0	0	OK	OK

142Richlands	04/27/2011	21:23 PM	Hail	1.00 in.	0	0	OK	OK
143 Thompson Vlv	04/27/2011	21:44 PM	Thunderstorm Wind	50 kts.	0	0	OK	OK
144 Richlands	04/27/2011	21:55 PM	Flash Flood	N/A	0	0	5K	OK
145 Bluefield	04/27/2011	22:15 PM	Hail	1.00 in.	0	0	OK	OK
146 Glen Burke	04/28/2011	00:37 AM	Flash Flood	N/A	0	0	OK	OK
TOTALS:					0	0	504 K	10.004 M

Event: Ice Storm
Begin Date: 29 Jan 2005,12:00:00 PM EST Begin Location: Not Known
End Date: 30 Jan 2005, 06:58:00 AM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: S 0.0
Description:A low pressure system tracking aloug the east coast brought a wintiy mix of precipitation to the region. Ice accretion was one quarter of an inch in most locations with a few isolated locations in Charlotte Co. receiving one half inch accretion. Snowfall was very much a secondary element with 1 to 3 inches being the norm, except for Grayson Co., where amounts ranged from 4 to 6 inches.

Event: Heavy Snow
Begin Date: 28 Feb 2005, 08:00:00 AM EST Begin Location: Not Known
End Date: 28 Feb 2005,11:00:00 PM EST End Location: Not Known Magnitude; 0 Fatalities: 0 Injuries: 0
Property $ 0.0 Damage:
Crop Damage: $ 0.0
Description:
A very strong winter storm moved across the southeastern U.S., then up the east coast during the 28th of February. This storm brought heavy snow amounts to most of southwestern Virginia from the piedmont to the mountains. The snow was mixed at times with sleet across the piedmont. Snowfall totals ranged from 5 to 10 inches across most of the area. The highest amounts occurred along the Blue Ridge mountains, with 10 to 12 inches across western Franklin County, into southern portions of Roanoke County, including the city. The amounts were lighter in the piedmont with 3 to 6 inches on average.

Event: Tstm Wind
Begin Date: 27 Jul 2005, 05:00:00 PM EST
Begin Location: Tazewell
Begin 37°0N/81°31'W LAT/LON:
End Date: 27 Jul 2005, 05:00:00 PM EST End Location: Tazewell End LAT/LON: 37°07'N / 81°31'W Magnitude: 60 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: $ 0.0
Description:
Numerous thunderstorms developed in the late afternoon and early evening on the 27th. Some of these became severe producing damaging winds that brought numerous trees down. There was also one report of penny size hail.

Event: Tstm Wind
Begin Date; 16 Nov 2005, 04:25:00 AM EST
Begin Location: Claypool Hill
Begin 37°04'N/81°46W LAT/LON:
End Date: 16 Nov 2005, 04:25:00 AM EST End Location: Claypool Hill
End LAT/LON: 37°04'N / 81°46'W Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: $ 0.0
Description:
Trees down on Route 610.

Event: High Wind
Begin Date: 14 Jan 2006, 08:00:00 AM EST Begin Location: Not Known
End Date: 14 Jan 2006, 03:00:00 PM EST End Location: Not Known Magnitude: 53 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: S 0.0
Description:
A cold front passed across Virginia in the early morning hours of the 14th. After sunrise, winds increased and very strong gusts during the day resulted in numerous reports of trees down, many power lines down, power outages, signs blown down or bent, and some structural damage from trees falling on buildings, and shingles being blown off roofs.

Event: Hail
Begin Date: 17 Apr 2006,10:38:00 AM EST
Begin Location: Richlands
Begin 37°06'N / 81°49'W LAT/LON:
End Date: 17 Apr 2006,10:38:00 AM EST End Location: Richlands
End LAT/LON: 37°06'N / 81°49'W Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property $ 0.0 Damage:
Crop Damage: $ 0.0
Description:
A backdoor cold front moved across the area on the 17th. Some of the storms associated with this front became severe, producing hail ranging from penny size to golf ball size, and wind gusts estimated between 65 and 70 mph. These winds in turn resulted in trees being blown over.

Event: Hail
Begin Date: 17 Apr 2006,10:40:00 AM EST
Begin Location: Cedar Bluff
Begin 37°05'N / 81°46'W LAT/LON:
End Date: 17 Apr 2006,10:40:00 AM EST End Location: Cedar Bluff End LAT/LON: 37°05'N / 81°46'W
Magnitude: 0.75 inches Fatalities: 0 Injuries: 0 Property S 0.0 Damage:
Crop Damage: $ 0.0
Description:
A backdoor cold front moved across the area on the 17th. Some of the storms associated with this front became severe, producing hail ranging from penny size to golf ball size, and wind gusts estimated between 65 and 70 mph. These winds in turn resulted in trees being blown over.

Event: Hail
Begin Date: 17 Apr 2006,10:43:00 AM EST
Begin Location: Richlands
Begin 37°06'N / 81°49'W LAT/LON:
End Date: 17 Apr 2006,10:43:00 AM EST End Location: Richlands End LAT/LON: 37°06'N / 81°49'W Magnitude: 1.75 inches Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: S 0.0
Description:
A backdoor cold front moved across the area on the 17th. Some of the storms associated with this front became severe, producing hail ranging from penny size to golf ball size, and wind gusts estimated between 65 and 70 mph. These winds in turn resulted in trees being blown over.

Event: Tstm Wind
Begin Date: 17 Apr 2006,10:45:00 AM EST
Begin Location: Tannersville
Begin 39°29'N / 81°37'W LAT/LON:
End Date: 17 Apr 2006,10:45:00 AM EST
End Location: Tannersville End LAT/LON: 39°29'N / 81°37'W Magnitude: 65 Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: $ 0.0
Description:
A backdoor cold front moved across the area on the 17th. Some of the storms associated with this front became severe, producing hail ranging from penny size to golf ball size, and wind gusts estimated between 65 and 70 mph. These winds in turn resulted in trees being blown over.

Event: Tstm Wind
Begin Date: 01 Jun 2006, 04:40:00 PM EST Begin Location: Boissevain
Begin 37°17'N / 81°23'W LAT/LON;
End Date: 01 Jun 2006, 04:40:00 PM EST End Location: Boissevain End LAT/LON: 37°17'N / 81°23'W
Magnitude: 60 Fatalities: 0 Injuries: 0
Property S 0.9K Damage:
Crop Damage: $ 0.0
Description:
A severe thunderstorm downed a large tree on Boissevain Road. A severe thunderstorm uprooted large trees two miles west of Narrows in Giles county.

Event: Tstm Wind
Begin Date: 11 Jun 2006, 01:24:00 AM EST Begin Location: Claypool Hill
Begin 37°04'N / 81°46'W LAT/LON:
End Date: 11 Jun 2006, 01:28:00 AM EST End Location: Claypool Hill
End LAT/LON: 37°04'N / 81°46'W Magnitude: 60 Fatalities: 0 Injuries: 0
Property S 2.7K Damage:
Crop Damage: S 0.0
Description:
A severe thunderstorm during the morning of the llth downed trees.

Event: Tstm Wind
Begin Date: 11 Jun 2006,11:12:00 PM EST
Begin Location: Tazewell
Begin 37°07'N / 81°31'W LAT/LON:
End Date: 11 Jun 2006,11:12:00 PM EST End Location: Tazewell End LAT/LON: 37°07'N / 81°31'W Magnitude: 57 Fatalities: 0 Injuries: 0
Property $ 1.8K Damage:
Crop Damage: $ 0.0
Description:
Thunderstorm winds downed trees in Tazewell and SpringviUe.

Event: Tstm Wind
Begin Date: 18 Jul 2006, 08:00:00 PM EST
Begin Location: Pocahontas
Begin 37°18'N/81°21W
LAT/LON:
End Date: 18 Jul 2006, 08:00:00 PM EST End Location: Pocahontas End LAT/LON: 37°18'N / 81°21'W
Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 10.0K Damage:
Crop Damage: $ 0.0
Description:
Thunderstorms developed just in advance of a backdoor cold front entering the region. Some of these storms became severe and produced large hail and damaging winds. Hail ranged from penny to nickel size, and wind gusts in the 60 to 70 mph also accompanied some of the storms. The winds downed some trees, including some limbs off some fruit trees. The rains from these severe storms were also very intense. Intense enough to help produce a landslide near a pipeline construction project near the town of Tannersville, VA. The landslide blocked sections of Freestone Valley Road with mud up to 3 inches deep

Event: Hail
Begin Date: 18 Jul 2006, 09:28:00 PM EST
Begin Location: 2 Miles East of Claypool Hill
Begin 37°04'N/81°44W LAT/LON:
End Date: 18 Jul 2006, 09:28:00 PM EST End Location: 2 Miles East South East of Claypool Hill End LAT/LON: 37°04'N / 81°44'W Magnitude: 0.88 inches Fatalities: 0 Injuries: 0

Property S 0.0 Damage:
Crop Damage: $ 0.0
Description:
Thunderstorms developed just in advance of a backdoor cold front entering the region. Some of these storms became severe and produced large hail and damaging winds. Hail ranged from penny to nickel size, and wind gusts in the 60 to 70 mph also accompanied some of the storms. The winds downed some trees, including some limbs off some fruit trees. The rains from these severe storms were also veiy intense. Intense enough to help produce a landslide near a pipeline construction project near the town of Tannersville, VA. The landslide blocked sections of Freestone Valley Road with mud up to 3 inches deep

Event: Tstm Wind
Begin Date: 18 Jul 2006, 09:31:00 PM EST
Begin Location: Richlands
Begin 37°06N/81°49W LAT/LON:
End Date: 18 Jul 2006, 09:31:00 PM EST End Location: Richlands End LAT/LON: 37°06'N / 81°49'W Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 0.0 Damage:
Crop Damage: S4.0K
Description:
Thunderstorms developed just in advance of a backdoor cold front entering the region. Some of these storms became severe and produced large hail and damaging winds. Hail ranged from penny to nickel size, and wind gusts in the 60 to 70 mph also accompanied some of the storms. The winds downed some trees, including some limbs off some fruit trees. The rains from these severe storms were also very intense. Intense enough to help produce a landslide near a pipeline construction project near the town of Tannersville, VA. The landslide blocked sections of Freestone Valley Road with mud up to 3 inches deep

Event: Hail
Begin Date: 18 Jul 2006, 09:33:00 PM EST
Begin Location: ClaypoolHill
Begin 37°04'N / 81°46'W LAT/LON:
End Date: 18 Jul 2006, 09:33:00 PM EST End Location: Claypool Hill End LAT/LON: 37°04'N / 81°46'W Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property $ 0.0 Damage:
Crop Damage: S 0.0
Description:
Thunderstorms developed just in advance of a backdoor cold front entering the region. Some of these storms became severe and produced large hail and damaging winds. Hail ranged from penny to nickel size, and wind gusts in the 60 to 70 mph also accompanied some of the storms. The winds downed some trees, including some limbs off some fruit trees. The rains from these severe storms were also very intense. Intense enough to help produce a landslide near a pipeline construction project near the town of Tannersville, VA. The landslide blocked sections of Freestone Valley Road with mud up to 3 inches deep

Event: Frost/freeze
Begin Date: 13 Oct 2006, 00:30:00 AM EST
Begin Location: Not Known
End Date: 13 Oct 2006, 08:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property S 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: During the late evening of the 12th into the morning of the 13th, cold high pressure settled over the region giving parts of the region their first good hard autumn freeze of 2006.

Event: High Wind
Begin Date: 16 Oct 2006,20:00:00 PM EST
Begin Location: Not Known
End Date: 17 Oct 2006, 08:00:00 AM EST
End Location: Not Known
Magnitude: 63 Fatalities: 0 Injuries: 0
Property $ 150.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: At least 40 large trees were blown down county wide. Most came down during the hours of 04:00 and 08:00 EST. Some of these trees fell on powerlines, resulting in outages to 400 power customers. EPISODE NARRATIVE: With strong high pressure along the coast and a strong area of low pressure approaching from the west, a strong pressure gradient developed across the region with preferred cross mountain flow helping to mix damaging winds to the surface.

Event: High Wind
Begin Date: 15 Nov 2006,16:30:00 PM EST
Begin Location: Not Known
End Date: 15 Nov 2006,16:30:00 PM EST
Location: Not Known
Magnitude: 52 Fatalities: 0 Injuries: 0 Property $ 0.9K Damage:
Crop Damage: SO.0K
Description:
EVENT NARRATIVE: Tree downed along Highway 643 in Falls Mills, Virginia. EPISODE NARRATIVE: Low pressure deepened across the Tennessee Valley during the evening of the 15th, creating high winds across Tazewell County.

Event: High Wind
Begin Date: 01 Dec 2006,13:30:00 PM EST
Begin Location: Not Known
End Date: 01 Dec 2006,13:30:00 PM EST
End Location: Not Known
Magnitude: 52 Fatalities: 0 Injuries: 0
Property S 3.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Strong winds downed power lines and a retaining fence near Richlands. EPISODE NARRATIVE: A strong cold front swept east across the Appalachians on the 1st of December resulting in gusty west winds.

Event: High Wind
Begin Date: 25 Dec 2006,12:00:00 PM EST
Begin Location: Not Known
End Date: 25 Dec 2006,12:50:00 PM EST
End Location Not Known
Magnitude: 60 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Numerous trees downed by strong winds. EPISODE NARRATIVE: Low pressure strenghtening across the Tennessee Valley during the afternoon of December 25th resulted in strong southeast winds in the high country of Tazewell county.

Event: High Wind
Begin Date: 25 Dec 2006,12:45:00 PM EST
Begin Location: Not Known

End Date: 25 Dec 2006,12:45:00 PM EST
End Location Not Known
Magnitude: 52 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Tazewell Middle School reported a 60 mph wind gust. EPISODE NARRATIVE: Low pressure strengthening across the Tennessee Valley during the afternoon of December 25th resulted in strong southeast winds in the high country of Tazewell county.

Event: Winter Weather
Begin Date: 09 Jan 2007,16:00:00 PM EST
Begin Location: Not Known
End Date: 09 Jan 2007, 23:00:00 PM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: An area of low pressure moving through the region helped to bring snow showers to the mountains of southwest Virginia. On average, 4 inches of snow covered the area.

Event: Heavy Snow
Begin Date: 17 Feb 2007,12:00:00 PM EST
Begin Location: Not Known
End Date: 18 Feb 2007,22:30:00 PM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ O.0K
Description:
EPISODE NARRATIVE: Low pressure moving across the area brought a period of snow February 17th. The arctic airmass behind this system combined with upper level disturbances, brought heavier snow showers on the 18th. Three to Five inches of snow fell during this time, with the heaviest occurring in eastern Tazewell County.

Event: High Wind
Begin Date: 25 Feb 2007, 06:15:00 AM EST
Begin Location: Not Known
End Date: 25 Feb 2007, 07:30:00 AM EST
End Location: Not Known Magnitude: 52 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: A strong low level jet moved across southwest Virginia, ahead of a cold front during the 25th. Strong southwest winds gusting to 60 mph occurred in Tazewell county.

Event: High Wind
Begin Date: 01 Mar 2007, 22:43:00 PM EST
Begin Location: Not Known
End Date: 01 Mar 2007, 22:43:00 PM EST
End Location: Not Known

Magnitude: 51 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: A strong cold front moving through southwest Virginia resulted in strong winds.

Event: Thunderstorm Wind
Begin Date: 03 Apr 2007, 00:00:00 AM EST
Begin Location: Tazewell
Begin 37°07N/81°31W LAT/LON:
End Date: 03 Apr 2007, 00:00:00 AM EST End Location: Not Known
Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 3.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: A lone severe thunderstorm downed two large trees in Tazewell, and caused scattered power outages.

Event: Hail
Begin Date: 05 Jun 2007,17:25:00 PM EST
Begin Location: Amonate
Begin 37°10'N/81°39'W
LAT/LON:
End Date: 05 Jun 2007,17:25:00 PM EST End Location: Not Known Magnitude: 1,00 inches Fatalities: 0 Injuries: 0
Property SI.OK Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Hail up to the size of quarters covered the ground. EPISODE NARRATIVE: A supercell tracked east across southwest Virginia producing hail and wind damage from Tazewell county to Pittsylvania county.

Event: Hail
Begin Date: 05 Jun 2007,17:43:00 PM EST
Begin Location: Tazewell
Begin 37°07'N / 81°31'W LAT/LON:
End Date: 05 Jun 2007,17:43:00 PM EST
End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Hail covered the ground. EPISODE NARRATIVE: A supercell tracked east across southwest Virginia producing hail and wind damage from Tazewell county to Pittsylvania county.

Event: Hail
Begin Date: 08 Jun 2007,17:05:00 PM EST
Begin Location: 2 Miles South East of Pounding Mill
Begin 37°03'N/81°41IW LAT/LON:
End Date: 08 Jun 2007,17:05:00 PM EST End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Severe thunderstorms produced wind damage and hail up to the size of quarters across portions of southwest Virginia.

Event: Thunderstorm Wind
Begin Date: 14 Jim 2007,15:00:00 PM EST
Begin Location: TazewelL
Begin 37°07'N/81°31'W LAT/LON:
End Date: 14 Jim 2007,15:00:00 PM EST End Location: Not Known Magnitude: 52 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Thunderstorm winds downed trees. EPISODE NARRATIVE: Thunderstorm winds downed trees in Tazewell.

Event: Hail
Begin Date: 15 Jim 2007,14:08:00 PM EST
Begin Location: ClaypoolHill
Begin 37°04N/81°46'W LAT/LON:
End Date: 15 Jun 2007,14:08:00 PM EST
End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property $ 1.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Hail covered the ground. EPISODE NARRATIVE: Severe thunderstorms produced hail up to the size of nickels.

Event: Hail
Begin Date: 19 Jun 2007,17:25:00 PM EST Begin Location: Richlands
Begin 37°06N/81°49W LAT/LON:
End Date: 19 Jun 2007,17:25:00 PM EST
End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: Severe thunderstorms produced wind damage and hail up to the size of quarters.

Event: Thunderstorm Wind
Begin Date: 19 Jun 2007,17:25:00 PM EST
Begin Location: Richlands
Begin 37°06'N/81°49'W
LAT/LON:
End Date: 19 Jun 2007,17:25:00 PM EST
End Location: Not Known Magnitude: 52 Fatalities: 0 Injuries: 0
Property $ 1.5K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Trees were uprooted and large branches were broken. EPISODE NARRATIVE: Severe thunderstorms produced wind damage and hail up to the size of quarters.

Event: Hail
Begin Date: 24 Jun 2007,16:00:00 PM KST Begin Location: Burkes Garden
Begin 37°06N/81°21'W
LAT/LON:
End Date: 24 Jun 2007,16:00:00 PM EST
End Location: Not Known Magnitude: 0.88 inches Fatalities: 0 Injuries: 0
Property $ 1.0K Damage:
Crop Damage: S0.0K

Description:
EPISODE NARRATIVE: Severe thunderstorms produce wind damage and hail up to the size of half dollars.

Event: Drought
Begin Date: 10 Jul 2007, 00:00:00 AM EST
Begin Location: Not Known
End Date: 24 Jul 2007, 00:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S2.0M
Description:
EVENT NARRATIVE: Hay and pasture production was down fourty to fifty percent due to the drought resulting in a shortage of winter feed for livestock. EPISODE NARRATIVE: An extended period of dry weather allowed parts of far southwest Virginia to be designated as being in Severe Drought (D2) on the U.S. Drought Monitor.

Event: Flash Flood
Begin Date: 02 Aug 2007,17:20:00 PM EST
Begin Location: Richlands
Begin 37°06'N / 81°49'W LAT/LON:
End Date: 02 Aug 2007, 20:45:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 100.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Two to four inches of rain caused flash flooding in the town of Richlands, Virginia, during the evening of August 2nd. This resulted in several road closures in the town, including U.S. Highway 460. A 4 to 5 foot boulder also washed onto the road near the Red Ash Campground. Several homes were impacted by mudslides, sustaining minor structural damage. Damage amounts are based on rough estimates. EPISODE NARRATIVE: Slow moving thunderstorms brought heavy rains to western Tazewell county during the evening of August 2nd, 2007. Two to four inches of rain in two hours produced flash flooding in the town of Richlands.

Event: Drought
Begin Date: 14 Aug 2007, 00:00:00 AM EST
Begin Location: Not Known
End Date: 31 Aug 2007, 23:59:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: Drought conditions worsened across southwest Virginia, as five counties fell into a severe drought August 14th. This severe drought continued through the end of August.

Event: Drought
Begin Date: 01 Sep 2007, 00:00:00 AM EST Begin Location: Not Known
End Date: 30 Sep 2007, 23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 8.0M
Description:
EVENT NARRATIVE: Hay,grain, soy and tobacco production was down forty to fifty percent due to the drought. The southwest portion of Campbell county had the greatest losses,
EPISODE NARRATIVE: Drought conditions worsened across southwest Virginia, as seventeen counties fell into a severe drought (D2) on September 1st. This severe drought continued through the end of September. Crop damage estimates are from county extension offices.

Event: Drought
Begin Date: 01 Oct 2007, 00:00:00 AM EST Begin Location: Not Known
End Date: 30 Oct 2007, 06:59:00 AM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ O.0K Damage:
Crop Damage: $ O.0K
Description:
EVENT NARRATIVE: The county began the month in the Severe (D2) Category of drought. It maintained this level of severity until October 30th when the drought category was downgraded to the Abnormally Diy (DO) Category. Voluntary water restrictions were in place for Bedford County for most of the month. EPISODE NARRATIVE: Drought conditions worsened from September into October with parts of southwest Virginia entering into the Extreme (D3) Category from Severe (D2) the month before. Elsewhere other counties entered into or remained in the Severe (D2) Category. Rainfall the last week of October helped to mitigate the drought severity with all but the counties in far southwest Virginia dropping below the Severe (D2) Category. Only southern parts of the Allegheny Highlands remained below the Severe (D2) Category the entire month. Agricultural and livestock losses continued to be substantial, but less compared to previous months as the area progressed out of the normal growing season. Many cattlemen at this point in the season had to start deciding financially between using up winter stores of hay to feed existing head of cattle and then purchase more hay in the Spring, or they chose to sell off head of cattle, maintain winter stores, and purchase new cattle in the Spring. The greatest crop losses were primarily no second planting of pasture grasses and hay, with soybeans, corn silage and grain, pumpkins and tomatoes, continued poor apple size, and Christmas trees being additional losses of varying degrees. During a normal season, farmers are able to purchase hay for around $60 to $70 per ton, now with the hay being imported from western U.S. states, the price was more in line with $150 to $200 per ton. Due to the drought conditions and increased fire danger, the Governor on October 19th declared a burn ban for the entire state. A few counties also had either voluntary or mandatory water restrictions in place.

Event: Drought
Begin Date: 01 Nov 2007, 00:00:00 AM EST
Begin Location: Not Known
End Date: 30 Nov 2007, 23:59:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Severe drought conditions existed at the beginning of November and continued until the end of the month. In western sections of the county, the drought worsened to the extreme level by November 6th, and persisted until the end of the month. EPISODE NARRATIVE: Severe drought conditions continued into November in far southwest Virginia, advancing to an extreme drought across western Tazewell, western Smyth, and southwest Grayson counties by the end of the month.

Event: Drought
Begin Date: 01 Dec 2007, 00:00:00 AM EST
Begin Location: Not Known
End Date: 31 Dec 2007, 23:59:00 PM EST
End Location: Not Known
Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
CropDamage:S0.0K
Description:
EVENT NARRATIVE: Extreme (D3) drought conditions continued in western portions of Tazewell County, while severe (D2) drought conditions were found across the rest of the county. EPISODE NARRATIVE: Severe drought (D2) conditions continued during December across southern portions of the region.

Event: High Wind
Begin Date: 23 Dec 2007, 04:30:00 AM EST

Begin Location: Not Known
End Date: 23 Dec 2007, 04:30:00 AM EST
Magnitude: 52 Fatalities: 0 Injuries: 0
Property S 3.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Several trees down in Tazewell. EPISODE NARRATIVE: Strong south to southeast winds developed and downed trees across the high terrain.

Event: Drought
Begin Date: 01 Jan 2008, 00:00:00 AM EST
Begin Location: Not Known
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: An Extreme (D3) drought continued across the far southwestern part of the county during the month. A Moderate (D2) drought continued across central portions of the county. EPISODE NARRATIVE: Drought conditions continued through the month of January 2008. The degree of magnitude ranged from Moderate (D2) to Extreme (D3).

Event: Heavy Snow
Begin Date: 01 Jan 2008,17:00:00 PM EST
Begin Location: Not Known
End Date: 03 Jan 2008,10:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Snowfall totals during the event include 6.0 inches at both North Tazewell and Jewell Ridge. EPISODE NARRATIVE: After the passage of an arctic cold front, strong northwest winds increased behind the front. These winds, combined with cold air and available moisture, allowed for the formation of snow showers in the mountains of southwest Virginia. The higher snowfall amounts during the event totaled as much as 6 inches over parts of the area.

Event: Thunderstorm Wind
Begin Date: 30 Jan 2008, 01:30:00 AM EST
Begin Location: Claypool Hill
Begin 37°04'N/81°46W LAT/LON:
End Date: 30 Jan 2008, 01:30:00 AM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ O.0K
Description:
EPISODE NARRATIVE: A thunderstorm over Tazewell County increased to severe levels and produced damaging winds in the Claypool Hill area. A tree was blown down and had to be removed from a road.

Event: Drought
Begin Date: 01 Feh 2008, 00:00:00 AM EST Begin Location: Not Known
End Date: 29 Feb 2008,23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K

Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Severe to extreme drought conditions persisted at the beginning of February, with the extreme drought confined to southwest Grayson County. By the end of the month, conditions had improved to moderate to severe, with severe conditions over the southwestern half of the county. EPISODE NARRATIVE: Severe to Extreme Drought Conditions continued into Februaiy over portions of southwest Virginia. Mainly this area encompassed most of the piedmont, south to the North Carolina border, and west to the mountains. By the end of the month, conditions improved over the mountains and portions of the foothills.

Event: High Wind
Begin Date: 10 Feb 2008,11:00:00 AM EST
Begin Location: Not Known
End Date: 10 Feb 2008,16:00:00 PM EST
End Location: Not Known Magnitude: 52 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Trees were blown down across the county, and shingles were blown off a house in the town of Tazewell. EPISODE NARRATIVE: A fast moving arctic front swept across the area February 10th. In its wake, very strong west winds and wind gusts ensued over the area. Each county in southwest Virginia received wind damage. These high winds also touched off several wildfires. Three of the largest wildfires were Little Cuba (2700 acres) in Craig County, Black Horse (1500 acres) in Bedford County, and Green Ridge Mountain (about 4000 acres) in Roanoke County. Despite the size of these fires, no personal property was damaged or destroyed.

Event: Heavy Snow
Begin Date: 26 Feb 2008, 22:00:00 PM EST
Begin Location: Not Known
End Date: 28 Feb 2008,13:00:00 PM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Up to 7 inches of snow accumulated across the higher terrain of Tazewell county, especially in the eastern portions of the county. Snow showers occurred off and on from late in the evening of the 26th, through early afternoon on the 28th. Seven inches of snow fell in Burkes Garden. EPISODE NARRATIVE: A strong cold front moved through the area late in the afternoon on February 26th. Much colder air behind the front surged into the area during the 27th, while a series of upper disturbances gradually deepened a trough over the eastern U.S, and provided a prolonged period of arctic air moving across the Great Lakes and into the southern Appalachians. Snow showers brought several periods of accumulating snows to those favored upslope areas. The highest amounts occurred near Burkes Garden and Mount Rogers.

Event: High Wind
Begin Date: 11 May 2008, 07:28:00 AM EST
Begin Location: Not Known
End Date: 11 May 2008, 09:45:00 AM EST
End Location: Not Known
Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 20.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Trees were blown down in many locations in the county. Particularly hard hit was Bluefield, Virginia. A 36 inch diameter fell blocking 3 lanes of U.S. Route 460 in the Springville area, at the

intersection of Bluestone Avenue. A guardrail was damaged. Trees were also downed along State Route 680. Two power lines were downed at the intersection of Tazewell Avenue and Wesley Street. EPISODE NARRATIVE: A strong low level jet ahead of a closed low over the Ohio Valley brought non thunderstorm wind damage to Tazewell County Virginia during the morning of May 11th. The ground was already saturated from rains earlier in the week, which made trees more likely to fall.

Event: Thunderstorm Wind
Begin Date: 10 Jun 2008,17:32:00 PM EST
Begin Location: Richlands
Begin 37°06'N/81’49'W LAT/LON:
End Date: 10 Jun 2008,17:32:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 5.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Numerous trees were downed in Richlands causing scattered power outages. Damage values are estimated. EPISODE NARRATIVE: An approaching cold front encountering an unstable air mass, triggered thunderstorms over southwest Virginia on June 10. Some of these storms produced damaging winds and hail up to the size of ping pongs.

Event: Hail
Begin Date: 22 Jun 2008,18:20:00 PM EST
Begin Location: 1 Mile South East of Bluefield
Begin 37°14'N/81°161W
LAT/LON:
End Date: 22 Jun 2008,18:20:00 PM EST
End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.OK
Description:
EPISODE NARRATIVE: An upper level area of low pressure moved across the region ahead of a weak upstream cold front. These features combined with an unstable air mass to produce widespread strong to severe thunderstorms that produced not only large hail but also included some wind damage on June 22. These severe storms lingered well after the loss of heating.

Event: Hail
Begin Date: 22 Jun 2008,18:22:00 PM EST
Begin Location: 1 Mile South East of Bluefield
Begin 37°14N/81°161W LAT/LON:
End Date: 22 Jun 2008,18:22:00 PM EST End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: An upper level area of low pressure moved across the region ahead of a weak upstream cold front. These features combined with an unstable air mass to produce widespread strong to severe thunderstorms that produced not only large hail but also included some wind damage on June 22. These severe storms lingered well after the loss of heating.

Event: Hail
Begin Date: 22 Jun 2008,18:24:00 PM EST
Begin Location: 1 Mile South East of Bluefield
Begin 37°14'N/81°16'W
LAT/LON:
End Date: 22 Jun 2008,18:24:00 PM EST End Location: Not Known Magnitude: 1.75 inches Fatalities: 0 Injuries: 0
Property S 0.OK Damage:
Crop Damage: $ 0.0K
Description:

EPISODE NARRATIVE: An upper level area of low pressure moved across the region ahead of a weak upstream cold front. These features combined with an unstable air mass to produce widespread strong to severe thunderstorms that produced not only large hail but also included some wind damage on June 22. These severe storms lingered well after the loss of heating.

Event: Thunderstorm Wind
Begin Date: 22 Jim 2008,18:30:00 PM EST
Begin Location: 1 Mile East of Richlands
Begin 37°06'N / 81°48'W LAT/LON:
End Date: 22 Jun 2008,18:30:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Large trees were blown down by thunderstorm winds. Damage values are estimated.
EPISODE NARRATIVE: An upper level area of low pressure moved across the region ahead of a weak upstream cold front. These features combined with an unstable air mass to produce widespread strong to severe thunderstorms that produced not only large hail but also included some wind damage on June 22. These severe storms lingered well after the loss of heating.

Event: Thunderstorm Wind
Begin Date: 27 Jun 2008,12:00:00 PM EST
Begin Location: River Jack
Begin
LAT/LON:
End Date: 27 Jun 2008,12:00:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.5K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: One tree was blown down by thunderstorm winds on Hubble Hill Road. Damage values are estimated. EPISODE NARRATIVE: A few severe thunderstorms, producing damaging winds and large hail, developed in a warm and moist southwest flow in advance of an approaching cold front on June 27.

Event: Thunderstorm Wind
Begin Date: 23 Jul 2008,13:12:00 PM EST
Begin Location: Bluefield
Begin 37°15'N / 81°16'W
LAT/LON:
End Date: 23 Jul 2008,13:12:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.7K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: A large tree was blown down. Damage values are estimated.
EPISODE NARRATIVE: A strong upper trough for late July pushed a cold front through the region during the evening hours of the 23rd. Although instability was rather marginal...cooling aloft allowed for a broken line of severe convection to propagate across the Blue Ridge and into the Piedmont during the evening.

Event: Drought
Begin Date: 19 Aug 2008, 00:00:00 AM EST Begin Location: Not Known
End Date: 31 Aug 2008, 23:59:00 PM EST End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
CropDamage:S0.0K
Description:
EVENT NARRATIVE: Severe drought conditions crept into the extreme southern areas of the county for the latter

half of the month. EPISODE NARRATIVE: Rainfall was mainly confined to the typical summertime showers and thunderstorms for much of the month of August. Drought conditions in the moderate categoiy at the beginning of the month, worsened to severe by August 19th. The effects of the remnants of Tropical Storm Fay toward the end of the month in terms of the long-term drought were significant. Nearly all areas experienced a one category improvement in the September 2nd issuance of the U.S. Drought Monitor.

Event: Drought
Begin Date: 14 Oct 2008, 07:00:00 AM EST
Begin Location: Not Known
End Date: 31 Oct 2008, 23:59:00 PM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Drought conditions across the county worsened from a Moderate (Dl) drought, to a Severe (D2) drought. EPISODE NARRATIVE: A week of veiy dry and unseasonably warm weather from October 10 through October 16 lead to worsening drought conditions across parts of southwest Virginia.

Event: Drought
Begin Date: 01 Nov 2008, 00:00:00 AM EST
Begin Location: Not Known
End Date: 30 Nov 2008,23:59:00 PM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Severe drought conditions remained in place during the entire month of November for much of Giles County. EPISODE NARRATIVE: Severe drought (D2) conditions persisted during the entire month of November for the same area. Basically this area encompassed the New River Valley, southwest into the Mountain Empire of southwest Virginia.

Event: Drought
Begin Date: 01 Dec 2008, 00:00:00 AM EST
Begin Location: Not Known
End Date: 15 Dec 2008, 23:59:00 PM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
CropDamage:$0.0K
Description:
EVENT NARRATIVE: Severe drought conditions were observed over the northwestern portion of the county through December 15th. EPISODE NARRATIVE: Severe drought (D2) conditions persisted for the first half of December. Sufficient rainfall subsided the drought by December 16th.

Event: Heavy Snow
Begin Date: 03 Feb 2009,18:00:00 PM EST

Begin Location: Not Known
End Date: 05 Feb 2009, 05:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Four to six and a half inches of snow fell across most of Tazewell County. EPISODE NARRATIVE: Northwest winds combined with an upper disturbance moving across the southern Appalachians brought heavy snowfall to the higher elevations of Southwest Virginia. This occurred from the evening of February 3rd through the early morning of February 5th. Snowfall amounts above 2500 feet ranged from four to six inches.

Event: Thunderstorm Wind
Begin Date: 11 Feb 2009,18:42:00 PM EST
Begin Location: Tazewell
Beg LAT/LON:
End Date: 11 Feb 2009,18:42:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: One tree was downed in Tazewell. EPISODE NARRATIVE: A squall line along and ahead of a cold front moved across Southwest Virginia during the evening of February 11th. Some of the showers and storms along this line produced damaging winds which downed trees and power lines.

Event: High Wind
Begin Date: 11 Feb 2009, 23:00:00 PM EST Begin Location: Not Known
End Date: 11 Feb 2009, 23:00:00 PM EST
End Location: Not Known Magnitude: 52 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: High winds blew several trees down along Route 220, toward the Bath county line. EPISODE NARRATIVE: A strong cold front moved through Virginia during the early evening of Februaiy 11th, A tight gradient existed between the low pressure over the northeast, and high pressure in the lower Mississippi Valley. This brought a period of high winds to the mountains and foothills through the morning of Februaiy 12th. These winds brought down trees and power lines across portions of southwest Virginia.

Event: High Wind
Begin Date: 03 Apr 2009,15:45:00 PM EST
Begin Location: Not Known
End Date: 03 Apr 2009,16:45:00 PM EST
End Location: Not Known
Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.9K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: High winds blew a tree down across the road into City Park off Stadium Drive. Damage values are estimates. EPISODE NARRATIVE: Winds increased in speed behind a passing cold front to around 60 mph over the mountains of southwest Virginia. The combination of the strong winds and wet soils from recent rains resulted in downed trees.

Event: Thunderstorm Wind
Begin Date: 08 May 2009, 20:52:00 PM EST
Begin Location: 2 Miles North West of Bluefield
Begin 37°16'N / 81°18'W LAT/LON:
End Date: 08 May 2009,20:52:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ O.0K
Description:
EVENT NARRATIVE: A tree was blown down two miles northwest of Bluefield. EPISODE NARRATIVE: A thunderstorm complex over Kentucky and Tennessee moved east into the area during the evening of May 8th. Two supereeils moved across southwest Virginia bringing damaging winds and hail up to the size of ping pongs.

Event: Hail
Begin Date: 02 Jun 2009,19:05:00 PM EST
Begin Location: 1 Mile East South East of Richlands
Begin
LAT/LON:
End Date: 02 Jun 2009,19:05:00 PM EST End Location: Not Known Magnitude: 0.88 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
CropDamage:S0.0K
Description:
EPISODE NARRATIVE: Severe afternoon thunderstorms on June 2nd developed in a warm, unstable air mass ahead of a slow-moving frontal boundary located north of the area. Numerous penny to quarter-size hail reports were received.

Event: Flash Flood
Begin Date: 04 Jun 2009,17:15:00 PM EST
Begin Location: 1 Mile East South East of Richlands
Begin 37°05'N / 81°48'W LAT/LON:
End Date: 04 Jun 2009,17:45:00 PM EST End Location: 1 Mile East South East of Richlands End LAT/LON: 37°05'N / 81°48'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.5K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Rainfall of 2 to 2.5 inches in several hours caused more than six inches of water to flow across Front Street in the town of Richlands. EPISODE NARRATIVE: A stalled surface front on June 4th near the North Carolina-Virginia border became the focus for heavy rainfall and embedded thunderstorms. Several severe storms developed along the boundary. These storms produced some high winds and penny-sized hail along with the heavy rain. Precipitation was heaviest over the southeast portion of the forecast area with a widespread 2 to 4 inches of rain over southern Pittsylvauia and much of Halifax counties. Another 2 to 3.5 inches fell across parts of Patrick, Henry and Franklin counties. A number of roads were closed due to flooding although there was no serious damage reported.

Event: Flash Flood
Begin Date: 17 Jun 2009,10:30:00 AM EST
Begin Location: 2 Miles East South East of Claypool Hill
Begin 37°03'N/81°44W LAT/LON:
End Date: 17 Jun 2009,11:30:00 AM EST End Location: 1 Mile South East of Claypool Hill
End LAT/LON: 37°03'N / 81°45'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.5K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Between 6 and 12 inches of rapidly flowing water was observed at Highway 19 and 460 in Claypool Hill and flooding also was reported on Highway 460 at Richlands and at Raven. Roads were closed for one hour. EPISODE NARRATIVE: Thunderstorms along a warm frontal boundary produced rainfall of 1 to 2 inches in

less than 2 hours in western Tazewell County during the late morning of June 17th.

Event: Hail
Begin Date: 09 Jul 2009,14:10:00 PM EST
Begin Location: 1 Mile North East of Cedar Bluff
Begin 37°05'N / 81°45'W LAT/LON:
End Date: 09 Jul 2009,14:10:00 PM EST End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: An isolated severe thunderstorm produced penny size hail in Cedar
Bluff, Tazewell Co, VA.

Event: Hail
Begin Date: 09 Jul 2009,14:10:00 PM EST Begin Location: Cedar Bluff
Begin 37°04N/81°46'W LAT/LON:
End Date: 09 Jul 2009,14:10:00 PM EST
End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.OK
Description:
EPISODE NARRATIVE: Isolated thunderstorms formed in an area of increasing instability in advance of an approaching cold front. One of these storms reached severe levels and produced penny size hail.

Event: Flash Flood
Begin Date: 05 Aug 2009,17:40:00 PM EST
Begin Location: 1 Mile North East of Fourway
Begin 37°08'N / 81°29'W LAT/LON:
End Date: 05 Aug 2009,22:00:00 PM EST End Location: 1 Mile North East of Fourway
End LAT/LON: 37°08'N / 81°29'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Full Mill Branch flooded its banks along Dial Rock Road. EPISODE NARRATIVE: A moist and unstable air mass ahead of a cold front helped with the formation of thunderstorms. Some of the storms had torrential rains which caused flash flooding over portions of the Southwest Virginia mountains and piedmont during the afternoon and evening of August 5th.

Event: Flash Flood
Begin Date: 05 Aug 2009,17:40:00 PM EST
Begin Location: 1 Mile South West of Tazewell
Begin 37°06'N/81°31'W LAT/LON:
End Date: 05 Aug 2009, 22:00:00 PM EST End Location: 1 Mile South West of Tazewell
End LAT/LON: 37°06'N / 81°31(W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: $ 0.OK
Description:
EVENT NARRATIVE: Heavy rains created street flooding along the intersection of Fairground Road, and Fincastle Turnpike. EPISODE NARRATIVE: A moist and unstable air mass ahead of a cold front helped with the formation of thunderstorms. Some of the storms had torrential rains which caused flash flooding over portions of the Southwest Virginia mountains and piedmont during the afternoon and evening of August 5th.

Event: Flash Flood
Begin Date: 05 Aug 2009,17:40:00 PM EST
Begin Location: Tazewell

Begin 37°0/81°3W
LAT/LON:
End Date: 05 Aug 2009, 22:00:00 PM EST End Location: Tazewell End LAT/LON: 37°07'N / 81°31'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 2.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Heavy rains in a short period of time caused street flooding along Payne Avenue, closing the road. EPISODE NARRATIVE: A moist and unstable air mass ahead of a cold front helped with the formation of thunderstorms. Some of the storms had torrential rains which caused flash flooding over portions of the Southwest Virginia mountains and piedmont during the afternoon and evening of August 5th.

Event: Hail
Begin Date: 09 Sep 2009, 12:00:00 PM EST
Begin Location: 3 Miles North North West of Tazewell
Begin 37°09'N/81°32W LAT/LON:
End Date: 09 Sep 2009,12:00:00 PM EST
End Location: Not Known Magnitude: 0.88 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: An upper low tracked from the Ohio Valley across the area promoting instability, steep lapse rates and a few thunderstorms that became severe hi the far western sections of the area.

Event: Hail
Begin Date: 09 Sep 2009,12:13:00 PM EST Begin Location: Tazewell
Begin 37°07'N/81°31'W LAT/LON:
End Date: 09 Sep 2009,12:13:00 PM EST End Location: Not Known Magnitude: 0.88 inches Fatalities: 0 Injuries: 0
Property $ O.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: An upper low tracked from the Ohio Valley across the area promoting instability, steep lapse rates and a few thunderstorms that became severe in the far western sections of the area.

Event: Thunderstorm Wind
Begin Date: 09 Sep 2009,12:15:00 PM EST
Begin Location: 3 Miles South South West of Tazewell
Begin 37°04'N/81°32'W LAT/LON:
End Date: 09 Sep 2009,12:20:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 0.3K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: A tree was reported down and blocking both lanes of Route 604 in the Thompson Valley area. EPISODE NARRATIVE: An upper low tracked from the Ohio Valley across the area promoting instability, steep lapse rates and a few thunderstorms that became severe in the far western sections of the area.

Event: Flash Flood
Begin Date: 26 Sep 2009,14:00:00 PM EST
Begin Location: Tazewell
Begin 37°/81°32W
LAT/LON:
End Date: 26 Sep 2009,15:00:00 PM EST End Location: Tazewell End LAT/LON: 37°07'N / 81°31'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.8K Damage:
Crop Damage: $ O.0K
Description:

EVENT NARRATIVE: A mudslide was reported on Nash Hill Road and water was reported to be rushing over Piney Mill Branch Road. EPISODE NARRATIVE: September 25-26 saw a slow-moving boundary move into a tropical air mass. This resulted in widespread rain over the entire region, with rainfall totals ranging from 1 to 3 inches. A daily rainfall record for the 26th was set at Roanoke Airport 2.23??? (old record 1.82??? set in 1956) and Blacksburg 1.74??? (old record 0.94??? in 1989).

Event: High Wind
Begin Date: 18 Nov 2009, 07:00:00 AM EST
Begin Location: Not Known
End Date: 18 Nov 2009, 07:00:00 AM EST
End Location: Not Known
Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: One tree was blown down in Claypool Hill. EPISODE NARRATIVE: Low pressure was situated over the Ohio Valley, with high pressure ridging southwest from New England. This set up a strong southeast flow over the mountains of southwest Virginia during the morning of November 18th. Winds gusted to 40 to 50 mph in the area during the morning, with an isolated higher gust downing a tree in western Tazewell County.

Event: High Wind
Begin Date: 02 Dec 2009, 07:30:00 AM EST
Begin Location: Not Known
End Date: 02 Dec 2009,20:00:00 PM EST
End Location: Not Known
Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 15.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Trees were reported down county-wide with some blocking roads. Several billboards were damaged and a tree was reported down in Cedar Bluff. A southeasterly wind gust to 52 mph was recorded shortly before 10 AM at Bluefield Airport. EPISODE NARRATIVE: Rapidly deepening low pressure tracked through the Tennessee and Ohio valleys December 2-3 and combined with a surface high over the western Atlantic to bring strong synoptic southeast winds to much of the area. The winds accelerated on some downwind slopes causing pockets of wind damage in some of the western and southwestern counties. Winds gusted to near 60 mph in some locations.

Event: High Wind
Begin Date: 09 Dec 2009, 06:00:00 AM EST
Begin Location: Not Known
End Date: 10 Dec 2009, 02:00:00 AM EST
End Location: Not Known
Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 5.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Trees were reported down in various locations across the county including Hubble Hill Road, Richlands, Pounding Mill, and Burkes Garden. EPISODE NARRATIVE: Surface low pressure raced from the High Plains early on December 8th to the upper Great Lakes by early on the 9th while deepening rapidly and bringing a complex series of fronts across the area. Strong west winds of 20 to 40 mph occurred on the afternoon of the 9th with gusts over 60 mph estimated along some ridges and mountain peaks. Marion AWOS in Smyth County measured a 63 mph wind gust from the WSW around 2:00 PM on the 9th with sustained winds over 30 mph for several hours in the afternoon. The result was tree damage and some power line damage across numerous counties in the southwest Virginia.

Event: Heavy Snow
Begin Date: 18 Dec 2009,12:00:00 PM EST
Begin Location: Not Known
End Date: 19 Dec 2009, 05:30:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: From 12 to 14 inches fell across the county and made roads extremely dangerous. EPISODE NARRATIVE: Low pressure tracked from the northeast Gulf coast early on December 18th reaching a position near Alma, Georgia as a 997 mb low by Friday the 18th at 5 PM EST. The storm continued moving northeast and deepened to a 986 mb low near Cape Hatteras by 10 AM December 19th. Heavy snow began around midday on the 18th and snows rapidly accumulated to warning criteria levels by late afternoon or early evening in all of the Virginia counties. AH forms of travel were rendered extremely difficult for several days due to this storm and numerous vehicle accidents were reported. Final snow totals ranged from less than 6 inches in the far southeast counties to over 25 inches in parts of Alleghany, Rockbridge, Montgomery and Bath counties. This was the biggest snowstorm to affect western Virginia since the January 6-8,1996 storm. Several stations set December single-storm snowfall records from this storm including Roanoke and Blacksburg.

Event: High Wind
Begin Date: 25 Dec 2009, 07:45:00 AM EST
Begin Location: Not Known
End Date: 25 Dec 2009,16:00:00 PM EST
End Location: Not Known
Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Numerous trees were brought down county-wide and some power lines were pulled down as a result. Roof damage was reported to a building in Claypool Hill. Trees were also reported down in the Tazewell and Baptist Valley areas. EPISODE NARRATIVE: Strong low pressure tracked from Texas through Iowa from December 24-25 bringing a very strong east to southeasterly flow across the area. The winds gusted to near 60 mph across mainly the Mountain Empire counties and caused substantial damage to trees and power lines.

Event: High Wind
Begin Date: 24 Jan 2010, 06:31:00 AM EST
Begin Location: Not Known
End Date: 24 Jan 2010,11:30:00 AM EST
End Location: Not Known
Magnitude: 56 Fatalities: 0 Injuries: 0
Property $ 1.8K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Damaging winds of 64 mph downed a tree on Wardell Road near the Southwest Virginia Community College, four miles south-southwest of Claypool Hill, VA. Another tree was blown down in Mud Fork, VA at the intersection of Mud Fork Road and Tiptop Road. Damage estimates are estimated. EPISODE NARRATIVE: As an area of strong low pressure approached from the west, southeast winds in advance of it strengthen. The influence of terrain helped to bring winds over 60 mph to the surface. Combined with very wet soil, these winds helped to topple some trees.

Event: Heavy Snow
Begin Date: 29 Jan 2010,19:00:00 PM EST

Begin Location: Not Known
End Date: 30 Jan 2010, 22:30:00 PM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ O.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Snowfall amounts across the county totaled 8.0 inches at Richlands, 7.7 inches at Burkes Garden, and 7.0 inches at Tazewell. EPISODE NARRATIVE: A cold front moved through the area on January 28th. Behind this front cold air was left in its wake. On the 29th, an area of low pressure moved the northern edge of the Gulf of Mexico before heading north and strengthening along the eastern coast of the U.S. on the 30th. This series of events allowed for plenty of moisture to fall as snow across the area with total accumulations ranging from the five to fifteen inch range.

Event: Winter Storm
Begin Date: 04 Feb 2010, 23:00:00 PM EST
Begin Location: Not Known
End Date: 06 Feb 2010,14:00:00 PM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0 Injuries: 0 Property $ 0.0K Damage: Crop Damage: S0.0K
Description:
EVENT NARRATIVE: A mixture of snow, sleet, freezing rain and rain impacted the county starting early on February 5th and continuing into the 6th. Snowfall amounts of 5 to 9 inches were reported across the southern and eastern part of the county. Ice accumulations of .1 inches occurred near Tazewell. Roadways became slick, with many reports of vehicles sliding off roads across the state. EPISODE NARRATIVE: A strong low pressure system moved from the Gulf Coast to off the North Carolina coast. A secondary low moved west of Virginia over Kentucky, bringing a nose of warm air in aloft. This led to a mixture of snow, sleet, freezing rain, and rain across southwest Virginia, with many areas seeing significant snow or ice accumulations.

Event: High Wind
Begin Date: 05 Feb 2010,12:30:00 PM EST
Begin Location: Not Known
End Date: 05 Feb 2010, 20:00:00 PM EST
End Location: Not Known
Magnitude: 68 Fatalities: 0 Injuries: 0
Property $ 80.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Strong southeast winds occurred across the higher elevations of the county as a dry slot pushed into the area. A mesonet in Tazewell recorded a gust of 78 mph. Many trees and power lines were also reported down across the county. Multiple Structures and trees were blown down blocking several streets across the county. A McDonald's play land roof was blown into the street. EPISODE NARRATIVE: A strong low pressure system moved from the Gulf Coast to off the North Carolina coast. A secondary low moved west of Virginia over Kentucky, bringing a nose of warm air in aloft. This led to a mixture of snow, sleet, freezing rain, and rain across southwest Virginia, with many areas seeing significant snow or ice accumulations.

Event: Winter Storm
Begin Date: 09 Feb 2010, 02:00:00 AM EST
Begin Location: Not Known
End Date: 11 Feb 2010, 05:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: SO.0K

Description:
EVENT NARRATIVE: A mixed bag of wintry precipitation moved into the county early on the 9th, producing light accumulations. On the 10th cold air moved in with strong northwest winds. Significant upslope snow showers developed with near blizzard conditions at times. Total snow accumulations were 5 to 8 inches across the county. EPISODE NARRATIVE: An area of low pressure moved from the Mississippi coast to off the Carolina coast. At the same time another low moved through the Ohio Valley, putting southwest Virginia in the middle of the two. An area of mixed precipitation moved across the area with light to moderate accumulations. The coastal low deepened on Wednesday bringing strong damaging winds and significant upslope snow showers to the higher elevations of southwest Virginia.

Event: Winter Storm
Begin Date: 24 Feb 2010,16:00:00 PM EST
Begin Location: Not Known
End Date: 28 Feb 2010, 04:00:00 AM EST
End Location: Not Known Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ O.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: A long duration upslope snow event brought a total of near 12 inches of snow across parts of the county. Strong northwest winds also created near blizzard conditions, with considerable blowing and drifting of the snow. EPISODE NARRATIVE: An upper level low centered overhead, combined with a deepening coastal low brought cold air and strong northwest winds to the area. This resulted in significant upslope snow showers across the west facing slopes of the higher elevations across southwest Virginia. The strong northwest winds also caused damage across the region.

Event: Flash Flood
Begin Date: 13 Mar 2010, 00:57:00 AM EST
Begin Location: 1 Mile East of Falls Mills
Begin 37°16N/81°18'W LAT/LON:
End Date: 13 Mar 2010, 07:30:00 AM EST End Location: 1 Mile East South East of Falls Mills
End LAT/LON: 37°15'N / 81°18'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Water, 150 yards wide, was reported flowing quickly at a depth of 8 inches across Loop Road. This was just off State Route 102 near Falls Mills, VA. Other streams and creeks in the area were also bank full or out of their banks. EPISODE NARRATIVE: A complex low pressure system situated over the Ohio Valley combined with another low forming off the southeast coast to bring abundant moisture into the area. A band of thunderstorms developed during the evening of March 12th and tracked northeast into Southwest VA. A southeast flow helped enhance the rainfall over the region and an existing snow pack in far western Giles County also helped contribute to the water runoff.

Event: Flash Flood
Begin Date: 13 Mar 2010, 02:20:00 AM EST
Begin Location: 1 Mile East South East of Bluefield
Begin 37N/81°15W
LAT/LON:
End Date: 13 Mar 2010, 07:30:00 AM EST End Location: 2 Miles East South East of Bluefield End LAT/LON: 37°15'N / 81°15'W
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Beaver Pond Creek in downtown Bluefield was reported out of its banks. EPISODE

NARRATIVE: A complex low pressure system situated over the Ohio Valley combined with another low forming off the southeast coast to bring abundant moisture into the area. A band of thunderstorms developed during the evening of March 12th and tracked northeast into Southwest VA. A southeast flow helped enhance the rainfall over the region and an existing snow pack in far western Giles County also helped contribute to the water runoff.

Event: Flash Flood
Begin Date: 13 Mar 2010, 02:20:00 AM EST
Begin Location: 1 Mile North of Yards
Begin 37°17'N/81°19W LAT/LON:
End Date: 13 Mar 2010, 07:30:00 AM EST End Location: 1 Mile West North West of Yards End LAT/LON: 37°16'N / 81°21'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Several spots along State Route 102 had mud flowing across the roadway. EPISODE NARRATIVE: A complex low pressure system situated over the Ohio Valley combined with another low forming off the southeast coast to bring abundant moisture into the area. A band of thunderstorms developed during the evening of March 12th and tracked northeast into Southwest VA. A southeast flow helped enhance the rainfall over the region and an existing snow pack in far western Giles County also helped contribute to the water runoff.

Event: Flash Flood
Begin Date: 13 Mar 2010, 02:20:00 AM EST
Begin Location: Yards
Begin 37N/81°19W
LAT/LON:
End Date: 13 Mar 2010, 07:30:00 AM EST End Location: 1 Mile East South East of Yards
End LAT/LON: 37°16'N / 81°18'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: The Bluestone River rose out of its banks in spots in the Hales Bottom area, north of Bluefield, VA. EPISODE NARRATIVE: A complex low pressure system situated over the Ohio Valley combined with another low forming off the southeast coast to bring abundant moisture into the area. A band of thunderstorms developed during the evening of March 12th and tracked northeast into Southwest VA. A southeast flow helped enhance the rainfall over the region and an existing snow pack in far western Giles County also helped contribute to the water runoff.

Event: Flash Flood
Begin Date: 13 Mar 2010, 08:59:00 AM EST
Begin Location: 1 Mile North North East of Yards
Begin 37°17N/81°18'W LAT/LON:
End Date: 13 Mar 2010,13:15:00 PM EST End Location: 1 Mile East North East of Yards
End LAT/LON: 37°17'N / 81°18'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Flash flooding caused State Route 102 to be be closed at Big Branch Road. EPISODE NARRATIVE: A complex low pressure system situated over the Ohio Valley combined with another low forming off the southeast coast to bring abundant moisture into the area. A band of thunderstorms developed during the evening of March 12th and tracked northeast into Southwest VA. A southeast flow helped enhance the rainfall over the region and an existing snow pack in far western Giles County also helped contribute to the water runoff.

Event: Flash Flood
Begin Date: 13 Mar 2010, 08:59:00 AM EST
Begin Location: 1 Mile North North East of Yards
Begin

End Date: 13 Mar 2010,13:15:00 PM EST End Location: 1 Mile East North East of Yards End LAT/LON: 37°17'N / 81°18'W Magnitude: 0 Fatalities: 0 Injuries: 0 Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Heavy rains caused the Bluestone River to rise out of its banks at numerous locations. EPISODE NARRATIVE: A complex low pressure system situated over the Ohio Valley combined with another low forming off the southeast coast to bring abundant moisture into the area. A band of thunderstorms developed during the evening of March 12th and tracked northeast into Southwest VA. A southeast flow helped enhance the rainfall over the region and an existing snow pack in far western Giles County also helped contribute to the water runoff.

Event: Flash Flood
Begin Date: 13 Mar 2010, 09:40:00 AM EST
Begin Location: GoseMill
Begin 37°07'N/81°21'W LAT/LON:
End Date: 13 Mar 2010,13:15:00 PM EST End Location: 1 Mile North North East of Little Town
End LAT/LON: 37°07'N / 81°21'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Heavy rains caused Little Creek to rise out of its banks. EPISODE NARRATIVE: A complex low pressure system situated over the Ohio Valley combined with another low forming off the southeast coast to bring abundant moisture into the area. A band of thunderstorms developed during the evening of March 12th and tracked northeast into Southwest VA, A southeast flow helped enhance the rainfall over the region and an existing snow pack in far western Giles County also helped contribute to the water runoff.

Event: Hail
Begin Date: 05 Apr 2010,17:52:00 PM EST
Begin Location: 1 Mile East of Pisgah
Begin 37°N/81°34'W
LAT/LON:
End Date: 05 Apr 2010,17:57:00 PM EST End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: Storms fired up initially in the afternoon of the 5th over the western mountains south of a front stalled out over the Ohio Valley. The primary severe mode was large hail over the mountains with some scattered wind damage in the piedmont.

Event: Hail
Begin Date: 05 Apr 2010,17:55:00 PM EST
Begin Location: 1 Mile South East of Bluefield
Begin 37°14'N / 81°16'W
LAT/LON:
End Date: 05 Apr 2010, 18:00:00 PM EST
End Location: Not Known Magnitude: 0.88 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: Storms fired up initially in the afternoon of the 5th over the western mountains south of a front stalled out over the Ohio Valley. The primary severe mode was large hail over the mountains with some scattered wind damage in the piedmont.

Event: Hail
Begin Date: 05 Apr 2010,18:00:00 PM EST
Begin Location: 1 Mile East of Pocahontas
Begin 37°18'N / 81°20'W LAT/LON:

End Date: 05 Apr 2010,18:05:00 PM EST End Location: Not Known Magnitude: 1.75 inches Fatalities: 0 Injuries: 0
Property S 2.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: Storms fired up initially in the afternoon of the 5th over the western mountains south of a front stalled out over the Ohio Valley. The primary severe mode was large hail over the mountains with some scattered wind damage in the piedmont.

Event: Hail
Begin Date: 14 May 2010,16:37:00 PM EST
Begin Location: 1 Mile South East of Bluefield
Begin 37°14'N/81°16W LAT/LON:
End Date: 14 May 2010,16:37:00 PM EST
End Location: Not Known Magnitude: 0.88 inches Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: A cold front approached the region during the day and passed through the evening hours. Storms developed along and ahead of this front, many of which increased to severe magnitude and produce mainly large hail with some wind damage reports.

Event: Thunderstorm Wind
Begin Date: 14 May 2010,17:26:00 PM EST
Begin Location: 1 Mile North East of Jewell Ridge
BeginSTnrN/BlW'W
LAT/LON:
End Date: 14 May 2010,17:26:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.5K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Large limbs were blown down on Bear Wallow Road. Damage values are estimated.
EPISODE NARRATIVE: A cold front approached the region during the day and passed through the evening hours. Storms developed along and ahead of this front, many of which mcreased to severe magnitude and produce mainly large hail with some wind damage reports.

Event: Hail
Begin Date: 15 May 2010,19:43:00 PM EST
Begin Location: 1 Mile East of Richlands
Begin 37°06'N / 81°48'W LAT/LON:
End Date: 15 May 2010,19:43:00 PM EST End Location; Not Known Magnitude: 0.88 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Thunderstorms developed with the passage of a cold front. Enough instability existed for some of these storms to reach severe limits and produce large hail.

Event: Flash Flood
Begin Date: 12 Jun 2010,21:00:00 PM EST
Begin Location: 1 Mile North North East of Tazewell
Begin 37°07'N/81°30'W LAT/LON:
End Date: 12 Jun 2010,22:00:00 PM EST End Location: Tazewell End LAT/LON: 37°07'N / 81O31'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: $ 0.0K
Description:

EVENT NARRATIVE: Heavy rain caused flash flooding of roads and road closures near the high school with rapidly flowing water in excess of 6 inches on some roads in town. Damage amounts are estimated. EPISODE NARRATIVE: Two thunderstorm complexes moved around a ridge centered over the southeastern states and into Virginia. The first complex strengthened when it moved east of the Blue Ridge and produced widespread wind damage. The second complex arrived in the evening and produced flash flooding across the mountain empire of Virginia.

Event: Flash Flood
Begin Date: 13 Jun 2010, 05:27:00 AM EST
Begin Location: 1 Mile North East of Pocahontas
Begin 37°18'N / 81°20'W LAT/LON:
End Date: 13 Jun 2010, 06:27:00 AM EST End Location: 1 Mile North North East of Pocahontas End LAT/LON: 37°18'N / 81°21'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ S.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Flooding of Laurel Fork entered the basement of a home. Damage amounts are estimated. EPISODE NARRATIVE: Two thunderstorm complexes moved around a ridge centered over the southeastern states and into Virginia. The first complex strengthened when it moved east of the Blue Ridge and produced widespread wind damage. The second complex arrived in the evening and produced flash flooding across the mountain empire of Virginia.

Event: Thunderstorm Wind
Begin Date: 14 Jun 2010,13:10:00 PM EST
Begin Location: Tazewell
Begin 37°07'N/81°31'W LAT/LON:
End Date: 14 Jun 2010,13:10:00 PM EST End Location: Not Known Magnitude: SO Fatalities: 0 Injuries: 0
Property S 1.8K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Two large trees were blown down on Adria Road in Tazewell. Damage amounts are estimated. EPISODE NARRATIVE: A line of strong to severe thunderstorms over Kentucky held together as it moved southeast over portions of western Virginia. This line of storms was was strong enough to produce scattered wind damage as it moved across the area.

Event: Thunderstorm Wind
Begin Date: 22 Jun 2010,19:31:00 PM EST
Begin Location: 1 Mile East of Richlands
Begin 37°06'N / 81°48'W
LAT/LON:
End Date: 22 Jun 2010,19:31:00 PM EST
End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 5.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Numerous trees were blown down by thunderstorm winds along with power outages in Richlands. Damage amounts are estimated. EPISODE NARRATIVE: A few thunderstorms formed over southeast West Virginia during the evening of the 22nd and moved southeast into far western Virginia before weakening. A few of these storms were strong enough to produce wind damage across Tazewell and Smyth counties.

Event: Thunderstorm Wind
Begin Date: 23 Jun 2010,14:45:00 PM EST
Begin Location: 1 Mile East of Foot Of Jump
Begin 37°07'N / 81°37'W LAT/LON:
End Date: 23 Jun 2010,14:45:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $1.8K Damage:

Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Two trees were blown down along Baptist Valley Road. Damage amounts are estimated. EPISODE NARRATIVE: An outflow boundary from morning storms became the focus for scattered thunderstorms during the afternoon across southwest Virginia. Moderate instability combined with large dew points depressions allowed for a few of these storms to produce damaging winds.

Event: Thunderstorm Wind
Begin Date: 23 Jun 2010,14:59:00 PM EST
Begin Location: 1 Mile South South West of Adria
Begin 37°09'N/81°33'W LAT/LON:
End Date: 23 Jun 2010,14:59:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.9K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: A tree was blown down on Mundy Town Road near Baptist Valley Road. Damage amounts are estimated. EPISODE NARRATIVE: An outflow boundary from morning storms became the focus for scattered thunderstorms during the afternoon across southwest Virginia. Moderate instability combined with large dew points depressions allowed for a few of these storms to produce damaging winds.

Event: Thunderstorm Wind
Begin Date: 23 Jun 2010,15:04:00 PM EST
Begin Location: 1 Mile East of Richlands
Begin 37T°/81°48W
LAT/LON:
End Date: 23 Jun 2010,15:04:00 PM EST
End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 2.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Several trees were blown down near Mountain Road. Damage amounts are estimated. EPISODE NARRATIVE: An outflow boundary from morning storms became the focus for scattered thunderstorms during the afternoon across southwest Virginia. Moderate instability combined with large dew points depressions allowed for a few of these storms to produce damaging winds.

Event: Thunderstorm Wind
Begin Date: 23 Jun 2010,15:15:00 PM EST
Begin Location: 1 Mile East of Richlands
Begin 37°06'N / 81°48'W LAT/LON:
End Date: 23 Jun 2010,15:15:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 2.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: A tree was blown down on power lines. Damage amounts are estimated. EPISODE NARRATIVE: An outflow boundary from morning storms became the focus for scattered thunderstorms during the afternoon across southwest Virginia. Moderate instability combined with large dew points depressions allowed for a few of these storms to produce damaging winds.

Event: Flash Flood
Begin Date: 23 Jun 2010,15:35:00 PM EST
Begin Location: 1 Mile East South East of Richlands
Begin 37°05'N / 81°48W LAT/LON:
End Date: 23 Jun 2010,16:35:00 PM EST End Location: 1 Mile West North West of Cedar Bluff
End LAT/LON: 37°05'N / 81°46lW Magnitude: 0 Fatalities: 0 Injuries: 0

Property $ 6.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Front Street, 4th Street, Railroad Avenue, 6th Street, Dalton Avenue, and the intersection of Virginia Ave and Farmers Street were all closed due to flooding. Central Avenue was also washed out. Damage amounts are estimated. EPISODE NARRATIVE: An outflow boundary from morning storms became the focus for scattered thunderstorms during the afternoon across southwest Virginia. Moderate instability combined with large dew points depressions allowed for a few of these storms to produce damaging winds.

Event: Thunderstorm Wind
Begin Date: 23 Jun 2010,15:35:00 PM EST
Begin Location: 1 Mile East of Richlands
Begin STWN/BPWW
LAT/LON:
End Date: 23 Jun 2010,15:35:00 PM EST End Location: Not Known Magnitude: 65 Fatalities: 0 Injuries: 0
Property $ 8.0K Damage:
Crop Damage: S 0.0K
Description:
EVENT NARRATIVE: Trees blown down on Grayson Avenue, 6th Street and 5th Street. The winds also blew off an HVAC unit from atop the police department and punched holes in the buildings roof. Damage amounts are estimated. EPISODE NARRATIVE: An outflow boundary from morning storms became the focus for scattered thunderstorms during the afternoon across southwest Virginia. Moderate instability combined with large dew points depressions allowed for a few of these storms to produce damaging winds.

Event: Thunderstorm Wind
Begin Date: 23 Jun 2010,15:50:00 PM EST
Begin Location: 1 Mile East of Richlands
Begin 37°06'N/81°48'W LAT/LON:
End Date: 23 Jun 2010,15:50:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property $ 3.0K Damage:
Crop Damage: $ O.0K
Description:
EVENT NARRATIVE: Trees were blown down on power lines on Lee Street. Damage amounts are estimated. EPISODE NARRATIVE: An outflow boundary from morning storms became the focus for scattered thunderstorms during the afternoon across southwest Virginia. Moderate instability combined with large dew points depressions allowed for a few of these storms to produce damaging winds.

Event: Flash Flood
Begin Date: 17 Jul 2010,11:22:00 AM EST
Begin Location: 1 Mile West North West of Me Call
Place
Begin 37°10N/81°36'W LAT/LON:
End Date: 17 Jul 2010,11:22:00 AM EST
End Location: Sayersville End LAT/LON: 37°10'N / 81°37fW Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: A debris flow closed Route 643 along Mud Fork Creek. The creek was two feet out of its banks. Several smaller creeks also flooded. EPISODE NARRATIVE: A weak cold front approached the area in the morning triggering scattered showers and thunderstorms. Some of these showers and storms brought localized heavy rains that caused flash flooding in small part of Tazewell county.

Event: Thunderstorm Wind
Begin Date: 05 Aug 2010,14:55:00 PM EST
Begin Location: Jewell Ridge
Begin ST'IO'N / 81°4S'W

LAT/LON:
End Date: 05 Aug 2010,14:55:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property S 3.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: A tree was down on a power line in the Jewell Ridge area. EPISODE NARRATIVE: A cold front crossed into the area at peak heating of the day creating high instability along with moderate wind shear. Scattered thunderstorms developed ahead of the front as well as more organized lines closer to the front, producing downburst winds but very little hail. Some training of cells occurred resulting in some flash flooding as well. Every Virginia county in the warning area had a warning issued at one point or another.

Event: Thunderstorm Wind
Begin Date: 05 Aug 2010,16:37:00 PM EST
Begin Location: 1 Mile West South West of Pounding Mill
Begin 37°04'N/81°44'W LAT/LON:
End Date: 05 Aug 2010,16:37:00 PM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: A four-inch diameter tree branch was blown down in Claypool Hill. EPISODE NARRATIVE: A cold front crossed into the area at peak heating of the day creating high instability along with moderate wind shear. Scattered thunderstorms developed ahead of the front as well as more organized Hues closer to the front, producing downburst winds but very little hail. Some training of cells occurred resulting in some flash flooding as well. Every Virginia county in the warning area had a warning issued at one point or another.

Event: Flash Flood
Begin Date: 05 Aug 2010,16:39:00 PM EST
Begin Location: 2 Miles North North West of Cedar
Bluff
Begin 37°06'N / 81°47'W LAT/LON:
End Date: 05 Aug 2010,17:39:00 PM EST End Location: 2 Miles North West of Cedar Bluff
End LAT/LON: 37<WN / 81°47'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S O.0K
Description:
EVENT NARRATIVE: A few boulders from a rockslide closed Route 460 on the east side of Richlands. EPISODE NARRATIVE: A cold front crossed into the area at peak heating of the day creating high instability along with moderate wind shear. Scattered thunderstorms developed ahead of the front as well as more organized lines closer to the front, producing downburst winds but very little hail. Some training of cells occurred resulting in some flash flooding as well. Every Virginia county in the warning area had a warning issued at one point or another.

Event: Thunderstorm Wind
Begin Date: OS Aug 2010,16:42:00 PM EST
Begin Location: 1 Mile East North East of Cliffield
Begin 37°06'N / 81°39'W LAT/LON:
End Date: 05 Aug 2010,16:42:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property S 1.5K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Thunderstorm winds brought down trees on Baptist Valley Road. EPISODE NARRATIVE: A cold front crossed into the area at peak heating of the day creating high instability along with moderate wind shear. Scattered thunderstorms developed ahead of the front as well as more organized lines closer to the front, producing downburst winds but very little hail. Some training of cells occurred resulting in some flash flooding as well. Every Virginia county in the warning area had a warning issued at one point or another.

Event: Thunderstorm Wind
Begin Date: 05 Aug 2010,16:42:00 PM EST
Begin Location: 1 Mile North East of Mouth Of Laurel
Begin 37°07'N / 81°43'W LAT/LON:
End Date: 05 Aug 2010,16:42:00 PM EST End Location: Not Known Magnitude: 55 Fatalities: 0 Injuries: 0
Property S 2.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Several trees were brought down by thunderstorm winds on Ravens Nest Branch. EPISODE NARRATIVE: A cold front crossed into the area at peak heating of the day creating high instability along with moderate wind shear. Scattered thunderstorms developed ahead of the front as well as more organized lines closer to the front, producing downburst winds but very little hail. Some training of cells occurred resulting in some flash flooding as well. Every Virginia county in the warning area had a warning issued at one point or another.

Event: Thunderstorm Wind
Begin Date: 25 Oct 2010, 08:50:00 AM EST
Begin Location: 3 Miles East North East of Benbow
Begin 37°05'N/81°28'W
LAT/LON:
End Date: 25 Oct 2010, 08:50:00 AM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ O.0K
Description:
EVENT NARRATIVE: Strong winds caused a house trailer to blow off its blocks. EPISODE NARRATIVE: A strong upper level disturbance combined with weak instability to drive a squall line across portions of Southwest Virginia. Very strong winds aloft were able to mix down to the surface leading to many reports of downed trees. This line weakened as it approached the mountains, with no severe reports east of the mountains.

Event: Thunderstorm Wind
Begin Date: 25 Oct 2010, 08:55:00 AM EST
Begin Location: 1 Mile North of Gose Mill
Begin 37°07N/81°22W LAT/LON:
End Date: 25 Oct 2010, 08:55:00 AM EST End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Trees were blown down by strong winds on Burkes Garden Road. EPISODE NARRATIVE: A strong upper level disturbance combined with weak instability to drive a squall line across portions of Southwest Virginia. Very strong winds aloft were able to mix down to the surface leading to many reports of downed trees. This line weakened as it approached the mountains, with no severe reports east of the mountains.

Event: Flash Flood
Begin Date: 30 Nov 2010,23:30:00 PM EST
Begin Location: 1 Mile East of Richlands
Begin 37°06'N/81°48'W LAT/LON:
End Date: 30 Nov 2010,23:59:00 PM EST End Location: 1 Mile East South East of Richlands
End LAT/LON: 37°06'N / 81O48'W Magnitude: 0 Fatalities: 0 Injuries: 0 Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description;
EVENT NARRATIVE: Street and small stream flooding was reported in and around Richlands. This event continued into December 1st. EPISODE NARRATIVE: A major storm affected the eastern U.S. during the period from November 30-December 1 as a powerful upper low and surface system moved into the Great Lakes providing an extended period of deep southerly flow across the region. Precipitable water values were extremely high for very early December, running from 1.3 to 1.6 inches or nearly 200 percent of normal. Precipitation developed late on the

29th and produced moderate rains (0.25 to 0.50bD) across the western portion of the NWS Blaeksburg forecast area ending at 7 AM on the 30th. Heavier and more widespread precipitation developed on the evening of the 30th into the early morning hours of December 1st.

Event: Flash Flood
Begin Date: 01 Dec 2010, 00:00:00 AM EST
Begin Location: 1 Mile East of Richlands
Begin 37°06N/81°48'W LAT/LON:
End Date: 01 Dec 2010, 03:00:00 AM EST End Location: 1 Mile East South East of Richlands
End LAT/LON: 37°06'N / 81°48'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage;
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Street flooding and small stream flooding was reported in and around Richlands. Damage values are estimated. EPISODE NARRATIVE: A major storm affected the eastern U.S. during the period of November 30 - December 1 as a powerful upper low and surface system moved into the Great Lakes proving an extended period of deep southerly flow across the region. Precipitable water values were extremely high for very early December, running from 1.3 to 1.6 inches or nearly 200 percent of normal. Precipitation developed late on the 29th and produced moderate rains (0,25 to 0.50bD) across the western portion of the NWS Blacksburg forecast area ending at 7 AM on the 30th. Heavier and more widespread precipitation developed on the evening of the 30th into the early morning hours of December 1st.

Event: Heavy Snow
Begin Date: 04 Dec 2010, 09:40:00 AM EST
Begin Location: Not Known
End Date: 05 Dec 2010, 06:45:00 AM EST
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Snow amounts across the county ranged from 5.0 inches at Tazewell to 8.0 inches at Burkes Garden. Damage values are estimated. EPISODE NARRATIVE: An area of low pressure passed across the southern Appalachians. Abundant moisture on the north side of the system combined with cold air over southwest Virginia to produce five to eight inches of snow.

Event: Heavy Snow
Begin Date: 12 Dec 2010, 06:00:00 AM EST
Begin Location: Not Known
End Date: 14 Dec 2010, 09:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Snow amounts across the county ranged from 4.0 inches at Tazewell to 6.5 inches at Richlands. Damage values are estimated. EPISODE NARRATIVE: Very strong northwest winds developed in the wake of a departing cold front. The persistent trajectories and duration of the event helped snow accumulate up to one foot at the higher elevations.

Event: Heavy Snow
Begin Date: 07 Jan 2011, 09:00:00 AM EST
Begin Location: Not Known
End Date: 09 Jan 2011, 07:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Snow showers fell during the 7th into the 8th across the county. The snow was heavy at times with visibilities under a quarter mile. Total accumulation ranged from 4 to 6 inches across the county. EPISODE NARRATIVE: A strong upper level low pressure spinning over the eastern Great Lakes pushed several disturbances across southwest Virginia. These disturbances combined with persistent northwest flow led to accumulating snow showers across the higher elevations from the 7th into the 8th.

Event: Heavy Snow
Begin Date: 11 Jan 2011,18:00:00 PM EST
Begin Location: Not Known
End Date: 13 Jan 2011, 09:00:00 AM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Upslope snow showers accumulated 4 to 8 inches across the county, with the highest amounts across the higher elevations. Winds gusting near 40 miles per hour caused near whiteout conditions at times across the higher elevations. EPISODE NARRATIVE: Northwest winds behind a developing low pressure moving off the Mid Atlantic coast allowed for persistent upslope snow showers across the mountains of southwest Virginia.

Event: Winter Storm
Begin Date: 26 Jan 2011,10:00:00 AM EST
Begin Location: Not Known
End Date: 26 Jan 2011,18:30:00 PM EST
End Location: Not Known
Magnitude: 0
Fatalities: 0
Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Precipitation started off as rain early Wednesday the 26th before mixing with sleet and snow and eventually changing to all snow by mid morning. The banded nature of the snow resulted in a wide range of amounts. Areas near Richlands received close to 1 inch, while much of the central and eastern part of the county measured 5 to 6 inches. EPISODE NARRATIVE: A complex weather system moved through the region on Wednesday the 26th. An area of low pressure developed off the North Carolina coast, while an upper level low passed overhead. Temperatures were initially warm enough for some rain, sleet and freezing rain, however the precipitation quickly changed to snow along and west of the Blue Ridge Mountains. Enough instability was present under the upper level low for the snow to take on a banded form for much of the event. This resulted in some counties seeing little or no snow, while other counties saw significant accumulations. Given the borderline temperatures, the higher elevations saw greater accumulations as well, with lower elevations seeing a very wet snow

and rain mix, thus limiting accumulations.

Event: High Wind
Begin Date: 01 Feb 2011, 20:40:00 PM EST
Begin Location: Not Known
End Date: 02 Feb 2011, 03:30:00 AM EST
End Location; Not Known
Magnitude: 61 Fatalities: 0 Injuries: 0
Property $ 3.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Strong southeast winds were measured gusting to 70 mph at a local mesonet site in Cedar Bluff. Pockets of damage were reported by local police, including powerlines down near Raven and trees down in Tazewell and Bandy. EPISODE NARRATIVE: Deep low pressure tracked through the Ohio Valley and brought strong southeast winds gusting to 70 mph ahead of the cold front across far western Virginia.

Event: Flash Flood
Begin Date: 28 Feb 2011,16:15:00 PM EST
Begin Location: 1 Mile South of Richlands
Begin 37°05'N/81°49'W LAT/LON:
End Date: 28 Feb 2011,21:00:00 FM EST End Location: 1 Mile South West of Richlands
End LAT/LON: 37°05'N / 81°49'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Water overflowed drainage channels and covered several roadways in Richlands, including Route 609, Burnette St. and River St. EPISODE NARRATIVE: A strong front moved into the far western sections of the area producing heavy rainfall of 1.5 to over 2 inches in parts of the Tennessee River basin. 24-hour rain gage totals ending at 7AM on March 1st were highest across the Mountain Empire and included 2.24b □ at Fairwood IFLOWS (FWDV2), 2.08bD at Springville IFLOWS (SPIV2), 1.96bD at both Jones Knob IFLOWS (JNKV2) and Grayson Highlands IFLOWS (GYHV2), and 1.90bD at Troutdale COOP (TROV2). There were sharp rises on several rivers and streams. The Clinch River at Richlands (RLRV2) in western Tazewell County hit 9.60 feet, just below the minor flood stage of 10 feet. This was the highest level on this gage since May 25,2004 (10.37bD). Both the North and South Forks of the Holston River in Smyth County rose to near action stage.

Event: Flood
Begin Date: 28 Feb 2011,18:50:00 PM EST
Begin Location: 1 Mile West North West of Me Call
Place
Begin 37°10lN/81°36W
LATYLON:
End Date: 28 Feb 2011,21:50:00 PM EST End Location: Me Call Place End LAT/LON: 37°10'N / 81°36'W
Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Mill Creek flooded along Route 760. EPISODE NARRATIVE: A strong front moved into the far western sections of the area producing heavy rainfall of 1.5 to over 2 inches in parts of the Tennessee River basin. 24-hour rain gage totals ending at 7AM on March 1st were highest across the Mountain Empire and included 2.24bD at Fairwood IFLOWS (FWDV2), 2.08bD at Spriugville IFLOWS (SPIV2), 1.96bD at both Jones Knob IFLOWS (JNKV2) and Graysou Highlands IFLOWS (GYHV2), and 1.90bD at Troutdale COOP (TROV2). There were sharp rises on several rivers and streams. The Clinch River at Richlands (RLRV2) in western Tazewell County hit 9.60 feet, just below the minor flood stage of 10 feet. This was the highest level on this gage since May 25,2004 (10.37bD). Both the North and South Forks of the Holston River in Smyth County rose to near action stage.

Event: Flood
Begin Date: 28 Feb 2011,20:15:00 PM EST
Begin Location: Adria
Begin
End Date: 28 Feb 2011,23:15:00 PM EST End Location: Adria End LAT/LON: 37°10'N / 81°33'W Magnitude: 0 Fatalities: 0 Injuries: 0 Property S 0.0K Damage: Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: State Route 16 was flooded along Johnson's Branch in the Adria area. EPISODE NARRATIVE: A strong front moved into the far western sections of the area producing heavy rainfall of 1.5 to over 2 inches in parts of the Tennessee River basin. 24-hour rain gage totals ending at 7AM on March 1st were highest across the Mountain Empire and included 2.24bD at Fairwood IFLOWS (FWDV2), 2.08bQ at Springville IFLOWS (SPIV2), 1.96bO at both Jones Knob IFLOWS (JNKV2) and Grayson Highlands IFLOWS (GYHV2), and 1.90bD at Troutdale COOP (TROV2). There were sharp rises on several rivers and streams. The Clinch River at Richlands (RLRV2) in western Tazewell County hit 9.60 feet, just below the minor flood stage of 10 feet. This was the highest level on this gage since May 25,2004 (10.37bD). Both the North and South Forks of the Holstou River in Smyth County rose to near action stage.

Event: Flood
Begin Date: 28 Feb 2011,20:15:00 PM EST
Begin Location: 1 Mile East South East of Bandy
Begin 37°08'N/81°42W LAT/LON:
End Date: 28 Feb 2011,23:15:00 PM EST End Location: 1 Mile East South East of Bandy End LAT/LON: 37°08'N / 81°42'W Magnitude: 0 Fatalities: 0 Injuries: 0 Property $ 0.0K Damage: Crop Damage: S 0.OK
Description:
EVENT NARRATIVE: Several roads closed in Bandy along Indian Creek. EPISODE NARRATIVE: A strong front moved into the far western sections of the area producing heavy rainfall of 1.5 to over 2 inches in parts of the Tennessee River basin. 24-hour rain gage totals ending at 7AM on March 1st were highest across the Mountain Empire and included 2.24bD at Fainvood IFLOWS (FWDV2), 2.08bD at Springville IFLOWS (SPIV2), 1.96bO at both Jones Knob IFLOWS (JNKV2) and Grayson Highlands IFLOWS (GYHV2), and 1.90bD at Troutdale COOP (TROV2). There were sharp rises on several rivers and streams. The Clinch River at Richlands (RLRV2) in western Tazewell County hit 9.60 feet, just below the minor flood stage of 10 feet. This was the highest level on this gage since May 25, 2004 (10.37bD). Both the North and South Forks of the Holston River in Smyth County rose to near action stage.

Event: Flood
Begin Date: 28 Feb 2011,22:30:00 PM EST
Begin Location: 1 Mile South South West of Richlands
Begin 37°05'N / 81°49'W LAT/LON:
End Date: 28 Feb 2011,23:45:00 PM EST End Location: 1 Mile South West of Richlands
End LAT/LON: 37°05'N / 81°49'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: Page Street in Richlands was closed due to

water backed up from the Clinch River. Water was 2 to 3 feet deep but not flowing. EPISODE NARRATIVE: A strong front moved into the far western sections of the area producing heavy rainfall of 1.5 to over 2 inches in parts of the Tennessee River basin. 24-hour rain gage totals ending at 7AM on March 1st were highest across the Mountain Empire and included 2,24bD at Fairwood IFLOWS (FWDV2), 2.08bD at Springville IFLOWS (SPIV2), 1.96bD at both Jones Knob IFLOWS (JNKV2) and Grayson Highlands IFLOWS (GYHV2), and 1.90bD at Troutdale COOP (TROV2). There were sharp rises on several rivers and streams. The Clinch River at Richlands (RLRV2) in western Tazewell County hit 9.60 feet, just below the minor flood stage of 10 feet. This was the highest level on this gage since May 25,2004 (10.37bn). Both the North and South Forks of the Holston River in Smyth County rose to near action stage.

Event: High Wind
Begin Date: 09 Mar 2011,16:04:00 PM EST
Begin Location: Not Known
End Date: 09 Mar 2011,16:14:00 PM EST
End Location: Not Known
Magnitude: 52 Fatalities: 0 Injuries: 0
Property $ 4.5K Damage:
Crop Damage: $ O.0K
Description:
EVENT NARRATIVE: High winds caused trees to be blown down on Dry Fork Road in Tazewell. Damage values are estimated. EPISODE NARRATIVE: Southeast winds increased in advance of an approaching area of low pressure. The high winds gusted to around 60 mph, causing trees to be blown down.

Event: Hail
Begin Date: 08 Apr 2011, 22:35:00 PM EST
Begin Location: Tazewell
Begin 37°07'N / 81°31'W LAT/LON:
End Date: 08 Apr 2011, 22:35:00 PM EST End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: A high pressure centered over New England helped push a back door cold front to the vicinity of the Blue Ridge Mountains. Warm and unstable air in advance of this front, combined with an upper level low pressure system, resulted in the development of severe thunderstorms along the front. The strongest storms occurred right along the boundary, where two tornadoes hit Pulasid County. These two tornadoes were the first documented in Pulaski County since records began in 1950.

Event: Hail
Begin Date: 09 Apr 2011,14:38:00 PM EST
Begin Location: 1 Mile North East of Bishop
Begin 37°12'N / 81°31W
LAT/LON:
End Date: 09 Apr 2011,14:38:00 PM EST End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage; S0.OK
Description:

EPISODE NARRATIVE: A high pressure centered over New England pushed a back door cold front to far southwestern Virginia. At the same time a strong upper level low pressure system approached from the west during the afternoon of the 9th. This resulted in the development of severe thunderstorms which produced large hail.

Event: High Wind
Begin Date: 15 Apr 2011,18:30:00 PM EST
Begin Location: Not Known
End Date: 16 Apr 2011, 02:00:00 AM EST1
End Location: Not Known
Magnitude: 51 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage;
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: The inesonet station at Tazewell Middle School measured wind gusts up to 59 MPH. These winds were strong enough to blown down several trees throughout the county. A deck was also blown into Route 460 near Bluefield. EPISODE NARRATIVE: A strong closed upper level low pressure moved across the Ohio valley, producing a variety of extreme weather across southwest Virginia. In advance of this system, strong southeast winds produced wind damage across the higher elevations. These southeast winds also provided strong upslope lifting along the Blue Ridge. This helped produce heavy rainfall amounts of 2 to 3 inches and areas of flash flooding. Enough heating occurred ahead of the cold front on the 16th to trigger severe thunderstorms along and east of the Blue Ridge, resulting in widespread thunderstorm wind damage and two tornadoes. Behind the storms, strong northwest winds knocked down many trees given the very wet soil conditions.

Event: Thunderstorm Wind
Begin Date: 25 Apr 2011,14:19:00 PM EST
Begin Location: 1 Mile East of Birmingham
Begin 37°04'N / 81°49'W LAT7LON:
End Date: 25 Apr 2011,14:19:00 PM EST
End Location: Not Known Magnitude: 50 Fatalities: 0 Injuries: 0
Property S 1.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: A power line was knocked down by thunderstorm winds on Daw Road. EPISODE NARRATIVE: Moist southerly winds in advance of a cold front along with warm temperatures created enough instability to produce scattered thunderstorms. A few of these storms turned severe, producing damaging winds and large hail.

Event: Hail
Begin Date: 25 Apr 2011,14:26:00 PM EST
Begin Location: 1 Mile East of Richlands
Begin 37°06'N / 81°48'W
LAT/LON:
End Date: 25 Apr 2011,14:26:00 PM EST End Location: Not Known Magnitude: 0.75 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EPISODE NARRATIVE: Moist southerly winds in advance of a cold front along with warm temperatures created enough instability

to produce scattered thunderstorms. A few of these storms turned severe, producing damaging winds and large hail.

Event: Hail
Begin Date: 27 Apr 2011, 21:23:00 PM EST
Begin Location: 1 Mile East of Richlands
Begin 37°06'N / 81°48'W LAT/LON:
End Date: 27 Apr 2011,21:23:00 PM EST End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S 0.0K
Description:
EPISODE NARRATIVE: Widespread severe weather impacted the area. A strong upper level
trough approaching from the west provided strong winds aloft, and a weak upper level low
pressure system moved across during the afternoon hours setting off scattered thunderstorms.
These storms quickly became severe. In total, there were 6 tornadoes with numerous reports
of damaging winds and large hail. Heavy rainfall from these storms also caused scattered flash
flooding.

Event: Thunderstorm Wind
Begin Date: 27 Apr 2011,21:44:00 PM EST
Begin Location: Thompson Vly
Begin 37°04'N / 81°33'W LAT/LON:
End Date: 27 Apr 2011, 21:51:00 PM EST End Location: 1 Mile East South East of Wittens Mills
End LAT/LON: 37°09'N / 81°27'W Magnitude: 50 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: S0.0K
Description:
EVENT NARRATIVE: Numerous trees down from the southwest side to the northeast side of Tazewell. More specifically, one tree was down in Thompson Valley, one on Central Avenue, one near Wittens Mills, and another on Route 460 near the intersection with Route 781. EPISODE NARRATIVE: Widespread severe weather impacted the area. A strong upper level trough approaching from the west provided strong winds aloft, and a weak upper level low pressure system moved across during the afternoon hours setting off scattered thunderstorms. These storms quickly became severe. In total, there were 6 tornadoes with numerous reports of damaging winds and large hail. Heavy rainfall from these storms also caused scattered flash flooding.

Event; Flash Flood
Begin Date: 27 Apr 2011,21:55:00 PM EST
Begin Location: Richlands
Begin 37°06'N/81°49W LAT/LON:
End Date: 27 Apr 2011, 21:55:00 PM EST
End Location: Richlands End LAT/LON: 37°06'N / 81°49'W
Magnitude: 0 Fatalities: 0 Injuries: 0
Property S 5.0K Damage:
Crop Damage: S O.0K
Description:
EVENT NARRATIVE: Heavy rains of up to 2 inches flooded a house on Lake Park drive. EPISODE NARRATIVE: Widespread severe weather impacted the area. A strong upper level trough approaching from the west provided strong winds aloft, and a weak

upper level low pressure system moved across during the afternoon hours setting off scattered thunderstorms. These storms quickly became severe. In total, there were 6 tornadoes with numerous reports of damaging winds and large hail. Heavy rainfall from these storms also caused scattered flash flooding.

Event: Hail

Begin Date: 27 Apr 2011, 22:15:00 PM EST
Begin Location: 1 Mile South East of Bluefield
Begm37°14N/81°16W
LAT/LON:
End Date: 27 Apr 2011, 22:15:00 PM EST End Location: Not Known Magnitude: 1.00 inches Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EPISODE NARRATIVE: Widespread severe weather impacted the area. A strong upper level
trough approaching from the west provided strong winds aloft, and a weak upper level low
pressure system moved across during the afternoon hours setting off scattered thunderstorms.
These storms quickly became severe. In total, there were 6 tornadoes with numerous reports
of damaging winds and large hail. Heavy rainfall from these storms also caused scattered flash
flooding.

Event: Flash Flood

Begin Date: 28 Apr 2011, 00:37:00 AM EST
Begin Location: 1 Mile West of Glen Burke
Begin 37°09'N / 81°52'W LAT/LON:
End Date: 28 Apr 2011, 00:37:00 AM EST End Location: 1 Mile West North West of Glen Burke
End LAT/LON: 37°09'N / 81°52'W Magnitude: 0 Fatalities: 0 Injuries: 0
Property $ 0.0K Damage:
Crop Damage: $ 0.0K
Description:
EVENT NARRATIVE: A rock slide on route 460 in the Shortt Gap area blocked the left lane. EPISODE NARRATIVE: Widespread severe weather impacted the area. A strong upper level trough approaching from the west provided strong winds aloft, and a weak upper level low pressure system moved across during the afternoon hours setting off scattered thunderstorms. These storms quickly became severe. In total, there were 6 tornadoes with numerous reports of damaging winds and large hail. Heavy rainfall from these storms also caused scattered flash flooding.

Appendix B

Town of Bluefield

Supplement to the CPPDC Plan

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.

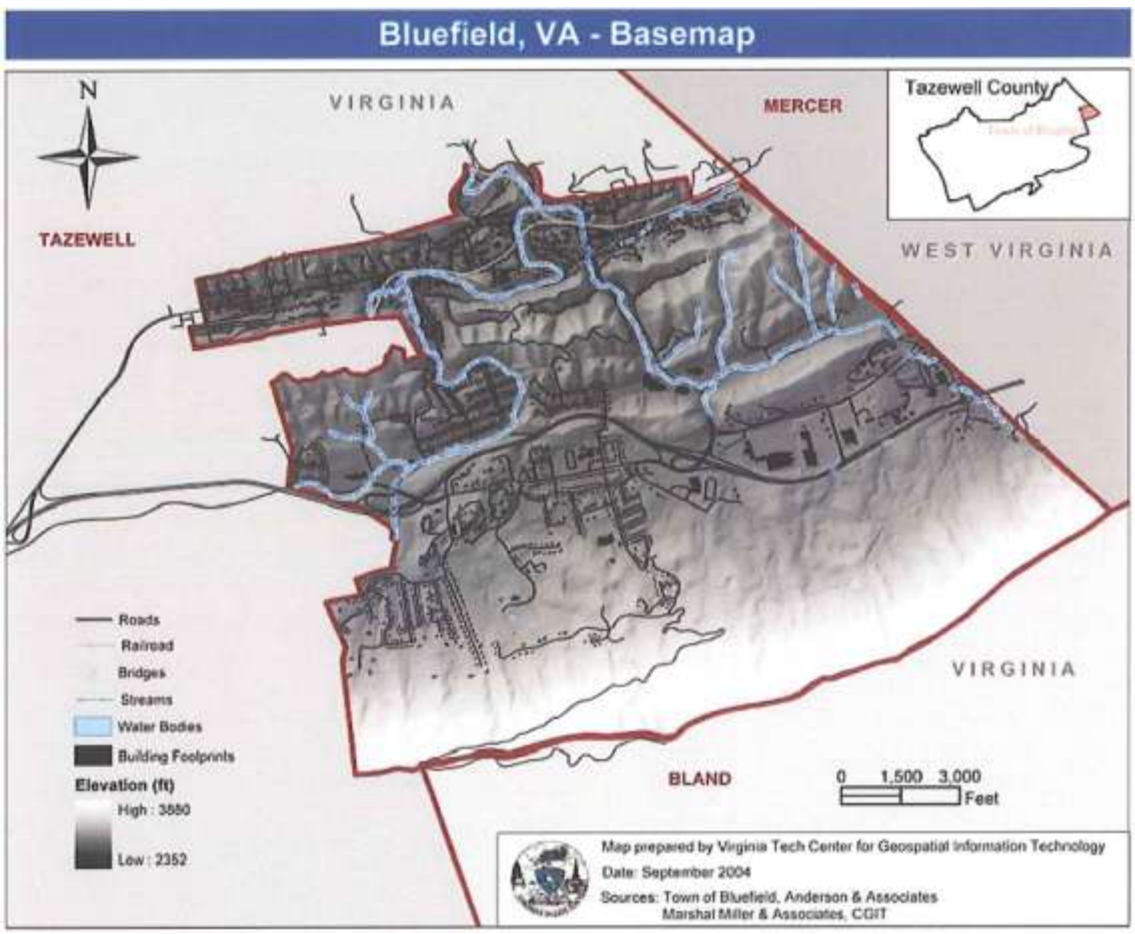


Figure B.1. Bluefield Base Map.
Note: All numbered figures in this Appendix are provided in a format for black and white reproduction. Full page, color versions of all figures are included at the end of this Appendix.

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.

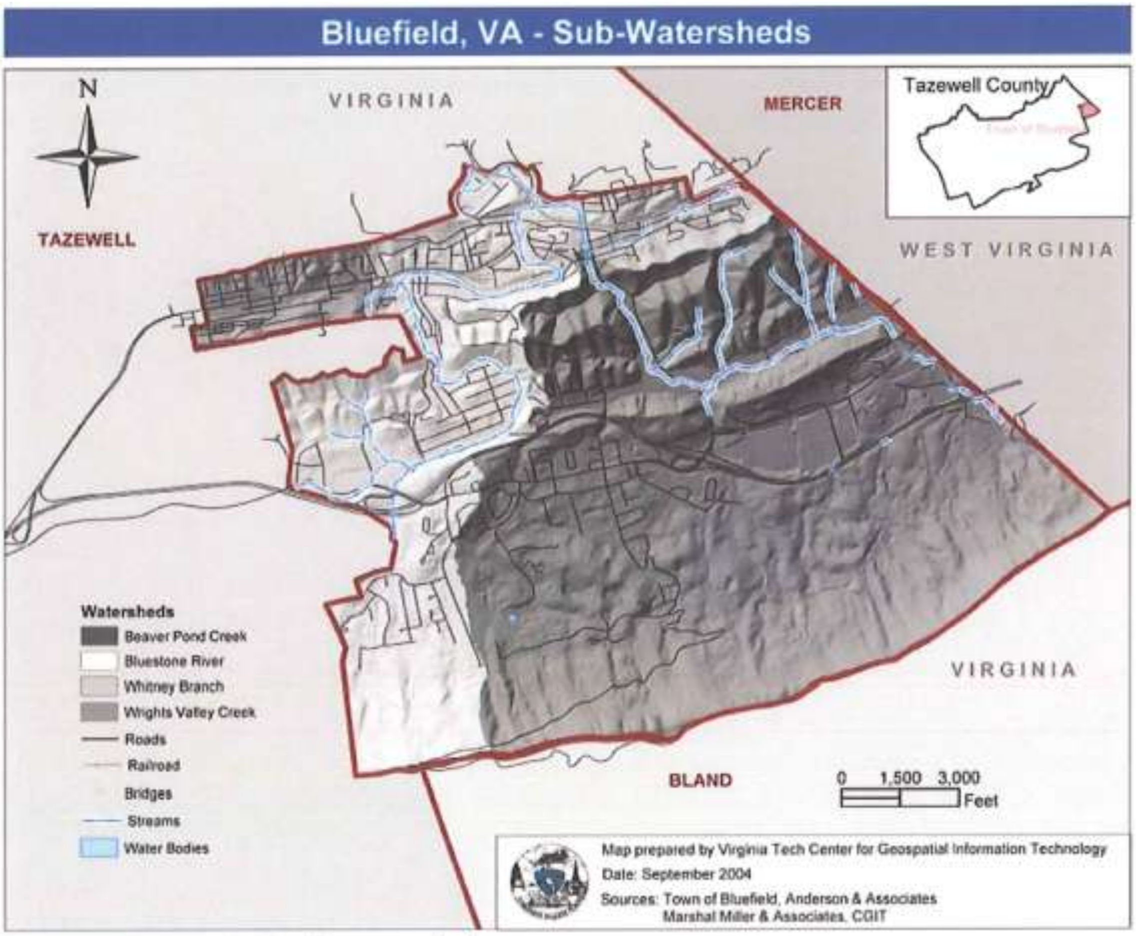


Figure B.2: Bluefield Sub-Watersheds

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.

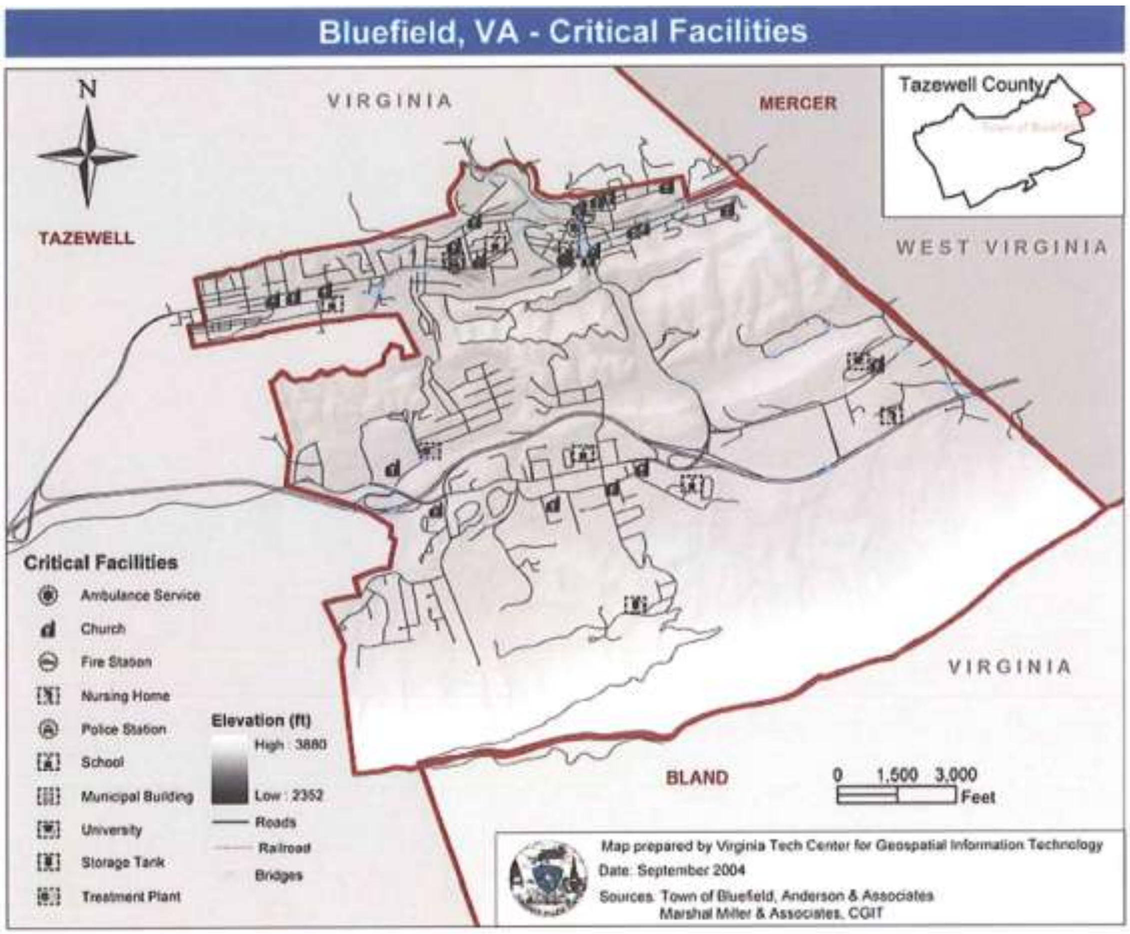


Figure B.3. Bluefield Critical Facilities

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.

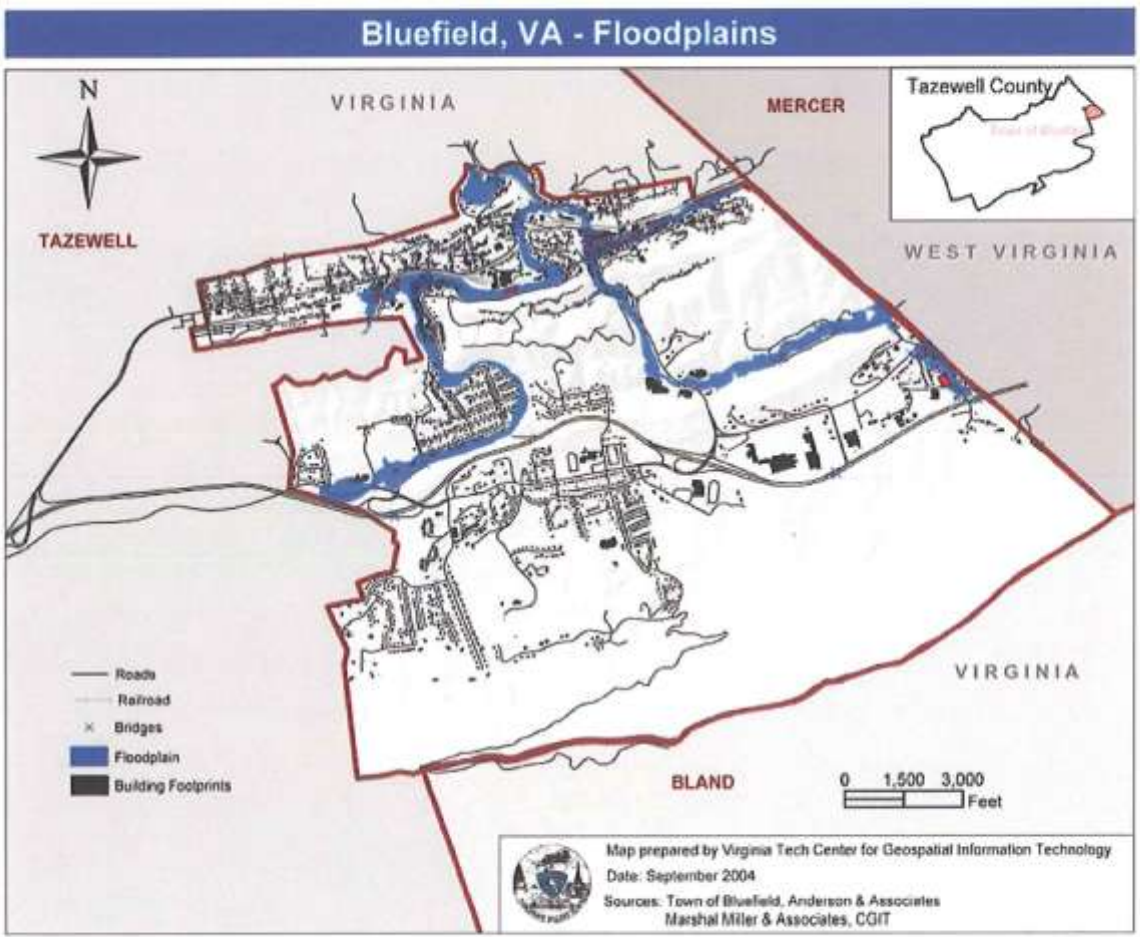


Figure B.4. Bluefield Floodplain Boundaries.

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.

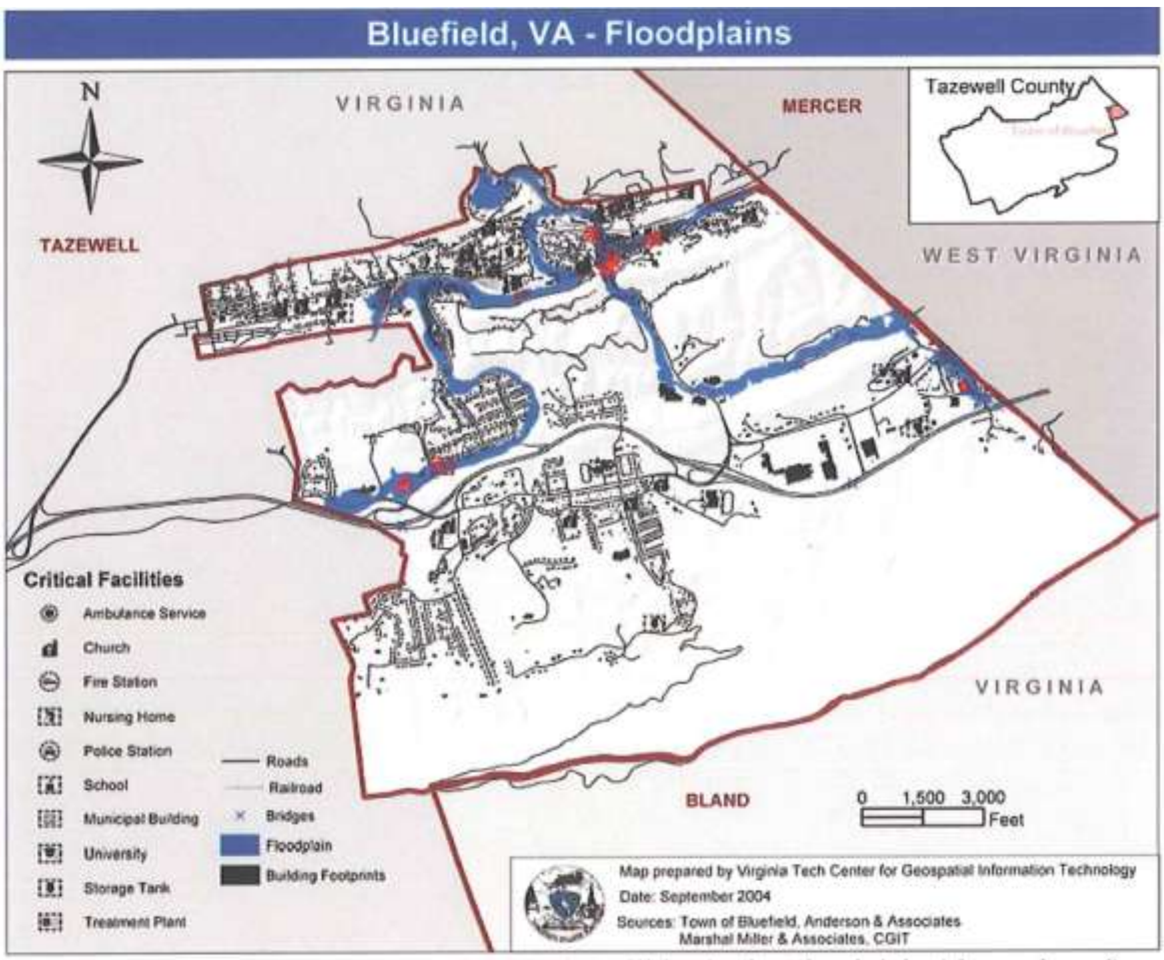


Figure B.5. Bluefield Structures and Critical Facilities in the Floodplain (shown in red).

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.

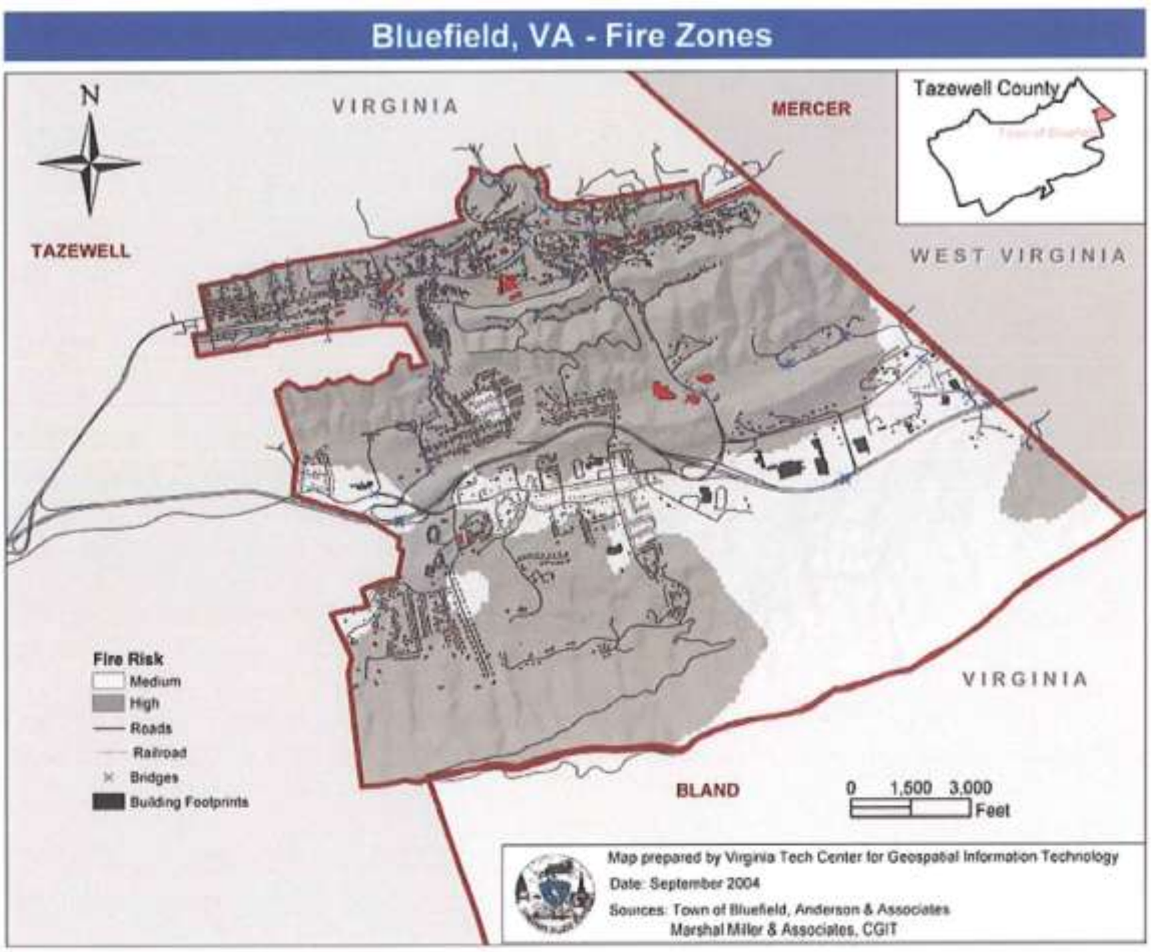


Figure B.6. Bluefield Fire Hazard Zones (based on Virginia Department of Forestry Fire Hazard Mapping with structures in high zone in red).

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.

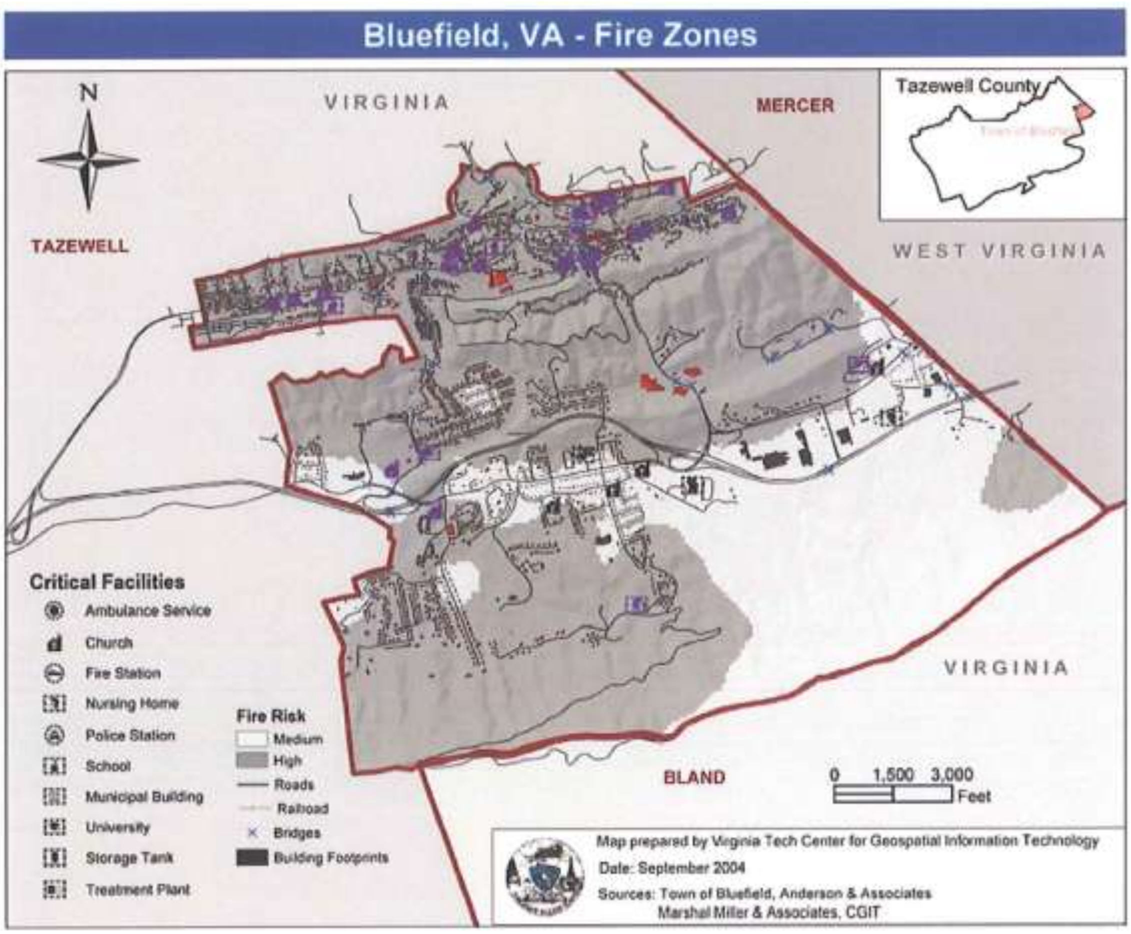


Figure B.7. Bluefield Fire Hazards for Structures and Critical Facilities (high zone structures shown in red, critical facilities in purple).

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.

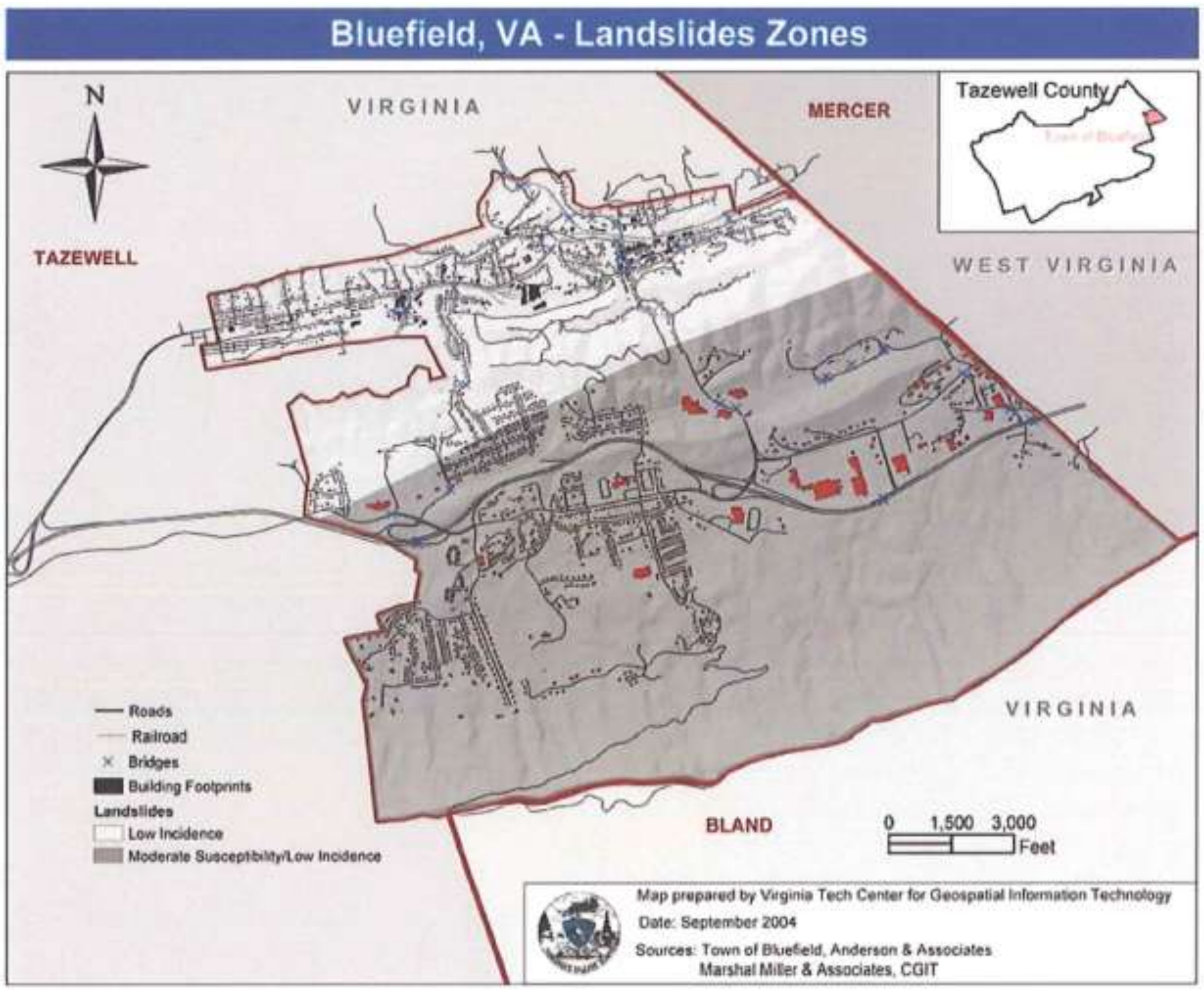


Figure B.8. Bluefield Landslide Zones (from USGS National Landslide Map, moderate susceptibility/low incidence structures shown in red).

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

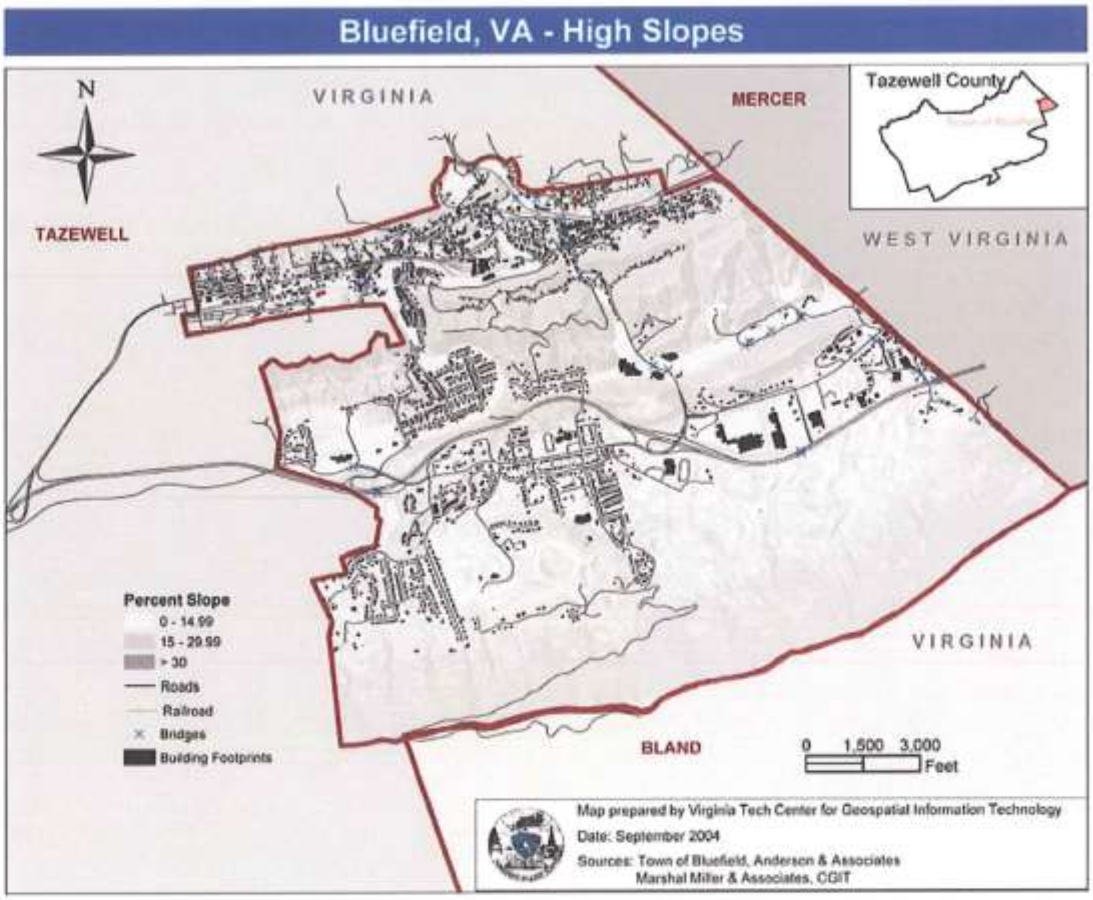


Figure B.9. Bluefield High Slopes (Source: 2002 LIDAR elevation data).

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%.

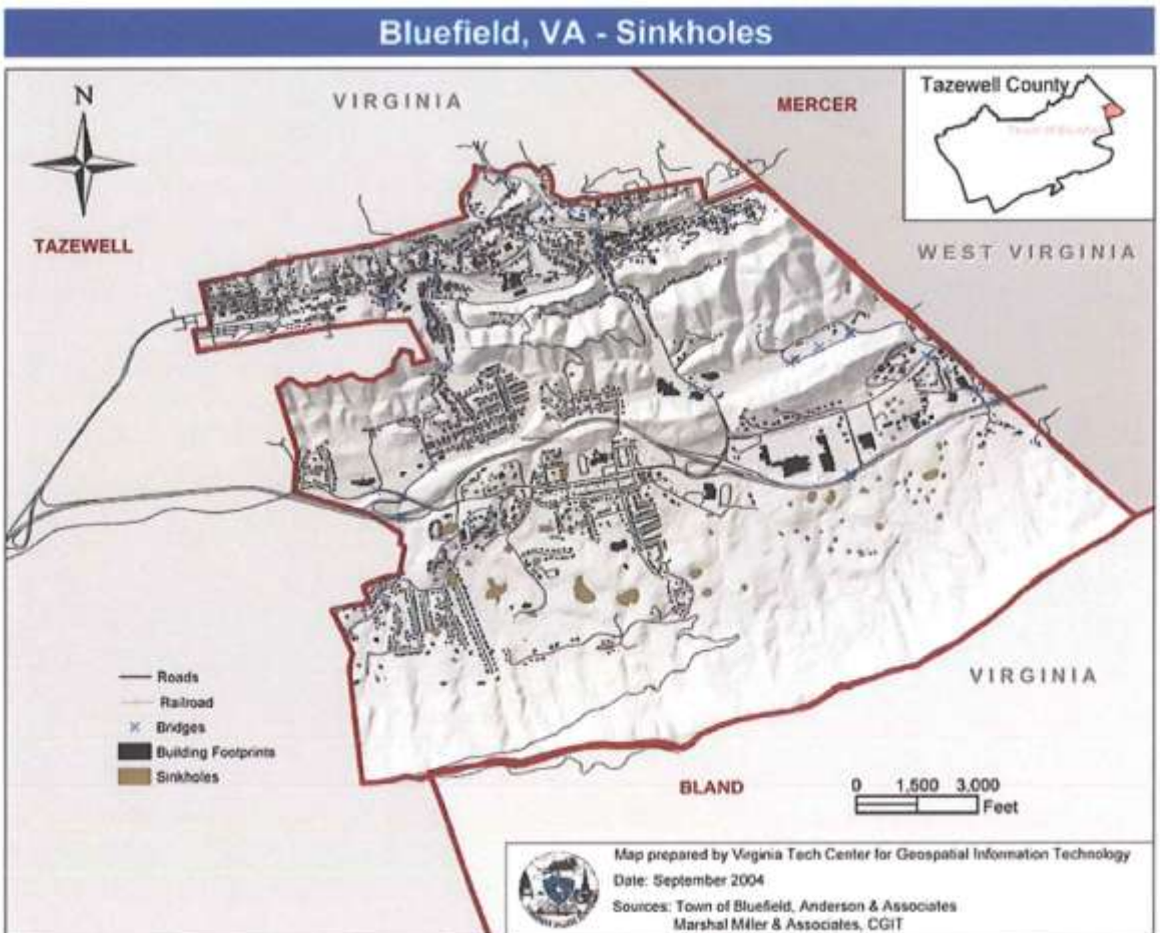
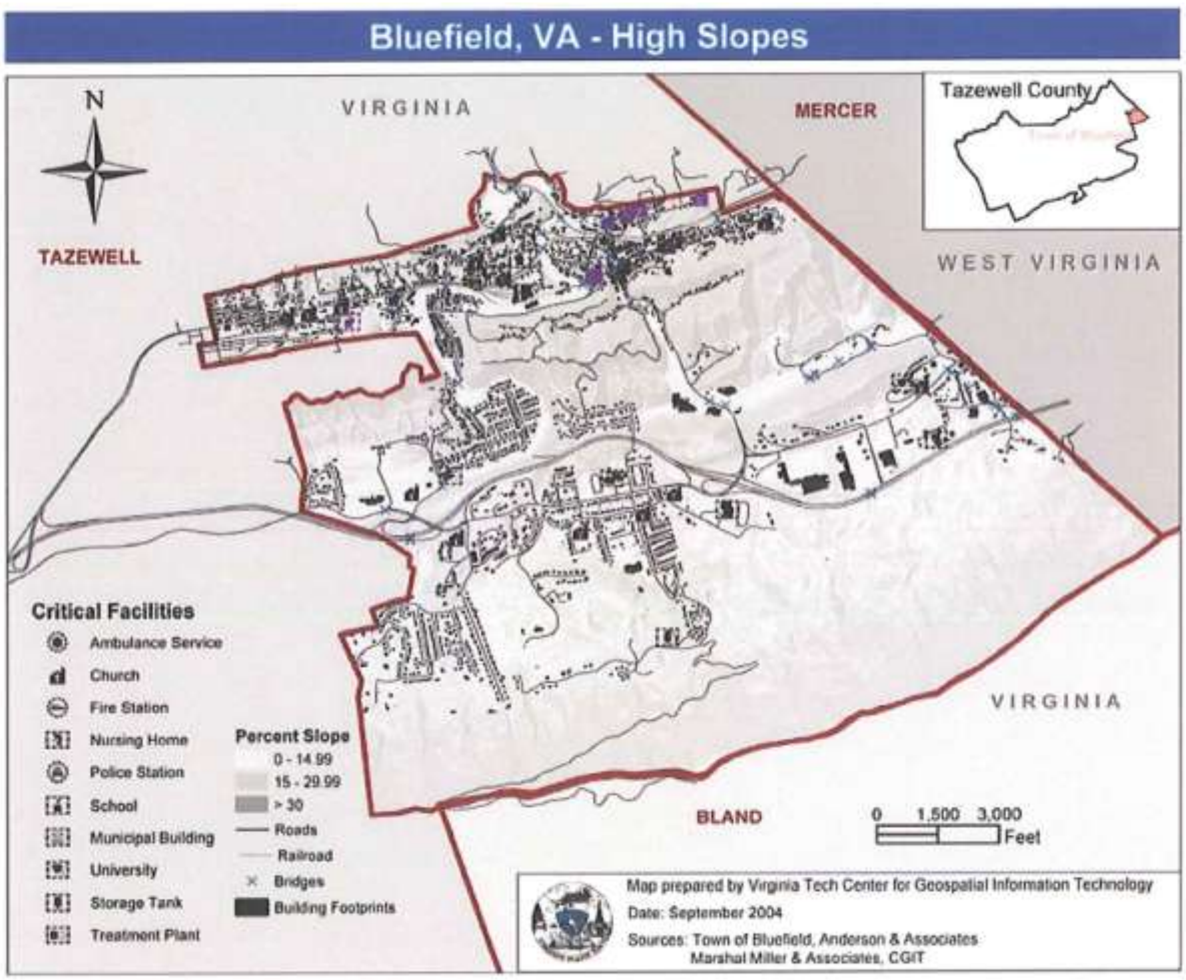


Figure B.10. Bluefield Sinkholes (Source: 2002 LIDAR elevation data).

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.



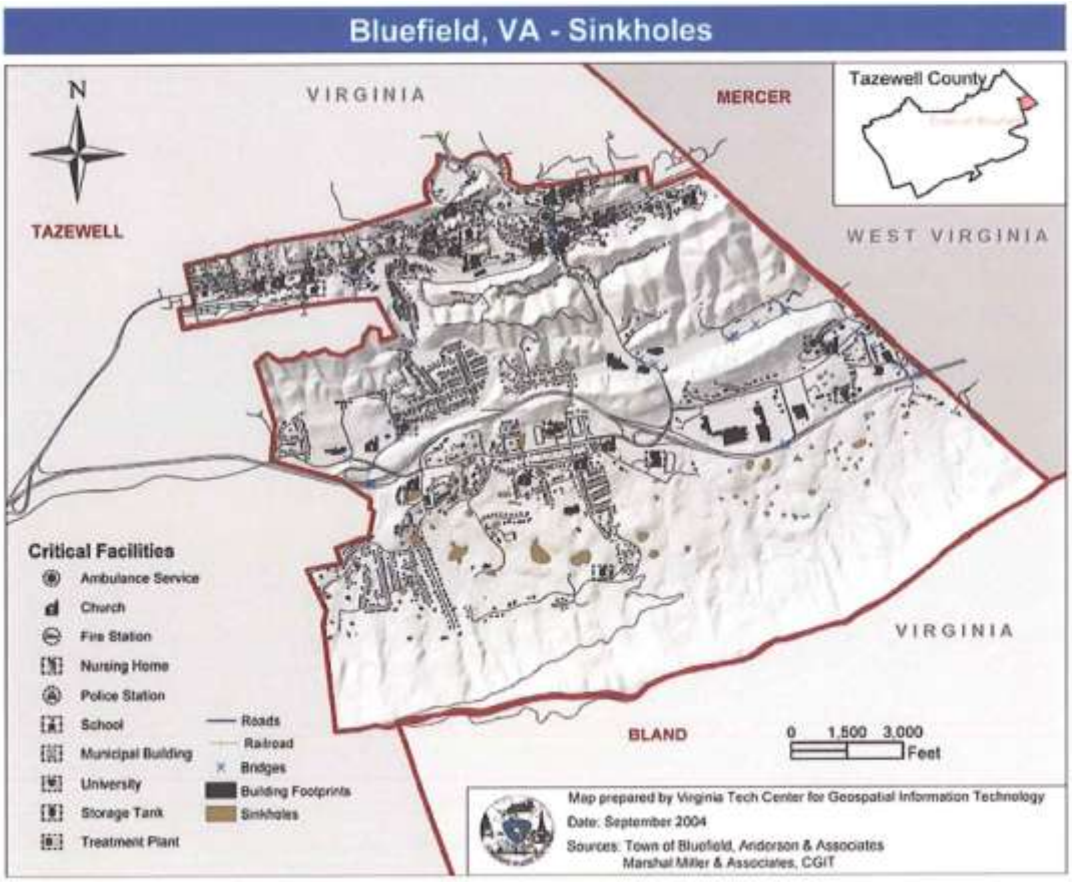
B. 11. Bluefield High Slope Hazards for Structures and Critical Facilities (Structures in >30% slope shown in red, critical facilities in purple).

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.

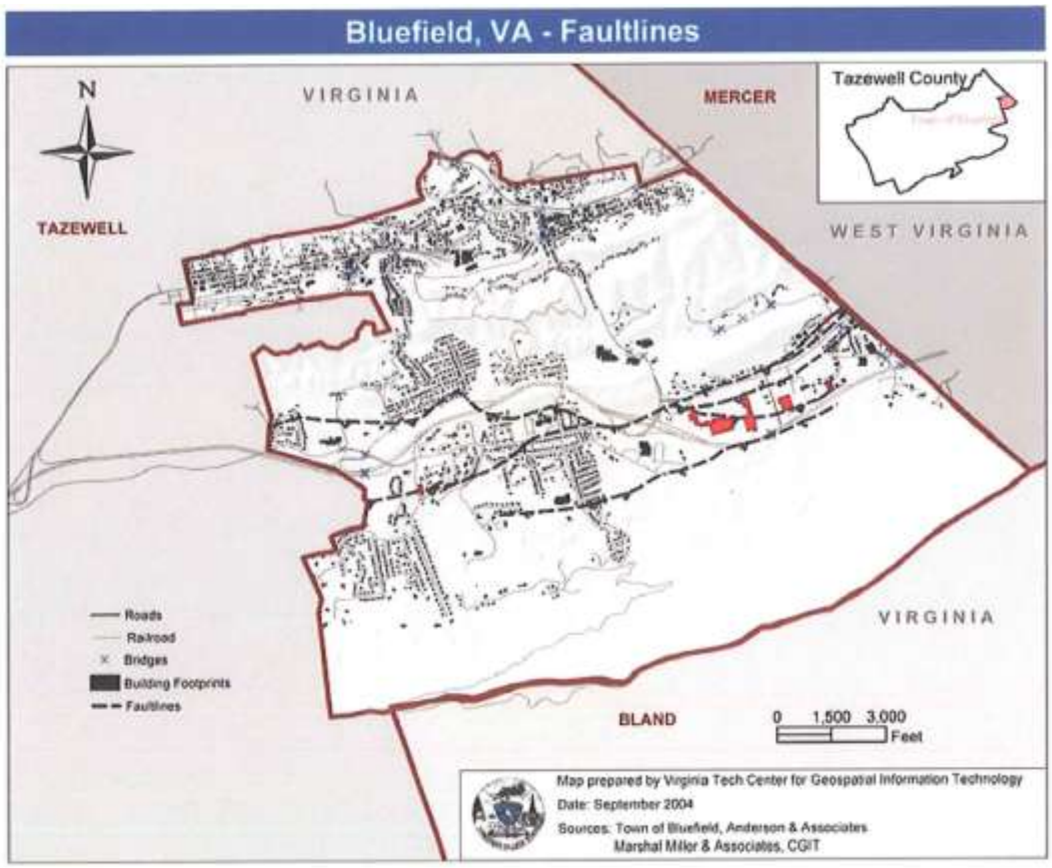
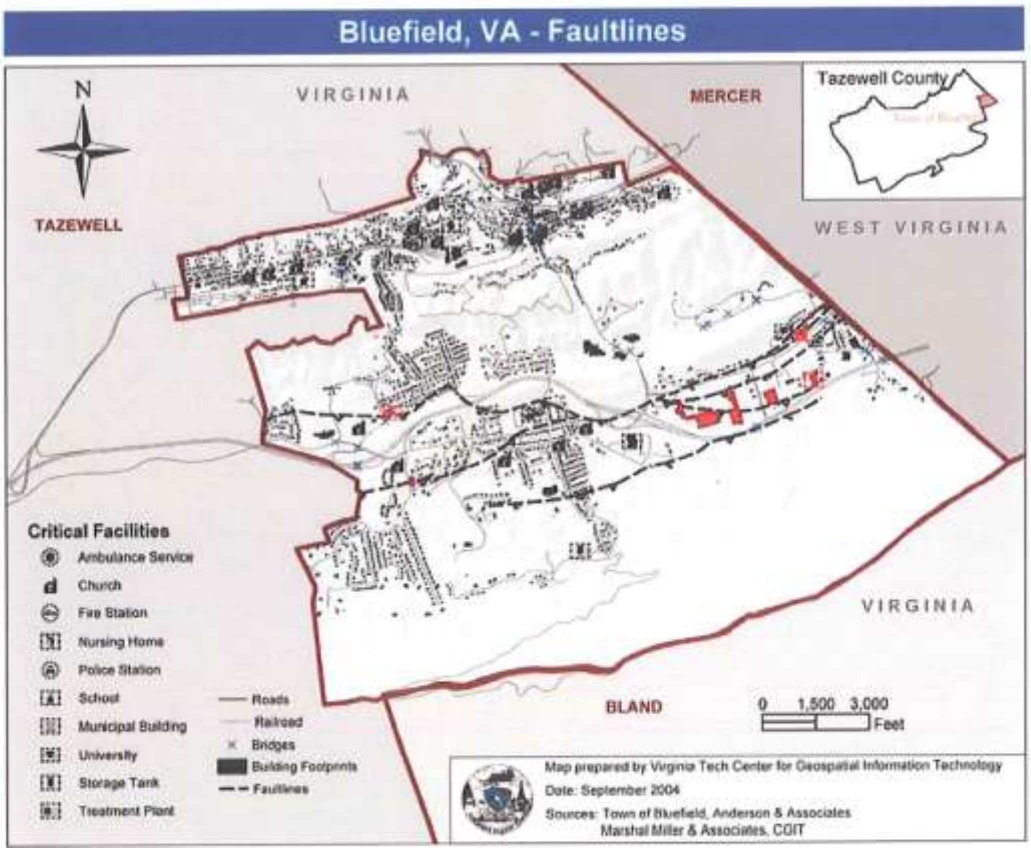


Figure B.14. Bluefield Fault Lines (Source: Marshall Miller and Associates).

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.

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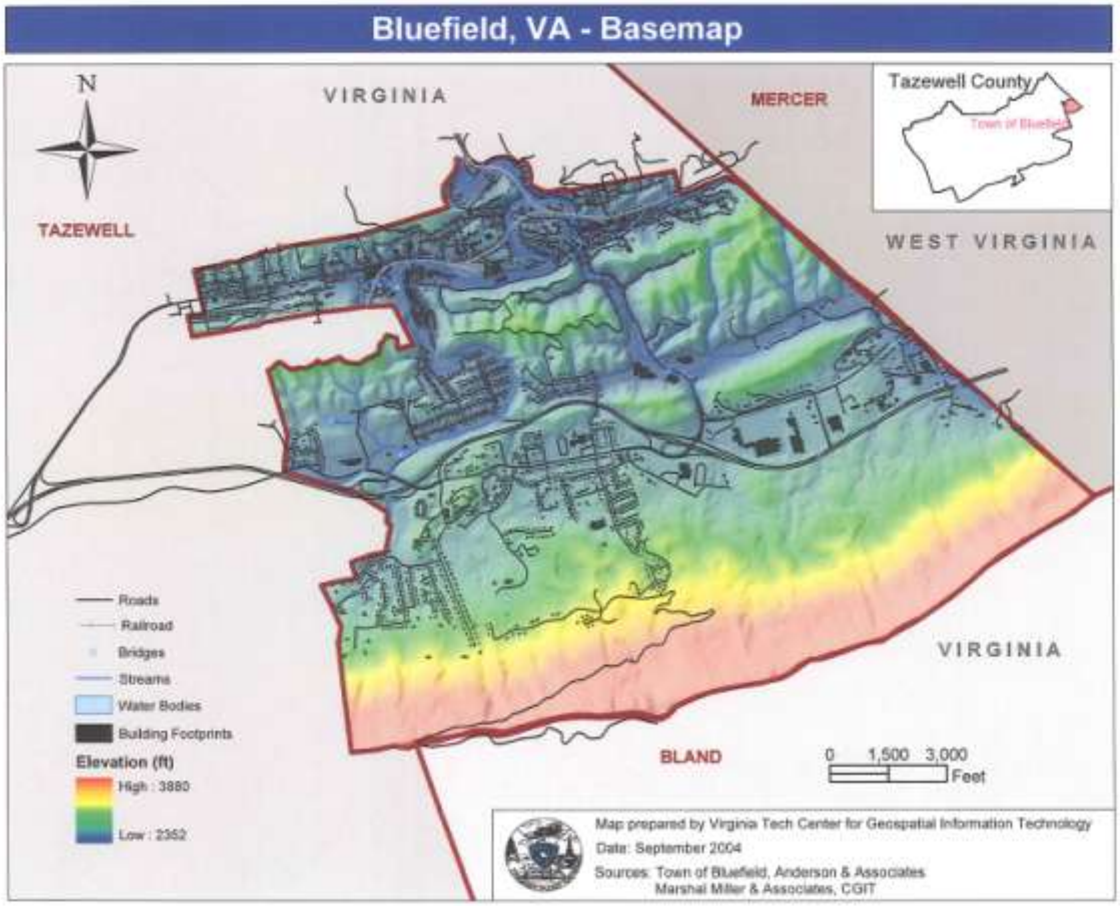
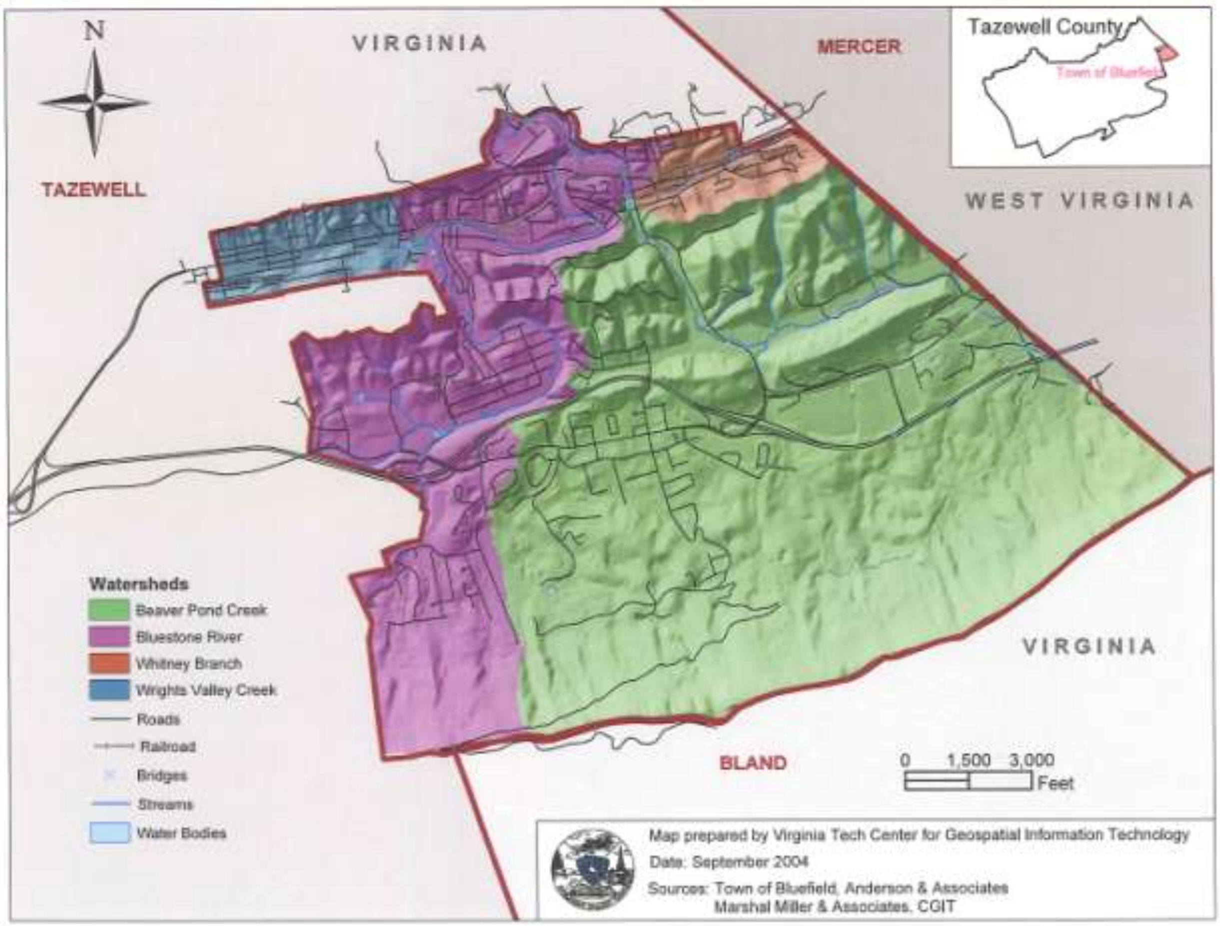
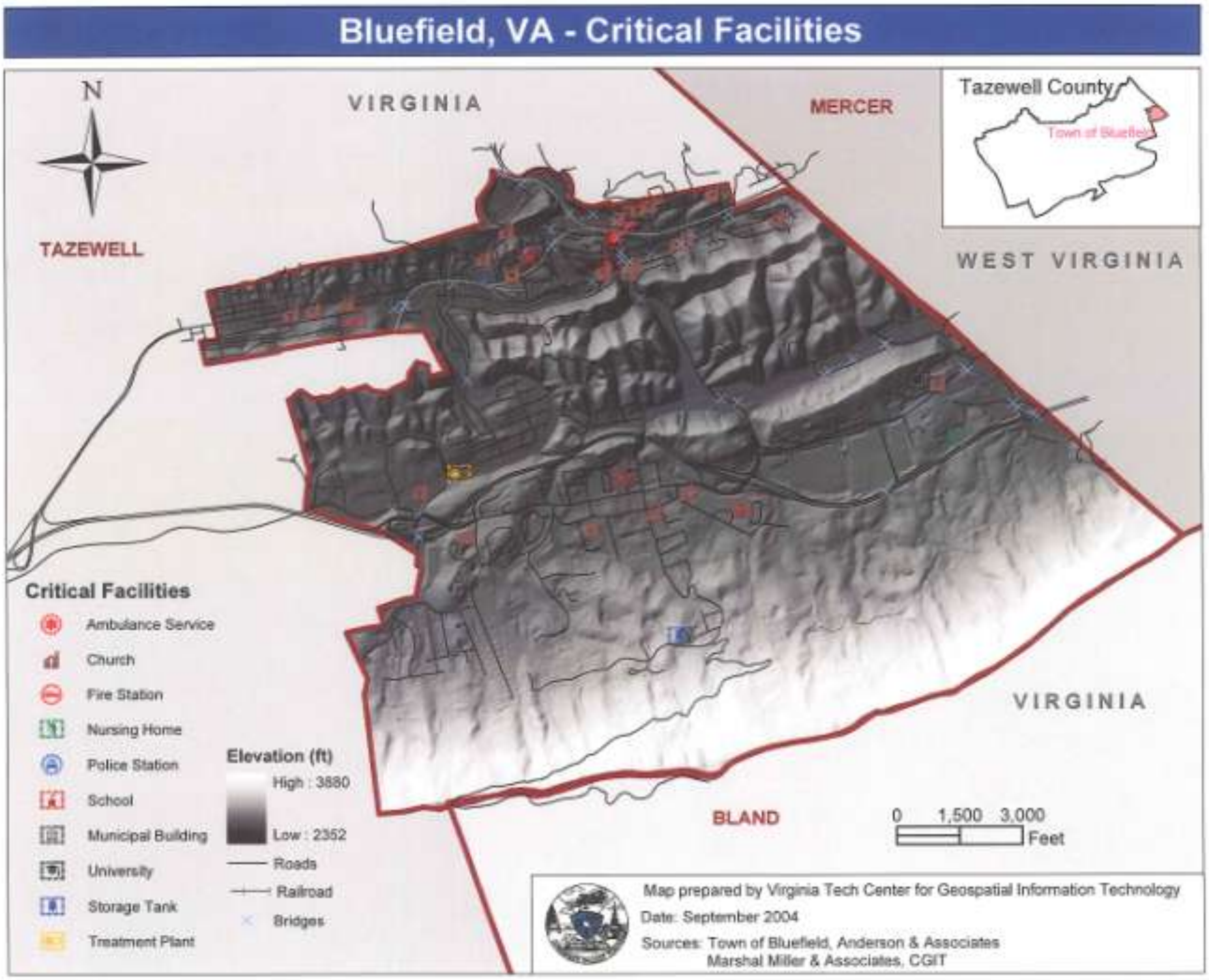

Bluefield, VA - Basemap
N
VIRGINIA
MERCER
Tazewell County
TAZEWELL
WEST VIRGINIA
VIRGINIA
BLAND
Roads
Railroad
Bridges
Streams
Water Bodies
Building Footprints
Elevation (ft)
High : 3880
Low : 2352
0 1,500 3,000
Feet
Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: September 2004
Sources: Town of Bluefield, Anderson & Associates
Marshal Miller & Associates, CGIT

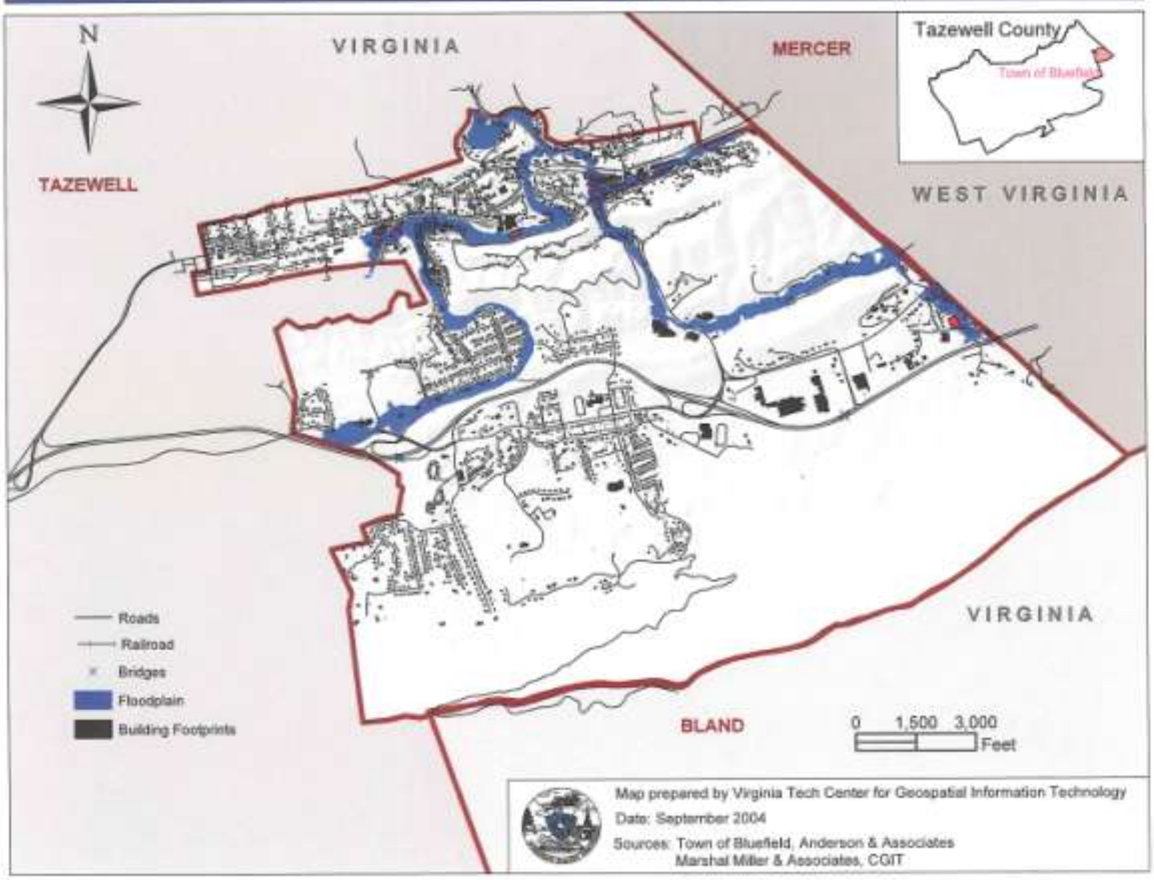
Bluefield, VA - Sub-Watersheds



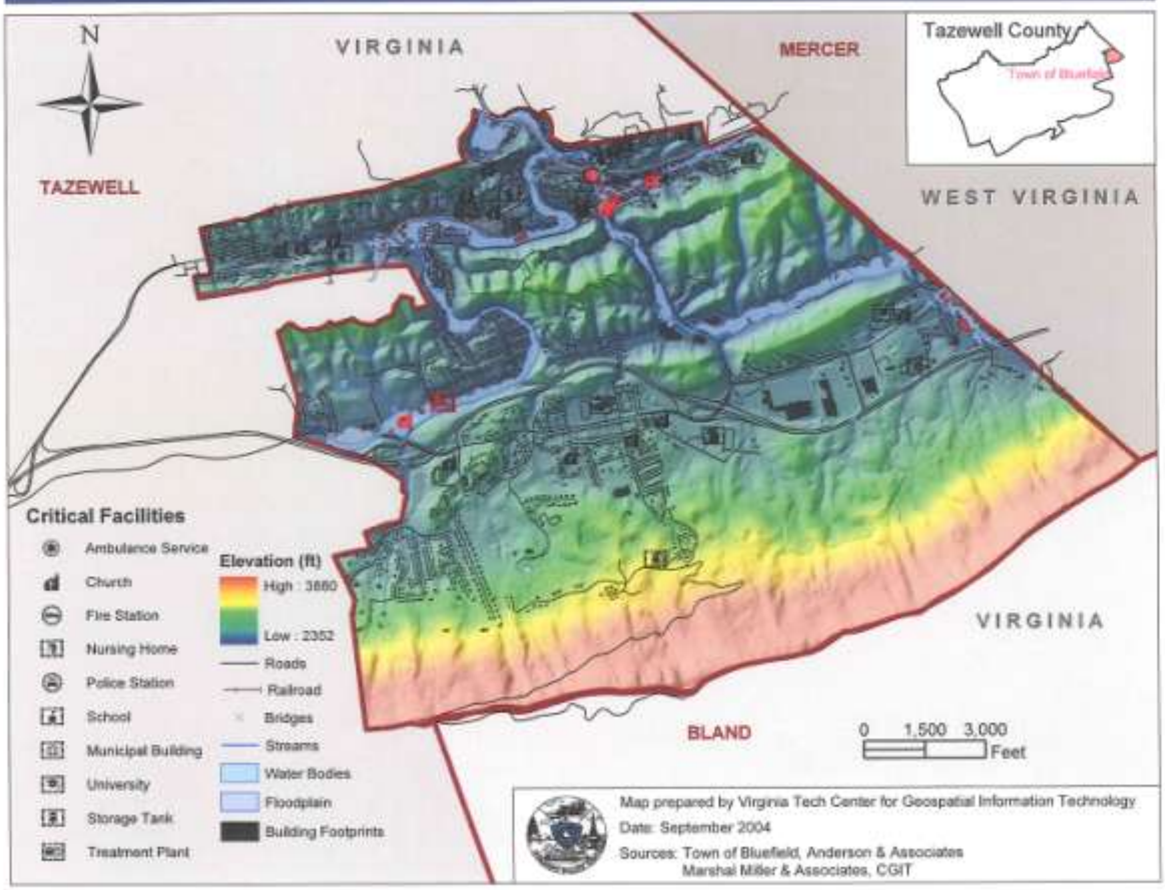


Bluefield, VA - Critical Facilities
N
VIRGINIA
MERCER
Tazewell County
TAZEWELL
WEST VIRGINIA
VIRGINIA
BLAND
Critical Facilities
Ambulance Service
Church
Fire Station
Nursing Home
Police Station
School
Municipal Building
University
Storage Tank
Treatment Plant
Elevation (ft)
High : 3880
Low : 2352
Roads
Railroad
Bridges
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

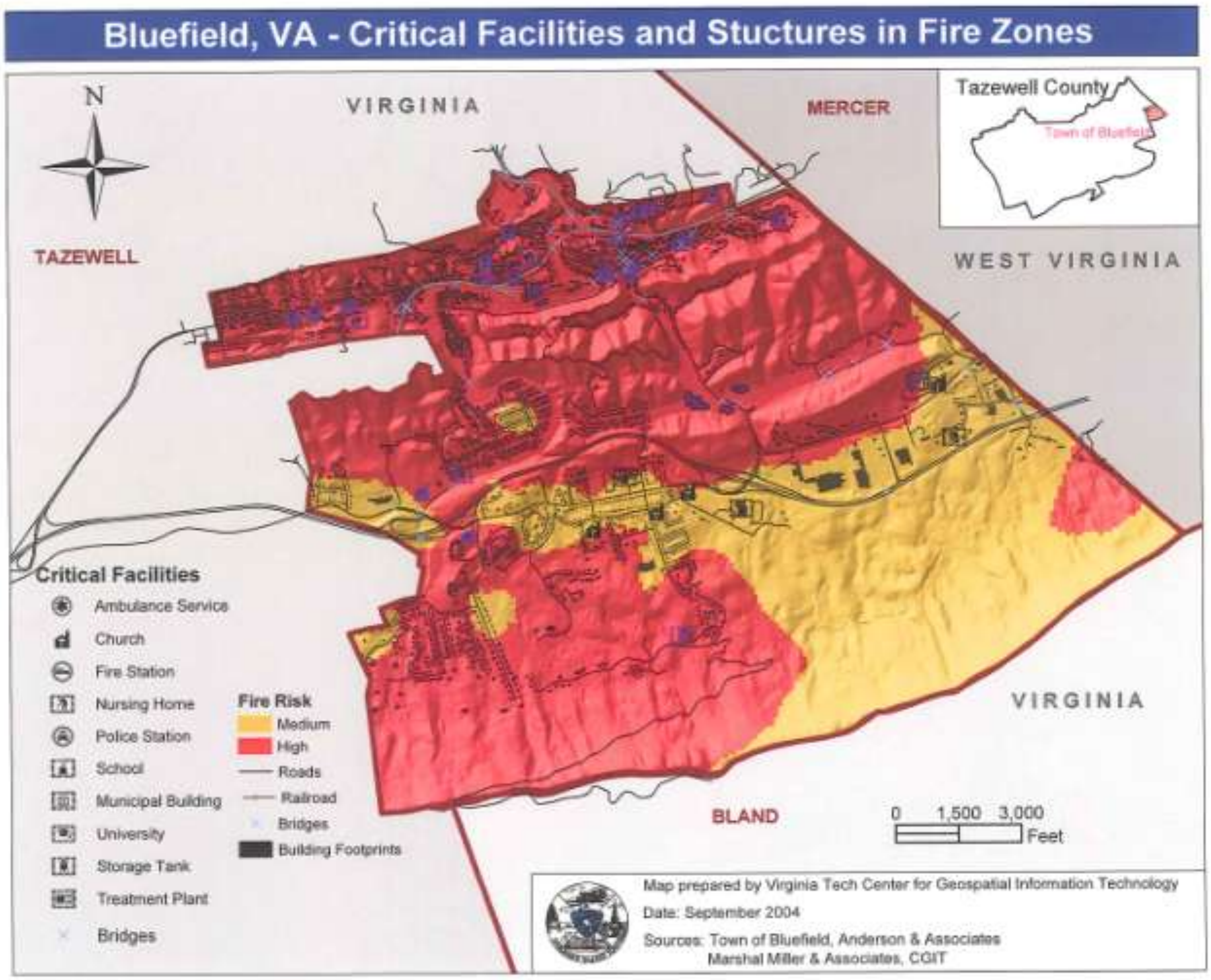
Bluefield, VA - Floodplains



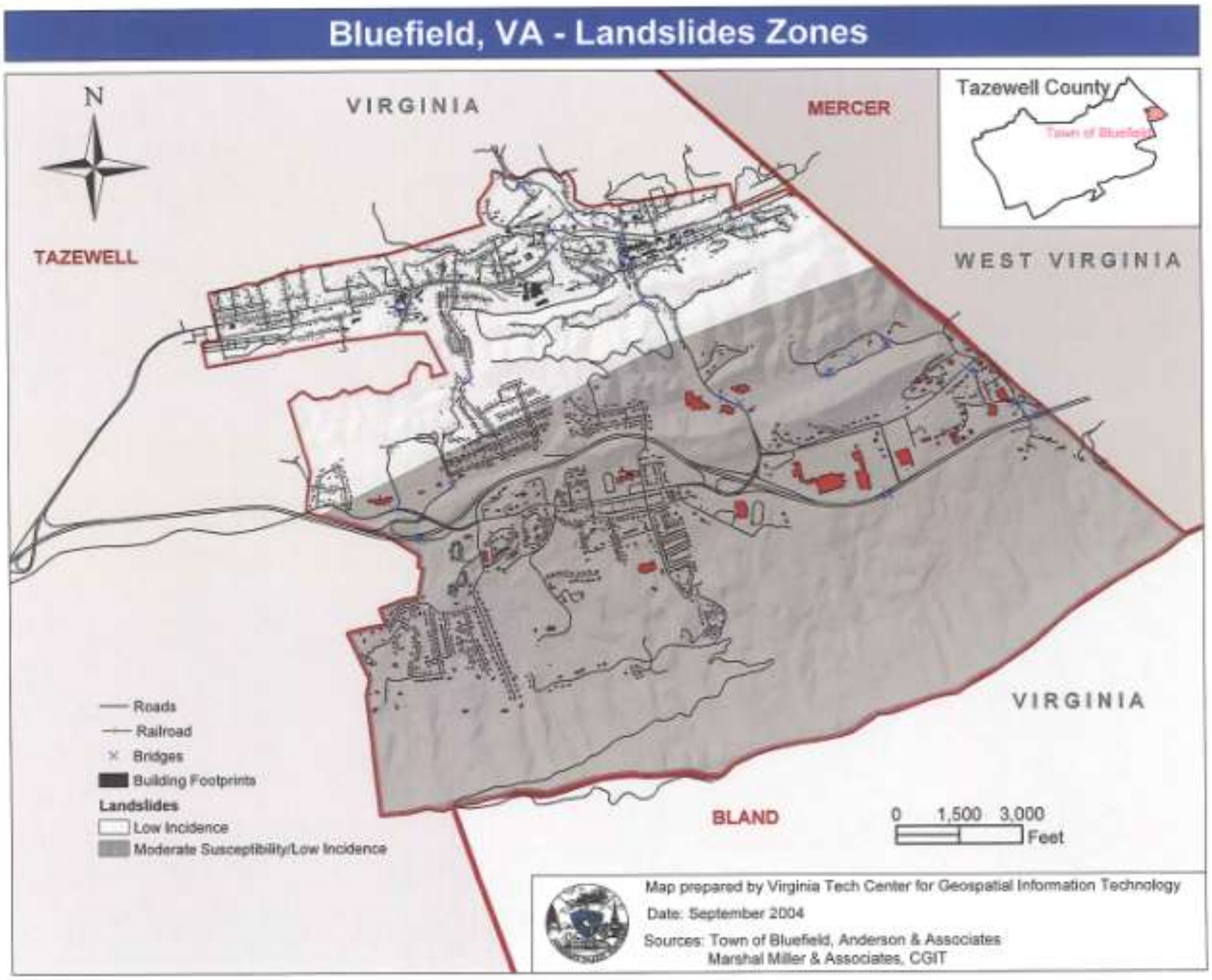
Bluefield, VA - Critical Facilities and Structures in Floodplains



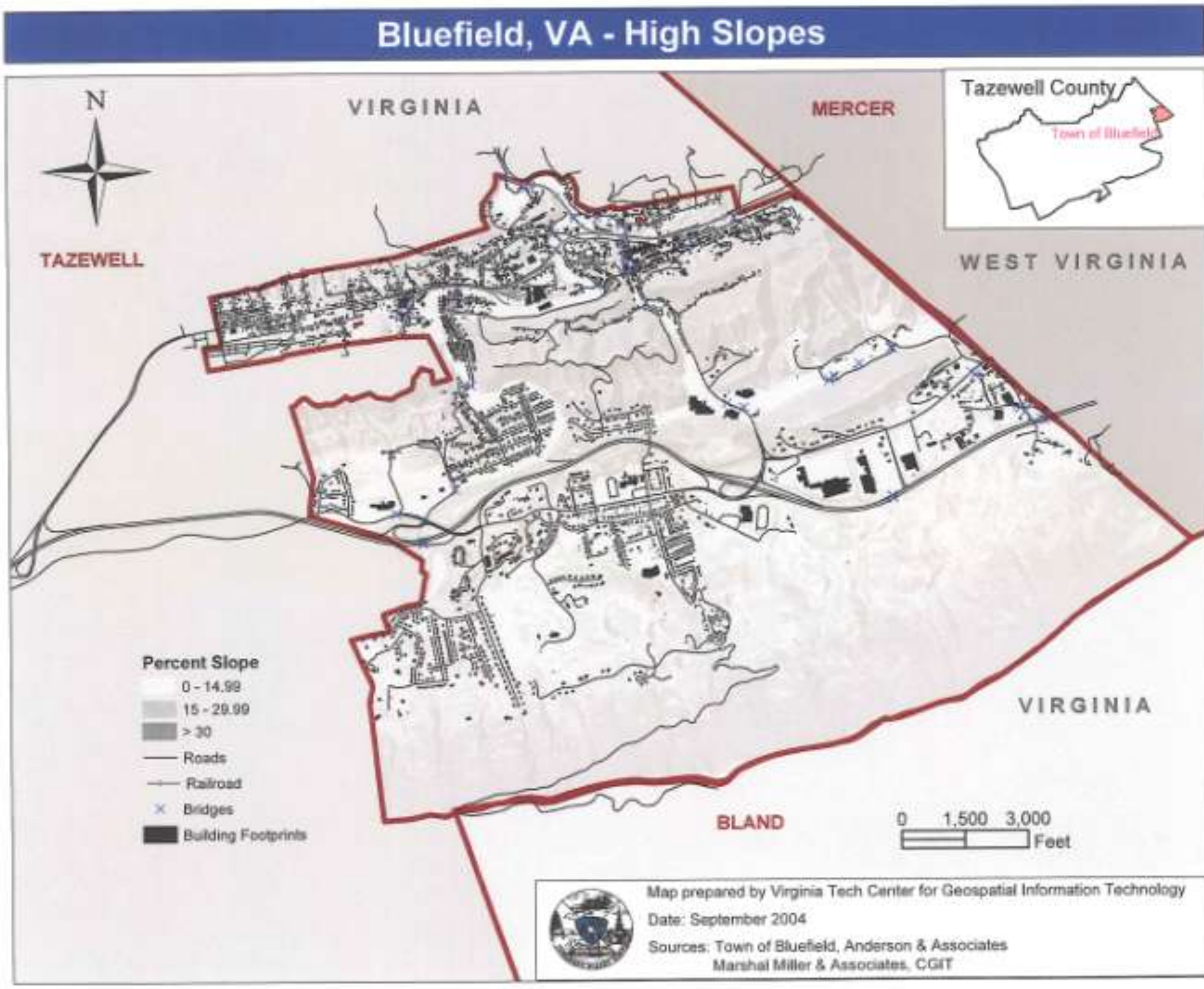
Bluefield, VA - Fire Zones



Bluefield, VA - Critical Facilities and Stuctures in Fire Zones
N
VIRGINIA
MERCER
Tazewell County
TAZEWELL
WEST VIRGINIA
Critical Facilities
Ambulance Service
Church
Fire Station
Nursing Home
Police Station
School
Municipal Building
University
Storage Tank
Treatment Plant
Bridges
Fire Risk
Medium
High
Roads
Railroad
Bridges
Building Footprints
VIRGINIA
BLAND
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



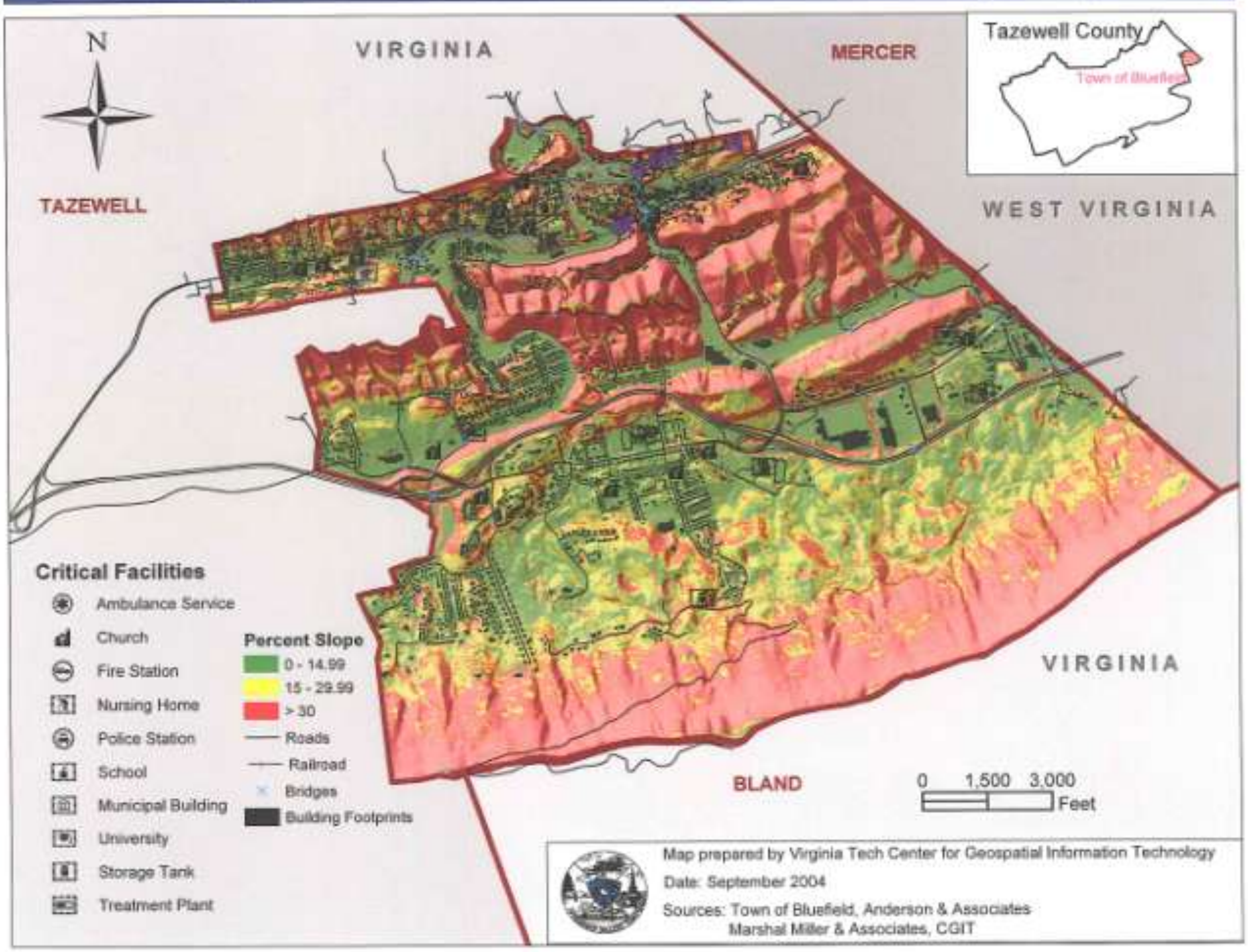
Bluefield, VA - Landslides Zones
N
VIRGINIA
MERCER
Tazewell County
TAZEWELL
WEST VIRGINIA
VIRGINIA
BLAND
Roads
Railroad
Bridges
Building Footprints
Landslides
Low Incidence
Moderate Susceptibility/Low Incidence
0 1,500 3,000
Feet
Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: September 2004
Sources: Town of Bluefield, Anderson & Associates
Marshal Miller & Associates, CGIT

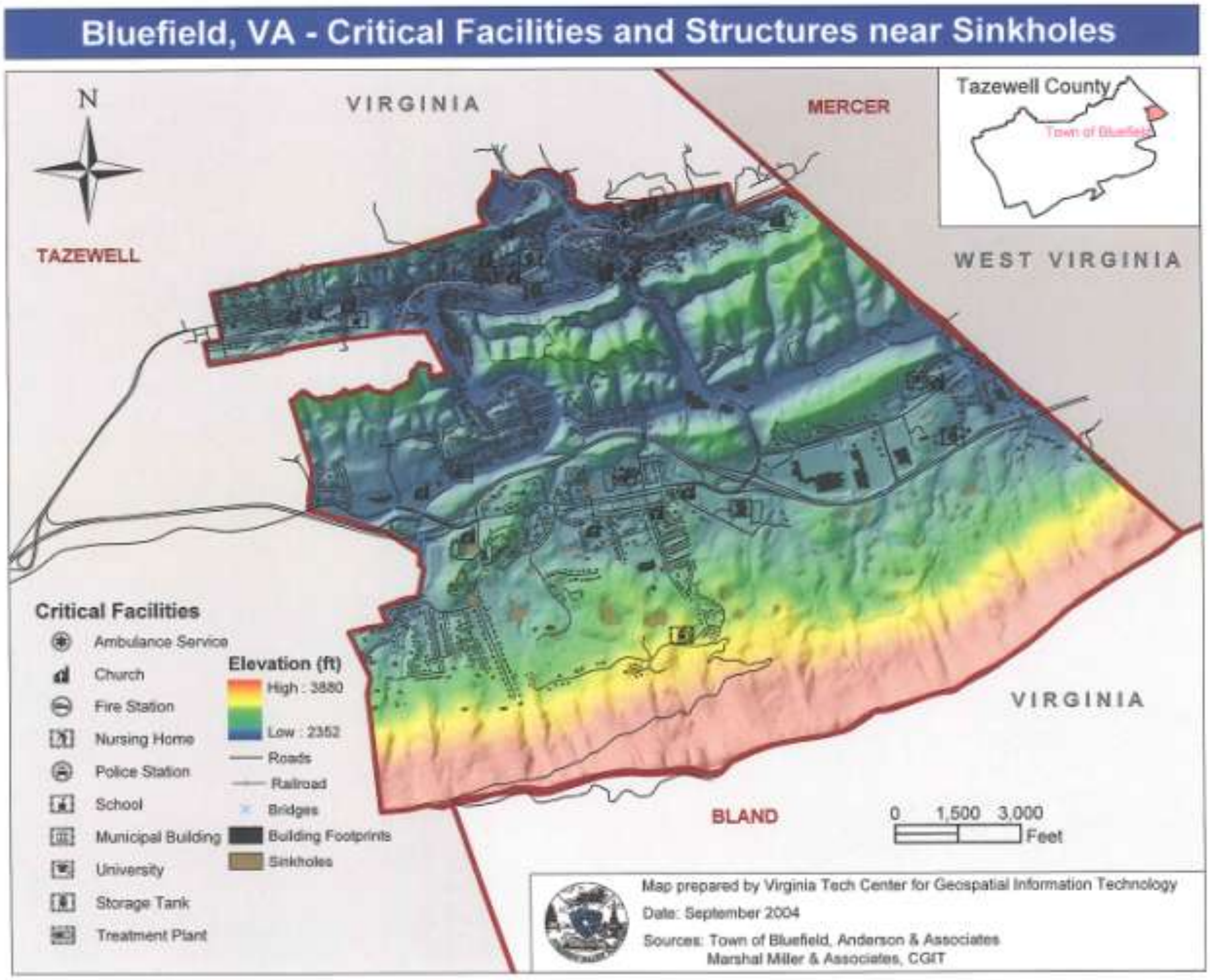


Bluefield, VA - High Slopes
N
VIRGINIA
MERCER
Tazewell County
TAZEWELL
WEST VIRGINIA
Percent Slope
0 - 14.99
15 - 29.99
> 30
Roads
Railroad
Bridges
Building Footprints
VIRGINIA
BLAND
0 1,500 3,000
Feet
Map prepared by Virginia Tech Center for Geospatial Information Technology
Date: September 2004
Sources: Town of Bluefield, Anderson & Associates
Marshal Miller & Associates, CGIT

Bluefield, VA - Sinkholes

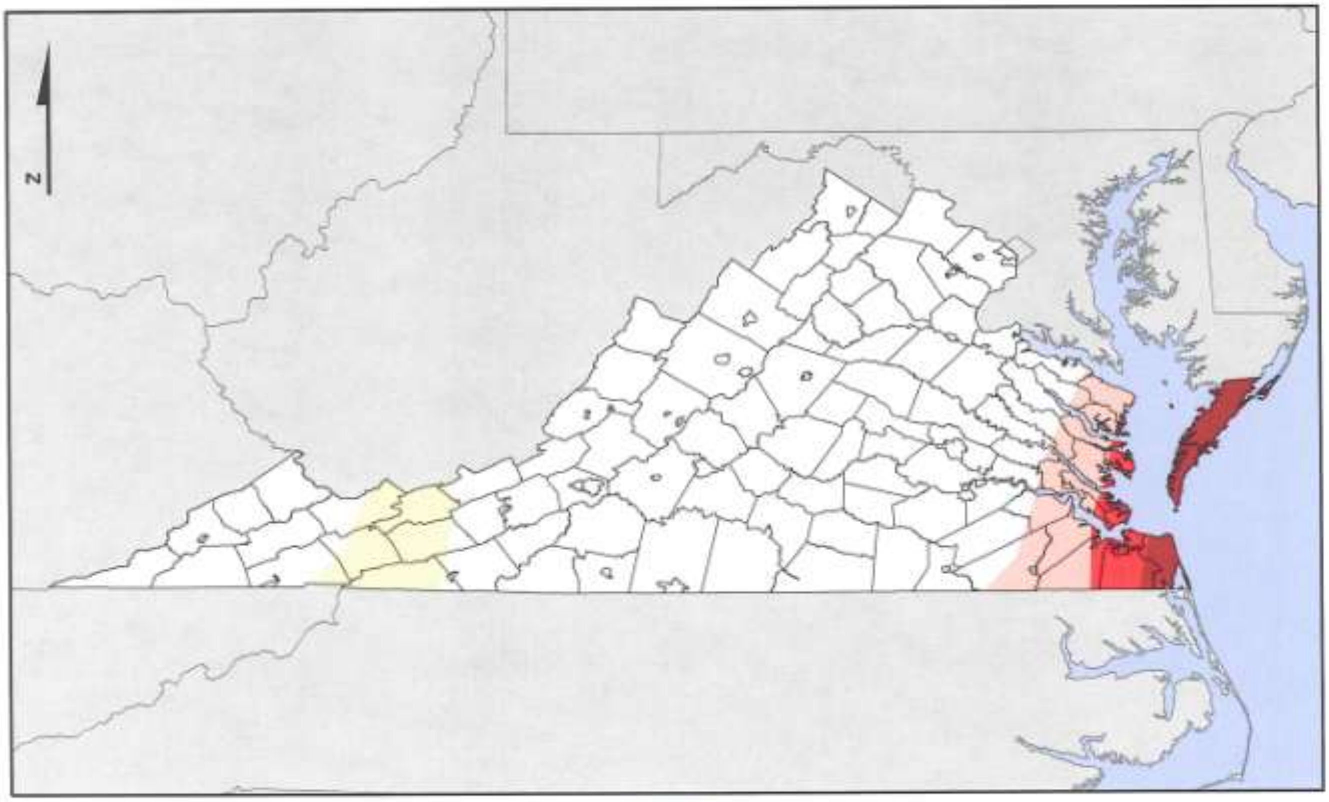
Bluefield, VA - Critical Facilities and Structures in High Slopes





Bluefield, VA - Critical Facilities and Structures near Sinkholes
N
VIRGINIA
MERCER
Tazewell County
Town of Bluefield
TAZEWELL
WEST VIRGINIA
VIRGINIA
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
Sinkholes
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

BASIC WIND SPEEDS USED IN DESIGN & CONSTRUCTION



Windspeeds in miles per hour

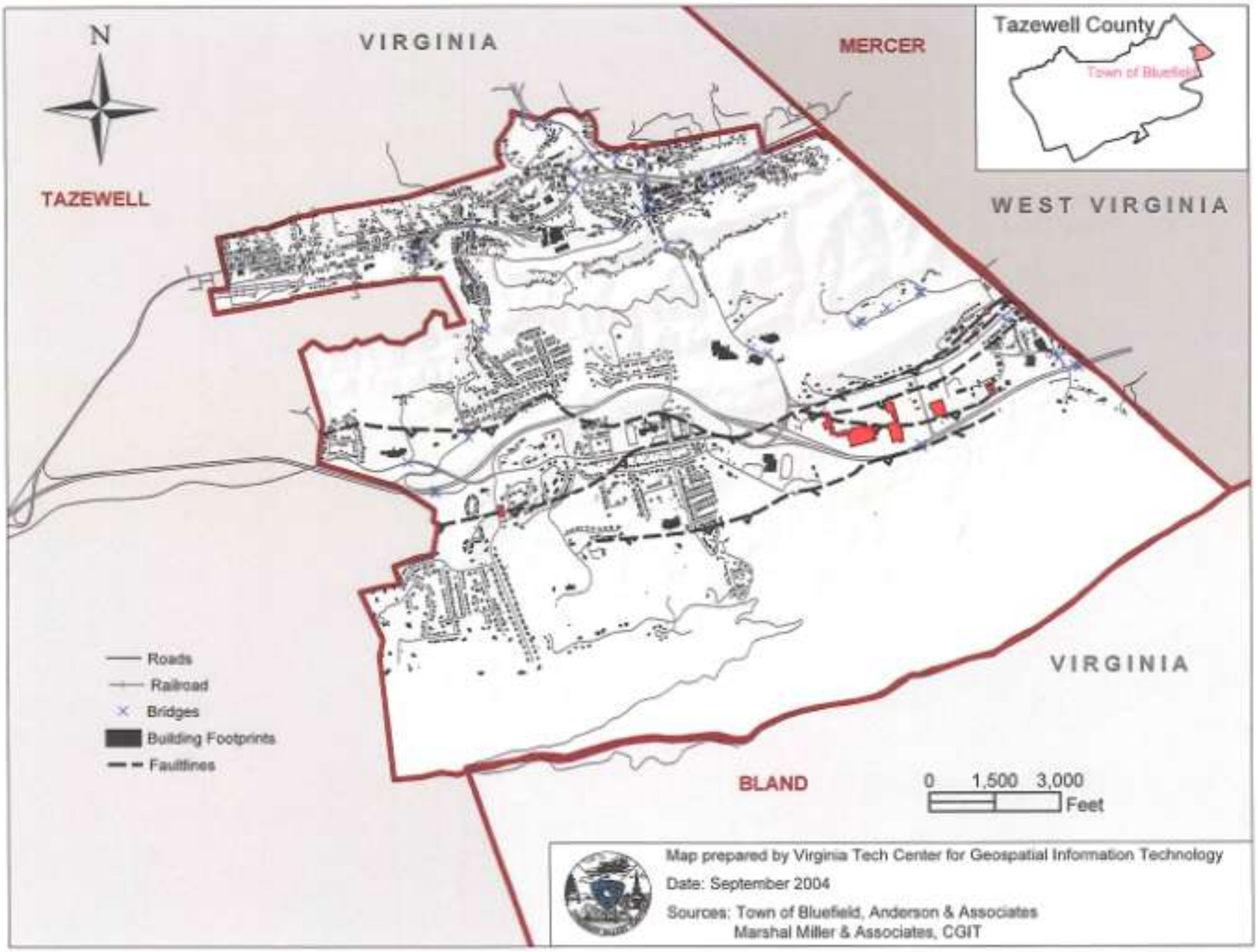
- 120+
- 100-120
- 90-100
- 80-90
- Special Wind Region

Map prepared by Virginia Tech Center for Geospatial Information Technology

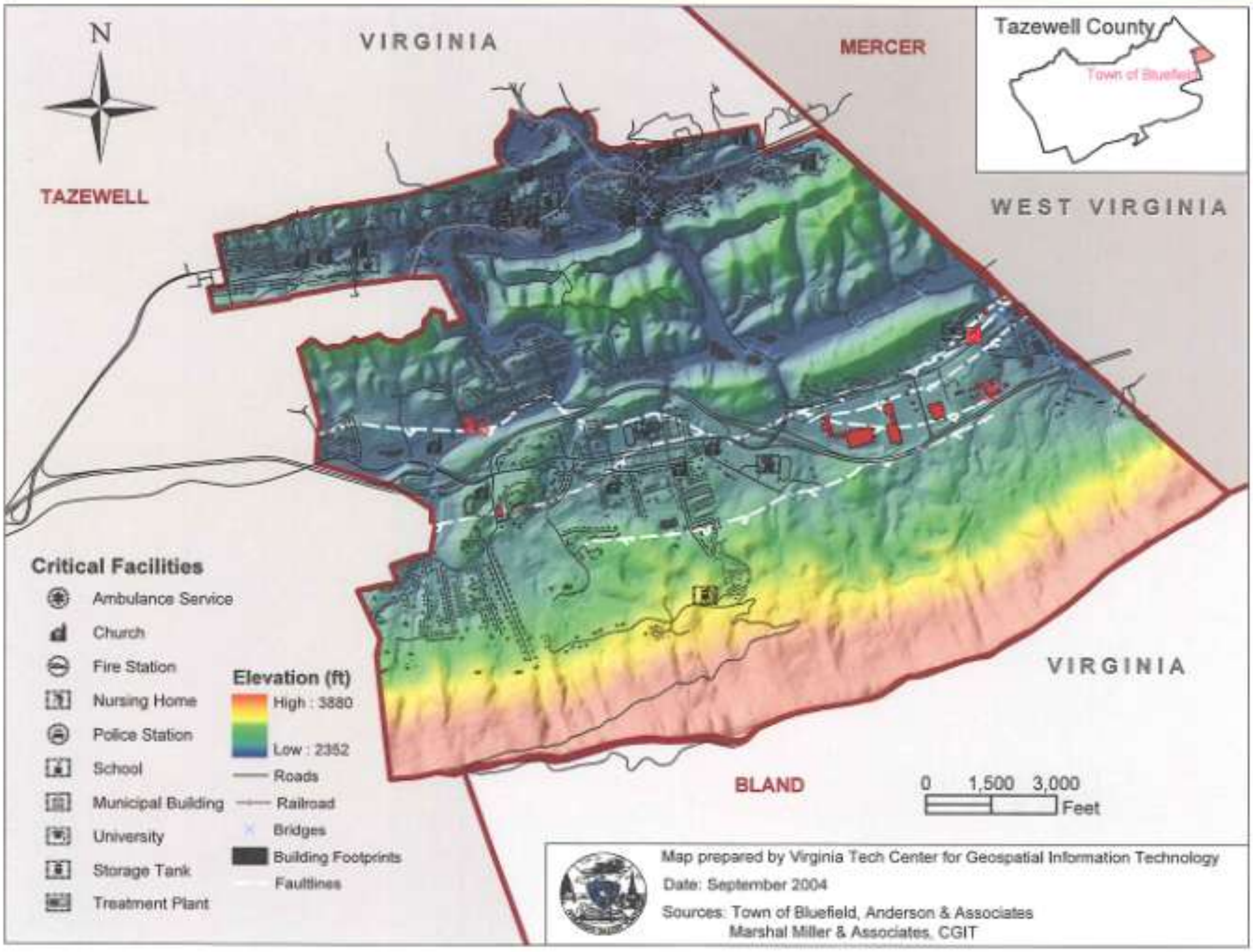
Date: July 2004

Data Sources: ASCE wind design speed, VT CGIT

Bluefield, VA - Faultlines



Bluefield, VA - Critical Facilities and Structures near Faultlines



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.

<u>Comprehensive Plans</u>

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.

<u>Capital Budget Plans</u>

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

PUBLIC MEETING

Cumberland Plateau Regional Hazard Mitigation Plan

A public meeting on the Cumberland Plateau Regional Hazard Mitigation Plan will be held on Wednesday, June 29, 2005, at 6:30 p.m. at Southwest Virginia Community College in Richlands, Room T-119 in Tazewell Hall. An overview of the planning process and assessment will be presented at the meeting. In addition, a copy of the draft assessment will be available after the workshop for public review. An electronic copy is now available on the Cumberland Plateau Planning District Commission website at (http://projects.dewberry.com/CPPDC_Planning_District) Copies also are available for public view at the Planning District Commission's office at 224 Clydesway Drive, Lebanon, Virginia.

PUBLIC MEETING

Cumberland Plateau Regional Hazard Mitigation Plan

A public meeting on the Cumberland Plateau Regional Hazard Mitigation Plan will be held on Wednesday, June 29, 2005, at 6:30 p.m. at Southwest Virginia Community College in Richlands, Room T-119 in Tazewell Hall. An overview of the planning process and assessment will be presented at the meeting. In addition, a copy of the draft assessment will be available after the workshop for public review. An electronic copy is now available on the Cumberland Plateau Planning District Commission website at (http://projects.dewberry.comICPPDC_Planning_District) Copies also are available for public view at the Planning District Commission's office at 224 Clydesway Drive, Lebanon, Virginia.

PUBLIC MEETING

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6-15-1t

PUBLIC MEETING

Cumberland Plateau Regional Hazard Mitigation Plan

A public meeting on the Cumberland Plateau Regional Hazard Mitigation Plan will be held on Wednesday, June 29, 2005, at 6:30 PM at Southwest Virginia Community College in Richlands, Room T-119 in Tazewell Hall. An overview of the planning process and assessment will be presented at the meeting. In addition, a copy of the draft assessment will be available after the workshop for public review. An electronic copy is now available on the Cumberland Plateau Planning District Commission website at (http://projects.dewberry.comICPPD C_Planning_District) Copies are also available for public review at the Planning District Commission's office at 224 Clydesway Drive, Lebanon, Virginia.

6-15-1t

NEWS RELEASE

Cumberland Plateau Draft Regional Hazard Mitigation 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 for the District. Dewberry, a consultant, is assisting in this effort. The entire plan is now available for review and comments on the Planning District's website at http://projects.dewberry.com/CPPDC_Planning_District. Hard copies are available at each County Administrator's office and each Town Hall in the District, as well as each County Library.

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.

Cumberland Plateau Draft Hazard Mitigation Plan Available for Public Review

For the past several months, officials and citizens in the Cumberland Plateau Planning District have been working with PDC staff and a consultant, Dewberry, to develop a regional Hazard Mitigation Plan for Buchanan, Dickenson, Russell and Tazewell counties and their towns. The purpose of the study is to identify potential natural hazards in the district and develop strategies to address these hazards. Once local governments adopt the plan, they become eligible for FEMA Hazard Mitigation funds. These funds can be used for such activities as acquiring property in the floodplain and relocating those living there, or to elevating structures in the floodplain above the 100-year flood level.

The Draft Plan has just been completed and copies are being sent to the public libraries in Buchanan, Dickenson, Russell and Tazewell Counties, as well as each County Administrator's office and each town hall in the District. Interested citizens are urged to go to any of these locations and review the draft document. Any comments or questions from the public can be sent to local governments, or the Cumberland Plateau Planning District Commission, P.O. Box 548, Lebanon, VA 24266. Questions or comments can also be made by phone to Jim Baldwin of the PDC at (276) 889-1778.

A final plan will be prepared after public comment is received.

Hazard Mitigation Plan Available for Public Review

For the past several months, officials and citizens in the Cumberland Plateau Planning District have been working with PDC staff and a consultant, Dewberry, to develop a regional Hazard Mitigation Plan for Buchanan, Dickenson, Russell and Tazewell counties and their towns.

The purpose of the study is to identify potential natural hazards in the district and develop strategies to address these hazards. Once local governments adopt the plan, they become eligible for FEMA Hazard Mitigation funds. These funds can be used for such activities as acquiring property in the floodplain and relocating those living there, or to elevating structures in the floodplain above the 100-year flood level.

The Draft Plan has just been completed and copies are being sent to the public libraries in Buchanan, Dickenson, Russell and Tazewell Counties, as well as each county administrator's office and each town hall in the district.

Interested citizens are urged to go to any of these locations and review the draft document.

Any comments or questions from the public may be sent to local governments, or the Cumberland Plateau Planning District Commission, P.O. Box 548, Lebanon, VA 24266.

Questions or comments may also be directed by phone to Jim Baldwin of the PDC at (276) 889-1778.

Cumberland Plateau hazard mitigation plan available for public review and comment

The Cumberland Plateau Planning District Commission, in cooperation with local counties and towns, has been working to complete a Regional Hazard Mitigation Plan for the District. Dewberry, a consultant, is assisting in this effort. The entire plan is now available for review and comments on the Planning District's website at http://projects.dewberry.comlCPPDC_Planning_District. Hard copies are available at each County Administrator's office and each Town Hall in the District, as well as each County Library.

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.

Draft hazard mitigation plan available for public review

The Cumberland Plateau Planning District has finished a draft regional hazard mitigation plan and is seeking public input on the proposal.

Planning district staff and a consultant have been working for several months to develop the proposal for Dickenson, Buchanan, Russell and Tazewell counties and their towns. The study's purpose is to identify potential natural hazards in the district and develop strategies to address them.

Once local governments adopt the plan, they become eligible for Federal Emergency Management Agency hazard mitigation funds. These funds can be used for such activities as acquiring property in the flood plain and relocating those living there, or elevating structures the flood plain above the 100-year flood level.

Copies of the draft plan are available at public libraries, county administrator's offices and town halls in each of the four counties.

Interested citizens are urged to go to any of these locations and review the draft document. Comments or questions can be sent to local governments or the planning district commission, P.O. Box 548, Lebanon, VA 24266. Questions or comments can also be made by phone to Jim Baldwin of the planning commission at (276) 889-1778.

A final plan will be prepared after public comment is received.

Southwest Va., mitigation study ready

By CHARLES OWENS
Bluefield Daily Telegraph

TAZEWELL, Va. — A draft study of potential natural hazards in Tazewell, Buchanan, Dickenson and Russell counties is now available for public inspection.

The Cumberland Plateau Planning District has been working for the past several months to develop the regional hazard mitigation plan for the four-county district. The purpose of the study is to identify potential natural hazards in the region and to develop strategies to address those hazards, CPPD Director Jim Baldwin said.

Baldwin said an example of such a natural hazard would include flooding, winter storms, landslides and wildfires. He said the recent work by the town of Bluefield to remove commercial and residential structures from the flood plain is an example of those items to be addressed in the study.

"Once local governments adopt the plan, they become eligible for FEMA (Federal Emergency Management Agency) Hazard Mitigation funds," Baldwin said. "These funds can be used for such activities as acquiring property in the flood plain and relocating those living there, or toward elevating those structures in the flood plain above the 100-year flood level."

Baldwin said copies of the draft plan are now being forwarded to public libraries in all four counties, as well as individual county administrator offices and town halls, for public review. Baldwin said those citizens who are interested in the plan are urged to visit any of the locations to review the draft document.

A final plan for the four county district will be prepared after the public comment period is closed.

— *Contact Charles Owens at cowens@bdtonline.com*

PUBLIC MEETING

Cumberland Plateau Regional Hazard Mitigation Plan

A public meeting on the Cumberland Plateau Regional hazard Mitigation Plan will be held on Wednesday, June 29, 2005 at 6:30 p.m. at Southwest Virginia Community College in Richlands, Room T-119 in Tazewell Hall. An overview of the planning process and assessment will be presented at the meeting. In addition, a copy of the draft assessment will be available after the workshop for public review. An electronic copy is now available on the Cumberland Plateau Planning District Commission website at

(http://projects.dewberry.comICPPDC_Planning_District)

Copies also are available for public view at the Planning District Commission's Office at 224 Clydesway Drive, Lebanon, Virginia.

24-11

APPENDIX E — ADOPTION RESOLUTIONS

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study Buchanan County's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Buchanan County; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including Buchanan County.

NOW THEREFORE, BE IT RESOLVED by the Buchanan County Board of Supervisors that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for Buchanan County. A copy of the plan is attached to this resolution by reference.

ADOPTED by Buchanan County this 7th day of November, 2005.

APPROVED:

Joseph Keene

Chairman

ATTEST: W. J. Caudill

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHERE AS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Grundy's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Grundy; and

WHERE AS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHERE AS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Grundy.

NOW THEREFORE, BE IT RESOLVED by the Grundy Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for the Town of Grundy. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Grundy Town Council this 8 day of Nov., 2005.

APPROVED:

[signature]
Mayor

ATTEST:
[signature]

Dickenson County Board of Supervisors

BOARD OF SUPERVISORS

PAUL BUCHANAN, CHAIRMAN
CLINTWOOD DISTRICT
SCOTT MOORE, VICE CHAIRMAN
ERVINTON DISTRICT
GENE COUNTS
SANDLICK DISTRICT
BOBBY PERRIGAN
KENADY DISTRICT
SCOTT STANLEY
WILLIS DISTRICT

COUNTY ADMINISTRATOR

KEITH L. VIERS

P.O. Box 1098
Clintwood, Virginia 24228
Telephone: 276/926-1676
Fax: 276/926-1649
keith.viers@bos.dcwin.org

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study Dickenson County's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Dickenson County; and

WHEREAS, a request for proposals was issued to hire an experienced consulting form to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including Dickenson County.

NOW, THEREFORE, BE IT RESOLVED by the Dickenson County Board of Supervisors that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for Dickenson County. A copy of the plan is attached to this resolution by reference.

ADOPTED by Dickenson County this 25 day of OCTOBER, 2005.

Paul D. Buchanan

Paul D. Buchanan, Chairman

ATTEST:

Betty R. Hill

Betty R. Hill, Clerk

Town of Clintwood

Phone (276) 926-8383 • P.O. Box 456 • FAX (276) 926-9871
Email clintwodtown@naxs.com
CLINTWOOD, VIRGINIA 24228

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Clintwood's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Clintwood; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Clintwood.

NOW THEREFORE, BE IT RESOLVED by the Clintwood Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for the Town of Clintwood. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Clintwood Town Council this 3 **day of** November, **2005.**

APPROVED:

Donald Baker

Mayor

ATTEST:

Judy Slate

RESOLUTION ADOPTING A NATURAL HAZARDS MITIGATION PLAN FOR THE CUMBELAND PLATEAU PLANNING DISTRICT COMMUNITIES

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive certain federal assistance, and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of Town of Haysi citizens, members of the business community and non-profit organizations working with the Town of Haysi and staff was convened in order to study the Town of Haysi risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Haysi; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members and consulting firm of Dewberry have resulted in the development of a Hazard Mitigation Plan for the Planning District including the Town of Haysi.

NOW THEREFORE, BE IT RESOLIVED by the Town of Haysi that the Hazard Mitigation Plan dated December 14, 2004, is hereby approved and adopted for the Town of Haysi. A copy of the plan is attached to this resolution.

ADOPTED by the Town of Haysi this 14th day of December, 2004.

APPROVED:

Norman Mullins

Norman Mullins, Mayor

ATTEST:

Barbara Owens

Barbara Owens, Clerk of Council

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Clinchco's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Clinchco; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Clinchco.

NOW THEREFORE, BE IT RESOLVED by the Clinchco Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for the Town of Clinchco. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Clinchco Town Council this 5th **day of** Dec. **, 2005.**

APPROVED:

Randy Moore
Mayor

ATTEST:

Shelba Mullins

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study Russell County's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Russell County; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including Russell County.

NOW THEREFORE, BE IT RESOLVED by the Russell County Board of Supervisors that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for Russell County. A copy of the plan is attached to this resolution by reference.

ADPOTED by Russell County this 7th day of November, 2005.

APPROVED:

Danny L. Brown

Chairman

ATTEST:

James A. Gillespie

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Lebanon's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Lebanon; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Lebanon.

NOW THEREFORE, BE IT RESOLVED by the Lebanon Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for the Town of Lebanon. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Lebanon Town Council this 14th day of November, 2005.

APPROVED:

Mayor

ATTEST:

Ann Clark, Clerk

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Honaker's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Honaker; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Honaker.

NOW THEREFORE, BE IT RESOLVED by the Honaker Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for the Town of Honaker. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Honaker Town Council this 4th **day of** NOVEMBER**, 2005.**

APPROVED:

C.H. Wallace

Mayor

ATTEST:

Cyndi Hale, Clerk

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Cleveland's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Cleveland; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Cleveland.

NOW THEREFORE, BE IT RESOLVED by the Cleveland Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for the Town of Cleveland. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Cleveland Town Council this 28 **day of** November**, 2005.**

APPROVED:

Mina G. Dotson
Mayor

ATTEST:

Rhonda J. Hobson

scan.jpg (849x1107x24b jpeg)

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study Tazewell County's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Tazewell County; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including Tazewell County.

NOW THEREFORE, BE IT RESOLVED by the Tazewell County Board of Supervisors that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for Tazewell County. A copy of the plan is attached to this resolution by reference.

ADPOTED by Tazewell County this 1 day of November, 2005.

APPROVED:
Donnie Lowe
Chairman

ATTEST:
Mary P. Grosecloser

TOWN OF CEDAR BLUFF

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Cedar Bluff's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Cedar Bluff; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Cedar Bluff.

NOW THEREFORE, BE IT RESOLVED by the Cedar Bluff Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for the Town of Cedar Bluff. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Cedar Bluff Town Council this 15th **day of** November**, 2005.**

APPROVED:

Richard H Lee, Jr

Mayor

ATTEST:

James K. McGlothlin

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Tazewell's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Tazewell; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Tazewell.

NOW THEREFORE, BE IT RESOLVED by the Tazewell Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for the Town of Tazewell. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Tazewell Town Council this 8 **day of** November **, 2005.**

APPROVED:

Charles E. Green

Mayor

ATTEST:

Town Manager

Pocahontas Exhibition Mine
National Historical Landmark
Virginia's Official
Coal Heritage Zone

Town of Pocahontas
June 30th 1882
Centre Street
Post Office Box 128
Pocahontas, Virginia 24635
(276) 945-9522 Town Hall
(276) 945-5959 Police Department
(276) 945-9904 Fax Line

"ORIGINAL POCAHONTAS"
COAL
http://wvweb.com/www/pocahontas_mine

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Pocahontas's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Pocahontas; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Pocahontas.

NOW THEREFORE, BE IT RESOLVED by the Pocahontas Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for the Town of Pocahontas. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Pocahontas Town Council this 28 **day of** November **, 2005.**

APPROVED:

____
Mayor

ATTEST:

____

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Bluefield's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Bluefield; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Bluefield.

NOW THEREFORE, BE IT RESOLVED by the Bluefield Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005 is hereby approved and adopted for the Town of Bluefield. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Bluefield Town Council this 14th day of November 2005.

Donald Harris

Donald Harris, Mayor

Shelia Shrader

Shelia Shrader, Town Clerk

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Richlands's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Richlands; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Richlands.

NOW THEREFORE, BE IT REOLVED by the Richlands Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated July 1, 2005, is hereby approved and adopted for the Town of Richlands. A copy of the plan is attached to this resolution by reference.

Adopted at the Richlands Town Council this 8th day of November, 2005

Approved:

Kenneth Wysor

Kenneth Wysor, Mayor

ATTEST:

Elva Lee VanDyke

Elva Lee VanDyke, Clerk of Council

NEWS RELEASE

Cumberland 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 Mitigation Plan Update for the District. The entire update plan is now available for review and comments on the Planning District's website at www.cppdc.com. Hard copies are available at each County Administrator's office and each Town Hall in the District.

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, contact Shane Farmer at 276-889-1778.

This add was printed in the Richlands News Press, The VA Mounaineer, The Dickenson Star, and the Lebanon News Press.

This add was printed in the Richlands News Press, The VA Mounaineer, The Dickenson Star, and the Lebanon News Press.

PUBLIC MEETING

Cumberland Plateau Regional Hazard Mitigation Update Plan

A public meeting on the Cumberland Plateau Regional Hazard Mitigation Update Plan will be held on Thursday, November 15, 2012 at 10:00 a.m. at Southwest Virginia Community College in Richlands, Room C-126 at the Community Center. The public will be able to ask questions or request additions to the Update Plan at this hearing. An electronic copy is now available on the Cumberland Plateau Planning District Commission website at www.cppdc.com.

Copies also are available for public view at the Planning District Commission's office at 224 Clydesway Drive, Lebanon, Virginia, and the PDC counties of Buchanan, Dickenson, Russell, and Tazewell Boards of Supervisors Offices, as well as the Towns located in these counties.

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Lebanon's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Lebanon; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private, and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including the Town of Lebanon.

NOW THEREFORE, BE IT RESOLVED by the Town of Lebanon that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated May 2013, is hereby approved and adopted for the Town of Lebanon. A copy of the plan is attached to this resolution for reference.

ADOPTED by the Town of Lebanon this 9th day of September, 2013.

Nelson A. "Tony" Dodi

Nelson A. "Tony" Dodi, Mayor

I, Stephanie Burke, Clerk of the Town of Lebanon, certify that the foregoing is a true and correct copy of a resolution passed at a lawfully organized meeting of the Town of Lebanon held at Lebanon, Virginia, at 6:00 P.M. on Monday, September 09, 2013. Given under my hand and seal of the Town of Lebanon this 9th day of September 2013.

Stephanie R. Burke

Stephanie Burke, Clerk of Council

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Tazewell's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Town of Tazewell; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including the Town of Tazewell.

NOW THEREFORE, BE IT RESOLVED by the Town of Tazewell that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated May 2013 is hereby approved and adopted for the Town of Tazewell. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Town of Tazewell this 13 day of August, 2013.

APPROVED:

A. Donald Burke, Jr.
Mayor

ATTEST:

____

Town Of Cleveland

35 RIVERVIEW TERRACE DR.

Cleveland, Virginia 24225

Tel: 276-889-4365 Fax: 276-889-4365

September 4, 2013

RECEIVED
SEP 0 9 2013

Shane Farmer
Cumberland Plateau Planning District
P.O. Box 548
Lebanon, VA 24266

RE: HAZARD MITIGATION PLAN UPDATE

Dear Mr. Farmer,

Please find enclosed a copy of a Resolution that has been adopted and approved by the Cleveland Town Council regarding the above referenced matter.

If you have any questions or need any additional information, please do not hesitate to contact me.

Sincerely,

David Sutherland

David Sutherland, Mayor
Town of Cleveland

Enclosure

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Cleveland's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Town of Cleveland; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including the Town of Cleveland.

NOW THEREFORE, BE IT RESOLVED by the Town of Cleveland that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated ____________ is hereby approved and adopted for the Town of Cleveland. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Town of Cleveland this 26 day of August, 2013.

APPROVED:

David Sutton
Mayor

ATTEST:

Cathy Johnson

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Clinchco's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Town of Clinchco; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including the Town of Clinchco.

NOW THEREFORE, BE IT RESOLVED by the Town of Clinchco that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated May 2013 is hereby approved and adopted for the Town of Clinchco. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Town of Clinchco this 16 day of August, 2013.

APPROVED:

Mayor

ATTEST:

Regina Branham

2013-04

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Haysi's risk and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Town of Haysi; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-private sectors, have resulted in the development of Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including the Town of Haysi.

NOW THEREFORE, BE IT RESOLVED by the town of Haysi that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated May 2013 hereby approved and adopted for the Town of Haysi. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Town of Haysi this 6th day of August, 2013.

APPROVED BY:

Larry D. Yates

MAYOR

ATTEST BY:

Ramona Duncan

CLERK

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Clintwood's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Town of Clintwood; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including the Town of Clintwood.

NOW THEREFORE, BE IT RESOLVED by the Town of Clintwood that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated May, 2013 is hereby approved and adopted for the Town of Clintwood. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Town of Clintwood this 13 day of August, 2013.

APPROVED:

Donald Baker

Mayor

ATTEST:

Judy Steele

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Cedar Bluff's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Town of Cedar Bluff; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including the Town of Cedar Bluff.

NOW THEREFORE, BE IT RESOLVED by the Town of Cedar Bluff that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated May 2013 is hereby approved and adopted for the Town of Cedar Bluff. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Town of Cedar Bluff this 13th day of August ______, 2013.

APPROVED:

Jerry Herron
Mayor

ATTEST:

James K. McGlothlin

TOWN OF BLUEFIELD
RESOLUTION
Cumberland Plateau Planning District Commission Hazard Mitigation Plan

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representative from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Bluefield's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Town of Bluefield; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including the Town of Bluefield;

NOW, THEREFORE BE IT RESOLVED, by the Town of Bluefield that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated May 2013 is hereby approved and adopted for the Town of Bluefield. A copy of the plan is attached to this resolution be reference.

Adopted by the Town of Bluefield, this 10th day of September 2013.

ATTEST:

Donald R. Harris, Mayor

Lesley L. Catron, Town Clerk

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Richlands's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on the Town of Richlands; and

WHEREAS, a request for proposals was issued to hire an experienced consulting firm to work with the MAC to develop a comprehensive natural hazard mitigation plan for the Cumberland Plateau Planning District; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan for the Cumberland Plateau Planning District communities including the Town of Richlands.

NOW THEREFORE, BE IT REOLVED by the Richlands Town Council that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated May 2013, is hereby approved and adopted for the Town of Richlands. A copy of the plan is attached to this resolution by reference.

Adopted at the Richlands Town Council this 10th day of September, 2013

Approved:

Jannis White

Jannis White, Mayor

ATTEST:

Susan Whitt

Susan Whitt, Clerk of Council

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Grundy's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Town of Grundy; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including the Town of Grundy.

NOW THEREFORE, BE IT RESOLVED by the Town of Grundy that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated May 2013 is hereby approved and adopted for the Town of Grundy. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Town of Grundy this 10th day of September, 2013.

APPROVED:

Diann S. Blankenship

Mayor

ATTEST:

```
Diann Blankenship, Mayor: X Yes __No
Rebecca Elkins, Vice Mayor: X Yes __No
Rebecca Stevenson:          X Yes __No
Gary Prater:                X Yes __No
Bill Stokes, Town Recorder: X Yes __No
Chris Mitchell:             X Yes __No
Jeremy Ward:                X Yes __No
```

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study the Town of Honaker's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Town of Honaker; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including the Town of Honaker.

NOW THEREFORE, BE IT RESOLVED by the Town of Honaker that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated ____________ is hereby approved and adopted for the Town of Honaker. A copy of the plan is attached to this resolution by reference.

ADOPTED by the Town of Honaker this 16th day of Sept., 2013.

APPROVED:

C.H. Wallace

Mayor

ATTEST:

Cyndi Hale

Dickenson County Board of Supervisors

Board of Supervisors

DAVID YATES, CHAIRMAN
ERVINTON DISTRICT

DELANO SYKES, VICE-CHAIRMAN
SANDLICK DISTRICT

DONNIE W. RIFE
CLINTWOOD DISTRICT

SHELBIE WILLIS
KENADY DISTRICT

GARY HALL
WILLIS DISTRICT

County Administrator
G. DAVID MOORE, JR.

P.O. Box 1098
Clintwood, Virginia 24228
Telephone: 276/926-1676
Fax: 276/926-1649
david.moore@bos.dcwin.org

August 23, 2013

RECEIVED
AUG 26 2013

M. Shane Farmer
Planner CPPDC
P.O. Box 548
Lebanon, VA 24266

Dear Mr. Farmer:

Please find the enclosed resolution adopted by the Dickenson County Board of Supervisors at their meeting on August 20, 2013, approving the Hazard Mitigation Plan update. If I can be of further assistance do not hesitate to contact me.

Sincerely,

G David Moore

G. David Moore, Jr.
Dickenson County Administrator

Enclosure

GDMjt/tll

DICKENSON COUNTY BOARD OF SUPERVISORS

Board of Supervisors

DAVID YATES, CHAIRMAN
ERVINTON DISTRICT

DELANO SYKES, VICE-CHAIRMAN
SANDLICK DISTRICT

DONNIE W. RIFE
CLINTWOOD DISTRICT

SHELBIE WILLIS
KENADY DISTRICT

GARY HALL
WILLIS DISTRICT

County Administrator
G. DAVID MOORE, JR.

P.O. Box 1098
Clintwood, Virginia 24228
Telephone: 276/926-1676
Fax: 276/926-1649
david.moore@bos.dcwin.org

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, required that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study Dickenson County's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Dickenson County; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including Dickenson County.

NOW THEREFORE, BE IT RESOLVED by the Dickenson County Board of Supervisors that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated August 20, 2013 is hereby approved and adopted for Dickenson County. A copy of the plan is attached to this resolution by reference.

ADOPTED this 20th day of August, 2013.

David C. Yates
David Yates, Chairman

ATTEST:
Teresa Lyall
Teresa Lyall, Clerk

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study Tazewell County's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Tazewell County; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including Tazewell County.

NOW THEREFORE, BE IT RESOLVED by the Tazewell County Board of Supervisors that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated Sept. 3, 2013 is hereby approved and adopted for Tazewell County. A copy of the plan is attached to this resolution by reference.

ADOPTED by Tazewell County this 3rd day of September, 2013.

APPROVED:

Chairman

ATTEST:

Resolution 13-22

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study Russell County's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Russell County; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including Russell County.

NOW THEREFORE, BE IT RESOLVED by the Russell County Board of Supervisors that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated May, 2013, is hereby approved and adopted for Russell County. A copy of the plan is attached to this resolution by reference.

ADOPTED by Russell County this 9th day of September, 2013.

APPROVED:

Chairman

ATTEST:

Rufus Hook
Clerk

BUCHANAN COUNTY BOARD OF SUPERVISORS

G. Roger Rife, Chairman
South Grundy District
William P. Harris, Vice-Chairman
Hurricane District
Trey Adkins
Knox District
Harold Fuller
Garden District
Craig Stiltner
Rocklick District
Steve O'Quinn
Prater District
James Carroll Branham
North Grundy District

Robert Craig Horn
County Administrator

Lawrence L. Moise, III Esq.
County Attorney

Michael G. McGlothlin, Esq.
Of Counsel

September 11, 2013

Shane Farmer
Planner CPPDC
P.O. Box 548
Lebanon, VA 24266

RECEIVED
SEP 20 2013

RE: Resolution regarding the Cumberland Plateau Hazard Mitigation Update Plan for Buchanan County

Dear Shane:

A regular meeting of the Buchanan County Board of Supervisors was held on Monday the 9th day of September 2013. Upon motion by J. Carroll Branham seconded by Trey Adkins and with a roll call vote of seven (7) yeas and zero (0) nays, this board did hereby adopt the enclosed Resolution regarding the Cumberland Plateau Hazard Mitigation Update Plan for Buchanan County.

If you have any questions, please don't hesitate to contact me. Thank you.

Sincerely,

Robert C Horn

Robert Craig Horn, County Administrator

Enclosure

cc: Rickey Bailey, E-911 Coordinator

L. Lee Moise, County Administrator

RESOLUTION

WHEREAS, the Disaster Mitigation Act of 2000, as amended, requires that local governments develop and adopt natural hazard mitigation plans in order to receive Hazard Mitigation Grant Program (HMGP) project grants and certain other forms of non-emergency disaster assistance; and

WHEREAS, a Mitigation Advisory Committee ("MAC") comprised of representatives from all jurisdictions within the Cumberland Plateau Planning District was convened in order to study Buchanan County's risks from and vulnerabilities to natural hazards, and to make recommendations on mitigating the effects of such hazards on Buchanan County; and

WHEREAS, the efforts of the MAC members in consultation with members of the public, private and non-profit sectors, have resulted in the development of a Hazard Mitigation Plan Update for the Cumberland Plateau Planning District communities including Buchanan County.

NOW THEREFORE, BE IT RESOLVED by the Buchanan County Board of Supervisors that the Cumberland Plateau Planning District Commission Hazard Mitigation Plan dated May 2013 is hereby approved and adopted for Buchanan County. A copy of the plan is attached to this resolution by reference.

ADOPTED by Buchanan County this 9th day of September, 2013.

APPROVED:

G. Roger Rife

Chairman

ATTEST:

Robert C Horn