

REGION 2 PLANNING & DEVELOPMENT COUNCIL

2017 Multi-Jurisdictional Hazard Mitigation Plan



REGION 2 PLANNING & DEVELOPMENT COUNCIL MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE 2017



PREPARED BY JH CONSULTING, LLC OF WEST VIRGINIA DECEMBER, 2017

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1.0 INTRODUCTION

2017 UPDATE

The *Region 2 PDC Hazard Mitigation Plan* has been updated for current information, expanded upon, reformatted, and reorganized to present a more cohesive plan for the region. In general, more stakeholders were included in the process, more public outreach was conducted, and committee members were actively involved in the outcome of the plan.

All sections of this plan have been updated to include the most up-to-date information available, historical occurrences, and mapping was updated to reflect changes in hazard areas. The committee worked to update each jurisdiction's asset inventory and gathered several times to discuss the direction of the plan.

PLAN INTRODUCTION

The *Region 2 Hazard Mitigation Plan* details natural and human-caused hazards that threaten Cabell, Lincoln, Logan, Mason, Mingo, and Wayne Counties and their various municipalities. The plan fulfills the requirements set forth by the Disaster Mitigation Act of 2000 (DMA, 2000). This Act requires counties to formulate a hazard mitigation plan in order to be eligible for mitigation funds made available by the Federal Emergency Management Agency (FEMA).

PLAN AUTHORITY

This multi-jurisdictional plan has been completed in accordance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000. The guidelines for the completion of this plan appear in the Code of Federal Regulations under Title 44: Emergency Services, Part 201.6. Specific reference is made to the Local Mitigation Planning Handbook (USDHS/FEMA, 2013).

PLAN SCOPE

The *Region 2 Hazard Mitigation Plan* includes all unincorporated areas of Cabell, Lincoln, Logan, Mason, Mingo, and Wayne Counties as well as all municipalities within the counties. All hazards that have or can affect the residents of Region 2 have been analyzed. Hazard mitigation objectives, goals and projects are discussed, as are project lead agencies



and potential funding sources.

PLAN PURPOSE

The purpose of the *Region 2 Hazard Mitigation Plan* is to identify and evaluate all natural and human-caused hazards that can and may affect Cabell, Lincoln, Logan, Mason, Mingo, and Wayne Counties and to describe mitigation strategies to address these hazards.

PLAN PRIORITIES

The 2017 update represents the first update to the regional hazard mitigation for the Region 2 Planning and Development Council (PDC) area. It represents the first effort at truly considering the document from a regional perspective, as opposed to the 2012 effort to consolidate existing plans from the county level. As such, the PDC and the steering committee participating in the update outlined several priorities for this version.

PRIORITY 1: A PLAN FOR PRACTICAL USE.

At its core, the mitigation planning process is a regulatory endeavor. The PDC and committee recognized this, yet set a planning priority of creating a document that can be used in practice. As such, the 2017 update attempted to identify and include relevant information from participating jurisdictions about efforts they are already doing that complement mitigation (e.g., National Flood Insurance Program [NFIP] management, outreach to residents, etc.). This update also adds non-traditional hazards that substantially impact the area. For example, the region is heavily affected by the opioid addiction crisis. Drug use, in many ways, debilitates the population and would likely hinder a recovery effort should a major disaster occur. Committee members thus felt that acknowledging, supporting, and contributing to efforts to address the drug problem could serve as an indirect mitigation effort should a large-scale incident occur.

PRIORITY 2: INTEGRATE EXTENDED STAKEHOLDERS INTO THE PROCESS.

Historically, mitigation planning in West Virginia has emanated from the emergency management community. Naming regional planning and development councils as the custodial agencies for mitigation planning in 2012 added expertise from more traditional community planning sectors. The Region 2 PDC and its steering committee recognized the potential for even more stakeholders to have an interest in the process, such as floodplain managers, community watershed groups, etc. The 2017 update represents a first attempt at



inviting those players into the process. Floodplain managers served on the steering committee and watershed groups participated through public forums.

PRIORITY 3: ENGAGE THE PUBLIC.

Public involvement in mitigation planning has historically been minimal. The PDC and steering committee attempted to engage a wider segment of the population for the 2017 update by moving beyond traditional town hall-style meetings. This update includes the issuance of two online surveys, shared via social media platforms.



1.1 THE PLANNING PROCESS

	An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:
§201.6(b) and 201.6(c)(1)	 (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval; (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.
	[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

2017 UPDATES

This section has been updated to reflect the 2017 plan update process. It includes brief descriptions of committee and public meetings held throughout the process. This section also details how each jurisdiction has participated in the process and the different tasks they have completed to update and improve the plan. It includes a timeline for completion of this plan as well as a general description of resources utilized for research purposes.

Additional stakeholders participated in the process; one example is the City of Huntington's Green Infrastructure Project that was woven into mitigation efforts. The Region 2 Planning and Development Council (PDC) and the committee members reached out to community members in person and online in efforts to garner information regarding hazards and mitigation projects in the area.

1.1.1 Committee Involvement

For the update of this hazard mitigation plan, the Region 2 Planning and Development Council (PDC) sought the services of JH Consulting, LLC, henceforth referred to as the consultant. There were two committees, the full committee, formed by members of the Region 2 PDC, and the steering committee. The steering committee was formed with representatives from each county within the Region 2. In total, the PDC held five meetings at different stages throughout the process.



TABLE 1.1.1.A MEETING DESCRIPTIONS					
Type of Meeting Date Description					
Full Committee #1	June 2, 2017	The consultant provided the full committee an overview of the previous plan and the process for the update of this year's plan. The consultant also presented the responsibilities each party would have throughout the entire process.			
Steering Committee #1	August 9, 2017	The steering committee met for the first time and reviewed the hazard mitigation plan process. They reviewed hazards and provided historical data on hazards in their communities.			
Full Committee #2	October 4, 2017	The consultant provided an overview of the existing and proposed hazards to the full committee and handouts about local hazard mitigation and its importance.			
Steering Committee #2	October 6, 2017	The committee reviewed and approved new goals and objectives for the hazard mitigation plan. The committee received links for public surveys and posted them on their websites and social media pages. The committee also reviewed the tasks to be completed: project status updates, new projects, asset inventory updates.			
Steering Committee #3	December 12, 2017	The committee discussed new projects relevant to their jurisdictions. They also discussed methods for keeping the plan current throughout the following years.			

Committee members attended meetings and maintained constant communication with the consultant and Region 2 throughout the plan update. The following is a table that outlines the committee members' participation in the process.

	TABLE 1.1	.1.B JURISDICTIONAL PARTICIPATION				
Jurisdiction/Agency	Contact	Title	On Steering Committee	Held and/or Attended Public Meeting	Direct Contact With the Consultant Via Phone or Email	Posted Public Surveys on Websites or Social Media
Cabell County	Jack Barker	Commissioner	Yes	Yes		
	Jerry Beckett	OES	Yes	Yes	Yes	Yes
	Gordon Merry	OES	Yes	Yes		
Barboursville, Village of	Danny Porter	Floodplain Manager	No	No	Yes	N/A
Huntington, City of	Sherry Wilkins	Stormwater Utility	Yes	No		
	Cathy Burns	City Manager	No	No	Yes	Yes
	Bre Shell	Floodplain Manager/City Planner	No	No		
Milton, City of	Tom Canterbury	Mayor	No	No	Voc	NI/A
	Randy Rutledge	Floodplain Manager	No	No	165	IN/A
Lincoln County	Rick Helton	Floodplain Manager	Yes	Yes	Voc	Voc
	Francis Holton	OES	Yes	Yes	165	165
Hamlin, Town of	David Adkins	Mayor	No	No	Yes	N/A
West Hamlin, Town of	Joanna Cardwell	Recorder	No	No	Yes	N/A
Logan County	Roger Bryant Ray Perry	OEM Commissioner/Floodplain Manager	Yes Yes	Yes Yes	Yes	Yes



TABLE 1.1.1.B JURISDICTIONAL PARTICIPATION						
Jurisdiction/Agency	Contact	Title	On Steering Committee	Held and/or Attended Public Meeting	Direct Contact With the Consultant Via Phone or Email	Posted Public Surveys on Websites or Social Media
	Danny Ellis	Commissioner	No	Yes	1 1	4 0 1
	Danny Godby	Commissioner	No	Yes		
	LaDonna Blankenship	OEM	No	Yes		
Chapmanville, Town of	Raamie Barker	Mayor	No	No	Vee	NI/A
	Terrilyn Wilson	Recorder	No	No	res	IN/A
Logan, City of	Serafino Nolletti	Mayor	No	No		
	Scott Beckett	Fire Chief/Floodplain Manager	No	No	Yes	N/A
	Amber Viars	Clerk	No	No		
Man, Town of	Jim Blevins	Mayor/Floodplain Manager	No	No	Yes	N/A
Mitchell Heights, Town of	James Motes	Mayor	No	No		
	Vicky Hale		No	No	Yes	N/A
	Miller Cope	Floodplain Manager	No	No		
West Logan, Town of	Darren Akers	Mayor/Floodplain Manager	No	No	Yes	N/A
Mason County	Dennis Zimmerman	OES	Yes	Yes		
	Scott Donley	EMA	Yes	No	Voc	Vac
	Matthew Gregg	OES	Yes	No	163	163
	Rick Handley	Commissioner	No	Yes		
Hartford, Town of	Gordon Spencer	Mayor	No	No	Yes	NI/A
	Misty Young	Floodplain Manager	No	No	163	IN/A
Henderson, Town of	Jack McCoy	Mayor/Floodplain Manager	No	No	Yes	N/A
Leon, Town of	Bruce Riffle	Mayor	No	No	Yes	N/A
	Ray Gordon	Floodplain Manager	No	No	100	11/7 1
Mason, Town of	Donna Dennis	Mayor/Floodplain Manager	No	No	Yes	N/A
	Darlene Roach	Water Clerk	No	No	100	14/1
New Haven, Town of	Jerry Spradling	Mayor	No	No	Yes	N/A
	Roberta Hysell	Recorder	No	No		
Point Pleasant, Town of	Brian Billings	Mayor	No	No		
	Amber Latterson	Clerk	No	No	Yes	N/A
	JR Spencer	Fire Department	No	Yes		
	Randall Hall	Floodplain Manager	No	No		
Mingo County	Doug Goolsby	HSEM	Yes	Yes	Yes	No
	Amanda Starr	Floodplain Manager	Yes	Yes		
Delbarton, I own of	John Preece	Accountant	No	No	Yes	N/A
Gilbert, Town of	Vivian Livingood	Mayor	NO	NO	Yes	N/A
Kermit, I own of	Charles Sparks	Mayor	NO	NO	Yes	N/A
Matewan, I own of	Shella Kessler	Mayor	NO No	NO No	Yes	N/A
Williamaan City of	Chris Hall	Water Plant Manager	INO No	INO No		
williamson, City of			INO N.L.	INO	Yes	N/A
	Joey Carey		NO Vee	res	V	NI.
Verage County	James Cooper		Yes	Yes	Yes	NO
Ceredo, Town of	Paul Billups	Mayor Floodploin Managar	NO No	NO	Ver	NI/A
			No	NO No	res	N/A
Fort Cov. Town of	Ly(III		No	No.	Ver	NI/A
Fort Gay, Town of	JUETTA HATTIEIO	wayor	INO	INO	res	N/A



	TABLE 1.1.	1.B JURISDICTIONAL PARTICIPATION				
Jurisdiction/Agency	Contact	Title	On Steering Committee	Held and/or Attended Public Meeting	Direct Contact With the Consultant Via Phone or Email	Posted Public Surveys on Websites or Social Media
	Sheila Bowen	Recorder	No	No		
Kenova, Town of	Lisa Palmer	Clerk	No	No	Yes	N/A
Wayne, Town of	Danny Grace	Mayor	No	No	Voc	NI/A
	Randy Fry	Floodplain Manager	No	No	162	IN/A
Region II PDC	Chris Chiles		Yes	No		
	Kathy Elliott		Yes	Yes	Yes	Yes
	Lisa Wells		No	Yes		
WVDHSEM	Greg Fuller JD Whitesel	Region 6 Liaison	Yes No	No Yes	Yes	N/A

Additionally, a variety of other agencies from throughout the region, state, and neighboring counties in Kentucky also participated in this process. This section lists those organizations.

TABLE 1.1.1.C ADDITIONAL AGENCY PARTICIPATION IN THE PLANNING PROCESS					
Government Agencies	Quasi-Governmental Agencies	Critical Infrastructure			
 Federal Emergency Management Agency National Weather Service U.S. Army Corps of Engineers U.S. Environmental Protection Agency West Virginia Department of Environmental Protection, Watershed Improvement Branch West Virginia Division of Homeland Security & Emergency Management West Virginia Senate (Mason County Representative) West Virginia Silver Jackets West Virginia State Fire Marshal's Office (Mingo County) Ohio Emergency Management Agencies for: Meigs, Gallia and Lawrence Counties. Kentucky Emergency Management Agencies for: Boyd, Lawrende, Martin, and Pike Counties. Virginia Emergency Management Agency for: Buchanan 	 KYOVA Metropolitan Planning Organization Mid-Ohio Valley Regional Council Region 1 Planning & Development Council Regional Intergovernmental Council (i.e., Region 3 PDC) 	 Huntington Sanitary Board Huntington Storm Water Utility Pea Ridge Public Service District (PSD) Salt Rock PSD West Virginia American Water Company 			



Higher Education	Non-Profit Sector	Private Sector
 Marshall University Southern West Virginia Community & Technical College 	 Fourpole Creek Watershed Association Guyan Conversation District Lincoln Nursing & Rehabilitation Center Williamson Memorial Hospital 	 Port of Huntington Tri-State JH Consulting, LLC

1.1.2 Public Involvement

Reaching the public of Region 2 and getting their input on the plan is an essential part of what makes this plan successful. For this reason, the committee decided to take two different approaches to reaching out to the public; the first, taking advantage of today's influence of social media, by creating two online surveys, and the second, a traditional inperson public meeting schedule.

For the online public survey approach, various jurisdictions posted and pushed two surveys relating to the hazard mitigation plan. The first survey focused on hazards in the community, their level of concern about them, how officials delivered warning notifications, home emergency kits and insurance, if homeowners had made any improvements to their homes to reduce their risk, and general demographic information. The survey was open and available at the beginning of October of 2017. As of the submittal of this plan to WVDHSEM and FEMA in December of 2017, there were 404 responses to the survey.

The second online public survey went more in depth into mitigation projects and activities; it focused on gathering information about how supportive the public would be of additional regulations, use of tax dollars for grant programs, upgrading water systems, and providing incentive programs for jurisdictional mitigation projects. The survey was open and available at the beginning of November of 2017. As of the submittal of this plan to WVDHSEM and FEMA in December of 2017, there were 194 responses to the survey.

Full online public survey results are included in Appendix 3: Public Participation.

The committee scheduled six in-person public meetings, one in every county in Region 2. The following is a description of events and discussions that took place at each meeting. Meeting announcements and sign in sheets are included in Appendix 3: Public Participation.

 At the first scheduled public meeting on November 28, 2017, at the courthouse in Logan County, there were representatives from the county, Region 2 PDC, and WVDHSEM; no members of the public attended. The consultant reviewed the



planning process, tasks the committee had to complete, and a summary of NCEI weather events for the county. Attendees discovered that events included on the NCEI database did not accurately depict the actual cost of the events within the county; they mentioned that the dollar amount was actually much higher than recorded. The conversation steered toward the opioid epidemic problem and the difficulty in aiding vulnerable populations during hazards in the county. Attendees made reference to several projects that could be included as part of the hazard mitigation plan that officials were already working on.

- The second public meeting took place on November 28, 2017, at the 911 Center in Lincoln County during a regularly scheduled LEPC meeting. Several regular members of the LEPC attended, as well as a Region 2 PDC representative; no members of the public attended. The consultant reviewed the planning process, the status of the plan, and general public survey results. Attendees indicated that the number one hazard in the county is flooding and flash flooding and a close second is the opioid epidemic that is affecting first responders and crime rates. EMS representatives noted that another concern was responding to patients with functional and access needs during hazard events. There was discussion about the possibility and difficulty of creating a registry of these patients to keep a record at the Office of Emergency Management.
- The **third** public meeting on November 30, 2017, took place during the LEPC meeting in Mingo County. Attendees discussed various hazards to include in the plan, such as flooding, hazardous materials, and the opioid epidemic. Attendees also discussed a joint project with American Electric Power (AEP), through which street lighting in Williamson is being assessed. As a part of that project, AEP and local officials are exploring persistent outage issues and seeking to strategically update the electricity infrastructure in the area.
- The **fourth** public meeting was on December 5, 2017, in Cabell County. This meeting took place concurrently with a session sponsored by the U.S. Environmental Protection Agency (EPA) as part of its community effort to discuss incorporating green infrastructure and low-impact development into hazard mitigation planning (see Section 1.1.3 below for additional information). Eleven (11) citizens attended this meeting. Though the mitigation plan was a single agenda item, attendees were very interested in the process; as such, the PDC's consultant (who was also in



attendance) spoke at length about the update. Citizens had questions about the planning process; the consultant provided links for participation in the surveys (noted above) and discussed local points of contact with whom to follow-up. Generally, attendees provided input on site-specific flooding hazards, general hazards (e.g., pipeline construction) to consider for inclusion on the plan, and integrating West Virginia Silver Jackets and watershed planning into the process.

- The fifth public meeting took place on December 13, 2017, at the Wayne County Courthouse. Public attendance was minimal but committee members who attended discussed various hazards specific to their communities. Issues such as private bridge crossings, and flash flooding were the main topics of conversation during the meeting.
- The **sixth** and final public meeting occurred on December 13, 2017, at the public library in Mason County. Few members of the public attended. The consultant explained the hazard mitigation plan, its importance, and the process to complete it. The consultant stressed the importance of public input and involved the attendees in a discussion revolving around winter storms and other hazards facing the county. The emergency manager mentioned that the most critical problem in the county comes after winter and summer storms knock out power for extended periods of time.

1.1.3 Incorporation of Green Infrastructure into Hazard Mitigation Planning Element

In 2015, the U.S. EPA selected Huntington as one of 53 communities for its "Making a Visible Difference in Communities Initiative." This selection included the facilitation of a community forum, primarily focused on revitalizing the city's Brownfields, developing and changing the city's riverfront, and dealing with areas of blight. Through those initial discussions, a partnership of stakeholders from Huntington and Cabell County emerged and began meeting regularly to discuss stormwater management and the flooding associated with overdriven stormwater systems. Ultimately, the U.S. EPA Region III utilized this partnership to produce a summary report on integrating green infrastructure and low-impact development into hazard mitigation planning.

This group began discussing such integration in the summer of 2016. Initial meetings focused on conceptual matters, including examples of green infrastructure projects, discussions of the flood hazard and its impacts on the city, etc. However, as these



discussions evolved, they began to include more strategic elements about actually incorporating material related to the green infrastructure approach into this plan as a mitigation option, particularly for site-specific, nuisance flooding.

Organizers included an update on the regional mitigation plan update (i.e., this document) on every meeting agenda. Thus, the plan was considered by a wide variety of stakeholders prior to and throughout the update. Meetings occurred on:

- July 19, 2016,
- July 28, 2016,
- November 30, 2016,
- December 14, 2016,
- January 18, 2017,
- February 8, 2017,
- April 13, 2017,
- May 24, 2017,
- July 12, 2017,
- August 30, 2017, and
- December 5, 2017.

Green infrastructure elements will thus be included as appropriate in the sections that follow, per the discussions held throughout the EPA-led process.

1.1.4 Research Conducted

The research conducted for the risk assessment phase of this update included data from federal, state, higher education, and mass media sources. The research aim was primarily to validate and describe the hazards included for consideration in this plan. Specific sources relative to individual hazards are listed in Appendix 5: Citations.

The consultant reviewed a number of existing plans and reports to (a) identify any obvious inconsistencies between other development and mitigation efforts, (b) as baseline information for such sections as Analyzing Development Trends, and (c) to support discussions surrounding mitigation projects. Those documents included the following.



TABLE 1.1.4.A GENERAL RESEARCH					
Document Type	Document Citation	How Incorporated Into Plan			
Technical	USDHS FEMA Region 2I. (July, 2015). Plan	Used as guidance on incorporating local			
Information	Integration: Linking Local Planning Efforts. Federal	planning efforts/plans into the planning			
	Government: Washington, D.C.	process.			
Technical	USDHS FEMA. (June, 2016). National Mitigation	Used as general guidance on mitigation			
Information	Framework. Federal Government: Washington, DC	planning.			
Technical	USDHS FEMA. (May, 2005). Integrating Historic	Used as general guidance for			
Information	Property and Cultural Resource Considerations into	incorporating historic property and			
	Hazard Mitigation Planning. Federal Government:	cultural protection.			
	Washington, D.C.				
Technical	USDHS FEMA. (March, 2013). Local mitigation	Used as general guidance on revised			
Information	planning handbook. Federal Government: Washington,	mitigation planning process			
	D.C.				
Technical	USDHS FEMA. (March, 2013). Integrating Hazard	Used as general guidance on existing			
Information	Mitigation Into Local Planning. Federal Government:	plan integration for hazard mitigation			
	Washington, D.C.				

Many sources informed the hazard profiles. The following table briefly describes the major sources referenced for each hazard analyzed in this plan.

TABLE 1.1.4.B HAZARD RESEARCH							
Hazard	Research Sources						
Acts of Violence	 Appalachia High Intensity Drug Trafficking Areas (HIDTA) National Gang Center Local Law Enforcement Offices 						
Dam Failure	 Association of State Dam Safety Officials National Performance of Dams Program National Inventory of Dams 						
Drought	 USDA Census of Agriculture National Integrated Drought Information System National Centers for Environmental Information (NOAA) 						
Earthquake	 Association of American State Geologists United States Geological Service 						
Extreme Temperatures	 National Centers for Environmental Information (NOAA) 						
Flood	 Federal Emergency Management Agency Flood Rate Map National Centers for Environmental Information (NOAA) U.S. Environmental Protection Agency 						
Hazmat	 Federal Railroad Administration Pipeline and Hazardous Materials Safety Administration National Transportation Safety Board National Pipeline Mapping System USCG National Response Center 						
Land Subsidence	 United States Geological Service West Virginia Division of Highways 						



Hazard	TABLE 1.1.4.B HAZARD RESEARCH Research Sources	
Opioid Crisis	 Centers for Disease Control and Prevention Local County Health Departments Local Law Enforcement Offices Local Emergency Medical Services West Virginia Department of Health and Human Resources 	
Reportable Disease Epidemic	 Centers for Disease Control and Prevention Local County Health Departments West Virginia Department of Health and Human Resources 	
Severe Summer Weather	 National Centers for Environmental Information (NOAA) Northeast Regional Climate Center 	
Severe Winter Weather National Centers for Environmental Information (NOAA) Northeast Regional Climate Center		
Wildfire	 National Centers for Environmental Information (NOAA) West Virginia Division of Forestry 	

1.1.5 Project Timeline

The Region 2 PDC applied for a grant to write the hazard mitigation plan in July of 2015. In June of 2017 they procured the services of JH Consulting to begin the process of updating the plan. Research and committee meetings began in August of 2017. The following details the plan update process timeline from when the meetings began in August.



1.1.6 First Plan Update Process

The first plan update process was completed in late 2008 and early 2009. The Logan County Office of Emergency Management (LCOEM), the Mason County Office of



Emergency Services (MCOES), the Wayne County Floodplains Administration Office, the Mingo County Commission served as the coordinator of the plans development. To complete the work required, a consultant was hired – JH Consulting, LLC. JH Consulting was responsible for all the data collection and compilation tasks associated with the update.

The core planning committee met a total of nine times. The primary topics of conversation were to ensure that the consultant's proposed updates were consistent with local expectations. Other items, such as hazard vulnerability, updated risk assessment findings, and mitigation projects were also discussed. The meetings were advertised and open to the public. Although no members of the general public attended, the Offices of Emergency Services planned to release a press statement upon the completion and adoption of revisions. The statement will direct the general public as to where they can find a copy of the plan and encourage them to review and comment on it. Any public comments received can be included in the next formal update of the plan. Additionally, participating agencies intend to follow all public notification requirements when implementing mitigation projects (at the time they are implemented).

1.1.7 Original Plan Development Process

The Region 2 Planning and Development Councils All-Hazard Mitigation Plan was prepared by following the guidelines provided by FEMA and the West Virginia Division of Homeland Security and Emergency Management (WVDHSEM). The Region 2 Planning and Development Council core planning team was formed as an ongoing group of key officials throughout the counties of Cabell, Lincoln, Logan, Mason, Mingo and Wayne; as well as municipalities that have a stake in mitigation.

Local leaders core planning team within the Region 2 Planning and Development Council's area met a total of 19 times, including 10 additional public meetings for public comment. Individual counties had held public meetings and had little to no participation and yielded no comments on the local plan. Citizens of Cabell, Lincoln, Logan, Mason, Mingo and Wayne counties were interviewed using "Household Natural Hazards Preparedness Questionnaires" to get a sampling of what hazards are concerns to the citizens of each county. The public was involved through newspaper legal notices.

The Region 2 Planning and Development Council's core planning team consulted the completed county mitigation plans in order to create a fully completed and comprehensive regional mitigation plan to include all Region 2 counties that will adopt the plan.



1.2 DESCRIPTION OF THE PLANNING AREA

2017 UPDATE

The description of the planning area is largely similar to the previous plan but has been updated for recent, more accurate information and expanded upon where appropriate. New items include regional economy, regional infrastructure, regional services, disaster declarations, and the results of an online survey that committee members answered regarding their jurisdictional capabilities.

1.2.1 Regional History

The Region 2 Planning and Development Council was formed from parts of Cabell, Giles, Kanawha, and Tazewell counties in the early 1800's by an act of the Virginia Assembly. Region 2 PDC counties were named after Chief Logan from the Mingo Native American Tribe, George Mason who was one of the members of the convention that laid the framework for the U.S. Constitution, General "Mad Anthony" Wayne, Wallace J. Williamson because he owned the land where Williamson now stands, William H Cabell, who served as the Governor of Virginia in the early 1800's, and Abraham Lincoln.

French explorers were the first to stake claims in Region 2. Numerous battles have been fought in and around Region 2 and claims of property rights have been contested throughout its history. Region 2, which holds a significant place in history, began to prosper after the conclusion of the Revolutionary War and started its industrial growth when coal was discovered. Combined with coal and the supplies of timber, gravel, salt and fertile soils, Region 2 had the necessary makings for strong economic growth.

Coal production has since slowed considerably, but with ample reserves it still holds a tremendous value in the area. Various light industries have replaced revenue lost due to the decline of coal production and have bolstered the region's economy. Region 2's early economic prosperity was brought on by the abundance of coal in the area but soon demand fell and the population moved west to find employment. Region 2 does entertain a tourist population throughout the year, as there are many attractions both historic and cultural.

1.2.2 Regional Geography

The Region 2 Planning and Development Council covers a total land area of 2,564 square miles, and of that amount, around 30 square miles are water. It is located in the



southwest portion of West Virginia. Region 2 has an average median elevation of 609 feet above sea level.

The major rivers in the region include the Ohio River that runs along the western border of the state at Mason, Cabell, and Wayne Counties, Big Sandy River and Tug Fork that flow along the southwestern border of the state at Wayne and Mingo Counties, Guyandotte River that runs through Cabell, Lincoln, Logan, and part of Mingo Counties, and the Kanawha River that runs through Mason County. Region 2 is located mainly in the Allegheny Plateau, a hilly terrain rather than mountainous.

There are 25 incorporated municipalities in Region 2. The largest one of these is the City of Huntington located in Cabell and Wayne Counties.

Cabell County Barboursville Huntington Milton	<i>Lincoln County</i> Hamlin West Hamlin	<i>Logan County</i> Chapmanville Logan Man	<i>Mason County</i> Hartford Henderson Leon	<i>Mingo County</i> Delbarton Gilbert Kermit	<i>Wayne County</i> Ceredo Fort Gay Kenova
		Mitchell Heights West Logan	Mason New Haven Point Pleasant	Matewan Williamson	Wayne

1.2.3 Regional Climate

The majority of Region 2 Counties' climate is very similar. The average temperature varies from around 30 degrees Fahrenheit in the winter to around 75 degrees in the summer. Typical precipitation throughout the year averages to about 42.5 inches.

1.2.4 Regional Demographics

Understanding a region's demographic composition is vital to planning activities. This information will be especially relevant when planning for vulnerable populations and, in some cases, calculating loss from hazards. The following table outlines the U.S. Census Bureau's data from July 1, 2016 population estimates.

TABLE 1.2.4.A REGION 2 DEMOGRAPHIC INFORMATION									
Fact	Cabell County	Lincoln County	Logan County	Mason County	Mingo County	Wayne County	Total/Average		
Population estimates	95,987	21,232	33,700	26,825	24,647	40,531	242,922		
Persons under 5 years	5.80%	6.00%	5.60%	5.30%	6.50%	5.20%	5.73%		
Persons under 18 years	20.00%	22.40%	20.50%	21.10%	22.60%	21.20%	21.30%		
Persons 65 years and over	17.70%	18.50%	18.90%	19.50%	16.80%	19.60%	18.5%		
Female persons	51.00%	50.20%	50.80%	51.70%	50.70%	51.40%	50.97%		



TABLE 1.2.4.A REGION 2 DEMOGRAPHIC INFORMATION								
Fact	Cabell County	Lincoln County	Logan County	Mason County	Mingo County	Wayne County	Total/Average	
White alone	91.10%	98.50%	96.80%	97.50%	96.40%	97.90%	96.37%	
Black or African American alone	5.00%	0.30%	1.80%	0.90%	1.90%	0.40%	1.72%	
American Indian and Alaska Native alone	0.20%	0.10%	0.10%	0.20%	0.10%	0.30%	0.17%	
Asian alone	1.40%	0.20%	0.30%	0.30%	0.30%	0.40%	0.48%	
Native Hawaiian and Other Pacific Islander alone	N/A	0.00%	N/A	0.10%	N/A	N/A	0.10%	
Two or More Races	2.20%	0.90%	0.90%	1.20%	1.20%	0.90%	1.22%	
Hispanic or Latino	1.40%	0.70%	0.90%	0.70%	0.80%	0.60%	0.85%	
White alone, not Hispanic or Latino	90.00%	97.80%	96.00%	96.80%	95.80%	97.40%	95.63%	
Veterans, 2012-2016	6,864	1,668	2,153	2,456	1,318	2,903	17,362	
Foreign born persons, 2012-2016	1.70%	0.30%	0.40%	0.70%	0.40%	0.60%	0.68%	
Housing units, (V2016)	46,474	9,785	16,689	12,921	12,615	19,153	117,637	
Language other than English spoken at home, persons age 5 years+, 2012-2016	2.70%	1.00%	1.30%	0.80%	0.80%	1.50%	1.35%	
High school graduate or higher, persons age 25 years+, 2012-2016	87.00%	79.10%	77.70%	84.70%	73.90%	79.40%	80.30%	
Bachelor's degree or higher, persons age 25 years+, 2012-2016	26.10%	9.00%	8.90%	11.40%	9.90%	12.90%	13.03%	
With a disability, under age 65 years, 2012-2016	15.10%	24.00%	23.50%	15.30%	25.40%	17.90%	20.20%	
Persons without health insurance, under age 65 years	7.30%	8.30%	8.10%	6.90%	8.90%	7.40%	7.82%	
In civilian labor force, total, population age 16 years+, 2012- 2016	54.10%	46.80%	44.80%	45.50%	44.10%	47.70%	47.17%	
Median household income (in 2016 dollars), 2012-2016	\$37,760	\$36,232	\$37,262	\$37,322	\$32,441	\$38,311	219,328	
Per capita income in past 12 months (in 2016 dollars), 2012- 2016	\$23,853	\$19,416	\$20,843	\$20,253	\$19,502	\$20,450	124,317	
Persons in poverty	21.90%	24.20%	24.40%	17.90%	28.20%	21.50%	23.02%	
Total employer establishments, 2015	2,398	195	622	324	388	509	4,436	
Total employment, 2015	46,688	1,628	9,558	3,944	3,081	7,018	71,917	
Total employment, percent change, 2014-2015	-1.30%	-17.10%	-4.70%	1.60%	-19.20%	-2.60%	-7.22%	

1.2.5 Regional Economy

Various counties expressed concern about budgetary cuts that have affected them in the past several years. One of these is the Coal Severance Tax that all counties and jurisdictions receive quarterly. While not every county in West Virginia produces coal, all



counties receive a severance tax paid by the coal industry. This additional tax on coal is collected by the State Tax Commissioner. Seventy-five (75%) of the net proceeds is distributed to coal-producing counties; among them, Lincoln, Logan, and Mingo Counties in Region 2. The remaining twenty-five (25%) of the net proceeds are distributed to all counties and municipalities of the state, based on population (West Virginia State Treasurer's Office, n.d.). In some instances, the funds received from this severance tax is destined to first responder agencies such as law enforcement, emergency medical services, and fire departments. In recent years, there has been a steady decline in severance funds that has affected counties in Region 2.

The following graphic shows fund distribution data from the last ten years at five-year intervals (2017, 2012, and 2007). This is taken from the second quarter of each year, either June or July. The data shows that there was a spike in funds in 2012, but the overall funding has decreased significantly over the last ten years, even with the spike in 2012.



REGION 2 COAL SEVERANCE TAX

It is important to know the economy of a region. In mitigation, one of the assets that are included in each jurisdiction are top employers; this is because they provide a vast majority of the income for the population. When a disaster strikes and people are unable to work, this causes the obvious loss of income, but a loss in tax revenue for the counties. In 2014, top employers in every county in Region 2 were the county board of education, a type of medical facility, and Wal-Mart Stores. The following table outlines each county's top employers in Region 2.



TABLE 1.2.5.A TOP 10 EMPLOYERS PER COUNTY									
Cabell	Lincoln	Logan							
 St. Mary's Medical Center Cabell Huntington Hospital Cabell County Board of Education Marshall University University Physicians & Surgeons Huntington Alloys corporation Wal-Mart Stores, Inc. DirecTV Customer Service, Inc. Alcon Research, LTD AMZN WVCS, LLC 	 Lincoln County Board of Education Coal River Mining, LLC Lincoln County Opportunity Company Lincoln County Primary Care Center Lincoln County Commission Lincoln County Nursing and Rehab. Center Little General Store, Inc. ACE Pipeline, Inc. JAG Coal Services, LLC WV Department of Health and Human Resources 	 Logan County Board of Education Logan General Hospital Cliffs Logan County Coal, LLC Wal-Mart Stores, Inc. Aracoma Coal Company, Inc. Highland Mining Company Logan County Commission Trinity Healthcare Services, Inc. Southern West Virginia Community College Lowe's Home Center, Inc. 							
Mason	Minan	Wavne							
 Mason County Board of Education Pleasant Valley Hospital, Inc. Indiana Michigan Power Company Bowen Engineering Corporation Appalachian Power Company Wal-Mart stores, Inc. Bob's Marked and Greenhouse, Inc. Lakin State Hospital Lakin Correctional Facility M & G Polymers USA, LLC 	 Mingo County Board of Education Mingo Logan Coal Company Coal Mac, Inc. (Phoenix Coal Mac) Brody Mining, LLC Williamson Memorial Hospital, LLC Vensure Employer Services Unilin North America, LLC Spartan Mining Company Rockhouse Creek Development Corporation Consol of Kentucky, Inc. 	 Huntington VA Medical Center Wayne County Board of Education Rockspring Development, Inc. Wayne County Community Services Organization, Inc. Allevard Sogefi USA, Inc. Wal-Mart Stores, Inc. Wayne County Commission Diversified Assessment & Therapy Services Braskem American, Inc. Kanawha River Terminals LLC. 							

Source: 2014 Workforce West Virginia Profiles

1.2.7 Regional Infrastructure

Transportation

- **Roads**: Region 2 is interconnected with a network of interstates, US and State roads, and local county roads. Some of the major arteries through the region include:
 - o **I-64**
 - o US Route 23,
 - o US Route 52,
 - o US Route 60,
 - o US Route 119,
 - State Route 2,
 - o State Route 3
 - State Route 7,
 - o State Route 10,
 - o State Route 37,



- State Route 75,
- State Route 152, and
- State Route 214.
- Rail: CSX Corporation, Norfolk Southern and Amtrak operate a main line through the Region 2. The railway line provides rail connections for passengers and freight to all parts of the country.
- **River**: There are a number of ports in the Region 2 area, both public and private. Most of these are along the Ohio River that serves as a maritime transportation route to the Gulf of Mexico; one of the busiest arteries in the nation for water transportation. Other port locations are along Big Sandy River and the Kanawha River.
 - Cabell-Wayne Port District, Inc.
 - Port of Huntington Tri-State
- **Public**: There are a few options for traveling on public transportation in Region 2.
 - The Tri-State Transit Authority (TTA) operates buses in and around the Huntington area.
 - Tri-River Transit operates in bus service in Boone, Lincoln, Logan, and Mingo Counties as well as some portions of Wayne and Kanawha Counties.
 - Commercial buses such as Greyhound also have stations in Huntington that offer service to various locations.
 - Amtrak passenger rail service has one station stop in Huntington along the Cardinal rail line that goes from Chicago to New York.
- Air: The Huntington area is served by the Tri-State Airport. Tri-State Airport facilities and services include daily departures to hub centers in Pittsburgh, Pennsylvania and Atlanta, Georgia, as well as air cargo services, Charter service and general aviation. The Lawrence County Airport also provides facilities for general aviation.

<u>Utilities</u>

Region 2 is served by a variety of power, water, sewer, cable, telephone, and internet companies. For a detailed list of services, refer to the table below.



TABLE 1.2.7.A UTILITIES IN REGION 2								
Utility Type	Name	Cabell	-incoln	-ogan	Mason	Vlingo	Nayne	
Cable/Internet	Armstrong Cable Services	X	Х					
Cable/Internet	Cebridge Acquisition, LLC		Х		Х		Х	
Cable/Internet	Cequel III Communications I LLC		Х					
Cable/Internet	Colane Cable Television			Х		Х		
Cable/Internet	Comcast Communications	Х	Х				Х	
Cable/Internet	Frontier West Virginia	Х						
Cable/Internet	Lycom Communications, Inc.						Х	
Cable/Internet	Mikrotec CATV, LLC					Х		
Cable/Internet	Shenandoah Cable Television, LLC		Х	Х		Х	Х	
Cable/Internet	Time Warner Cable, Inc.				Х			
Cable/Internet	Vogeler CATV		Х					
Electric	Appalachian Power Company	Х	Х	Х	Х	Х	Х	
Electric	Big Sandy Peaker Plant, LLC						Х	
Electric	Panda Culloden Power, L.P.	Х						
Gas	Consumers Gas Utility Company	Х					Х	
Gas	Hope Gas, Inc.		Х					
Gas	Mountaineer Gas Company	Х	Х	Х	Х	Х	Х	
Gas	Southern Public Service Company	Х	Х	Х	Х			
Gas	Union Oil & Gas Inc	Х						
Sewer	Alva Lynn Vance, dba A. Vance Environmental	Х						
Sewer	Boone County Public Service District			Х				
Sewer	Buffalo Creek Public Service District			Х				
Sewer	City of Huntington Sanitary Board	Х						
Sewer	City of Huntington Sanitary Board						Х	
Sewer	City of Kenova						Х	
Sewer	City of Logan Sanitary Board			Х				
Sewer	City of Milton	Х						
Sewer	City of Point Pleasant				Х			
Sewer	City of Williamson (Sewer)					Х		
Sewer	Culloden Public Service District	Х						
Sewer	Graham Meadows Service District, Inc.	Х						
Sewer	Hamlin Public Service District		Х					
Sewer	Hidden Valley Treatment, Inc.			Х				
Sewer	Hubbard Heights Subdivision Homeowners Association						Х	
Sewer	Kermit Municipal Sewer Department					Х		
Sewer	Linmont Sanitation System, Inc.	Х						
Sewer	Logan County Public Service District			Х				
Sewer	Mason County Public Service District	Х						
Sewer	Mason County Public Service District				Х			
Sewer	Mingo County Public Service District					Х		
Sewer	Northern Wayne County Public Service District						Х	
Sewer	Pea Ridge Public Service District	Х						
Sewer	Pleasant View Public Service District		Х					



TABLE 1.2.7.A UTILITIES IN REGION 2								
Utility Type	Name	Cabell	incoln	-ogan	Aason	Vingo	Nayne	
Sewer	Prichard Public Service District				2	2	Х	
Sewer	Salt Rock Sewer Public Service District	Х						
Sewer	Sewage Systems, Inc.	Х						
Sewer	Spring Valley Public Service District						Х	
Sewer	Town of Ceredo Sewer System						Х	
Sewer	Town of Chapmanville (Sewer)			Х				
Sewer	Town of Delbarton (Sewer)					Х		
Sewer	Town of Fort Gay						Х	
Sewer	Town of Gilbert (Sewer)					Х		
Sewer	Town of Hartford				Х			
Sewer	Town of Leon				Х			
Sewer	Town of Man Sanitary Board			Х				
Sewer	Town of Mason Sewer Department				Х			
Sewer	Town of Matewan					Х		
Sewer	Town of New Haven (Municipal Sewer System)				Х			
Sewer	Town of Wayne						Х	
Sewer	Town of West Hamlin		Х					
Sewer	Village of Barboursville	Х						
Sewer	Wastewater Management, Inc.						Х	
Sewer	Williamsburg Sewer System, Inc.	Х						
Telephone	Armstrong Telephone Company - West Virginia Division	Х	Х					
Telephone	Citizens Telecommunications Company of West Virginia	Х	Х		Х		Х	
Telephone	Frontier West Virginia Inc.	Х	Х	Х	Х	Х	Х	
Water	Boone County Public Service District			Х				
Water	Branchland-Midkiff Public Service District		Х					
Water	Branchland-Midkiff Public Service District						Х	
Water	Buffalo Creek Public Service District			Х				
Water	Ceredo Municipal Water Department						Х	
Water	Chapmanville Municipal Water Works			Х				
Water	City of Logan Municipal Water Department			Х				
Water	City of Milton	Х						
Water	City of Point Pleasant				Х			
Water	City of Williamson (water)					Х		
Water	Cottageville Public Service District				Х			
Water	Crum Public Service District						Х	
Water	Fort Gay Municipal Water Department						Х	
Water	Gallipolis Ferry Water Association, Inc.				Х			
Water	J-2-Y-35 Water Association, Inc.				Х			
Water	Justice Public Service District					Х		
Water	Kenova Water Department	1					Х	
Water	Kermit Municipal Water Department					Х		
Water	Lavalette Public Service District	1	Ì				Х	
Water	Lincoln Public Service District	1	Х					



TABLE 1.2.7.A UTILITIES IN REGION 2							
Utility Type	Name	Cabell	Lincoln	Logan	Mason	Mingo	Wayne
Water	Logan County Public Service District			Х			
Water	Mason County Public Service District	Х					
Water	Mason County Public Service District				Х		
Water	Mingo County Public Service District					Х	
Water	Salt Rock Water Public Service District	Х					
Water	Town of Delbarton (Water)					Х	
Water	Town of Gilbert Water Works					Х	
Water	Town of Hartford Water Department				Х		
Water	Town of Man			Х			
Water	Town of Mason Water Department				Х		
Water	Town of Matewan					Х	
Water	Town of New Haven (Municipal Water Department)				Х		
Water	Town of West Hamlin		Х				
Water	Wayne Municipal Water Department						Х
Water	West Logan Water Company			Х			
Water	West Virginia-American Water Company	Х	Х	Х	Х		

Source: Public Service Commission of West Virginia

1.2.8 Regional Services

<u>Medical</u>

TABLE 1.2.8.A MEDICAL FACILITIES IN REGION 2								
Cabell	Lincoln	Logan						
 Cabell Huntington Hospital St. Mary's Medical Center Marshall University Medical Center CHH Women's & Family Medical Center Cabell Hunting Hospital Cabell Family Center Huntington VA Medical Center Edwards Comprehensive Cancer Center Grant Medical Center 	 Lincoln Primary Care Center Valley Health – Harts Alum Creek Medical Center Prestera Mental Health Center Thomas Memorial Hospital Community Mental Health Center St Mary's Physical Therapy – Hamlin Autism Services Center 	 Logan Regional Medical Center Prestera Center Logan-Mingo Area Mental Health Logan Regional Cancer Center MedExpress Urgent Care Vigo Family Health Care Trinity Health Care Services – Logan KVC Behavioral Healthcare 						
Mason	Mingo	Wayne						
 Pleasant Valley Hospital Pleasant Valley Rehab Center Point Pleasant Medical Center Orestera Center Family Medicine Clinic Point Clinic Valley Health – Point Pleasant Pediatrics 	 Trinity Health Care Services – Mingo Logan Mingo Area Mental Health Williamson Memorial Hospital Logan Regional Medical Center Tug Valley ARH Regional Medical Center Family Medical Center ARH Women's and Family Health Center Family Medical Center 	 Valley Health – Various Locations Three Rivers Medical Center KVC Behavioral Healthcare 						



Communications

There are a variety of communication methods in every county in Region 2. The following table describes the print, radio stations, television stations, and cellular coverage in the region.

TABLE 1.2.8.B COMMUNICATIONS IN REGION 2							
Type Station (Location)							
Print	Herald-Dispatch (Huntington)						
	Logan Banner (Logan)						
	Lincoln Journal (Hamlin)						
	Point Pleasant Register (Point Pleasant)						
	 Wayne County News (Wayne) 						
	 Williamson Daily News (Williamson) 						
Radio	 WFGH 90.7 FM (Fort Gay) 						
	 WASP-LP 104.5 (Huntington) 						
	 WEMM-FM 107.9 FM (Huntington) 						
	 WKEE-FM 100.5 (Huntington) 						
	 WMUL 88.1 FM (Huntington) 						
	 WRVC 930 AM (Huntington) 						
	 WTCR-FM 103.3 FM (Huntington) 						
	 WVHU 800 AM (Huntington) 						
	 WVWV 89.9 FM (Huntington) 						
	 WYSN 1200 AM (Huntington) 						
	 WMGA 97.9 FM (Kenova) 						
	 WTCR 1420 AM (Kenova) 						
	 WVOW 1290 AM (Logan) 						
	 WVOW-FM 101.9 FM (Logan) 						
	WHJC 1360 AM (Matewan)						
	WVKM 106.7 FM (Matewan)						
	• WAMX 106.3 FM (Milton)						
	WZZW 1600 AM (Milton)						
	WBYG 99.5 FM (Point Pleasant)						
	• WIHQ 1030 AM (Point Pleasant)						
	WVRR 88.1 FM (Point Pleasant)						
	• WVWP-LP 101.1 FM (Wayne)						
	WBTH 1400 AM (Williamson)						
Talaviaian	WXCC 96.5 FM (Williamson)						
Television	WSAZ-IV NBC (Huntington)						
	WOWK-TV CBS (Huntington)						
	WVPB-TV PBS (Huntington)						
	• WJUDG-D HSIN (HUIIIIIIIIIIIII)						
Collular	VITIG-LP Relion V (Williamson)						
Celluidi	• ATAT (INUSTICATIONS IN REGION 2)						
	 Sprint (along 1-04 and 1-77) T Mobile (on western border of the state) 						
	 T-iniunite (UII western buluer of the state) Morizon (along 1.64, 1.77, and US 110) 						





1.2.9 Jurisdictional Capabilities

The counties and municipalities within Region 2 PDC have a number of capabilities that can support mitigation efforts including comprehensive plans, building codes, subdivision and land use ordinances, zoning ordinances, and floodplain regulations. The PDC's contractor worked with steering committee members to complete a "capabilities assessment." Steering committee members answered questions about the following plans, codes, and ordinances from the perspectives of their home jurisdictions.

- **Comprehensive Plans**: Comprehensive plans promote sound land use and regional cooperation among local governments to address planning issues. These plans serve as the official policy guide for influencing the location, type, and extent of future development by establishing the basic decision-making and review processes on zoning matters, subdivision and land development, land uses, public facilities, and housing needs over time.
- **Building Codes**: Building codes regulate construction standards for new construction and substantially renovated buildings. Standards can be adopted that require resistant or resilient building design practices to address hazard impacts common to a given community.
- Subdivision and Land Use Development Ordinances: Subdivision and land development ordinances (SALDOs) are intended to regulate the development of housing, commercial, industrial or other uses, including associated public infrastructure, as land is subdivided into buildable lots for sale or future development. Within these ordinances, guidelines on how land will be divided, the placement and size of roads and the location of infrastructure can reduce exposure of development to hazard events.
- Zoning Ordinances: Zoning ordinances allow for local communities to regulate the use of land in order to protect the interests and safety of the general public. Zoning ordinances can address unique conditions or concerns within a given community. They may be used to create buffers between structures and high-risk areas, limit the type or density of development and/or require land development to consider specific hazard vulnerabilities.
- National Flood Insurance Program (NFIP) Participation and Floodplain Management Ordinances: Through administration of floodplain ordinances, municipalities can ensure that all new construction or substantial improvements to



existing structures located in the floodplain are flood-proofed, dry-proofed, or built above anticipated flood elevations. Floodplain ordinances may also prohibit development in certain areas altogether. The National Flood Insurance Program (NFIP) establishes minimum ordinance requirements which must be met in order for that community to participate in the program. However, a community is permitted and encouraged to adopt standards which exceed NFIP requirements.

TABLE 1.2.9.A JURISDICTIONAL CAPABILITIES									
Jurisdiction	Comprehensive Plan	Building Codes	Participate in NFIP	Subdivision or Land Use Ordinance	Zoning Ordinance	Capital Budget Funds for Mitigation Projects	Public Works Budget for Mitigation projects		
Cabell County	Yes	Yes	Yes*	No	No	No	No		
Lincoln County	Yes	No	Yes*	No	No	No	No		
Logan County	Yes	No	Yes	No	No	Yes	No [†]		
Mason County	Yes	Yes	Yes	No	No	No	No		
Wayne County	Yes	No	Yes	No	No	No	No		
City of Huntington	Yes	Yes	Yes	Yes	Yes	No	No		
* Exceeds the minimum standards of NFIP Requirements [†] No, but willing to consider for future projects									

Administrative and Technical Capability

Administrative capability is described by an adequacy of departmental and personnel resources for the implementation of mitigation-related activities. Technical capability relates to an adequacy of knowledge and technical expertise of local government employees or the ability to contract outside resources for this expertise to effectively execute mitigation activities. Common examples of skill sets and technical personnel for hazard mitigation include planners with knowledge of land development/management practices, engineers or professionals trained in construction practices related to buildings and/or infrastructure (e.g., building inspectors), planners or engineers with an understanding of natural and/or human caused hazards, emergency managers, floodplain managers, land surveyors, scientists familiar with hazards in the community, staff with the education or expertise to assess community vulnerability to hazards, personnel skilled in geographic information systems, resource development staff or grant writers, and fiscal staff to handle complex grant application processes.



Fiscal Capability

The decision and capacity to implement mitigation-related activities is often strongly dependent on the presence of local financial resources. While some mitigation actions are less costly than others, it is important that money is available locally to implement policies and projects. Financial resources are particularly important if communities are trying to take advantage of state or federal mitigation grant funding opportunities that require local-match contributions. Federal programs which may provide financial support for mitigation activities include, but are not limited to:

- Community Development Block Grant (CDBG),
- Disaster Housing Program,
- Emergency Conservation Program,
- Emergency Management Performance Grants (EMPG),
- Emergency Watershed Protection Program,
- Hazard Mitigation Grant Program (HMGP),
- Flood Mitigation Assistance Program,
- Non-Insured Crop Disaster Assistance Program,
- Pre-Disaster Mitigation Program,
- Repetitive Flood Claims Program (RFC),
- Section 108 Loan Guarantee Programs,
- Severe Repetitive Loss (SRL) Program, and
- Weatherization Assistance Program.

Political Capability

One of the most difficult capabilities to evaluate involves the political will of a jurisdiction to enact meaningful policies and projects designed to mitigate hazard events. The adoption of hazard mitigation measures may be seen as an impediment to growth and economic development. In many cases, mitigation may not generate interest among local officials when compared with competing priorities. Therefore, the local political climate must be considered when designing mitigation strategies, as it could be the most difficult hurdle to overcome in accomplishing the adoption or implementation of specific actions.

Self-Assessment

Representing the largest jurisdictions in Region 2, committee members completed a self-assessment for their jurisdictions to serve as representative capabilities within the



region to effectively implement hazard mitigation activities. As part of this process, the Region 2 consultant encouraged members to consider barriers to implementing proposed mitigation strategies in addition to the mechanisms that could enhance or further such strategies. In response to the survey questionnaire, local officials classified each of the capabilities as either "limited," "moderate," or "high." Table 1.2.9.C summarizes the results of the self-assessment survey as a percentage of the eight responses received.

TABLE 1.2.9.B CAPBILITY SELF-ASSSESSMENT							
Capability	Limited	Moderate	High				
Planning & Regulatory	25%	75%	0%				
Administrative & Technical	25%	62.5%	12.5%				
Fiscal	62.5%	37.5%	0%				
Political	25%	37.5%	37.5%				

The 2017 self-assessment also included four questions to gauge community receptiveness to several types of mitigation strategies. Table 1.2.9.C details the results.

TABLE 1.2.9.C SELF-ASSSESSMENT: PROJECT CONSIDERATIONS							
Sample Mitigation Strategy	Very Much Unwilling	Unwilling	Neutral	Willing	Very Willing		
XYZ community guides development away from known hazard areas.	0%	0%	50%	37.5%	12.5%		
XYZ community restricts public investments or capital improvements within hazard areas.	0%	12.5%	50%	25%	12.5%		
XYZ community enforces local development standards (e.g., building codes, floodplain management ordinances, etc.) that go beyond minimum state or federal requirements.	0%	0%	37.5%	50%	12.5%		
XYZ community offers financial incentives (e.g., through property tax credits) to individuals and businesses that employ resilient construction techniques (e.g., voluntarily elevate structures, employ landscape designs that establish buffers, install green infrastructure elements, etc.).	0%	12.5%	62.5%	25%	0%		

1.2.10 Disaster and Emergency Declarations

When a hazard incident occurs in a state, and the capabilities exceed those of the state, after the preliminary damage assessment, the Governor can request that the President declare an emergency or a disaster.

• **Emergency Declarations**: The President can declare an emergency for any occasion or instance when the President determines federal assistance is needed.



Emergency declarations supplement State and local or Indian tribal government efforts in providing emergency services, such as the protection of lives, property, public health, and safety, or to lessen or avert the threat of a catastrophe in any part of the United States. The total amount of assistance provided for in a single emergency may not exceed \$5 million. The President shall report to Congress if this amount is exceeded.

• Major Disaster Declarations: The President can declare a major disaster for any natural event, including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought, or, regardless of cause, fire, flood, or explosion, that the President determines has caused damage of such severity that it is beyond the combined capabilities of state and local governments to respond. A major disaster declaration provides a wide range of federal assistance programs for individuals and public infrastructure, including funds for both emergency and permanent work. Assistance available under a major disaster declaration includes individual, public, and hazard mitigation.

West Virginia is no stranger to emergency and disaster declarations. The majority of the declarations that the state has had are due to severe storms and flooding. The table below outlines the declarations in Region 2 counties alone since 2009.

TABLE 1.2.10.A DISASTER DECLARATIONS IN REGION 2 COUNTIES							
Declaration	Event Type	Incident Dates	<i>Region 2 Counties Affected</i>	Public Assistance*			
DR-4273	Severe Storms, Flooding, Landslides, and Mudslides	June 22, 2016 to June 29, 2016	Lincoln Wayne	\$116,188,107.02			
DR-4236	Severe Storms, Straight- Line Winds, Flooding, Landslides, and Mudslides	July 10, 2015 to July 14, 2015	Lincoln Logan	\$9,113,323.58 \$22.77 per capita (Lincoln) \$15.65 per capita (Logan)			
DR-4221	Severe Storms, Flooding, Landslides, and Mudslides	April 13, 2015 to April 15, 2015	Cabell	\$7,644,017.36 \$35.50 per capita (Cabell)			
DR-4219	Severe Storms, Flooding, Landslides, and Mudslides	April 3, 2015 to April 5, 2015	Cabell Lincoln Logan Mingo Wayne	\$10,325,632.06 \$10.42 per capita (Cabell) \$113.29 per capita (Lincoln) \$19.02 per capita (Logan) \$10.22 per capita (Mingo)			


TABLE 1.2.10.A DISASTER DECLARATIONS IN REGION 2 COUNTIES						
			Region 2			
Declaration	Event Type	Incident Dates	Counties Affected	Public Assistance*		
				\$97.72 per capita (Wayne)		
DR-4210	Severe Winter Storm, Flooding, Landslides, and Mudslides	March 3, 2015 to March 15, 2015	Cabell Lincoln Logan Mingo Wayne	\$32,442,296.53 \$32.87 per capita (Cabell) \$185.66 per capita (Lincoln) \$28.47 per capita (Logan) \$119.70 per capita (Mingo) \$51.05 per capita (Wayne)		
EM-3366	Chemical Spill	January 9, 2014 to January 20, 2014	Cabell Lincoln Logan	\$1,639,099.39 \$0.09 per capita (Cabell) \$1.53 per capita (Lincoln) \$0.05 per capita (Logan)		
DR-4132	Severe Storms and Flooding	June 13, 2013	Mason	\$3,503,873.80		
EM-3358	Hurricane Sandy	October 29, 2012 to November 8, 2012	Cabell Lincoln Logan Mason Mingo Wayne	\$19,645.54		
DR-4071 EM-3345	Severe Storms and Straight-Line Winds	June 29, 2012 to July 8, 2012	Cabell Lincoln Logan Mason Mingo Wayne	 \$11,718,720.76 \$4.06 per capita (Cabell) \$6.82 per capita (Lincoln) \$6.23 per capita (Logan) \$5.87 per capita (Mason) \$7.26 per capita (Mingo) \$4.51 per capita (Wayne) 		
DR-4061	Severe Storms, Flooding, Mudslides, and Landslides	March 15, 2012 to March 31, 2012	Lincoln Logan Mingo	\$4,261,453.3 \$14.67 per capita (Lincoln) \$65.10 per capita (Logan) \$11.47 per capita (Mingo)		
DR-4059	Severe Storms, Tornadoes, Flooding, Mudslides, and Landslides	February 29, 2012 to March 5, 2012	Lincoln Mingo Wayne	\$6,904,030.53 \$10.52 per capita (Lincoln) \$7.45 per capita (Mingo) \$11.06 per capita (Wayne)		
DR-1918	Severe Storms, Flooding, Mudslides, and Landslides	June 12, 2010	Logan Mingo	\$5,659,644.93 \$44.71 per capita (Logan) \$25.55 per capita (Mingo)		
DR-1881	Severe Winter Storm and Snowstorm	December 18, 2009 to December 20, 2009	Mingo	\$2,944,843.15 \$14.05 per capita (Mingo)		

* First amount is total PA for declaration – individual county per capita impact outlined below when available.







2.0 RISK ASSESSMENT

§201.6(c)(2)(i) [The risk assessment shall include a] description of the...location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

2017 UPDATE

The risk assessment section of this plan has been expanded to include separate profiles for each hazard identified. Description of general risk and vulnerability is included at the beginning of this section and specific risk and vulnerability information is included in each profile; new hazards were identified and included in this update of the plan. In addition to hazard profiles, this section includes a description of complicating variables, the updated jurisdictional asset inventory as well as the development trends of the region. All the information, tables, and maps herein have been updated with the most up-to-date information available.

SECTION OVERVIEW

A risk assessment analyzes "the potential for damage, loss, or other impacts created by the interaction of hazards with community assets" (FEMA, 2013). The risk assessment section contains information on

- identified hazards that threaten the region in profiles,
- the vulnerability of the area as it relates to its assets,
- a list of community assets for Region 2, and
- an analysis of planned development.



2.1 RISK AND VULNERABILITY

§201.6(c)(2)(i) [The risk assessment shall include a] description of the type...of all natural hazards that can affect the jurisdiction.

(The risk assessment shall include a) description of the...location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

2.1.1 Risk

One of the components of the risk assessment is determining both the probability of a hazard occurring and the potential severity of that hazard event. This process helps identify which hazards pose the most significant risk to Region 2 and its municipalities. The probability and severity of an event are largely based on historical research. The probability of an event happening is determined based on the number of events that have occurred within a certain timeframe. The timeframe is based on information available from different resources and varies depending on the data. Different sources provide data on the number of events throughout a period of years. This data is used to calculate probability.

The probability of occurrence is broken down into five categories as seen in the table

to the right. The chance of occurrence of a hazard within the next year can be quantified based on historical data. This can be expressed in a numerical measure or as a percentage of 0-100 percent. It is calculated by adding the total occurrences of a specific hazard and dividing it by the years of data. For example, if there have been seven

TABLE 2.2.1.A. PROBABILITY							
Value	Description	Definition					
1.1+ (101%)	Frequent	Will occur several times during a year					
.76 – 1.0 (76 – 100%)	Probable	Likely to occur a few times in a year					
.5175 (51 – 75%)	Occasional	Likely to occur sometime during a year					
.2650 (26 – 50%)	Remote	Unlikely to occur in a year					
025 (0 – 25%)	Improbable	So unlikely that it can be assumed it will not occur in a year					

earthquakes in a region between 1950 and 2016 (66 years), the quantitative probability would be calculated by dividing seven events by 66 years. The result would be 0.10 or 10% chance of earthquake, roughly one every ten years. The percentage would then indicate an 'improbable' probability of occurrence, based on the information presented in the table above. This formula for calculating probability will be used when appropriate (i.e. historical data is available).



Number of events		7	7	010	0.5	1.1. 10
Number of years	= Probability	ÛŔ	66	=.010	OR	I time every 10 years

Although some hazards have zero recorded occurrences, the risk still exists. Since non-natural hazards generally do not depend on weather patterns to occur, they are not informed by this type of historical data. Non-natural and technological hazards are nearly impossible to assign a measurement of probability.

The severity of an event is based on three main factors: 1) the historical deaths, injuries, and property/crop damage; 2) the extent of potential secondary and/or cascading impacts of the hazard and; 3) the potentially impacted geographic area as determined through risk mapping. Generally, the severity estimations will be less exact than probability estimations. The four classifications of severity are shown above on the right.

TABLE 2.2.1.B. SEVERITY					
Description	Definition				
Catastrophic	Death or major structural loss				
Critical	Severe injury, severe illness, or marginal structural damage				
Marginal	Minor injury, minor illness, or structural damage				
Negligible	Less than minor injury, illness or structural damage				

The combination of hazard probability and hazard severity results are shown in a table known as the Risk Assessment Matrix. There are many definitions for the level of risk (i.e. low or very low, high or very high); for the purposes of this plan, the determinations are made to follow the *2013 West Virginia Statewide Hazard Mitigation Plan Update* document so as to align this regional plan with the state's plan. The matrix is designed to show the hazards that are of most concern to Region 2 and its municipalities. Each profile details the level of severity and probability, therefore generating the level of risk.

TABLE 2.2.1.C. RISK ASSESSMENT MATRIX PROBABILITY							
		Frequent	Probable	Occasional	Remote	Improbable	
	Catastrophic	High	High	Medium High	Medium	Medium Low	
RIT	Critical	Medium High	Medium High	Medium	Medium Low	Low	
EVE	Marginal	Medium High	Medium	Medium Low	Low	Low	
0,	Negligible	Medium	Medium Low	Medium Low	Low	Low	



2.1.2 Vulnerability

Vulnerability is a "measure of propensity of an object, area, individual, group, community, country, or other entity to incur the consequences of a hazard" (Coppola, 2015, p. 33). There are many aspects that contribute to the vulnerability of a people; these can include income disparity, class, race or ethnicity, gender, age, disability, health, and literacy (Thomas & Phillips, 2013, p. 2, 3). The following is a brief description of how each of the aspects can contribute to vulnerability to disasters.

- **Income Disparity**: Income disparities produce different outcomes from disasters that can cause more human suffering, and requiring more external support.
- **Class**: Lower-income families tend to live in housing that suffers disproportionately during disasters.
- Race or Ethnicity: Warning messages tend to be issued in the dominant language with an expectation that people will take the recommended action immediately.
- **Gender**: Domestic and stranger violence increases after a disaster. Although women tend to be the ones most likely to secure relief aid for the family, they are underrepresented and underused in recovery efforts.
- **Age**: Elderly populations are frequently reluctant to seek assistance before and secure aid after a disaster out of concern that they may lose their independence.
- **Disability**: People with disabilities experience challenges in acquiring transportation to evacuate areas as well as to access appropriate shelters and post-disaster housing.
- **Health**: Disasters can disrupt access to care. Individuals on health services are faced with life threatening circumstances if these services cannot be accessed. Disasters tend to exasperate chronic and mental health conditions.
- Literacy: Many emergency preparedness materials are available in written form.
 Few options exist for people with low reading levels, other languages, or cognitive abilities.

2.1.3 Specific Region 2 Vulnerability

In the counties in Region 2 there are additional issues that make the geographical area vulnerable in one way or another. The following are two major issues that came up in meetings throughout the planning process.

• Lack of or Limited Internet Access: Of all 50 states, West Virginia ranks at 45 of



most connectivity. The table to the right shows broadband coverage in each county in Region 2; it describes the amount of coverage by percentage of access to 25

MBPS (megabytes per second), 100 MBPS, or one gigabit (GIG). On average, 70.5% of the region has access to at least 25 MBPS. However, the more MPBS, the less accessibility the region has, only 66.2% have access to 100+ MPBS and

TABLE 2.1.3.A BROADBAND COVERAGE							
County	25+ MBPS	100+ MPBS	1 GIG				
Cabell	91.4%	91.4%	19.4%				
Lincoln	76.3%	59.2%	9.1%				
Logan	64.1%	64.1%	10.9%				
Mason	47.4%	47.4%	47.2%				
Mingo	65.7%	63.2%	12.7%				
Wayne	78.6%	72.4%	32.6%				

Source: BroadbandNow

only 21.9% to 1 GIG, which is better than the state average of 6.9% access to 1 GIG. For a full list of providers in this area, refer to Section 1.2.7 Regional Infrastructure.

 Power Outages: Extended power outages from severe weather events in the region can cause problems if not corrected. Many critical facilities do not have a backup power generator on site and rely on grid power. Not having generators at critical facilities such as emergency operations centers, fire stations, hospitals and clinics, law enforcement buildings, water and sewer treatment plants and key pump stations, and essential government facilities, makes response to emergencies and sustaining of life services a difficult if not an impossible task.



2.2 HAZARD PROFILES

§201.6(c)(2)(i) [The risk assessment shall include a] description of the...location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

A variety of natural and human-caused profiles were analyzed for inclusion in this plan. The following is a list of the hazards that were analyzed and how they are included or why they are excluded from this plan. Those included are described in the profiles in the following sections.

TABLE 2.2.A HAZARD INCLUSIONS AND EXCLUSIONS						
Hazard	Туре	Status	Description			
Avalanche	Natural	Not Included	Avalanches happen mainly in the western United States and Canada (Keller, Devecchio, 2015 p. 229).			
Acts of Violence	Human-caused	Included	See Section 2.2.5			
Coastal Erosion	Natural	Not Included	The Atlantic East Coast, where coastal erosion is nearest, is approximately 350 miles away and the Pacific West Coast is approximately 2,200 miles away (Google Earth).			
Dam & Floodwall Failure	Natural	Included	See Section 2.2.10			
Drought	Natural	Included	See Section 2.2.12			
Earthquake	Natural	Included	See Section 2.2.11			
Extreme Temperatures	Natural	Included	See Section 2.2.7			
Flood	Natural	Included	See Section 2.2.2			
Hail	Natural	Included	See Section 2.2.3			
Hazardous Materials	Human-caused	Included	See Section 2.2.6			
Hurricanes	Natural	Not Included	The Atlantic East Coast, where hurricane paths are nearest, is approximately 350 miles away and the Pacific West Coast is approximately 2,200 miles away (Google Earth).			
Landslide	Natural	Included	See Section 2.2.8			
Lightning	Natural	Included	See Section 2.2.3			
Opioid Crisis	Human-caused	Included	See Section 2.2.1			
Sea Level Rise	Natural	Not Included	Sea level rise occurs in the ocean; the Atlantic East Coast is approximately 350 miles away and the Pacific West Coast is approximately 2,200 miles away (Google Earth).			
Storm Surge	Natural	Not Included	Storm surges occur in the ocean; the Atlantic East Coast is approximately 350 miles away and the Pacific West Coast is approximately 2,200 miles away (Google Earth).			
Tornado	Natural	Included	See Section 2.2.3			
Tsunamis	Natural	Not Included	The Atlantic East Coast, where tsunamis would be closest, is approximately 350 miles away and the Pacific West Coast is approximately 2,200 miles away (Google Earth).			



TABLE 2.2.A HAZARD INCLUSIONS AND EXCLUSIONS						
Hazard	Туре	Status	Description			
Wind	Natural	Included	See Section 2.2.3			
Winter Weather	Natural	Included	See Section 2.2.4			
Wildfire	Natural	Included	See Section 2.2.9			
Volcanoes	Natural	Not Included	The closest monitored volcano is in Yellowstone National Park in Wyoming (USGS) and is approximately 1,550 miles away (Google Earth).			

The following table contains a summary of all the hazards analyzed in this plan. This is a summary of the analysis conducted in the profile hazards. For detailed information, refer to each hazard profile. Data within the table includes the following information:

- Period of Occurrence: The typical time of the year events of this type can occur.
- Warning Time: The amount of time that passes from when the event is detected to when it occurs.
- Number of Years: Actual number of years data is available based on the 'record years'.
- **Number of Events**: The times an event has occurred within the timeframe of the 'number of years' according to the sources.
- **Probability**: The calculation of occurrence of a certain event based on number of years and number of events.
- Severity: Based on historical impacts, damages, injuries and deaths.
- **Risk**: Very low, low, medium, high, or very high based on the risk assessment matrix.
- Loss Estimate: Amount in dollars of damages to property or cost of repair.



2.2.B HAZARD SNAPSHOTS								
Hazard	Period of Occurrence	Warning Time	Number of Years	Number of Events	Probability	Severity	Risk	Loss Estimate
Opioid Crisis	At any time.	Weeks to months to see trends go up or down.	N/A	N/A	Frequent	Catastrophic	High	\$99 million in West Virginia for health care costs alone.
Flood	At any time, typically following periods of extended precipitation such as rain and snow.	Days to hours, for floods, hours to minutes for flash floods.	57	290	Frequent	Critical	Medium High	\$109.5 million since 1966 per NCEI.
Severe Summer Weather	Typically during the summer months of the year	Days	62	2,367	Frequent	Critical	Medium High	Over \$20 million since 1996 per NCEI.
Severe Winter Weather	Typically during the winter months of the year.	Days	21	49	Frequent	Critical	Medium High	Approximately \$5 million since 1996 per NCEI
Acts of Violence	At any time.	N/A	11	29,906	Frequent	Critical	Medium High	Approximately \$50 per day per prisoner.
Hazmat	At any time.	Minutes if at fixed facilities, little to no warning time during transportation.	18	457	Frequent	Marginal	Medium High	Over \$2 million since 2000 per PHMSA.
Extreme Temperatures	At any time throughout the year when temperatures are 10 degrees F above or below the normal temperatures for 10 of more days.	Days to weeks	21	46	Frequent	Marginal	Medium High	Less than \$1 million since 1996 per NCEI.
Land Movements	At any time, possibly exacerbated by periods of extended precipitation.	Days to hours	N/A	N/A	Probable	Critical	Medium High	N/A
Wildfires	At any time, typically during hotter, dryer months of the year.	Minutes	9	1,747	Frequent	Negligible	Medium	\$7,507 per fire
Dam & Floodwall Failure	At any time, typically after periods of extended precipitation.	Months, weeks, days, hours depending on state of dam or floodwall.	N/A	N/A	Improbable	Critical	Low	\$292,630,000 for replacement cost only



	2.2.B HAZARD SNAPSHOTS							
Hazard	Period of Occurrence	Warning Time	Number of Years	Number of Events	Probability	Severity	Risk	Loss Estimate
Earthquake	At any time.	None.	N/A	N/A	Improbable	Marginal	Low	Average of \$631 million in damages per county per HAZUS
Drought	At any time throughout the year, typically after extended periods of no or very low precipitation.	Weeks to months.	17	1	Improbable	Negligible	Low	Mainly agricultural losses



The following sections contain a profile of each hazard considered by this plan, which provides details on how the hazard impacts the area. Within each profile, research and historical data informs the following elements.

- Hazard Overview: Defines the hazard.
- **Possible Causes**: Describes a variety of causes that can contribute to the occurrence of a hazard.
- Location & Extent: Identifies the physical places in the region that are vulnerable to the hazard and the severity of a hazard in a given location.
- Historical Occurrences: Summarizes significant past events related to the hazard.
- **Committee Input:** Describes instances where committee members voiced concerns about the hazard or talked about previous mitigation efforts.
- **Impact & Vulnerability**: Describes impacts on different topics such as health, the environment, or infrastructure that may result from the hazard as well as specific populations that may be vulnerable.
- Loss & Damages: Outlines the methods used for loss amounts (of deaths, injury and/or property damage depending on information available) and estimates based on historical information and vulnerable populations, structures, and infrastructure.
- **Risk Calculations**: Detailed methods of calculating probability and severity of each hazard.
- **Risk Map**: Graphically shows the geographic locations in the counties that are vulnerable to each hazard when appropriate.

The profiles in the following section are organized by most frequent and catastrophic to most improbable and negligible in severity.



2.2.1 OPIOID CRISIS



"Opioids are a class of drugs that include the illegal drug heroin, synthetic opioids such as fentanyl, and pain relievers available legally by prescription, such as oxycodone hydrocodone, codeine, morphine, and many others".

- National Institute on Drug Abuse

HAZARD OVERVIEW

In the United States, what is commonly referred to as the 'opioid epidemic', not for being a spreadable or infectious disease, but by acting like one, has grown to alarming proportions. In 2015 alone, 12.5 million people misused prescription opioids. Opioids are drugs that are primarily used for pain relief; they include both legal and illegal substances. Legal, prescribed opioids include oxycodone, hydrocodone, and morphine. Illegal drugs include substances such as heroin and fentanyl. According to the Department of Health and Human Services, 2.1 million people misused prescription opioids for the first time, over 33K people died from overdosing on opioids; over 15K deaths were attributed to overdosing on commonly prescribed opioids. Around 828K people used heroin, 135K for the first time, and around 20K deaths were attributed to overdoses of synthetic opioids or heroin (DHHS, 2017).

The Centers for Disease Control and Prevention conduct studies on prescribing rates. Some of the findings include the following.

- After a steady increase in the overall national opioid prescribing rate from 2006, the total number of prescriptions dispensed peaked in 2012 at more than 255 million and a prescribing rate of 81.3 prescriptions per 100 persons.
- The overall national opioid prescribing rate declined from 2012 to 2016, and in 2016, the prescribing rate had fallen to the lowest it had been in more than 10 years at 66.5 prescriptions per 100 persons (over 214 million total opioid prescriptions).
- However, in 2016, prescribing rates continue to remain very high in areas across the country.
 - In about a quarter of U.S. counties, enough opioid prescriptions were dispensed for every person to have one.
 - While the overall opioid prescribing rate in 2016 was 66.5 prescriptions per 100



people, some counties had rates that were seven times higher than that.

• Prescribing rates for opioids vary widely across different states and counties. Emerging hotspot areas are identified by the darker colors on the maps.

Like many of the Eastern states, West Virginia sees problems with marijuana cultivation and consumption and abuse of pharmaceutical prescription drugs such as oxycodone, hydrocodone, methadone and Xanax. Other types of drugs include cocaine in both its powder and crack cocaine forms, and heroin. Very often, inner cities suffer from crack cocaine. In West Virginia, rural areas are the hardest hit by both crack use and the violence that accompanies it. Most heroin use is seen in the northern and central part of the state (Narconon, n.d.).

In general, there are a few different ways to acquire prescription drugs. According to the CDC, the sources, outlined from highest to lowest, are as follows:

- Given by a friend or relative for free
- Prescribed by a physician
- Bought from a friend or relative
- Bought from a drug dealer or stranger
- Stolen from a friend or relative
- Other

What this information indicates, is that the problem of consumption of prescription drugs is in fact not caused by purchasing drugs from strangers, but from acquiring them from addicts' own families and friends.

POSSIBLE CAUSES

There are a number of possible reasons why the population has increased their use of opioids. One simple explanation may be that it is easier to get high that it is to get help (Lopez, 2017). This is the culmination of various broken or dysfunctional systems in our society today. The following is a brief description of some of the reasons German Lopez identifies in his article *The opioid epidemic, explained* about why there has been an increase in the use of opioids in the U.S.

• Pharmaceutical companies market their drugs as safe and effective and spend large amounts of money on lobbyists in Washington.



- Doctors are pressured to treat pain more seriously and treat patients rapidly, often times resulting in overprescribing drugs, done with incentives from drug companies.
- Patients with chronic pain issues likely could benefit from alternative, non-opioid treatments but rarely do so due to high costs of or no coverage by health insurance.
- Losing access to legally prescribed painkillers, over time, contributed to the increase in use of illegal drugs such as heroin and fentanyl. A study by JAMA Psychiatry in 2014 found that 75% of heroin users in treatment started with painkillers, while the Centers for Disease Control (CDC) found in 2015 that people who are addicted to painkillers are 40 times more likely to be addicted to heroin.
- As the demand for painkillers increased, so did the demand for heroin; this allowed for people that were not addicted to painkillers before to have easier access.
 Painkillers at the same time have become less accessible due to the crack down on excessive prescriptions.
- Heroin is stronger (more addictive) than painkillers and fentanyl is stronger than heroin.

Doctors have reported that the composition of patients in addiction programs switched from 90% alcoholism in the 1990s to between 90% and 95% prescription painkiller addiction by 2002 (Jacobs, 2016) showing a social shift from addiction to alcohol to stronger substances like drugs.

Another explanation for the problem is a social and economic one. Many areas of the U.S., both rural and urban, find that unemployment, poverty and crime go hand in hand. Methamphetamine manufacturing in the home, garage, shack or even a moving car may increase in an area that has recently lost jobs and incomes. Meth is so easy to make, if one can acquire the materials necessary, some of which are illegal, that it can be a hard temptation to resist.

In addition to poverty and unemployment, West Virginia also sees high levels of adult illiteracy, broken families, teenage pregnancy and public corruption. These conditions plus a long-established tradition of illegal alcohol production create a tolerant atmosphere for illegal drug activities among some citizens (Narconon, n.d.). Low education levels, high rates of unemployment and job-related injuries are closely linked to abuse of alcohol, illicit drugs and prescription medications (Jacobs, 2016).

Recently, new regulations on mining methods have restricted the number of new



mines that can be opened. Thus more jobs and income to local communities are restricted or lost. Not surprisingly, the pattern of coal mines in West Virginia roughly matches the location of the state's High Intensity Drug Trafficking Areas (HIDTA) (Narconon, n.d.).

HIDTA is a drug enforcement program from the U.S. Office of National Drug Control Policy. There are several areas of geographical concentration; West Virginia falls under the Appalachia HIDTA along with Kentucky, Tennessee, and Virginia.

The 2017 Appalachia HIDTA map is shown below; the red counties correspond to those in West Virginia. In 2017, all counties in Region 2 except Mason County are considered to be HIDTAs; they mostly concentrate to the southwestern part of the state, northern panhandle and select counties along the I-79 corridor. The planning area is identified in the circle.



LOCATION & EXTENT

The opioid epidemic is one that has, in some way, reached into the lives of nearly



every person in the U.S. This "disease" does not have a preference for age, class, economic status, or even gender. It is difficult to pinpoint a specific location of this epidemic. However, the CDC maintains data on states' and counties' prescription rates.

From West Virginia, it's easy to take the Interstates to Philadelphia, Baltimore, Pittsburgh or Washington, D.C. to obtain stocks of cocaine and heroin to sell to West Virginians (Narconon, n.d.). In committee meetings, members mentioned direct connections to places as far as Detroit, MI.

HISTORICAL OCCURRENCES

The Centers for Disease Control and Prevention maintain data relating to drug overdose death rates in the United States. In West Virginia, from 2013 to 2014 there was a 10.6% increase in deaths, and from 2014 to 2015, there was a 16.9% increase in deaths. West Virginia also has a high number of opioid prescriptions; between 96 and 143 prescriptions per 100 people – that's more than one per person (CDC, 2017).

On December 15, 2017, the Governor of West Virginia ordered the West Virginia National Guard to provide more resources to assist the counter-narcotics program in Huntington by providing patrol of the city to free up resources for law enforcement. This came after the Huntington Police Department started its 19th homicide investigation this year, averaging more than one per month (Pierson & Zuckerman, 2017).

The County Health Rankings and Roadmaps website keeps track of how healthy a community is with the goal of building awareness about health. The table to the right shows the available data by county since 2014 of overdose deaths by county.

TABLE 2.2.1.A OVERDOSE DEATHS BY COUNTY								
County	2014	2015	2016	2017	Total			
Cabell	167	201	125	177	670			
Lincoln	46	58	22	24	150			
Logan	103	116	57	65	341			
Mason	40	45	26	26	137			
Mingo	68	94	55	50	267			
Wayne	52	73	48	52	225			
Total	476	587	333	394	1,790			

Source: County Health Rankings & Roadmaps

COMMITTEE IMPUT

During committee and public meetings, committee members expressed concern about specific problems in their areas. The following is a summary of problems and what has been done so far to begin to mitigate the hazard.

• Cabell County: The crisis is growing and continues to overwhelm resources. It has caused deaths, first responder burnouts, and crime rates to rise, family disruption



and socio-economic problems. Needle give-away programs and quick response teams have been established.

• Lincoln County: There has been a toll on human, financial, and public assets due to the opioid crisis. Awareness campaigns and educational activities have been implemented. First responders respond to individual cases.

SOCIAL VULNERABILITY

There is very little population in West Virginia that can say that the drug and opioid crisis has not affected them, their friends, families, or someone they know. Addiction knows no economic, social, or educational boundaries.

LOSS & DAMAGES

According to a Matrix Global Advisors report in 2015, the health care cost of the opioid abuse crisis in West Virginia is of over \$99 million, accounting for around 0.4% of the total health care costs in the state, and a per capita health care cost of \$54. These calculations accounted for the population, cost of health care in the state, and the rate of opioid abuse.

The Council of Economic Advisers estimated the cost of the opioid crisis in 2015 to be around \$504 billion which took healthcare bills, criminal justice costs, and lost productivity into consideration (LaMagna, 2017).

- **Hospitals**: The Beth Israel Deaconess Medical Center in Boston studied the average cost of treating an opioid overdose patient in intensive care units. They found that the cost between 2009 and 2015 rose 58%. The average cost was around \$92K per patient.
- **Criminal Justice**: state and local governments have incurred costs of nearly \$8B in criminal justice-related activities. Around 45% of addicts will become repeat offenders within three years from their prison release.
- **Businesses**: Absenteeism and decreased job performance due to drug use has cost companies around \$20 billion.
- **Unseen costs**: Other costs related to drug overdoses that are difficult to quantify include impact on the quality of life, the pain endured by the people affected, loss of tax revenue, etc.



RISK CALCULATION

Several counties in the Region 2 Planning and Development Council consider the opioid crisis to be at the top of their list of hazards for their counties, second only to flooding.

TABLE 2.2.1.B OPIOID CRISIS RISK CALCULATION						
Probability		Severity		Risk		
FREQUENT		CATASTROPHIC		HIGH		
Given that there are well over 300 deaths in the region every year – more than one a day – this hazard is frequent.	+	The severity definition table describes catastrophic as having a death or major structural loss. With the opioid epidemic, there is rarely if ever a structural loss. However, this hazard has claimed several lives.	=	The risk assessment matrix graphs the catastrophic severity and frequent occurrence of this hazard as a high risk to the county.		



2.2.2 FLOOD



Flood is "a general and temporary condition of partial or complete inundation of 2 or more acres of normally dry land area or of 2 or more properties". - FEMA

HAZARD OVERVIEW

Flooding and flash flooding are the top natural hazards that affect Region 2. Flooding is one of the most frequent of the natural hazards faced by communities across the country as well as one of the most costly. West Virginia is no stranger to flooding; in fact, it is the number one natural hazard in the state. The topography of the region is mountainous with many valleys and gorges with rivers and streams, making the region prone to flooding activity. There are several types of flood, each with their own characteristics and related dangers.

- **River Floods** typically develop over a period of days and occur when a river gradually rises and overspills its banks. These floods can be attributed to large amounts of rain or snowmelt both in the region impacted and upstream. Due to their nature of gradually building up, these types of floods will typically have a warning period of a few days.
- Flash Floods are the most common severe weather emergency in the United States according to the National Flood Insurance Program (NFIP) (2016). The NFIP also states that a flash flood is defined as, "a rapid flooding of low-lying areas in less than six hours, which is caused by intense rainfall from a thunderstorm or several thunderstorms" (2016).
- **Dam Failures** are the third type of flooding; this is discussed in more detail in Section 2.2.4 Dam Failure.
- **Nuisance Flooding** is a repetitive type of flooding that doesn't cause much damage, but is an inconvenience because water levels rise and fall quickly. Nuisance flooding is typically localized and caused by old or inadequate infrastructure.



The NFIP is a governmental program administered through FEMA that, "aims to reduce impact on private and public structures... by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations" (FEMA). Each jurisdiction participating in the NFIP has a designated NFIP coordinator, sometimes referred to as the floodplain manager. This individual maintains the jurisdiction's floodplain ordinance and ensures that development is compliant with that ordinance. Each local floodplain manager serves as the point of contact with FEMA regarding floodplain mapping. For more information on how each jurisdiction participates in the NFIP, refer to Appendix 2 Committee Meetings.

The Community Rating System (CRS) is an additional program run by the NFIP to encourage additional community activities that exceed minimum NFIP requirements, with the goal of reducing flood risk. By participating in the CRS, a community can receive discounted flood insurance premiums. As of the latest published list of CRS communities in October of 2016, no counties or jurisdictions in Region 2 are participants.

TABLE 2.2.2.A JURISDICTIONS PARTICIPATING IN NFIP												
lurisdiction	Initial FHBM	Initial FIRM	Current Effective	Pog Emor Data								
JUIISUICIIOII	Identified	Identified	Map Date	Reg-Linei Dale								
Cabell County	04/25/1975	09/30/1987	02/19/2014	09/30/1987								
Barboursville	5/31/1974	06/03/1988	01/19/2017	06/03/1988								
Huntington	05/06/1977	01/17/1990	02/19/2014	08/17/1981								
Milton	05/06/1974	09/30/1987	06/16/2005	09/30/1987								
Lincoln County	07/18/1975	09/18/1987	10/16/2013	09/18/1987								
Hamlin	04/17/1974	09/14/1987	10/16/2013	09/04/1987								
West Hamlin	05/31/1974	09/04/1987	10/16/2013	09/04/1987								
Logan County	N/A	04/07/1972	02/06/2008	04/07/1972								
Chapmanville	02/09/1971	08/27/1971	02/06/2008	08/27/1971								
Logan	02/09/1971	07/16/1971	02/06/2008	07/16/1971								
Man	09/15/1971	09/10/1971	02/02/2008	09/10/1971								
Mitchell Heights	08/17/1971	08/13/1971	02/06/2008	08/13/1971								
West Logan	06/03/1972	06/02/1972	02/06/2008	06/02/1972								
Mason County	04/25/1975	01/02/1980	12/03/2013	01/02/1980								
Hartford	11/22/1974	02/15/1978	12/03/2013	02/15/1978								
Henderson	12/27/1974	05/15/1978	12/03/2013	05/15/1978								
Leon	09/06/1974	08/15/1978	12/03/2013	08/15/1978								
Mason	11/15/1974	02/15/1978	12/03/2013	02/05/1978								
New Haven	11/15/1974	07/03/1978	12/03/2013	07/03/1978								
Point Pleasant	02/07/1975	05/15/1978	12/03/2013	05/15/1978								
Mingo County	12/20/1974	12/02/1980	08/17/2016	12/02/1980								
Delbarton	03/02/1973	03/15/1977	10/02/2012	03/15/1977								
Gilbert	05/31/1974	05/02/1977	10/02/2012	05/02/1977								
Kermit	01/04/1974	03/01/1978	08/17/2016	03/01/1978								
Matewan	N/A	02/03/1970	08/17/2016	02/03/1970								
Williamson	05/13/1974	01/16/1981	08/17/2016	01/16/1981								



TABLE 2.2.2.A JURISDICTIONS PARTICIPATING IN NFIP											
Jurisdiction	Jurisdiction Initial FHBM Initial FIRM Current Effective Reg-Emer										
Wayne County	02/21/1975	09/18/1987	09/02/2016	09/18/1987							
Ceredo	01/03/1975	05/17/1989	09/02/2016	05/17/1989							
Fort Gay	09/13/1974	01/03/1979	09/02/2016	01/03/1979							
Kenova	05/03/1974	05/17/1989	09/02/2016	05/17/1989							
Wayne	01/10/1975	09/30/1987	01/02/2013	09/30/1987							

POSSIBLE CAUSES

According to NOAA, some of the possible causes for flooding include the following.

- **Excessive Rainfall:** This is the most common cause of flooding. Water accumulates quicker than the soil can absorb resulting in flooding.
- **Snowmelt**: It occurs when the major source of water involved is caused by melting snow. Unlike rainfall that can reach the soil almost immediately, the snowpack can store the water for an extended amount of time until temperatures rise above freezing and the snow melts.
- Ice or Debris Jams: Common during the winter and spring along rivers, streams and creeks. As ice or debris moves downstream, it may get caught on any sort of obstruction to the water flow. When this occurs, water can be held back, causing upstream flooding. When the jam finally breaks, flash flooding can occur downstream.
- Dam Breaks or Levee Failure: Dams can overtop, have excessive seepage or have structural failure. For more information on this topic see Section 2.2.10 Dam & Floodwall Failure.

LOCATION & EXTENT

Historically, flooding has occurred along many of the numerous streams, creeks, and rivers that wind through and around the counties of Region 2. Additional flooding (nuisance flooding) can occur due to inadequate storm drain capacity and/or ground saturation.

More specifically, for example, there are places in the City of Huntington that routinely flood after a quick downpour; many of the streets that cross the rail line under the tracks flood and do not allow for traffic to pass. Typically the 10th Street underpass floods first.

Another example includes the roads and homes at the southern part of Wayne County along Route 152 where the route is below the flood level and does not allow traffic to



pass when heavy rains cause flooding, essentially cutting off a neighborhood.

HISTORICAL OCCURRENCES

According to data from NCEI, there have been 156 recorded flash flood events in the counties of Region 2 since 1996 and 93 floods. From 1960 to 1995 there were approximately 42 recorded flooding events according to SHELDUS data. The total events are approximately 290 flooding events in Region 2 in 57 years; roughly 5 events every year. See Appendix 1: Source Data for a complete listing of events from NCEI and SHELDUS.

The following are brief descriptions of select events that took place in Region 2.

Huntington, July, 2017

In Huntington, just half an inch of rainfall in one hour caused localized flash flooding across Cabell County that closed roads and threatened homes as creeks and gutters swelled into gushing rivers and impassable ponds.

A sudden downpour brought the afternoon commute to a halt in Huntington as backwaters clogged the city's major thoroughfares, including 3rd, 4th and 5th avenues in the Highlawn area, Arlington Boulevard off Norway Avenue and the downtown underpasses, all of which are consistently prone to flooding. In Ona, Little Cabell Creek broke its banks and flooded Blue Sulphur Road north of Camp Arrowhead. The creek also closed Little Seven Mile Road in nearby Lesage, disrupting traffic between U.S. 60 and Route 2 (Nash, 2017).

Wayne County, June, 2016

Flash flooding occurred in parts of Wayne County that got into homes and garages, causing tens of thousands of dollars' worth of damage. A 16-mile stretch between Prichard and Fort Gay got up to 2 inches of rain in a short time (Colegrove, 2016).

Lincoln County, September, 2014

Creeks got out of their banks and covered roads in a few parts of the region. One of the areas that was hit was Frances Creek Road in the Harts area of Lincoln County. It had rained steadily from about a half hour. Flash flooding did some serious damage to part of the road, but the creek receded before any major damage was done to any of the homes (Colegrove, 2014).



COMMITTEE INPUT

During committee and public meetings, committee members expressed concern about specific problems in their areas. The following is a summary of problems and what has been done so far to begin to mitigate the hazard.

- **Cabell County**: An area has a repeated flood issues that causes difficulty to access the people who are stranded. The specific problem houses in the area have been identified.
- Lincoln County: There has been some flash flooding in non-compliant development areas. Flash flooding is based on rainfall. The waters carry debris that causes flash flooding and damage to bridges. The county has linked permitting requirements and service applications and improved the county mapping of floods.
- Logan County: There have been several flooding events in the county due to the nature of the topography. Some mitigation projects have been introduced through legislation.
- Mingo County: The creek comes out of its banks and bridges get blocked and/or damaged due to trees and debris. The water cannot drain properly and roads are blocked. The county has notified different agencies such as DOH, Conservation and DEP.
- **Wayne County**: Constant flooding of US Route 152 in the southern part of the county causes roadway closures and isolation of a community. The county has implemented a structure permit process and uses flood maps.
- **City of Huntington**: Flooding along Fourpole Creek affects hundreds of homes and transportation. Life and safety are the primary concerns. The watershed has been delineated, which is part of the problem of flooding along Fourpole Creek. Additionally, there are 17 flood pumping stations that are 75+ years old; parts and equipment are obsolete. Many mechanical and electrical systems/processes are antiquated, parts are not available, and overall the system does not function as efficiently as current technology affords. Identified the technology needed to upgrade the floodwall pump stations.

IMPACT & VULNERABILITY

One of the main concerns with health and floods is that many times floods can cause power outages that affect people who are dependent on power to run life-sustaining



equipment. During a flood, people and first responders run the risk of sustaining injuries related to saving people and property as well as the possibility of drowning. In rare circumstances, floodwater can carry bacteria that can be harmful.

Floods often disrupt many services including power, sewer, water, communications, and road access. Lacking these, it is difficult to continue critical services to the community. Damage to property, facilities, and infrastructure can range from minimal to total loss. The cost of recovery from floods can vary for everyone. Homeowners and businesses can claim insurance benefits if they have them, but may not be able to continue working due to devastation of the community or of their own property.

LOSS & DAMAGES

NCEI provides data on the amounts of deaths, injuries and property damage sustained during hazard events. Table 2.2.2.B shows a summary of these losses since 1996.

The HAZUS-MH program (2010) estimates that approximately 6,903

TABLE	TABLE 2.2.2.B LOSS AND DAMAGES OF FLOODS											
County	County Deaths Injuries Property Damage											
Cabell	3	0	\$9,903,000									
Lincoln	2	0	\$13,821,000									
Logan	4	0	\$28,917,000									
Mason	0	0	\$2,994,000									
Mingo	0	1	\$43,722,000									
Wayne	4	0	\$10,208,000									
Total 13 1 \$109,565,000												

Source: NCEI

buildings would be at least moderately damaged (1-50% damage) by a 100-year flooding event within all occupancy categories. An estimated 3,456 of those buildings would be completely destroyed (substantially damaged). The county with the most buildings damaged would be Cabell, followed by Logan, Mason, Wayne, Mingo, and finally Lincoln Counties. The following tables summarize the HAZUS data for each county.

TAB	TABLE 2.2.2.C EXPECTED BUILDING DAMAGE BY OCCUPANCY – CABELL COUNTY											
Occurrency	1-10		11-20		21	21-30		-40	41-50		Subst	antially
Occupancy	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	0.00
Commercial	4	3.08	32	24.62	16	12.31	7	5.38	8	6.15	63	48.46
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	0.00
Government	0	0.00	3	13.64	0	0.00	0	0.00	0	0.00	19	86.36
Industrial	0	0.00	3	5.08	5	8.47	0	0.00	33	55.93	15	25.42
Religion	0	0.00	8	88.89	0	0.00	0	0.00	0	0.00	1	11.11
Residential	0	0.00	78	1.12	839	12.02	693	9.93	3,281	47.01	2,089	29.93
Total (7,205)		4	1	24	80	60	70)3	3,3	322	2,1	92



TAB	TABLE 2.2.2.D EXPECTED BUILDING DAMAGE BY OCCUPANCY – LINCOLN COUNTY											
Occupancy	1-10		11	1-20	21	21-30		-40	41-50		Subst	antially
Occupancy	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	1	100.0	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	1	100.0	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	4	1.54	50	19.31	26	10.04	106	40.93	73	28.19
Total (261)		0		6	5	0	2	6	1	06	7	3

TAE	TABLE 2.2.2.E EXPECTED BUILDING DAMAGE BY OCCUPANCY – LOGAN COUNTY											
Occupancy	1-10		11	11-20		21-30		-40	41-50		Subst	antially
Occupancy	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	5	83.33	0	0.00	0	0.00	0	0.00	1	16.67
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.0
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	37	2.37	426	27.27	169	10.82	459	29.39	471	30.15
Total (1,569)		0	L	12	42	26	1	69	4	59	47	73

TABLE 2.2.2.F EXPECTED BUILDING DAMAGE BY OCCUPANCY – MASON COUNTY												
Occupancy	1-10		11	11-20		21-30		-40	41-50		Subst	antially
Occupancy	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	2	40.0	0	0.00	0	0.00	2	40.0	1	20.0
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	4	100.0	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	1	0.19	47	9.04	33	6.35	210	10.36	229	44.04
Total (529)		0		3	4	7	3	3	2	16	23	30

TA	TABLE 2.2.2.G EXPECTED BUILDING DAMAGE BY OCCUPANCY – MINGO COUNTY												
Occupancy	1	1-10		11-20		21-30		'-40	41-50		Substantially		
Occupancy	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%	
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
Commercial	0	0.00	1	100.0	0	0.00	0	0.00	0	0.00	0	0.00	
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	
Residential	0	0.00	2	0.58	50	14.14	17	4.90	71	20.46	207	59.65	
Total (348)		0		3	5	50	1	7	7	/1	2	07	



TABLE 2.2.2.H EXPECTED BUILDING DAMAGE BY OCCUPANCY – WAYNE COUNTY												
Occupancy	1-10		11	11-20		21-30		-40	41-50		Subst	antially
Occupancy	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%	Ct.	%
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	3	0.67	29	6.49	15	3.36	119	26.62	281	62.86
Total (447+)		0		3	2	9	1	5	1	19	28	31

	TABLE 2.2.2.I BUILDING DAMAGE TOTALS – ALL COUNTIES											
County	1-10%	11-20%	21-30%	31-40%	41-50%	Substantially						
Cabell	4	124	860	703	3,322	2,192						
Lincoln	0	6	50	26	106	73						
Logan	0	42	426	169	459	473						
Mason	0	3	47	33	216	230						
Mingo	0	3	50	17	71	207						
Wayne	0	3	29	15	119	281						
Total	4	181	1,462	963	4,293	3,456						

As in any community where flooding occurs regularly, here are repetitive losses in the counties of Region 2. The following table summarizes the repetitive loss properties by total number of properties, the amount of losses of those properties, how many properties are insured and the losses per type of occupancy of the buildings. Logan County is the county with most repetitive loss properties, followed by Cabell, Mingo, Wayne, Lincoln, and Mason Counties. This data is provided by WVDHSEM and is intended for planning purposes only.

TAB	LE 2.2.2.J RI	EPETITIVE L	OSS PROPE	RTIES IN RE	GION 2		
Item	Cabell	Lincoln	Logan	Mason	Mingo	Wayne	Totals
Total Number of Properties	63	21	241	12	64	26	427
Total Number of Losses	159	48	664	46	151	66	1,134
# of Insured Properties	37	10	94	8	13	13	175
2-4 Family	0	0	5	1	3	0	9
Condo	1	0	16	1	5	2	25
Non-Residential	8	4	108	4	13	1	138
Other Residential	0	0	4	0	0	0	4
Single Family	54	17	107	6	43	23	250
Unknown	0	0	1	0	0	0	1



RISK CALCULATION

TABLE 2.2.2.K FLOOD RISK CALCULATION				
Probability		Severity		Risk
FREQUENT		CRITICAL		MEDIUM HIGH
Events290 Fears $= 5$ Years57Historically, there have been on average about five flood events in the region each year.	+	The severity of flooding in Region 2 is critical. Even though there has been loss of life in the past, the mitigation actions that the region has implemented in recent years has reduced the severity of damage to each county	=	The risk assessment matrix calculates the risk of flooding based on its probability and severity to be a medium high risk to the region.




































































2.2.3 SEVERE SUMMER WEATHER



The Severe Summer Weather profile includes hail, lightning, thunderstorms, high winds, and tornadoes. These typically occur during the summer months of the year.

HAZARD OVERVIEW

For the purposes of this analysis, severe summer weather will include hail, hurricane, lighting, thunderstorm, tornado, and wind events that typically occur throughout the summer months in all counties in Region 2.

<u>Hail</u>

The National Severe Storms Laboratory (NSSL), a division of NOAA, defines hail as "a form of precipitation that occurs when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere where they freeze into balls of ice" (Severe Weather 101.) Hail can damage aircraft, homes, cars, and can even injure or be deadly to livestock. Obviously, the larger the size of the hail the more potential it has to cause damage or injury. A hot summer afternoon thunderstorm is capable of transforming the landscape from verdant green to icy white with the onset of a hailstorm. The first sign that hail may be arriving is growing whitening among the shafts of rain. Soon a rattling sound is heard as hailstones strike roofs and pavements, and the ground whitens, becoming slippery as hailstones cover grass and roadways. A hailstorm can be the most damaging part of a thunderstorm, inflicting injury to both man and beast, and destroying crops, gardens, and property like a giant pummeling machine.

TABLE 2.2.3.A TORRO HAILSTORM INTENSITY SCALE						
Intensity		Typical Hail Diameter (mm)	Typical Damage	Example Size Description		
H0	Hard Hail	5	No damage.	Pea		
H1 Potentially 5-15 Damaging		5-15	Slight general damage to plants, crops.	Mothball		



TABLE 2.2.3.A TORRO HAILSTORM INTENSITY SCALE					
Intensity		Typical Hail Diameter (mm)	Typical Damage	Example Size Description	
H2	Significant	10-20	Significant damage to fruit, crops, vegetation.	Marble, Grape	
H3	Severe	20-30	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored.	Walnut	
H4	Severe	25-40	Widespread glass damage, vehicle bodywork damage.	Pigeon's egg > squash ball	
H5	Destructive	30-50	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries.	Golf ball > Pullet's egg	
H6	Destructive	40-60	Bodywork of grounded aircraft dented, brick walls pitted.	Hen's egg	
H7	Destructive	50-75	Severe roof damage, risk of serious injuries.	Tennis ball > Cricket ball	
H8	Destructive	60-90	(Severest recorded in the British Isles) Severe damage to aircraft bodywork.	Large orange > Soft ball	
H9	Super Hailstorms	75-100	xtensive structural damage. Risk of severe or even fatal injuries to persons caught in the open. Grapefruit		
H10	Super Hailstorms	>100	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open.		

<u>Lightning</u>

Lightning, high winds, and occasionally tornadoes are associated with thunderstorms. The National Atmospheric and Oceanic Administration defines a thunderstorm as a local storm produced by a cumulonimbus cloud and accompanied by lightning and thunder. The discharge may occur within or between clouds, between the cloud and air, between a cloud and the ground or between the ground and a cloud. Lightning has been known to strike up to 6-10 miles from the storm in an area of clear sky. It is estimated that more than 30,000,000 points on the ground in the continental 48 states are hit by lightning in a single year.

Thunderstorm

Thunderstorms are usually high intensity storms of short duration originating in a warm moist air mass that either is forced to rise by mountainous terrain or by colliding with a cooler dense air mass. The process of convection in the atmosphere brings about the release of moisture from the warm air mass as it rises, cools and condenses. This condensation proceeds until most of the moisture in the air mass has been precipitated. Since the motion of the air is nearly vertical, and attains high velocities, rainfall is intense



and generally concentrated over a small area in a short time frame. Thunderstorms can be 10-15 miles in diameter and normally last 20 to 30 minutes. The National Weather Service considers a thunderstorm to be severe only if it produces wind gusts of 58 mph or higher, large hail (3/4 in. diameter or larger), or tornadoes.

<u>Tornado</u>

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. Normally thunderstorms and associated tornadoes develop in warm, moist air in advance of strong eastward moving cold fronts in late winter and early spring. Tornadoes

can also occur along a "dryline" which separates very warm, moist air to the east from hot, dry air to the west. Another way that tornadoes can be created occurs when warm moist air flows upslope. Under the right temperature and moisture conditions. intense thunderstorms can produce tornadoes in higher terrain. Tornadoes can occur in every state, although the mid-west states have by far the greatest potential for this type of event. Tornadoes are ranked by intensity using the Enhanced Fujita (EF) Scale, replacing the original Fujita Scale devised by Dr. Theodore Fujita at the University of Chicago in 1971. This scale is an update to the original

TABLE 2.2.3.B ENHANCED FUJITA SCALE					
#	3-Second Gust (mph)	Description			
0	65-85	Light Damage. Some damage to chimneys; break branches off trees; push over shallow- rooted trees; damage to sign boards.			
1	86-110	Moderate Damage. Surface peeled off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads.			
2	111-135	Considerable Damage . Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.			
3	163-165	Severe Damage. Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; cars lifted off ground and thrown.			
4	166-200	Devastating Damage . Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.			
5	Over 200	Incredible Damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100- yards; trees debarked; incredible phenomena will occur.			

scale and is listed in Table 31. The EF scale is broken into 6 categories from F-0 to F-5. F-0 relates to a tornado having a wind speed up to 72 miles per hour, while an F-5 tornado would have winds up to 318 mph.



Wind

"Downbursts" cause the high winds in a thunderstorm. Downburst winds result from the sudden descent of cool or cold air toward the ground. As the air hits the ground, it spreads outward, creating high winds. Unlike tornadoes, downburst winds move in a straight line, without rotation.

A wind event is typically not associated with other hazards, such as thunderstorms. Wind events will have little or no rain associated with them and may last considerably longer than other events like thunderstorm wind and tornadoes. The National Centers for Environmental Information (NCEI) records two types of stand-alone wind events: high wind events and strong wind events. (NWS Instruction 10-1605).



A wind storm is a severe weather condition indicated by high winds and with little or no rain. Localized geographical conditions can exacerbate the damages from high winds and cause increases in wind intensity. According to the above map, West Virginia is in Zone III for design wind speed. Wayne, Cabell and Mason Counties are just on the line of Zone IV.

POSSIBLE CAUSES

The types of severe weather described in this profile can be significantly altered by human activities. Some of these activities can be described as the following.

- Urban Heat Island Effect: a local climatic condition in which a metropolitan area may become as much as 22° F warmer than the surrounding countryside.
- **Burning of Fossil Fuels**: gasses emitted from burning of fossil fuels can linger in the atmosphere contributing to climate changes. (Keller, Devecchio, 2015, p 317).
- Climate Change: weather and climate change are closely related to the increase of occurrences in severe weather. For more complete information, refer to section 2.3 Complicating Variables.

LOCATION & EXTENT

Severe summer weather can occur in all counties of Region 2 and cause similar



damages, destruction, or injuries.

HISTORICAL OCCURRENCES

Tornado, March, 2012

On March 2, 2012, tornadic supercells developed in central and eastern Kentucky and tracked into West Virginia. These storms were responsible for two deaths. A deep upper- level trough over the central plains began lifting northeastward into the Ohio River

Valley, with maximum jet speeds of 125mph. At the surface, low pressure centered near Missouri began to deepen and move northeastward toward the southern Great Lakes region. By early afternoon, a warm front was positioned from southern Illinois, across Kentucky, southeastward into the Tennessee River Valley. In response to strong southerly flow, dew points across much of Kentucky began to exceed 60F.



Late in the afternoon, the cold front began moving across central Kentucky as the surface low began to occlude, and the warm front stalled over central West Virginia. A supercell entered the Lawrence County, KY warning area at approximately 6:10pm before dissipating over Lincoln County an hour later at approximately 7:10pm (NOAA, n.d.).

An EF3 tornado had a 53-mile path that day, there were also two EF1 tornadoes in Lincoln County, and one EF2 in Mingo County.

Thunderstorm Wind (Derecho), June, 2012

On the second day of a developing heat wave, under a sunny sky, afternoon temperatures reached record levels. The lowlands saw thermometers reach into the upper 90s and above 100 degrees. For example, both Huntington and Charleston had 103 degrees. Meanwhile, an area of multi-cellular convection had moved out of northern Illinois that morning. It continued to organize and strengthen, as it propagated east and southeast across northern Indiana into western Ohio during the afternoon. As it moved toward



southeast Ohio, it had already formed into a large arch of storms, or bow, with a developing cool pool in its wake.

The temperature contrast between the air ahead of the developing derecho, compared to that in its wake was reaching 30 to 35 degrees. The resultant wind shift in the cool pool resulted in strong moisture convergence on the leading edge of the complex. This in turn, helped drive the storms further southeast, away from the mid and upper level wind support. However, the complex was diving right into that hot air that had obtained large convective available potential energy. The complex streaked across southeast Ohio near the hottest time of the day and plowed into western West Virginia. The outflow, or gust front, had outraced the rain, as it moved through southeast Ohio. That gust front then moved southeast at 60 to 65 mph across West Virginia. The mature derecho caused the strong gusts to be longer in duration than found in most severe thunderstorms. In some cases the strong wind gusts lasted around 10 minutes. Due to the dry ground, dust and debris accompanied the gust front in some areas. The storms and showers that followed the strong wind gusts only provided about a quarter to a half inch of rain. A few areas even had less rain.

Widespread wind gusts of 60 to 80 mph were likely with the leading gust front, before weakening in the southern coal fields of West Virginia. A few favored and exposed locations may have seen gusts around 90 mph. Locations sheltered from the northwest had gusts less than 60 mph. The strongest measured gust was 77 mph from the Charleston airport. The Huntington airport had a gust to 59 mph. A spotter in Mason County reported a gust to 62 mph.

The wind caused numerous trees and large branches to fall in scattered locations throughout most counties. Luckily, there were no direct deaths. There were 3 indirect deaths that followed from the storms. There was only one direct injury. There was structural damage. Corrugated metal and siding were ripped off buildings. Trees fell onto houses or vehicles. Overall though, there was not a lot of physical damage to individual property. The fallen trees and power lines also caused roads to be temporarily blocked. However, the largest impact of the high winds was on the electric power grid. Prolonged power outages occurred as the heat wave continued during the first week of July. The workers restoring the electricity had to take frequent breaks due to the heat and the safety equipment they had to wear. The electric utility companies had regional transmission lines damaged. These had to be repaired in addition to the usual distribution system. One electric company had to replace over 1000 poles, 575 transformers and 172 miles of wire. That total does include a



few counties outside of West Virginia. The lack of electricity in the midst of the heat wave, disrupted the daily routines of most citizens for several days. The word, derecho, was introduced into many everyday conversations. Water and ice were in high demand. Family and retail refrigerated food lost was substantial (NCEI, n.d.).

COMMITTEE INPUT

During committee and public meetings, committee members expressed concern about specific problems in their areas. The following is a summary of problems and what has been done so far to begin to mitigate the hazard.

- **Mingo County**: Wind and high temperatures can cause power outages throughout the county. Trees fall across power lines causing outages and leaving families in dangerous heat conditions without A/C. The problem areas have been located.
- Logan County: Humidity and high temperatures in the summer affect the elderly and children disproportionately. Public outreach campaigns regarding staying safe during extended power outages in cold and hot weather.

IMPACT & VULNERABILITY

Severe summer weather can exacerbate existing illnesses and cause injury and, on rare occasion, death. The cascading effects of severe summer weather such as power and water outages are what most would affect continuity of operations and delivery of services. High wind, tornadoes, hail, and lightning have the potential for damaging trees, residences, and infrastructure alike.

If an event is severe enough, it may cause people to not be able to go to work causing losses for families and businesses. The cost of cleanup activities could be very high after a severe summer event. Weather events are part of what keeps the environment as it is; rain provides life to the flora and fauna. In severe events, the wind may cause erosion and downed trees; lightning may cause fires.

LOSS & DAMAGES

The NCEI database has records that in some instances go back to 1955 but more complete records have been kept since 1995. The SHELDUS database, on the other hand, has more records between the years of 1960 and 1995 than NCEI. However, data is included up to 2016. The following table is a summary of severe summer weather events from both databases that includes the amount of records per event, deaths, injuries and total



property damage for all recorded events. It is possible that some events may be included in both databases.

TABLE 2.2.3.C SEVERE SUMMER WEATHER EVENTS								
	NCEI				SHELDUS			
Event Type	Records	Deaths	Injuries	Property Damage	Records	Deaths	Injuries	Property Damage*
Tornadoes	16	0	4	\$3,216,500	18	0	4	\$3,738,637
Hail	355	0	0	\$2,347,000	83	0	30	\$2,349,464
Heavy Rain	71	4	0	\$482,000	N/A	N/A	N/A	N/A
Wind	659	2	11	\$14,158,000	457	3	37	\$8,744,255
Lightning	10	0	3	\$135,000	67	4	38	\$638,462
Severe Storm	N/A	N/A	N/A	N/A	631	5	9	\$11,405,963
Totals	1,111	6	18	\$20,338,500	1,256	12	118	\$26,876,781

RISK CALCULATION

TABLE 2.2.3.D SEVERE SUMMER WEATHER RISK CALCULATION						
Probabili	ty		Severity		Risk	
FREQUE	T		CRITICAL		MEDIUM HIGH	
Events 2,367 Years 62	=38.1	+	Due to the damages, injuries,	=	The risk assessment matrix	
There are roughly summer events rec year in the entire	38 severe orded every e region.		summer weather, the severity for this hazard is critical.		puts this hazard at high risk to the region.	
















Historical Hurricane T racks

National Oceanic and Atmospheric Administration

Summary of Search

Location: 37.8507,-81.985 Buffer: 120380 Meters (65 Nautical Miles) Search was not refined



Storm Name Date UNNAMED 1901 Sep 21, 1901 to Oct 02, 1901 UNNAMED 1915Sep 21, 1915 to Oct 01, 1915 UNNAMED 1928Aug 07, 1928 to Aug 17, 1928 UNNAMED 1932Oct 07, 1932 to Oct 18, 1932 UNNAMED 1934 Jun 04, 1934 to Jun 21, 1934 UNNAMED 1939Aug 07, 1939 to Aug 19, 1939 UNNAMED 1952Aug 27, 1952 to Aug 28, 1952 Jun 24, 1957 to Jun 29, 1957 **AUDREY 1957 GRACIE 1959** Sep 20, 1959 to Oct 02, 1959 CAMILLE 1969 Aug 14, 1969 to Aug 22, 1969 **ELOISE 1975** Sep 13, 1975 to Sep 24, 1975 FREDERIC 1979Aug 29, 1979 to Sep 15, 1979 HUGO 1989 Sep 10, 1989 to Sep 25, 1989 **BERYL 1994** Aug 14, 1994 to Aug 19, 1994 FRANCES 2004 Aug 25, 2004 to Sep 10, 2004 Aug 15, 2008 to Aug 28, 2008 FAY 2008

2.2.4 SEVERE WINTER WEATHER



"A winter storm occurs when there is significant precipitation and the temperature is low enough that precipitation forms as sleet or snow, or when rain turns to ice."

- FEMA

HAZARD OVERVIEW

Severe winter weather, for the purposes of this analysis, will include the following types of events that typically occur throughout the winter months in all areas of Region 2.

- **Blizzard:** A winter storm which produces the following conditions for three hours or longer: a) sustained winds or frequent gusts 30 knots (35 mph) or greater, and b) falling and/or blowing snow reducing visibility frequently to less than 1/4 mile, on a widespread or localized basis (NCEI).
- Ice Storm: Ice accretion meeting or exceeding locally/regionally defined warning criteria (typical value is 1/4 or 1/2 inch or more), on a widespread or localized basis (NCEI).
- Winter Storms: A winter weather event which has more than one significant hazard (i.e., heavy snow and blowing snow; snow and ice; snow and sleet; sleet and ice; or snow, sleet and ice) and meets or exceeds locally/regionally defined 12 and/or 24 hour warning criteria for at least one of the precipitation elements, on a widespread or localized basis (NCEI).
- Winter Weather: A winter precipitation event that causes a death, injury, or a significant impact to commerce or transportation but does not meet locally/regionally defined warning criteria. A winter weather event could result from one or more winter precipitation types (snow, or blowing/drifting snow, or freezing rain/drizzle), on a widespread or localized basis (NWS Instruction 10-1605).

POSSIBLE CAUSES

The types of severe weather described in this profile can be significantly altered by human activities. Some of these activities can be described as the following.



- Urban Heat Island Effect: a local climatic condition in which a metropolitan area may become as much as 22° F warmer than the surrounding countryside.
- **Burning of Fossil Fuels**: gasses emitted from burning of fossil fuels can linger in the atmosphere contributing to climate changes. (Keller, Devecchio, 2015, p 317).
- Climate Change: weather and climate change are closely related to the increase of occurrences in severe weather. For more complete information, refer to section 2.3 Complicating Variables.

LOCATION & EXTENT

All counties of Region 2 are equally susceptible to severe winter weather events.

HISTORICAL OCCURRENCES

According to NCEI, there have been 49 winter events in Region 2 since 1996. The following is a description from NCEI about some recent winter weather events.

Winter Weather, February, 2015

An arctic front swept through West Virginia during the early afternoon hours of the 18th of February. Snow showers formed ahead of the front. Bands of snow showers lingered into the evening over the central mountains and southern lowland counties as temperatures dropped into the single digits before midnight. Snow accumulations of 2 to 3 inches were common around Huntington on through the southern coal field counties and into the central mountains.

The diminishing winds and a clear sky developed first over southern counties of the state, then moved north during the overnight hours of the 19th into the 20th. With a fresh deep snow pack, temperatures dropped well below zero for dawn on Friday, the 20th. The official temperature records included minus 19 at East Lynn in Wayne County, minus 16 at Huntington. For example, the minus 17 at Huntington was the coldest since the minus 21 degrees back in January 1994.

Two deaths of young adults in the Smokehouse Fork area of Logan County were indirectly related to the cold temperatures. State police listed the cold as a contributing factor.



Heavy Snow, March, 2015

A warm front lifted north through West Virginia on the 3rd or March with a half inch to an inch of rain over the central mountain counties. Less rain fell elsewhere. Late afternoon and evening temperatures rose into the 50s and lower 60s over the lowlands. Winds and dew points also increased.

The rain maximum by early on the 4th was over the southern coal fields including the headwaters of the Guyandotte and Tug Fork Rivers. The Guyandotte River at Man even surged above flood stage early in the morning on the 4th. Small stream flooding, rock and mud slides were common during the day on the 4th as a steady rain fell. The most common problem was roads closures. Several roads were undermined by runoff channels or adjacent swollen streams. Culverts under roads were damaged. Damage to structures was limited. Rain rates were mostly 1 to 2 tenths of an inch per hour. Total rainfall of 1.5 to 2 inches became common by that evening.

A total snow accumulation of 10 to 13 inches was common from northern Wayne County on up the Ohio Valley Counties to Wood, Pleasants, and Tyler Counties. For example, the snowfall at Huntington was 12.8 inches with a measured accumulation of 1 foot. After transitioning from rain to snow, the wet snow accumulated on trees, especially evergreen trees. Prolonged power outages were common.

This was the highest water level in 15 years there. The Tug Fork River crested just under 40 feet at Williamson midday on the 5th. This was the 9th highest crest on record at Williamson. The city water plant was flooded. However, a flood wall protects most of the town. Further down the river, the estimated crest was 45.2 feet at Kermit, more than 6 feet over the 38 foot flood stage. This crest was the highest level at Kermit since the flood back in February of 2003. The Guyandotte crested around 34.6 feet at Branchland during the evening of the 5th. Flood stage is 30 feet. This Lincoln County crest was also the highest since the flood back February of 2003. The crest on the Big Coal River at Ashford was 23.6 feet on the 5th. Bank full is around 17 feet. The Coal River crested at 28.45 feet late in the afternoon on the 5th in the community of Tornado. These water levels were the highest on the lower Coal River in nearly 8 years. The Lincoln County water plant was damaged along the Big Coal River. Even rivers that did not reach flood stage were high enough to cause minor backwater flooding. One example was the Kanawha River at Charleston. Eventually, even the Ohio River had minor flooding from Point Pleasant on down through Huntington, Ceredo, and Kenova. Point Pleasant crested near 44.5 feet on the 6th. The crest at Huntington was about 1.5 feet above flood stage on Saturday the 7th.



To dampen the crest further down the Ohio River, the Corps of Engineers held back water at their projects on the Guyandotte River and Twelvepole Creek. As a result, the stored water raised the lake elevation about 102 feet in the vertical at R.D. Bailey Lake on the Guyandotte River. This set a new record pool elevation there. Mud and rock slides continued during the snow storm. In Mingo County, one slide near Gilbert pushed a house off its foundation, and jolted a woman out of her bed. Another slide near Nolan in Splint Hollow damaged at least 3 mobile homes.

COMMITTEE INPUT

During committee and public meetings, committee members expressed concern about specific problems in their areas. The following is a summary of problems and what has been done so far to begin to mitigate the hazard.

- Logan County: Low temperatures in the winter affect the elderly and children disproportionately. Public outreach campaigns regarding staying safe during extended power outages in cold and hot weather have been conducted.
- **Mingo County**: Wind and low temperatures can cause power outages throughout the county. Trees fall across power lines causing outages and leaving families in dangerous cold conditions without heat.

IMPACT & VULNERABILITY

Severe winter weather can exacerbate existing illnesses and can cause illness, injury and, on rare occasion, death. The cascading effects of severe winter weather include mostly power outages and road blockages resulting from severe storms; this is what most likely could affect continuity of operations and delivery of services.

Severe winter weather has the potential for damaging trees, infrastructure and buildings. If an event is severe enough, it may cause people not to be able to go to work causing losses for families and businesses. The cost of cleanup activities could be very high after a severe winter event. Winter weather events are part of what keeps the environment as it is; snow provides life to the flora and fauna. In severe events, the wind may cause erosion and heavy ice and snow may cause downed trees.

LOSS & DAMAGES

NCEI reports a total of around \$5 million in damages from winter weather events, although the number may be lower than actual damages caused since 1996. The SHELDUS



database maintains 179 records of winter weather events between 1960 and 2016 with a total cost of damages of around \$11 million.

RISK CALCULATION

TABLE 2.2.4.A SEVERE WINTER WEATHER RISK CALCULATION							
Probability		Severity		Risk			
FREQUENT		CRITICAL		MEDIUM HIGH			
Events49Years21Based on the NCEI databasthere have been approximattwo winter weather events	+ ly er	Due to extended power outages affecting life- sustaining equipment, the severity of this hazard is critical.	=	The risk assessment matrix determines this hazard to be medium high in the region.			

















2.2.5 ACTS OF VIOLENCE



"Violence is a social and health problem for all who experience and witness it. Violence takes many forms; including family, peer group, sexual, community, or media violence, abuse of power, and hate and speech crimes".

- Humanillnesses.com

HAZARD OVERVIEW

With the increase in violence countrywide, it is necessary to analyze the increasing trend of acts of violence Region 2 has recently seen. For the purposes of this analysis, acts of violence are considered to be routine law enforcement activities, robbery, homicides, kidnapping, sexual assault, or domestic disputes.

POSSIBLE CAUSES

In general, many of the committee members have attributed the increase in violent crimes to the opioid or drug crisis in the area.

LOCATION & EXTENT

Acts of violence can occur in any location and affect a variety of people. However, there may be locations that are more prone to crimes than others. In Huntington, for

example. there are pockets of places where neighborhood the is considered safer. The map below illustrates these areas; areas in red are considered less safe. According to an article in 2015, the City of Huntington is the most dangerous place to live in West Virginia (K., 2015).



ALE DO

HISTORICAL OCCURRENCES

As the graph shows, the overall crime rate in West Virginia spiked in the early 1980s and then maintained a relative stable rate. In recent years the crime rate has tended downwards.



The West Virginia State Police keep records of crimes and produce annual reports for the state by county. In the graph below, the State Police detachments' data in each county in Region 2 is shown from 2004 to 2014. Logan County crimes have decreased the most over the ten reported years. Mason County has remained steady and is the county with lowest amount of crimes. All the other counties (Cabell, Lincoln, Mingo, and Wayne) have fluctuated up and down over the ten reporting years.





Because the City of Huntington is the most densely populated territory in the region, it was chosen as a representative of the region; data from the Huntington Police Department and Marshall University Police is shown below. Reports are only available up to 2014. The HPD did not report crime numbers for 2014. Overall, the data suggests a tendency of crime has reduced by almost half.

TABLE 2.2.5.A VIOLENT AND NON-VIOLENT CRIMES IN HUNTINGTON												
	Year	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
Huntington Police Department												
Violent Crimes		0	417	871	975	975	866	968	1,010	1,139	1,120	1,157
Non-Violent Crimes		0	2,553	3,841	3,993	3,986	3,413	4,555	4,819	5,324	5,286	5,112
	Subtotal	0	2,970	4,712	4,968	4,961	4,279	5,523	5,829	6,463	6,406	6,269
Marshall University Police												
Violent Crimes		12	16	21	23	22	16	19	23	21	25	4
Non-Violent Crimes		51	48	148	158	158	133	163	135	147	172	141
	Subtotal	63	64	169	181	180	149	182	158	168	197	145
	Total	63	3,034	4,881	5,149	5,141	4,428	5,705	5,987	6,631	6,603	6,414

Source: Crimes in West Virginia annual reports

Because there is limited data for the past three years, it is still difficult to accurately describe if crimes have increased, decreased, or remained similar to past years. However, the committee's perception of crime activities, especially as they relate to drug violence, is that the crime has increased.

COMMITTEE INPUT

During committee and public meetings, committee members expressed concern about specific problems in their areas. The following is a summary of problems and what has been done so far to begin to mitigate the hazard.

- Cabell County: The local drug crisis has caused an increase in crimes, specifically, shootings, robberies, and home invasions. Needle exchange programs have been implemented.
- Mingo County: The increase in violence has affected the county but residents still don't think increased violence is a problem. The Mingo Board of Education has each school prepare plans to address violence.

IMPACTS & VULNERABILITY

The obvious impacts of acts of violence include injury, death, damage or destruction of property. However, there may be some deeper, more difficult underlying effects to deal



with when exposed to violence. For example, "adolescents who are exposed to violence during childhood are at an increased risk for developing posttraumatic stress (PTS) symptoms... [which] may also have negative effects on school functioning. Adolescent violence exposure and victimization, in the community and home, are a major public health concern in the United States. Adolescents living in urban communities, marked by poverty, crime, and drug-related activities, are often at increased risk for violence exposure and victimization, in cluding homicides, assaults, and physical altercations" (McGill et al, 2014).

LOSS & DAMAGES

According to the aforementioned West Virginia State Police reports, there have been around 44,000 non-violent crimes (larceny, burglary, destruction, damage or vandalism of property, motor vehicle theft, and shoplifting) in Huntington between 2004 and 2014. It is nearly impossible to estimate the amount of damages related to those crimes.

"Crime generates substantial costs to society at individual, community, and national levels. In the United States, more than 23 million criminal offenses were committed in 2007, resulting in approximately \$15 billion in economic losses to the victims and \$179 billion in government expenditures on police protection, judicial and legal activities, and corrections" (McCollister, French, & Fang, 2010).

One way to see the cost of increased violence is to look to the judicial system, specifically, the cost of operating regional jails. For example, Cabell County's bill for the regional jail is approximately \$2.8 million dollars – a \$48.25 per day per prisoner fee. Lincoln County owes around \$680,000. Lincoln and Cabell counties both feed into the Western Regional Jail, along with Wayne and Mason, which do not have jail bills more than 90 days past due (Mendez, 2017). Logan and Mingo Counties feed into the Southwestern Regional Jail.



RISK CALCULATION

TABLE 2.2.5.B ACTS OF VIOLENCE RISK CALCULATION							
Probability		Severity		Risk			
FREQUENT		CRITICAL		MEDIUM HIGH			
Events29,906Years11From the data provided by StateDation	+	The amount of budget that the counties have to set aside for jail bills alone is quite high.	=	The frequent occurrence and critical severity put this			
approximately 30,000 offenses in Region 2 over the span of 11 years. This includes both violent and non-violent crimes.		although persons can also be affected by sustaining injuries or death.		hazard at a medium high risk to the counties of Region 2.			

















2.2.6 HAZMAT



"A hazardous material is any item or agent (biological, chemical, radiological, and/or physical), which has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors".

- Institute of Hazardous Materials Management

HAZARD OVERVIEW

A hazardous material may be defined as a substance or material, which, because of its chemical, physical or biological nature, poses a threat to life, health, or property if released from a confined setting. A release may occur by spilling, leaking, emitting toxic vapors, or any other process that enables the material to escape its container, enter the environment, and create a potential hazard. Several common hazardous materials include those that are explosive, flammable or combustible, poisonous or radioactive. Related combustible hazardous materials include oxidizers and reactive materials, while toxins produced by etiological (biological) agents are types of poison that can cause disease.

A hazmat release while in transit is of great concern to the U. S. Department of Transportation. While most hazardous materials are stored and used at fixed sites, these materials are usually produced elsewhere and shipped to the fixed facility by rail car, truck, or onboard ships or barges. Signs identify these vehicles or placards denoting the hazard, however, the possibility of release is present at any time. Hazardous materials are constantly being moved in West Virginia on interstate highways, the rail system and on shipping lanes in the Ohio River.

There are two major agencies that collect data as they relate to hazardous materials incidents the Pipeline and Hazardous Materials Safety Administration (PHMSA) governed by the U.S. Department of Transportation (DOT), and the National Response Center (NRC), governed by the U.S. Coast Guard (USCG).

POSSIBLE CAUSES

According to data from PHMSA and the NRC, the causes of the incidents include the following since 2000 in Region 2 counties:

• Other / Unknown: 222



- Equipment Failure: 139
- Operator Error: 60
- Dumping: 19
- Natural Phenomenon: 7
- Derailment: 6
- Sinking Vessel: 4

LOCATION & EXTENT

Hazardous materials spills, leaks, or accidents can occur at any location in all counties of Region 2. More specifically, they are more likely to happen on transportation pathways such as river, road, and railways, and at facilities that routinely handle hazardous materials such as gas stations, chemical companies, and other Tier II reporting facilities.

The extent of the damage from hazmat can be localized to just a cleanup on the road, or widespread, to include hazardous materials reaching source water via storm drains, and the river.

According to data from the NRC and PHMSA, there are several places where hazmat incidents can occur. The following are the locations described by the data:

- Rail: 176
- Fixed Facilities: 106
- Highway: 57
- Unknown Waterway Sheen: 54
- Vessel: 25
- Storage Tanks: 18
- Air: 14

HISTORICAL OCCURRENCES

Historically, there have been hazmat incidents in all Region 2 counties. The following summarizes data from NRC and PHMSA as to the county where incidents have occurred.

- Cabell County: 135
- Lincoln County: 10
- Logan County: 33
- Mason County: 52
- Mingo County: 117



• Wayne County: 110

Between both agencies there have been a total of 457 incidents (PHMSA: 55, and NRC: 402) reported from 2000 through the end of 2017. Some of the more costly events recorded by PHMSA are described below.

March, 2000

On March 8, 2000 a truck driver offloaded gasoline into an underground storage tank (UST) in Logan West Virginia. A release of approximately 60 gallons of gasoline occurred when the hose was unhooked from the UST after an apparent overfill. A local contractor was asked to respond. They arrived and cleaned absorbents oil dry and a small amount of soil along the edge of the parking lot. An unknown amount of gasoline reached a storm drain and eventually the city waste water treatment plant. Enviro pro assisted the plant operator with clean up and removal of the gasoline that made it to the plant. Damage amounted to around \$13,296.

March, 2003

The driver was turning onto a mine road as he negotiated the turn his right back trailer wheels dropped into a ditch and his trailer overturned. The driver reported the incident to the office and the emergency response team went to the scene. The release was contained. A contractor was hired to clean up the spill dispose of the contaminated materials. State and federal agencies were notified of the incident. Damage amounted to around \$27,599.

October, 2004

A rail tank car was loaded in north Birmingham, AL. The company did not check the internal bottom outlet valve for tool tightness as required under 49 CFR 173.31 (d) (l) (iv) leaving it in the open position. The outer redundancy valve was closed. The car was then shipped to a chemical company site in Huntington. Operators attempted to unload the rail tank car at the chemical company. Ultimately approximately 18,500 gallons of coal tar light oil was released through this bottom valve. Federal state and local responders and agencies were involved in the response from the inception. Damages amounted to approximately \$1,959,000.



COMMITTEE INPUT

During committee and public meetings, committee members expressed concern about specific problems in their areas. The following is a summary of problems and what has been done so far to begin to mitigate the hazard.

- **Cabell County**: With the transport routes in Cabell County (rail, river, road), the possibility of an incident is ever present. Incidents with significant release will tax first responders and equipment and personnel resources are very limited. Identified and equipped several shelters. The LEPC has sponsored a tabletop exercise and functional exercise every year.
- Mason County: There has been an increase of transport of hazardous materials by rail, road, and river. Road Commodity Flow Studies have been conducted and Tier II reporting facilities have been identified.
- **Wayne County**: Uncontrolled release of hazardous materials can threaten life and loss of property. Some training has been provided to first responders on chemical and radiological response.

IMPACT & VULNERABILITY

Due to the wide variety of substances that are used, transported and stored in the area, it is difficult to assign an overall impact of these substances to public health, the environment, the economy and the infrastructure. There are some spills that cause minor if any damage to the area. For example, spilling a few gallons of gasoline on concrete during transfer causes minimal economic impact; rarely does the spilled substance cause any environmental impacts. This is not to say that all spills are minor, some can be very harmful to human health and the environment and costs thousands, if not millions of dollars to clean up.

Spills into waterways and those that reach the groundwater are of particular concern due to the threat they impose to drinking water and subsequently public health, the environment, and fauna in the area.

Additionally, transportation-based hazard incidents have the potential to result in cascading impacts. For example, a rail-based incident could isolate the community of Henderson in Mason County as well as several other communities in the region. Officials from such operators as CSX Transportation concur. In a recent interview, the company's hazmat manager out of Pittsburgh noted that a significant problem associated with rail incidents, particularly those involving hazardous materials, is that a stopped train can block



several roadway intersections, essentially cutting some areas off. These blocks not only hinder evacuation from those areas, but also emergency services access to those areas.

LOSS & DAMAGES

The NRC does not report losses or damages in their data. PHMSA reports a total of \$2,102,455 relating to hazmat incidents since 2000. This may only contemplate the costs of cleanup activities; however, there may be hidden costs that make an incident more costly, for example, health costs, environmental costs, etc.

RISK CALCULATION

TABLE 2.2.6.A HAZMAT RISK CALCULATION								
Probability		Severity		Risk				
FREQUENT		MARGINAL		MEDIUM HIGH				
Events 457 Years 18 = 25.3	+	Because there have been few	=	The risk assessment matrix				
On average, 25 hazmat incidents occur in Region 2 every year in a variety of locations.		hazmat incidents according to the data, this hazard is of marginal severity.		determines that this hazard is of medium high risk to the region.				
















2.2.7 EXTREME TEMPERATURES



"Heat kills by pushing the human body beyond its limits... Cold waves and extreme cold can immobilize an entire region". - International Federation of Red Cross and Red **Crescent Societies**

HAZARD OVERVIEW

Extreme temperatures, for the purpose of this profile will include both hot and cold temperature extremes.

<u>Heat</u>

Temperatures vary widely over the course of a year, but each season has average temperature ranges associated with them. Summer and winter have, generally, the highest and lowest range of temperatures, respectively. When the temperature is consistently greater than the normal in summer, meteorologists refer to it as a heat wave, which means, "temperatures of ten or more degrees above the average high temperature persist across the geographic region for several days or weeks" (Haddow, Bullock, & Coppola, 2014, p.51). These conditions can be a contributor to drought conditions when combined with a lack of

rainfall. Excessive heat has a history of being deadly. In the United States "more than 1,500 die from exposure to excessive heat" (Haddow, Bullock. & 2014, p.52). Coppola, These conditions can also have serious impacts on crops, causing below average harvests. Repeated years of extreme temperatures



can easily cause significant economic impacts on agricultural industries.

The National Centers for Environmental Information (NCEI) tracks two types of extreme heat temperatures.



- Heat: A period of heat resulting from the combination of high temperatures (above normal) and relative humidity. A heat event occurs whenever heat index values meet or exceed locally/regionally established advisory thresholds or a directly-related fatality occurs due to the heat event.
- Excessive Heat: Excessive heat results from a combination of high temperatures (well above normal) and high humidity. An excessive heat event occurs when heat index values meet or exceed locally/regionally established excessive heat warning thresholds, on a widespread or localized basis (National Weather Service Instruction 10-1605, 2007).

<u>Cold</u>

While there is no widely accepted definition of extremely cold temperatures, periods of colder than average conditions can cause array an of negative consequences depending on their duration (Haddow, Bullock. & Coppola, 2014, p.51). Extremely cold temperatures are immediately dangerous to both humans and

			9	N	١V	vs	V	Vi	nc	lc	hi	II	C	ha	rt				
									Tem	pera	ture	(°F)							
	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
(4	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
du	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
pr (35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
Wir	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
	55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
	60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98
	Frostbite Times 30 minutes 10 minutes 5 minutes Wind Chill (^{0}F) = 35.74 + 0.6215T - 35.75($^{0.16}$) + 0.4275T($^{0.16}$) Where Ta Air Temperature (51) Verified Careed (mph)																		

livestock by causing frostbite and hypothermia, which can lead to permanent injury and death. The chart on the next page shows how quickly frostbite can occur at different temperatures and wind speeds. In unprotected structures cold temperatures can freeze water pipes causing them to burst upon thawing, leading to significant damage. Cold snaps during typically warmer weather during the growing season can damage and destroy some crops, depending on their sensitivity to temperature.

NCEI tracks two types of extreme cold temperatures.

 Cold/Wind Chill: Period of low temperatures or wind chill temperatures reaching or exceeding locally/regionally defined advisory (typical value is -18° F or colder) conditions, on a widespread or localized basis. There can be situations where advisory criteria are not met, but the combination of seasonably cold temperatures and low wind chill values (roughly 15° F below normal) may result in a fatality.



• Extreme Cold/Wind Chill: A period of extremely low temperatures or wind chill temperatures reaching or exceeding locally/regionally defined warning criteria (typical value around -35° F or colder), on a widespread or localized basis. Normally these conditions should cause significant human and/or economic impact.

To know what range of temperature is considered extreme for the region, it is necessary to know what the average temperatures are throughout any given year. The National Oceanic and Atmospheric Administration (NOAA) can generate reports of monthly "normals" at its different stations. The data chosen for the region is from the Huntington WV Airport station (all station normal in the region are very similar). The following graphic shows average ranges of temperature from 1981 to 2010. Every month has a high, low average and mean temperature in degrees Fahrenheit. Extreme temperatures would be those either 10 degrees above or below the average high or low temperatures.



HUNTINGTON WEATHER STATION MONTHLY NORMALS

POSSIBLE CAUSES

Weather patterns throughout the year naturally cause temperatures to rise and fall in the summer and winter months due to the inclination of the Earth towards the sun. However, the extreme temperatures that have been experienced in the last decade are attributable to climate change. See Section 2.2.3. Hazards and Climate Change.

LOCATION & EXTENT

Extreme temperatures, hot and cold, affect each county in Region 2 equally. Though the temperatures may vary slightly from day to day, the overall average of all the counties'



temperatures and susceptibility to extremes is very similar.

HISTORICAL OCCURRENCES

There have been 26 cold or extreme cold events in Region 2 since 1996, according to NCEI data. In addition, there were 20 heat or extreme heat events since 1996 in Region 2. See Appendix 1: Source Data for detailed information.

IMPACT & VULNERABILITY

The majority of the impacts of extreme temperatures affect the population's health rather than damage buildings. Some of the effects extreme temperatures could have on structures are minor compared to other hazards. Effects on buildings and infrastructure could include broken pipes, cracks in roads or bridges due to expansion and contraction, and power outages. In addition to impacts on health, extreme temperatures can also cause damages to transportation infrastructure, agriculture, energy, and water resources.

Extreme heat can cause a wide range of health problems or even make existing health problems worse. Some of the more mild symptoms include discomfort, skin eruptions and heat fatigue which can lead to heat craps, heat exhaustion and heat stroke. Occasionally some people may require medical attention. Prolonged exposure to extreme heat can even cause death (CDC). Problems arising from prolonged exposure to the cold can include hypothermia, frostbite and non-freezing cold injuries such as chilblains and trench/immersion foot. Sunburn is also possible during extreme cold weather events (Army Public Health Center).

Although extreme temperatures affect everyone in the region, some people may be more vulnerable to their effects. For example, the homeless population could be more at risk simply for being exposed to the elements; children and the elderly population may be more susceptible to changes in temperature as well as the poor if they cannot afford to keep cool during an extreme heat event or to stay warm during an extreme cold event.

Approximately 400 people die each year from exposure to heat, according to the Centers for Disease Control and Prevention (CDC). Our bodies dissipate heat by varying the rate and depth of blood circulation, by losing water through the skin and sweat glands, and as a last resort, by panting, when blood is heated above 98.6°F.

Sweating cools the body through evaporation. However, high relative humidity retards evaporation, robbing the body of its ability to cool itself. When heat gain exceeds the level the body can remove, body temperature begins to rise, and heat-related illnesses and



disorders may develop.

The tables below describe the risks to human health relating to extreme heat and cold temperatures. Every few degrees up or down can have a great impact on health.

	TABLE 2.2.7.A HEAT RISKS
Heat Index	Possible heat disorders for people in higher risk groups
130°F or higher	Heatstroke/sunstroke highly likely with continued exposure.
105-130°F	Sunstroke, heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity.
90-105°F	Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity.
80-90°F	Fatigue possible with prolonged exposure and/or physical activity.

TABLE 2.2.7.B COLD RISKS							
Stage	Core Temperature	Signs and Symptoms					
Mild	99-97°F	Normal, shivering may begin.					
Hypothermia	97-95°F	Cold sensation, goose bumps, unable to perform complex tasks with hands, shivering can be mild to severe, hands numb.					
Moderate	95-93°F Shivering, intense, muscles incoordination becomes apparent, movemen and labored, stumbling pace, mild confusion, may appear alert. Use sobr if unable to walk a 9 meter (30 foot) straight line, the person is hypotherm						
Hypothermia	93-90°F	Violent shivering persists, difficulty speaking, sluggish thinking, amnesia starts to appear, gross muscle movements sluggish, unable to use hands, stumbles frequently, difficulty speaking, signs of depression, withdrawn.					
	90-86°F	Shivering stops, exposed skin blue of puffy, muscle coordination very poor, inability to walk, confusion, incoherent/irrational behavior, but may be able to maintain posture and appearance of awareness					
Severe Hypothermia	86-82°F	Muscle rigidity, semiconscious, stupor, loss of awareness of others, pulse and respiration rate decrease, possible heart fibrillation.					
	82-78°F	Unconscious, a heartbeat and respiration erratic, a pulse may not be obvious.					
	78-75°F	Pulmonary edema, cardiac and respiratory failure, death. Death may occur before this temperature is reached.					

Source: Canadian Centre for Occupational Health and Safety

LOSS & DAMAGES

This region of the country has become accustomed to fluctuations in temperature that range from extreme heat to extreme cold throughout the year. Destruction of property and injury are typically not associated with these types of events; the NCEI reports a loss of \$955,000 for extreme temperature events, all cold related, since 1996. However, damages can be inflicted on properties if pipes freeze and burst.



RISK CALCULATION

TABLE 2.2.7.C EXTREME TEMPERATURE RISK CALCULATION									
Probabil	lity		Severity		Risk				
FREQUE	NT		MARGINAL		MEDIUM HIGH				
Events 46 Years 21	=2.1	+	Minor injuries or illness can result from extreme	=	The risk assessment matrix				
There is a high pro an extreme temper will occur througho year.	bability that rature event ut any given		temperatures. Historically, the damages extreme temperatures have cost are low.		classifies this hazard as medium high based on the probability and severity.				

















2.2.8 LAND MOVEMENTS



"Although the physical cause of many landslides cannot be removed, geologic investigations, good engineering practices, and effective enforcement of land-use management regulations can reduce landslide hazard".

- USGS

HAZARD OVERVIEW

Land movements include pushing, crushing or burying objects in their path and the damming of rivers and waterways (Haddow, Bullock, & Coppola, 2014, p.46.) There are numerous categories of mass movements: landslides, mudflows, rock falls, land subsidence and expansive soils. Because mitigation efforts are similar for these types of hazards, they were grouped under one common profile heading.

- Landslides: Landslides occur when areas of relatively dry rock, soil or debris move uncontrollably down a slope. Landsides may be localized or massive in size and can move at high rates of speed.
- **Mudflows:** Mudflows are water saturated rivers of earth, rock and debris. Mudflows develop when water rapidly accumulates in the material, such as during heavy rainfall or rapid snowmelt. Mudflows can develop and move quickly, giving little to no warning.
- **Rock Falls:** Rock falls occur when rocks or other materials detach from a slope or cliff and descend in a freefall, rolling or bouncing manner. Rock falls can occur naturally, through faults and seismic activity, or as a product of human activity, such as blasting.
- Land Subsidence: Land subsidence is the loss of elevation caused by the removal of support below the surface. These events can range in size from a large regional lowering to severe localized collapses, such as sinkholes. The primary cause of land subsidence is human activity such as mining and the extraction of groundwater or petroleum.
- **Expansive Soils:** Expansive soils are soils or soft rocks that will swell or shrink depending on their moisture content. The swelling and shrinking action can cause



extensive damage to transportation routes, such as highways and rail lines, and structures that are built over these areas.

As seen on the map below, West Virginia has a wide variety of types of soil. The entire state of West Virginia contains many steep slopes that have retaining walls or experience rock falls and road slips. The most prevalent types of soil in Region 2 Counties include the Paleozoic Pennsylvanian (sandstone, limestone, shale, coal) and Paleozoic Transitional Pennsylvanian (sandstone, limestone, clay, shale, coal, gas, oil) in most areas of the region, and Cenozoic Quaternary (sand, gravel, silt, clay) mainly along the rivers.



POSSIBLE CAUSES

Land movements can be secondary effects of heavy rainfall and earthquakes (WHO). Some of the causes attributed to land movements can include:

• intense deforestation and soil erosion,



- construction of human settlement in landslide prone areas,
- roads or communications lines in mountain areas,
- building with weak foundations,
- buried pipelines,
- mining, and
- lack of understanding of landslide hazards, and lack of warning systems.

LOCATION & EXTENT

In the counties of Region 2 alone there are over 5,700 underground and surface coal mines (WVMHS&T, 2017). This is many opportunities for mine cave-ins. Another location for land movements is along roads and highways where falling rocks and landslides can affect the transportation networks.

HISTORICAL OCCURRENCES

Data for land movements is limited. The following are some examples of mining accidents from the West Virginia Miner's Health Safety and Training webpage.

February 23, 2017, Mingo County

A piece of mine roof fell striking a section foreman in a mine. The victim died from complications of his injuries on April 6, 2017.

August 15, 2011, Logan County

The victim, a long wall move crewman, was fatally injured by falling rock while engaged in the removal of long wall mine roof support shields.

April 7, 2006, Mingo County

The victim was operating a locomotive when he was struck by falling support beam in a mine.

April 10, 2002, Wayne County

A 33 year old continuous miner operator was fatally injured in a roof fall accident. This was the third roof fall fatality in West Virginia this year.



August 8, 1998, Logan County

A roof bolter operator was fatally injured when a section of roof fell while he was installing permanent roof support. This was a new mine and had only been in operation for a few weeks.

IMPACT & VULNERABILITY

Although there have not been any instances of large, catastrophic land movements in Region 2, the potential for damage is still present. Generally, land movements cause death, injuries, trauma and suffocation from entrapment. Short and long-term mental health effects have been observed. Depending on the location, these events could cause loss or damage to homes, infrastructure and critical facilities and block whole communities off. There is potential for loss of property value, livestock and crops (WHO).

LOSS & DAMAGES

Due to the limited data available for this type of hazard it is difficult to accurately calculate the losses and damages sustained by land movements.

RISK CALCULATION

TABLE 2.2.8.A LAND MOVEMENTS RISK CALCULATION								
Probability		Severity		Risk				
PROBABLE		CRITICAL		MEDIUM HIGH				
Although there is no concrete data, roads and highways experience slips on a regular basis. Mine cave-ins are less frequent but still occur. Overall land movements are probable in the region.	+	Typically this hazard does not cause much damage to property, deaths or injuries in this area of the country. However, due to mining, there has been loss of life.	=	The risk assessment matrix establishes the risk for this hazard as a medium high.				

















2.2.9 WILDFIRE



"A wildfire is an unplanned, unwanted fire burning in a natural area, such as a forest, grassland, or prairie. As building development expands into these areas, homes and businesses may be situated in or near areas susceptible to wildfires. This is called the wildland urban interface".

- Ready.gov

HAZARD OVERVIEW

In West Virginia, there are two fire seasons: spring and fall. Spring fire season goes from March 1 to May 31 and the fall season is from October 1 to December 31. Wildfires are often thought about as large, out-of-control fires that burn hundreds of acres at a time, injure or kill firefighters, and destroy homes and wildlife. For the purposes of this analysis, the term "wildfire" includes brushfires as well as forest fires. In order for a fire to start there must be oxygen, fuel and heat; if any one of these three components is not present, the fire will not ignite. There are three different types of fires that can be classified (Keller & Devecchio, 2015).

- **Ground:** Creep along slowly just under the ground surface with little flaming and more smoldering combustion.
- **Surface**: Low-intensity surface fires burn grass, shrubs, dead and downed limbs, leaf litter, and other biomass.
- **Crown**: Those in which flaming combustion is carried through the canopies of the trees.

POSSIBLE CAUSES

Nationally, the National Park Service lists several possible causes of wildfires including human-caused and nature-caused. Human-caused fires "result from campfires left unattended, the burning of debris, negligently discarded cigarettes and intentional acts of arson", which account for up to 90% of fires. Lightning or lava causes the remaining 10% of fires (NPS).

This is also true in West Virginia where "in the spring of 2015, 43% of all forest fires were the result of escaped debris fires. Equipment use was the second highest cause of



forest fires in W.Va. causing 29% of all wildfires. Fires set purposely accounted for 13% of forest fires in spring of 2015" (WV Division of Forestry, n.d.).

LOCATION & EXTENT

Areas that are most vulnerable to wildfires include agricultural and forest lands in every county throughout Region 2.

HISTORICAL OCCURRENCES

Since 2008, Wayne County has had the most fires with 412, but Mingo County has had the most burnt acres with 19,986.22. Regionally, on average, there are about 175 fires per year with an average burn rate of 4,660 acres. This data was provided directly by the WV Division of Forestry.

TABLE 2.2.9.A WILDFIRES IN REGION 2 (2008-2017)								
County	Number Fires	Forest Acres	Non Forest Acres	Total Acres				
Cabell	206	708.3	52.7	761				
Lincoln	269	3,885.14	45.9	3,931.04				
Logan	335	10,518.6	564.25	11,082.85				
Mason	152	359.7	120.9	480.6				
Mingo	373	19,508.52	477.7	19,986.22				
Wayne	412	9,498.86	277.75	9,776.61				
Totals	1,747	44,479.12	1,539.2	46,018.32				

Source: WV Division of Forestry

IMPACT & VULNERABILITY

Aside from the obvious effects on humans such as burns and injuries, the smoke from fires is of great concern. "The smoke produced by wildfires can produce effects ranging from airway and eye irritation to death, especially among individuals with conditions that make them more susceptible to inhalational exposures" (Clements, 2009, p.283). Wildfires cause more than just the direct damage to structures, vegetation or air quality; when a fire removes much or all of the vegetation in a watershed, subsequent rains will have much greater erosive potential, which in turn produces large quantities of sediment and plant debris that affect the water quality of streams and lakes (Keller, Devecchio, 2015, p.459).

However, wildfires can also have benefits to the soil; they "tend to leave an accumulation of carbon on the surface in the form of ash and increase the nutrient content of a soil. Under the right conditions, when erosion does not remove the ash from the environment, a nutrient reservoir may form that is beneficial to local plants" (Keller & Devecchio, 2015, p 159).

LOSS & DAMAGES

Monetary damage was not provided in the WV Division of Forestry data, but the



amount of federal firefighting costs is available from the National Fire Information Council (NIFC). Although Region 2 and West Virginia have not seen wildfires like typically seen in other parts of the country, mainly due to different types of climate, there still are instances of wildfires. The NFIC estimates that the cost of suppressing fires by the Forest Service and Department of Interior agencies have averaged around \$285 per acre burned from 2010 to 2016.

In Region 2 there have been around 46,018 acres burnt in the last 11 years; if federal cost data is applied, the total average cost in Region 2 would be around \$13,115,130, or on average, about \$7,507 per fire.

RISK CALCULATION

TABLE 2.2.9.B WILDFIRE RISK CALCULATION									
Probabili	ty	+	Severity		Risk				
FREQUE	NT		NEGLIGIBLE		MEDIUM				
Events 1,747 Years 9	=194.1		Although fires can destroy	=	The risk assessment matrix				
There are on avera 194 wildfires in the e 2 area every	age around entire Region year.		there is time to mitigate loss of life from this hazard.		classifies this hazard as a medium risk to Region 2.				
















2.2.10 DAM & FLOODWALL FAILURE



Dam: a barrier preventing the flow of water or of loose solid material.
Floodwall: a wall (as a levee) built to prevent inundation by high water.
Levee: an embankment for preventing flooding.

HAZARD OVERVIEW

The West Virginia Department of Environmental Protection (WVDEP) defines a dam as "an artificial barrier or obstruction that impounds, or will impound water and must be 25 feet or more in height and impound 15 or more acre-feet of water volume or six feet or more in height and impound 50 or more acre-feet of water volume" (WVDEP, 2009).The WVDEP is in charge of conducting inspections of existing dams and those under construction, and reviewing design plans to ensure that they are constructed, maintained, and operated or removed in a safe manner, as well as responding to emergencies (WVDEP, 2016).

The WVDEP classifies dams into four categories, including the following:

- Class 1 (High Hazard): Dams located where failure may cause loss of human life or major damage to dwellings, commercial or industrial buildings, main railroads, important public utilities, or where a high risk highway may be affected or damaged. All Class 1 - High Hazard dams must have an Emergency Action Plan as required by the West Virginia Department of Environmental Protection (2016).
- Class 2 (Significant Hazard): Dams located where failure may cause minor damage to dwellings, commercial or industrial buildings, important public utilities, main railroads, or cause major damage to unoccupied buildings, or where a low risk highway may be affected or damaged. Loss of human life from a failure of a Class 2 dam is unlikely.
- Class 3 (Low Hazard): Dams located in rural or agricultural areas where failure may cause minor damage to non-residential and normally unoccupied buildings, or rural or agricultural land. Failure of a Class 3 dam would cause only a loss of the dam itself and a loss of property use, such as use of related roads, with little additional damage to adjacent property.



• **Class 4 (Negligible Hazard):** Dams where failure is expected to have no potential for loss of human life, no potential for property damage, and no potential for significant harm to the environment.

Dams are used for a variety of purposes.

- **Flood Control**: Prevent loss of life and property caused by flooding. They impound floodwaters and either release them under control to the river below or sore or divert the water for other uses.
- **Recreation**: Facilities designed for fishing, boating, skiing, camping, picnic areas, and boat launches can all be supported by dams.
- **Navigation:** Provide a stable system of inland river transportation.
- **Mine Tailings**: Allow the mining and processing of coal and other minerals while protecting the environment.

Levees and floodwalls serve the same purpose – to avoid flooding from a body of water in an area. A floodwall is an engineered structure made of reinforced concrete or

reinforced concrete block and varies anywhere from 1 foot to over 20 feet in height. A floodwall can surround a structure or, depending on flood depths, site topography, or even cities (USDHS, 2007). There are currently

TABLE 2.2.10.A LEVEES AND FLOODWALLS IN REGION 2								
Location	River	Туре						
Huntington	Ohio River	Floodwall						
Kenova/Ceredo	Ohio River	Levee & Floodwall						
Williamson	Tug Fork River	Floodwall						
Point Pleasant	Ohio River	Floodwall						
Matewan	Tug Fork River	Floodwall						

several levees and floodwalls in Region, some built as far back as 1947 in response to the 1937 floods.

POSSIBLE CAUSES

Dam failure is often the result of prolonged rainfall or flooding or, during prolonged dry periods, erosion. The primary hazard surrounding dam failure is the swift, unpredictable flooding of those areas immediately downstream. While general inundation areas can be determined, it is often impossible to know exactly how and where water held back by a dam will flow during a rapid failure of the dam.

Generally, there are three types of dam failures: hydraulic, seepage, and structural.

• Hydraulic Failure (Overtopping): Hydraulic failures result from the uncontrolled



flow of water over the dam, around and adjacent to the dam, and the erosive action of water on the dam and its foundation. Earthen dams are particularly vulnerable to hydraulic failure since earth erodes at relatively small velocities.

- Seepage Failure (Piping): All dams exhibit some seepage that must be controlled in velocity and amount. Seepage occurs both through the dam and the foundation. If uncontrolled, seepage can erode material from the foundation of an earthen dam to form a conduit through which water can pass. This passing of water often leads to a complete failure of the structure, known as piping.
- **Structural Failure**: Structural failures involve the rupture of the dam and/or its foundation. This is particularly a hazard for large dams and for dams built of low strength materials such as silts, slag, fly ash, etc. "When trees and woody plants are allowed to grow on earthen dams, they can hinder safety inspections, can interfere with safe operation, or can even cause dam failure" (USDHS, 2005).

Dam failures generally result from a complex interrelationship of several failure modes. Uncontrolled seepage may weaken the soils and lead to a structural failure. Structural failure may shorten the seepage path and lead to a piping failure. Surface erosion may lead to structural or piping failures.

Reasons that floodwalls and levees fail are generally due to poor maintenance practices (allowing vegetation to grow near or through the wall making the structure weak, or part maintenance) and poor design (not designed for a sufficient flood waters or structurally unsound).

LOCATION & EXTENT

According to the National Inventory of Dams, there are a total of 62 dams in Region 2, distributed by county as follows: Cabell, 6, Lincoln, 2, Logan, 16, Mason, 14 Mingo, 15, and Wayne, 9.

TABLE 2.2.10.B LIST OF DAMS IN REGION 2										
Dam Name	Primary Purpose	Туре	River	City	County					
Lake of Eden / Harless Fishing Lake	Recreation	Earth	Goose Run	Barboursville	Cabell					
Culloden Water Supply Dam	Recreation	Earth	Indian Fork	Milton	Cabell					
Trout Lake	Recreation Earth		Tributary Guyandotte River	Barboursville	Cabell					
Melody T Ranch Lake	Recreation	Earth	Tributary Mud River of Guyandotte River	Barboursville	Cabell					



TABLE 2.2.10.B LIST OF DAMS IN REGION 2								
Dam Name	Primary Purpose	Туре	River	City	County			
Hartfield Farm Lake	Recreation	Earth	Guyandotte River	Barboursville	Cabell			
Lakeview Dam / Hash's Fishing Lake	Recreation	Earth	Tributary Tom Creek	Martha	Cabell			
Upper Mud River No 2A	Flood Control	Rockfill, Earth	Mud River	Palermo	Lincoln			
Lee's Fishing Lake	Other	Earth	Mahoney Creek	Hamlin	Lincoln			
Rockhouse Branch #15	Tailings	Other	N/A	N/A	Logan			
Little Oak Branch Dam / Guyan #5 Dam	Tailings	Other	N/A	N/A	Logan			
Pine Creek Cr Dam	Tailings	Other	N/A	N/A	Logan			
Right Fork of Pine Creek #22	Tailings	Other	N/A	N/A	Logan			
Rich Creek Slurry Impoundment	Tailings	Other	N/A	N/A	Logan			
Titanic Hollow Dam	Tailings	Other	N/A	N/A	Logan			
Big Lick Branch Cr Dam	Tailings	Other	N/A	Omar	Logan			
Rock House Branch Slurry	anilieT	Other	NI/Λ	Holden	Logan			
Impoundment	I alliniys				LUyan			
Holden #22 Slurry Impoundment	Tailings	Other	N/A	N/A	Logan			
Little White Oak Slurry Impoundment	Tailings	Other	N/A	Sovereign	Logan			
Elk Creek #10 Slurry Impoundment	Tailings	Other	N/A	N/A	Logan			
Elk Creek #10 Lower Slurry	Tailings	Other	N/A	Emmett	Logan			
Impoundment	·				3-			
EIK Creek # 10 Upper Surry	Tailings	Other	N/A	Emmett	Logan			
Tinsely Branch Slurry Impoundment	Tailings	Other	Tinsely Branch	Dehue	Logan			
Moncolo Cr. Impoundment Dam	Tailings	Other			Logan			
Moncolo Slurry Impoundment	Tailings	Other	N/A	Sharnles	Logan			
	Tallings	Utici			LUyan			
Huffman Dam	Recreation	Other	of West Creek	Letart	Mason			
McClintic Pond #7B Dam	Fish and Wildlife	Earth	Old Town Creek	York	Mason			
Little Broad Run #6 Dam		Other	N/A	N/A	Mason			
Robert C. Rvrd J. & D	Navigation	Concrete	Ohio River	Bladen	Mason			
	D			Point				
McClintic #23 Dam	Recreation	Earth	Old Town Creek	Pleasant	Mason			
R C Byrd On-Site Fish Hatchery Dam	Fish and Wildlife Pond	Earth	N/A	N/A	Mason			
Racine L & D	Navigation	Concrete	Ohio River	Antiquity	Mason			
McClintic Pond #7A Dam	Fish and Wildlife Pond	Earth	Old Town Creek	York	Mason			
McClintic Pond #11	Recreation	Earth	Old Town Creek	Maggie	Mason			
Sporn Unit 5 Flyash Dam	Tailings	Earth	N/A	New Haven	Mason			
Sporn Bottom Ash Dam	Tailings	Other	Ohio River	New Haven	Mason			
AEP Proj. 1301 Ash Pond	Tailings	Earth	Little Broad Run	New Haven	Mason			
Little Broad Run #7 Dam	N/A	Other	N/A	N/A	Mason			
McClintic #16 Dam	Recreation	Earth	Mill Creek	Point Pleasant	Mason			
Marrowbone F W Dam	Water Supply	Other	N/A	N/A	Mingo			
Ragland Slurry Impoundment	Tailings	Other	N/A	Ragland	Mingo			
Sprouse Creek Cr Dam	Tailings	Other	N/A	N/A	Mingo			
Nile Stone Slurry Impoundment	Other	Earth	Conley Fork	Thacker	Mingo			



TABLE 2.2.10.B LIST OF DAMS IN REGION 2								
Dam Name	Primary Purpose	Туре	River	City	County			
Spring Branch (Holden #25) Dam	Tailings	Other	N/A	N/A	Mingo			
Laurel Creek Lake No. 1	Fish and Wildlife Pond	Rockfill, Earth	Laurel Fork	Canterbury	Mingo			
Left Fork Slurry Impoundment	Tailings	Other	N/A	Kermit	Mingo			
Fresh Water Impoundment	Water Supply	Other	N/A	Wharncliffe	Mingo			
Aldrich Branch Slurry Impoundment	Tailings	Other	N/A	Naugatuck	Mingo			
Fresh Water Impoundment	Water Supply	Other	N/A	Naugatuck	Mingo			
Left Fork Kermit Coal Co. Cr Impoundment Dam	Tailings	Other	N/A	N/A	Mingo			
Ben Creek Slurry Impoundment	Tailings	Other	N/A	Wharncliffe	Mingo			
Twelvepole Refuse Impoundment	Tailings	Other	N/A	Dingless	Mingo			
Sprouse Creek Slurry Impoundment	Tailings	Other	N/A	Lobata	Mingo			
Delparton Slurry Impoundment	Other	Earth	Pigeon Creek	Ford	Mingo			
Right Fork - Camp Creek FW Dam	N/A	Other	N/A	N/A	Wayne			
National Steel - Ohio River Site	Tailings	Rockfill	Ohio River	Ceredo	Wayne			
Moses Fork Fishing Lake	Recreation	Rockfill, Earth	Right Fork	Dunlow	Wayne			
Beech Fork Lake Dam	Flood Control	Earth	Beech Fork of Twelvepole Creek	Lavalette	Wayne			
Freshwater Dam	Recreation	Earth	Right Fork of Camp Creek	East Lynn	Wayne			
Trace Branch Slurry Impoundment	Tailings	Earth	Right Fork of Camp Creek	East Lynn	Wayne			
Maynard Branch Slurry Impoundment	Tailings	Other	N/A	East Lynn	Wayne			
Fresh Water Dam	Water Supply	Other	N/A	East Lynn	Wayne			
East Lynn Dam	Flood Control	Earth	East Fork of Twelvepole Creek	East Lynn	Wayne			

Source: National Inventory of Dams

HISTORICAL OCCURRENCES

In the state as a whole, there has been one notable dam failure and it occurred in Logan County. The Buffalo Creek Dam failed on February 26, 1972 flooding the valley and killing 118 people.

Coal mining poses many environmental complications and first among them is safe disposal of the byproduct, known as tailings. If the tailings are dumped on hills, they can cause landslides. If placed in valleys, they can block streams and cause flooding. Tailings can be unstable, especially in heavy rain. That day in 1972, three days of rain exacerbated two small dam breaks that had occurred several years earlier. The dam burst, unleashing a 20-foot wall of water that roared into the valley.

About 4,000 people were living in 17 towns and villages in Buffalo Creek Valley at the time. Hundreds of homes and buildings were swept away by the powerful flood. The Buffalo Mining Company, which was responsible for the tailings, was forced to pay \$30



million in damages (History.com, 2009).

COMMITTEE INPUT

During committee and public meetings, committee members expressed concern about specific problems in their areas. The following is a summary of problems and what has been done so far to begin to mitigate the hazard.

- Mason County: FEMA has stated intentions to decertify the Point Pleasant flood wall and levees. This would change the flood map from X to D and flood insurance rates would go up. The issue has been identified and county officials are attempting to work with the Point Pleasant government to address the issue.
- Wayne County: The age of the dams are of concern and are in need of repair. If they fail there would be floods of dams to the Ohio River, in Ceredo, Kenova and areas below. Some planning and education has been conducted to the public who lives below the dam.

IMPACT & VULNERABILITY

Dam failures themselves do not pose a threat to public health; the cascading effects that occur after a failure are more concerning. When a dam fails it causes flooding downstream that can cause death, injury, and illnesses relating to water-borne diseases and standing water. The consequences of flooding from a dam can cause damage to buildings and transportation infrastructure and power outages. As a result of flooding, people might have to evacuate and be displaced from their homes. In a large enough event, this can translate into economic loss for the area due to businesses closing and loss of workforce including the cost of clean-up activities after the event.

Cascading effects from dam failure can include the following.

- Flooding
- Power outages
- Damage to infrastructure and buildings
- Economic loss to businesses and loss of income
- Population displacement as a result of evacuation or damage to homes

LOSS & DAMAGES

The direct cost of dam failure is the replacement cost, typically determined on the



original construction cost. Under certain conditions, only a part of a dam will fail, such as the spillway, gates, penstock, or power plant. However, there are many indirect costs that arise from the failure of a dam such as labor and capital reduction due to flooding, and water shortages (US DOI, 2009).

Because there has only been one dam failure in the region, it is difficult to estimate the amount of damages that dam failure could have in the region. However, the Army Corps of Engineers has done work on the Robert C. Byrd Lock and Dam with a cost of lock replacement being \$244,550,000; dam rehabilitation \$46,700,000, and fish hatchery mitigation \$13,800,000 (US Army Corps of Engineers, n.d.). This ends up being a total of around \$292,630,000 for the entire dam. If it were to fail, it could be estimated that the replacement and damages would cost at least this amount. Every dam and floodwall in all six counties will have a different cost of repair, maintenance, and reconstruction due to the nature of their construction, size, and location.

RISK CALCULATION

TABLE 2.2.10.C DAM AND FLOODWALL FAILURE RISK CALCULATION								
Probability	Severity		Risk					
IMPROBABLE		CRITICAL		LOW				
Although some dams in the area may require maintenance, it is improbable that any one would completely fail – County officials are constantly monitoring the dam conditions.	+	The only dam failure in the region caused many deaths and destruction of 17 towns. However, the maintenance and monitoring efforts of the counties can greatly reduce the impacts of a dam failure.	=	According to the risk assessment matrix, this hazard is considered low.				

















2.2.11 EARTHQUAKE



"Earthquakes may cause household items to become dangerous projectiles; cause buildings to move off foundations or collapse, damage utilities, roads and structures such as bridges and dams, or cause fires and explosions. They may also trigger landslides, avalanches, and tsunamis"

Ready.gov

HAZARD OVERVIEW

An earthquake's sudden release of stored energy may manifest itself by the shaking or displacement of the ground. According to the U.S. Geological Society, based on historical trends, the frequency of an earthquake occurrence inversely relates to its magnitude. There are an estimated 1.3 million earthquakes every year with a magnitude between 2.0 and 2.9

while there is, on average, one magnitude 8.0 or higher earthquake annually.

Earthquakes move or shake the earth in three different directions depending on the plate movements: convergent, divergent, and transform generating primary and secondary waves. There are a few ways to measure an earthquake:

- Richter scale,
- modified Mercalli Scale, and
- peak ground acceleration (PGA).

Developed in 1935, the Richter scale measures the scale and severity of an earthquake. The magnitude of an earthquake can range between 0 and

TAB	LE 2.2.11.A MODIFIED MERCALLI AND MAGNITUDE SCALE COMP	PARISON
	Modified Mercalli Scale	Magnitud
Ι	Felt by few people under especially favorable conditions.	1.5
п	Felt by few persons at rest, especially on upper floors of buildings.	2.0
III	Felt quite noticeably indoors, especially on upper floors of buildings. Many do not recognize it as an earthquake. Standing vehicles may rock slightly. Vibration feels like passing truck.	3.0
IV	During the day feit indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation of a heavy truck striking building; standing vehicles rock noticeably.	3.5
v	Felt by nearly everyone; many awakened. Some dishes and windows broken. Unstable objects overturned.	4.0
VI	Felt by all; many frightened. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	5.0
VII	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by vehicle drivers.	5.5
VIII	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse; damage great in poorly built structures; fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Disturbs	6.0
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations. Underground pipes broken.	6.5 7.0
x	Some well-built wooden structures are destroyed; most masonry and frame structures with foundations destroyed; train rails bent.	7.5
XI	Few, if any, masonry structures remain standing. Bridges destroyed. Underground pipelines taken out of service. Train rails bent greatly.	8.0
XII	Damage total. Waves seen on ground surfaces. Lines of sight and level are distorted. Objects thrown into the air.	8.5



10. The image on the previous page shows the Richter scale and what effects each magnitude can have. The effects of an earthquake can extend far beyond the site of its occurrence.

The modified Mercalli scale measures earthquakes based on their intensity on the surface. This scale, shown to the right, uses roman numerals I through XII to denote detection and damage levels associated with an earthquake.

Peak ground acceleration (PGA) is "the maximum ground acceleration that occurred during earthquake shaking at a location. PGA is equal to the amplitude of the largest absolute acceleration recorded on an accelerogram site during a particular earthquake" (Douglas, 2003).

POSSIBLE CAUSES

The Earth is made up of tectonic plates; the boundary lines where these tectonic plates meet are called faults. Friction along the boundaries or faults causes the rocks to stress and strain. "When the stress of the rocks exceed their strength, that is, their ability to withstand the force, the rock rupture and are permanently displaced along the fault plane" (Keller & Devecchio, 2015) causing earthquakes that reach and affect the infrastructure on the surface.

A common misconception is that hydraulic fracturing, or "fracking" is causing all of the induced earthquakes. In reality, fracking "is directly causing a small percentage of the felt-induced earthquakes observed in the United States...Most induced earthquakes in the United States are a result of the deep disposal of fluids (waste water) related to oil and gas production" (Rubinstein and Mahani, 2015).

LOCATION AND EXTENT

The United States has areas that are prone to earthquakes. The coasts of California, Oregon and Washington are more vulnerable to seismic activity due to the presence of the Ballenas, Brothers, and the San Andreas Faults on the west coast. Also of note is the New Madrid Seismic Zone located in Arkansas, Missouri, and Tennessee. On the east coast, there is the Eastern Tennessee Seismic Zone that stretches from Alabama to Virginia.

According to the West Virginia Geological and Economic Survey (WVGES), there have been a few earthquake epicenters in the Region 2 Counties between 1824 and 2016. The WVGES has one seismic station located close to the geographic center of Region 2, just north of Lincoln County between the cities of Huntington and Charleston. Even though



the earthquakes originated in the state of West Virginia have all been minor (under 4.9), there is still possibility of feeling earthquakes and their effects that originate in further regions. An earthquake that originates as far away as Canada, for example, can still have effects on the local region. For this reason, the possible extent of the damage can be determined to be region wide if an earthquake that is large enough reaches the area because the effects of earthquakes are not localized to one region.



HISTORICAL OCCURRENCES

In and around Region 2, there have been 71 occurrences of earthquakes since 2000 ranging from Magnitude 1.7 to M 4.3. The majority of these have occurred just over the state border in Ohio, Kentucky, and Virginia and to the northeast of Region 2.

TABLE 2.2.11.B EARTHQUAKES IN AND AROUND REGION 2 SINCE 2000							
Magnitude	Location	Date					
2.4	11km SE of Princeton, West Virginia	October 9, 2017					
3.2	16km N of Pearisburg, Virginia	September 13, 2017					



TABLE 2.2.11.B EARTHQUAKES IN AND AROUND REGION 2 SINCE 2000								
Magnitude	Location	Date						
2	7km ENE of Craigsville, West Virginia	August 13, 2017						
2.3	12km ESE of Buckingham, Virginia	August 3, 2017						
2.7	6km WNW of Montgomery, West Virginia	June 21, 2017						
3.4	1km S of McArthur, Ohio	May 24, 2017						
2.8	6km SSW of Narrows, Virginia	May 12, 2017						
3	15km SW of Woodsfield, Ohio	April 2, 2017						
2.4	11km ENE of Buckingham, Virginia	March 22, 2017						
2	3km NNW of Lesage, West Virginia	January 23, 2017						
1.8	17km SW of Woodsfield, Ohio	December 12, 2016						
2.2	16km SW of Woodsfield, Ohio	December 12, 2016						
2.5	14km SW of Spencer, West Virginia	December 1, 2016						
2.3	9km S of Pikeville, Kentucky	September 22, 2016						
2.3	9km WNW of Mount Gay-Shamrock, West Virginia	August 6, 2016						
3.7	Mine Collapse 11km NNW of Richlands, Virginia	July 18, 2016						
2.6	11km E of Oak Hill, Ohio	March 8, 2016						
2.6	11km E of Buckingham, Virginia	November 4, 2015						
2.6	13km NNE of Sissonville, West Virginia	June 6, 2014						
2.1	West Virginia	April 14, 2014						
3.5	2km ESE of Nelsonville, Ohio	November 20, 2013						
2.2	2km N of Alderson, West Virginia	October 19, 2013						
2.2	10km WNW of Sutton, West Virginia	October 13, 2013						
2.6	13km SW of Glenville, West Virginia	August 16, 2013						
2.8	12km SSW of Glenville, West Virginia	July 30, 2013						
2.7	14km SW of Glenville, West Virginia	July 20, 2013						
2.3	West Virginia	May 29, 2013						
3.4	11km WSW of Sutton, West Virginia	March 31, 2013						
2.5	15km S of Gallipolis, Ohio	March 27, 2013						
2.2	6km E of Cumberland, Virginia	March 16, 2012						
2.6	West Virginia	March 16, 2012						
2.8	19km SW of Sutton, West Virginia	January 10, 2012						
2.6	Ohio	September 4, 2011						
3.1	Ohio	August 31, 2011						
2.8	Ohio	August 31, 2011						
2.7	15km NNE of White Sulphur Springs, West Virginia	August 25, 2011						
2.8	Ohio	October 24, 2010						
2.4	14km N of Chapmanville, West Virginia	September 13, 2010						
2.2	2km ESE of Crab Orchard, West Virginia	August 26, 2010						
2.4	1km SSE of MacArthur, West Virginia	August 26, 2010						
2.5	26km SSW of Buckhannon, West Virginia	August 21, 2010						
2.5	24km S of Weston, West Virginia	August 15, 2010						
2.2	7km WNW of Sutton, West Virginia	July 25, 2010						
2.4	9km W of Sutton, West Virginia	July 24, 2010						
2.4	18km WSW of Sutton, West Virginia	May 8, 2010						
2.6	18km WSW of Sutton, West Virginia	May 7, 2010						
2.5	West Virginia	April 29, 2010						



TABLE 2.2.11.B EARTHQUAKES IN AND AROUND REGION 2 SINCE 2000							
Magnitude	Location	Date					
2.7	12km W of Sutton, West Virginia	April 29, 2010					
2.6	9km WNW of Sutton, West Virginia	April 29, 2010					
3.4	19km WSW of Sutton, West Virginia	April 4, 2010					
2.2	4km ESE of Buckingham, Virginia	December 16, 2009					
2.7	16km E of Amherst, Virginia	November 25, 2009					
2.8	3km W of Pearisburg, Virginia	July 4, 2009					
3	2km NNE of Cave Spring, Virginia	May 16, 2009					
3.3	13km NW of Gallipolis, Ohio	April 24, 2009					
2.4	14km NE of Athens, West Virginia	April 11, 2009					
2.3	13km SSW of Pearisburg, Virginia	January 12, 2009					
2.4	5km SSE of Union, West Virginia	January 29, 2008					
2.6	Rock Burst West Virginia	August 30, 2007					
4.3	West Virginia	November 2, 2006					
2.9	Rock Burst West Virginia	October 31, 2006					
2.6	14km SE of Rainelle, West Virginia	July 11, 2006					
1.7	16km NE of Bland, Virginia	July 2, 2006					
2.2	16km NNE of Blacksburg, Virginia	December 30, 2005					
2	9km NNW of Richlands, Virginia	February 15, 2005					
2.8	12km NNW of Raven, Virginia	February 15, 2005					
2.7	16km NNW of Raven, Virginia	February 8, 2005					
2.8	Ohio	May 6, 2002					
3.2	Virginia	September 22, 2001					
2.5	West Virginia	March 28, 2001					
2.7	Virginia	August 18, 2000					
	Source :USGS						

IMPACTS & VULNERABILITY

Earthquakes can affect people and structures alike, although older structures may be more susceptible to cracks and damage. "With most earthquakes, trauma caused by the collapse of buildings is the cause of most deaths and injuries. However, a surprisingly large number of patients require acute care for non-surgical problems such as acute myocardial infraction, exacerbation of chronic diseases such as diabetes or hypertension, anxiety and other mental health problems, respiratory disease from exposure to dust and asbestos fibers from rubble, and near-drowning because of flooding from broken dams. An earthquake may precipitate a major technologic disaster by damaging or destroying nuclear power stations, hospitals with dangerous biologic products, hydrocarbon storage areas, and hazardous chemical plants. As with most natural disasters, the risk of secondary epidemics is minimal, and only mas vaccination campaigns based on results of epidemiological surveillance are appropriate following earthquakes" (Noji, 1999).



LOSS & DAMAGES

The effects of a potential earthquake striking each county in Region 2 were analyzed using the HAZUS-MH program from the Federal Emergency Management Agency. The scenario depicts a 5.0 earthquake (the lowest possible magnitude to use in the program) located at the county seat of each county.

TABLE: 2.2.11.C CABELL COUNTY EXPECTED BUILDING DAMAGE BY OCCUPANCY (HAZUS)										
	Noi	ne	Slig	ght	Modera	Moderate		ive	Complete	
	Count	%	Count	%	Count	%	Count	%	Count	%
Agriculture	47	0.20	20	0.19	21	0.27	8	0.33	2	0.34
Commercial	781	3.42	430	4.04	572	7.57	283	11.22	88	12.44
Education	29	0.13	15	0.14	21	0.28	10	0.40	3	0.43
Government	30	0.13	15	0.14	22	0.29	11	0.45	4	0.50
Industrial	213	0.93	97	0.91	143	1.89	74	2.95	23	3.25
Other Residential	5,083	22.26	2,201	20.67	1,889	25.03	717	28.43	172	24.39
Religion	99	0.43	51	0.48	49	0.65	22	0.88	6	0.91
Single Family	16,552	72.49	7,815	73.41	4,8.33	64.02	1,396	55.35	406	57.74
TOTAL	22,835		10,646		7,549		2,522		704	

TABLE: 2.2.11.D CABELL COUNTY HAZUS BUILDING-RELATED ECONOMIC LOSS ESTIMATES (MILLIONS OF DOLLARS)									
Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total		
	Wage	0.00	4.39	57.03	1.53	3.44	66.39		
	Capital Related	0.00	1.89	38.17	1.44	0.80	42.29		
Income Losses	Rental	11.76	16.14	19.73	0.82	1.72	50.18		
	Relocation	43.35	11.00	41.14	4.34	12.47	112.31		
	Subtotal	55.11	33.42	156.07	8.13	18.43	271.17		
	Structural	67.70	23.22	47.93	13.30	9.63	161.79		
	Non Structural	231.42	109.54	134.39	44.11	32.17	551.63		
Capital Stock Losses	Content	85.18	30.93	77.39	31.75	18.14	243.38		
	Inventory	0.00	0.00	2.19	4.85	0.09	7.13		
	Subtotal	384.31	163.69	261.90	94.00	60.02	963.92		
TOTAL		439.42	197.12	417.97	102.13	78.45	1,235.09		

TABLE: 2.2.11.E LINCOLN COUNTY EXPECTED BUILDING DAMAGE BY OCCUPANCY (HAZUS)										
	Noi	ne	Slig	nht	Modera	Moderate		ve	Complete	
	Count	%	Count	%	Count	%	Count	%	Count	%
Agriculture	14	0.22	5	0.22	4	0.26	1	0.32	0	0.41
Commercial	106	1.60	38	1.71	39	2.48	16	3.58	4	4.82
Education	7	0.10	2	0.09	2	0.14	1	0.20	0	0.28
Government	14	0.22	5	0.23	6	0.36	2	0.51	1	0.67
Industrial	42	0.63	12	0.55	13	0.81	5	1.13	1	1.51
Other Residential	2,206	33.48	859	38.87	850	54.07	261	57.81	45	48.09
Religion	18	0.27	5	0.23	4	0.24	1	0.30	0	0.37
Single Family	4,183	63.48	1,284	58.11	655	41.65	163	36.15	41	43.86
TOTAL	6,589		2,209		1,573		451		93	



TABLE: 2.2.11.F LINCOLN COUNTY HAZUS BUILDING-RELATED ECONOMIC LOSS ESTIMATES (MILLIONS OF DOLLARS)									
Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total		
	Wage	0.00	0.20	1.68	0.03	0.65	2.55		
	Capital Related	0.00	0.08	1.21	0.02	0.04	1.35		
Income Losses	Rental	1.36	0.43	0.79	0.01	0.10	2.68		
	Relocation	5.02	1.85	1.23	0.06	0.85	9.01		
	Subtotal	6.38	2.56	4.91	0.11	1.64	15.60		
	Structural	7.24	2.13	1.51	0.17	0.83	11.87		
	Non Structural	24.26	6.03	4.21	0.60	2.52	37.62		
Capital Stock Losses	Content	8.91	1.22	2.36	0.37	1.49	14.35		
	Inventory	0.00	0.00	0.07	0.07	0.01	0.15		
	Subtotal	40.40	9.39	8.15	1.22	4.85	64.00		
TOTAL		46.78	11.95	13.05	1.33	6.49	79.60		

TABLE: 2.2.11.G LOGAN CCOUNTY EXPECTED BUILDING DAMAGE BY OCCUPANCY (HAZUS)										
	Noi	ne	Slig	ıht	Modera	ate	Extensi	Ve	Complete	
	Count	%	Count	%	Count	%	Count	%	Count	%
Agriculture	8	0.08	5	0.11	4	0.13	2	0.15	0	0.17
Commercial	198	2.07	106	2.45	124	3.83	54	4.98	15	6.19
Education	10	0.10	5	0.11	6	0.18	2	0.22	1	0.27
Government	18	0.19	9	0.21	12	0.37	5	0.49	1	0.61
Industrial	52	0.55	25	0.57	31	0.95	13	1.22	3	1.44
Other Residential	2,813	29.36	1,411	32.47	1,533	47.17	615	56.40	118	49.54
Religion	25	0.26	11	0.26	10	0.31	4	0.37	1	0.44
Single Family	6,457	67.40	2,773	63.82	1,529	47.05	395	36.17	99	41.34
TOTAL	9,581		4,346		3,249		1,091		239	

TABLE: 2.2.1	TABLE: 2.2.11.H LOGAN COUNTY HAZUS BUILDING-RELATED ECONOMIC LOSS ESTIMATES (MILLIONS OF DOLLARS)										
Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total				
	Wage	0.00	2.06	9.44	0.23	1.28	13.01				
	Capital Related	0.00	0.86	7.46	0.15	0.17	8.64				
Income Losses	Rental	3.20	2.22	3.89	0.07	0.39	9.77				
	Relocation	11.85	4.24	6.37	0.37	2.91	25.74				
	Subtotal	15.05	9.38	27.16	0.82	4.76	57.16				
	Structural	15.93	5.56	7.54	1.14	2.33	32.49				
	Non Structural	53.90	18.48	21.16	3.70	7.51	104.74				
Capital Stock Losses	Content	19.90	4.21	11.53	2.54	4.28	42.47				
	Inventory	0.00	0.00	0.36	0.57	0.03	0.95				
	Subtotal	89.73	28.24	40.59	7.95	14.15	180.66				
TOTAL		104.77	37.62	67.74	8.77	18.91	237.82				



TABLE: 2.2.11.I MASON COUNTY EXPECTED BUILDING DAMAGE BY OCCUPANCY (HAZUS)										
	Nor	ne	Slig	ıht	Modera	ate	Extensi	ve	Complete	
	Count	%	Count	%	Count	%	Count	%	Count	%
Agriculture	39	.048	12	0.43	8	0.45	2	0.55	0	0.53
Commercial	141	1.72	63	2.27	72	4.08	32	7.72	9	10.71
Education	10	0.13	4	0.15	5	0.27	2	0.48	1	0.65
Government	15	0.19	5	0.19	6	0.34	3	0.61	1	0.82
Industrial	41	0.50	13	0.47	14	0.79	6	1.35	2	1.77
Other Residential	2,518	30.75	956	34.37	794	44.98	161	38.40	24	26.50
Religion	26	.032	10	0.36	8	0.47	3	0.78	1	0.98
Single Family	5,396	65.91	1,718	61.74	859	48.61	210	50.10	51	58.04
TOTAL	8,186		2,782		1,766		420		89	

TABLE: 2.2.11.J MASON COUNTY HAZUS BUILDING-RELATED ECONOMIC LOSS ESTIMATES (MILLIONS OF DOLLARS)										
Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total			
	Wage	0.00	1.61	5.53	0.06	0.40	7.60			
	Capital Related	0.00	0.66	3.79	0.05	0.09	4.59			
Income Losses	Rental	1.78	1.13	1.6	0.03	0.18	4.81			
	Relocation	6.58	1.57	3.63	0.16	1.32	13.25			
	Subtotal	8.36	4.97	14.64	0.30	1.98	30.25			
	Structural	9.82	2.29	3.69	0.44	1.8	18.12			
	Non Structural	32.72	8.07	11.49	1.57	4.03	57.88			
Capital Stock Losses	Content	11.92	2.02	6.62	1.15	2.43	24.14			
	Inventory	0.00	0.00	0.14	0.21	0.13	0.47			
	Subtotal	54.46	12.38	21.94	3.37	8.46	100.61			
TOTAL		62.82	17.35	36.58	3.68	10.44	130.86			

TABLE: 2.2.11.K MINGO COUNTY EXPECTED BUILDING DAMAGE BY OCCUPANCY (HAZUS)										
	Nor	ne	Slig	nht	Modera	ate	Extensive		Complete	
	Count	%	Count	%	Count	%	Count	%	Count	%
Agriculture	7	0.08	2	0.08	2	0.10	1	0.13	0	0.15
Commercial	149	1.74	58	2.28	70	3.91	33	6.17	10	8.23
Education	12	0.13	3	0.13	3	0.19	1	0.26	0	.32
Government	17	0.20	5	0.21	7	0.37	3	0.59	1	0.77
Industrial	38	0.45	11	0.45	14	0.80	7	1.27	2	1.67
Other Residential	3,230	37.82	972	38.33	895	50.02	284	52.64	54	43.68
Religion	24	0.28	10	0.38	9	0.48	4	0.69	1	0.85
Single Family	5,063	59.29	1,475	58.15	789	44.11	206	38.25	55	44.33
TOTAL	8,540		2,537		1,789		539		123	



TABLE: 2.2.11.L MINGO COUNTY HAZUS BUILDING-RELATED ECONOMIC LOSS ESTIMATES (MILLIONS OF DOLLARS)										
Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total			
	Wage	0.00	1.87	4.15	0.09	0.78	6.89			
	Capital Related	0.00	0.77	2.89	0.09	0.08	3.84			
Income Losses	Rental	1.66	1.78	1.79	0.06	0.19	5.47			
	Relocation	6.13	2.49	3.44	0.31	1.50	13.87			
	Subtotal	7.78	6.91	12.27	0.55	2.55	30.07			
	Structural	7.16	3.40	3.81	0.82	1.19	16.39			
	Non Structural	24.00	12.44	10.77	2.71	3.99	53.92			
Capital Stock Losses	Content	8.74	3.05	6.01	1.94	2.36	22.09			
	Inventory	0.00	0.00	0.18	0.27	0.01	0.46			
	Subtotal	39.90	18.90	20.77	5.75	7.54	92.85			
TOTAL		47.68	25.80	33.04	6.29	10.10	122.92			

TABLE 2 2 11 M WAYNE COUNTY EXPECTED BUILDING DAMAGE BY OCCUPANCY (HAZUS)										
	Noi	ne	Slig	ht	Modera	ate	Extensi	ve	, Comple	ete
	Count	%	Count	%	Count	%	Count	%	Count	%
Agriculture	17	0.13	7	0.18	7	0.25	3	0.29	1	0.35
Commercial	330	2.60	93	2.29	88	3.17	34	3.85	9	4.57
Education	15	0.12	4	0.11	4	0.15	2	0.17	0	0.20
Government	21	0.17	6	0.16	7	0.26	3	0.34	1	0.42
Industrial	77	0.61	24	0.60	28	1.00	12	1.35	3	1.67
Other Residential	2,943	23.22	1,143	28.07	1,219	43.78	485	54.15	97	48.55
Religion	47	0.37	11	0.28	8	0.28	3	0.28	1	0.29
Single Family	9,222	72.77	2,781	68.31	1,423	51.11	354	39.56	87	43.96
TOTAL	12,672		4,071		2,785		895		199	

TABLE: 2.2.1	I.N WAYNE COUNTY H	AZUS BUILDING-RE	ELATED ECONOMIC	LOSS ESTIMAT	ES (MILLIONS	OF DOLLAR	S)
Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
	Wage	0.00	0.33	3.92	0.25	0.95	5.45
	Capital Related	0.00	0.13	3.07	0.16	0.08	3.44
Income Losses	Rental	3.03	0.83	2.02	0.09	0.16	6.14
	Relocation	11.23	3.26	3.12	0.40	1.43	19.44
	Subtotal	14.26	4.55	12.13	0.91	2.62	34.47
	Structural	17.04	3.74	4.57	1.16	1.42	27.92
	Non Structural	56.47	10.97	10.79	3.74	4.19	86.16
Capital Stock Losses	Content	20.41	2.20	5.85	2.64	2.43	33.54
	Inventory	0.00	0.00	0.28	0.64	0.02	0.94
	Subtotal	93.93	16.92	21.49	8.18	8.05	148.57
TOTAL		108.19	21.47	33.62	9.09	10.67	183.04



RISK CALCULATION

TABLE 2.2.11.0 EARTHQUAKE RISK CALCULATION									
Probability		Severity		Risk					
IMPROBABLE		MARGINAL		LOW					
There have been only five earthquake epicenters in Region 2 SINCE 1824, all less than a magnitude 3.0.	+	The largest amount of loss in dollars corresponds to Cabell County, according to the HAZUS program where \$1.2 billion dollars in losses would occur if a 5.0 magnitude earthquake originated in the county seat.	=	The risk assessment matrix puts this hazard at a low risk to Region 2.					

RISK MAP

The map below shows the US Seismic Hazard zones in West Virginia; the majority of the counties in Region 2 fall in a low hazard zone. Parts of Mingo and Logan Counties fall under a medium-low hazard area.



















2.2.12 DROUGHT



"If we plan for drought, then we can enjoy the benefits of normal or rainy years and not get caught unprepared in dry years".

- Ready.gov

HAZARD OVERVIEW

A drought is a deficiency of precipitation over a period of time resulting from a weather pattern that brings no moisture into an area. Droughts may be short term (a few weeks to a month) or long term (several months to several years). A long-term drought may be interrupted by occasional precipitation without breaking the drought cycle. There are four different types of drought, which include the following.

- Meteorological Drought: A measure of departure from normal precipitation due to climatic differences. What is considered a drought in one location may not be in another location.
- Agricultural Drought: The amount of moisture in the soil no longer meets the needs of a particular crop.
- Hydrological Drought: Surface and subsurface water levels are below normal.
- **Socioeconomic Drought**: This occurs when physical water shortage begins to affect people.

The Palmer Drought Severity Index developed by W. C. Palmer in 1965, measures droughts by recording

the departure of moisture from the norm. The index provides measurements of moisture conditions so that comparisons can be made between locations and between time periods in the same location. The index is actually a hydrological index rather than a meteorological index since it is based on moisture availability (precipitation, outflow, and storage) over time. Region 2 counties normally receive around 42.5 inches of precipitation per year.




POSSIBLE CAUSES

Precipitation in the form of rain or snow falls in uneven patterns across the country. The amount of precipitation at a particular location varies from year to year, but over a period of years, the average amount is fairly constant. The amount of rain and snow also varies with the seasons. Even if the total amount of rainfall for a year is about average, rainfall shortages can occur during a period when moisture is critically needed for plant growth, such as in the early summer. When little or no rain falls, soils can dry out and plants can die. When rainfall is less than normal for several weeks, months, or years, the flow of streams and rivers declines, water levels in lakes and reservoirs fall, and the depth to water in wells increases. If dry weather persists and water-supply problems develop, the dry period can become a drought (USGS, 2016).

LOCATION & EXTENT

Drought conditions affect all parts of Region 2 PDC equally. All counties are at equal risk from the effects of drought. However, during committee and public meetings, members from Wayne County mentioned that there has been a push to increase agricultural production in the county. Because agriculture is the sector that most suffers the effect of drought, any location with agricultural activities would be exposed to the effects of drought.

HISTORICAL OCCURRENCES

According to data maintained by the U.S. Drought Monitor, since 2000, the county

with the most weeks under drought conditions in Region 2 is Mingo County; this is followed in descendant order by Wayne, Logan, Lincoln, Cabell and then Mason Counties. Since the year 2000, there have been no exceptional droughts

TABLE 2.2.12.B WEEKS OF DROUGHT CONDITIONS IN REGION 2 SINCE 2000									
County	D0	D1	D2	D3	D4				
Cabell	240	85	34	3	0				
Lincoln	264	90	31	3	0				
Logan	291	101	41	3	0				
Mason	227	76	29	2	0				
Mingo	287	127	46	4	0				
Wayne	278	108	51	5	0				

Source: US Drought Monitor

(D4) in Region 2 counties. The table above shows the weeks each county has been in drought conditions. For example, Cabell County has had three weeks in extreme drought conditions (D2), 34 in severe drought (D2), 85 in moderate drought (D1) and 240 in abnormally dry conditions (D0). The higher drought levels include the lower drought level weeks, for example, Cabell County had 240 weeks in abnormally dry conditions (D0), of



which 85 were considered moderate drought (D1), of which 34 were considered severe drought (D2), of which, only three were considered extreme drought (D3); the weeks in

higher levels of drought are not in addition to the lower levels, but included.

All the weeks in extreme drought (D3) account for one event in 2007 that lasted from the end of August through the end of October.

The map to the right shows the state of West Virginia in an extreme drought during the last week of October of 2007. The area most affected was the southwestern part, where all the Region 2 counties are located.



IMPACT & VULNERABILITY

Some of the impacts of each type of drought include the following.

D0	Abnormally Dry	Going into drought: • short-term dryness slowing planting, growth of crops or pastures Coming out of drought: • some lingering water deficits • pastures or crops not fully recovered
D1	Moderate Drought	 Some damage to crops, pastures streams, reservoirs, or wells low, some water shortages developing or imminent Voluntary water-use restrictions requested
D2	Severe Drought	 Crop or pasture losses likely Water shortages common Water restrictions imposed
D3	Extreme Drought	 Major crop/pasture losses Widespread water shortages or restrictions
D4	Exceptional Drought	 Exceptional and widespread crop/pasture losses Shortages of water in reservoirs, streams, and wells creating water emergencies



LOSS & DAMAGES

Anywhere between 1 and 20 percent of the population of each county in Region 2 is

economically dependent on agriculture, forestry, fishing, hunting, and mining. The table shows the amount of population and the total percentage of population by county that is dedicated to these activities. The effects of droughts could potentially affect these people. However, mining may be greater than agricultural activities within this population. Therefore, this is only for informational purposes

TABLE 2.2.12.C AGRICULTURAL INDUSTRY IN REGION 2*									
County	Total	Total							
County	Population	Percentage							
Cabell	400	1.0%							
Lincoln	553	7.6%							
Logan	2,018	17.2%							
Mason	260	2.9%							
Mingo	1,619	20.4%							
Wayne	271	1.9%							

* Includes forestry, fishing, hunting, and mining. Source: WVU County Data Profiles (2016)

since it is difficult to determine the actual amount of people dedicated to agriculture in Region 2 from this data source.

However, there is another way to calculate potential loss of income and that is by decrease of crops due to drought. The USDA tracks crops production via their census and surveys. 2007 was a census year as well as a drought year for region 2. Data from this census, the 2012 census, and surveys from 2008 and 2016 are shown below. Corn and hay are common commodities that appear on census and survey information.



CROPS HARVESTED IN REGION 2

The data does indicate that after the drought of 2007, crop harvest did decline, but it continued to decline throughout the next several years, even when there were not drought conditions. In part, this could be explained by the shift from agricultural economy towards other types of economy such as manufacturing and services.



RISK CALCULATION

TABLE 2.2.12.D DROUGH RISK CALCULATION										
Probability		Severity		Risk						
IMPROBABLE		NEGLIGIBLE		LOW						
Events1Years17The amount of weeks th Region 2 has been in a extreme drought since 200 only 20. This amounts to a of 1 event.)5 at h 10 is total	Drought conditions have not seemed to affect the region's production of crops in any significant way.	=	The risk assessment matrix indicates that with a very low probability and severity, the overall risk is low.						

















2.3 COMPLICATING VARIABLES

Direct consequences of disasters can include fatalities, injuries, and damages to humans, animals or property. However, disasters do not end there; there are a number of indirect effects, both tangible and intangible associated with disasters even before a disaster strikes. Some examples of these include loss of livelihood and income, loss of community and population, mental and psychosocial impacts, costs of rebuilding, repair or replacement, loss of inventory, wages and tax revenue, etc. (Coppola, 2015). All of these also have a cost associated with them but it is much more difficult to assign a specific dollar value and quantify accurately.

A variety of situations could occur that would result in a disruption to a number of critical systems throughout Region 2 counties. Some hazards are complicated by a series of loosely-related variables; these are often considered *cascading hazards*. For example, high winds may cause sporadic damage throughout the county, but often do not become a significant countywide concern until a large number of residents are without power.

A single event may not always reach all impacts described herein. However, it is important to understand that the impacts of hazards go beyond what is seen immediately before or after the event or incident. The effects of one event can be years or months in the making and last months or even years, especially where public health, social, economic, environmental and infrastructure impacts are concerned.

2.3.1 Hazards and Climate Change

Many natural hazards are related to climate such as droughts, severe weather, floods and wildfires. There is an important distinction between weather and climate. Weather refers to the atmospheric conditions of a geographical region over a short period of time, such as days or weeks. Climate, in contrast, refers to the atmospheric conditions of a geographical area over long periods of time, such as years, or even decades (Keller, Devecchio, 2015, pp. 406-407).

According to the U.S. Global Change Research Program (2016), there are several weather and climate changes that have already been observed in the United States.

- Since recordkeeping began in 1895, the average U.S. temperature has increased by 1.3°F to 1.9°F with most of the increase happening since 1970. In addition, the first decade of the 2000s has been the warmest on record.
- The average precipitation across the U.S. has increased since 1900 with some areas



experiencing higher than the national average and some lower. Heavy downpours are increasing, especially over the last 30-50 years.

- Drought events have increased in the west. Changes in precipitation and runoff, combined with changes in consumption and withdrawal, have reduced surface and groundwater supplies in many areas.
- Some types of severe weather events have experienced changes; heat waves are more frequent and intense, and cold waves have become less frequent and intense overall.
- The intensity, frequency, and duration of North Atlantic hurricanes have increased since the early 1980s.

Climate change can have a significant impact on human health and the environment. The changes mentioned above can affect the environment by leading to changes in landuse, ecosystems, infrastructure conditions, geography and agricultural production. Extreme heat, poor air quality, reduced food and water supply and quality, changes in infectious agents and population displacement can lead to public health concerns such as heat-related illnesses, cardiopulmonary illnesses, food, water and vector-borne diseases and have consequences on mental health and stress (USGCRP, 2016).

The National Climate Assessment (NCA) defined climate trends for national U.S. regions in 2014. The major trends are seen to be

- wildfires and heat waves on the west coast,
- rising temperatures and increased severity and frequency of winter storms in the middle of the country,
- more rain and flooding in the Midwest and northeastern parts of the country, and
- an increase in sea levels in the mid-Atlantic with an increase of hurricane activity in the southeastern states.

In West Virginia, the trend will be an increase in extreme precipitation which will lead to more events of hazards such as flooding, and possible dam failures or reportable disease epidemics.



2.4 ASSET INVENTORY

§201.6(c)(2)(ii)	[The risk assessment shall include a] description of the jurisdiction's vulnerability of the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.
§201.6(c)(2)(ii)(A)	The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

This risk assessment identifies potentially-vulnerable community assets such as critical facilities, critical infrastructure, historical properties, commercial/industrial facilities, etc. Assets contribute directly to the quality of life in the community as well as ensure its continued operation. As such, government facilities are often listed, as are water/wastewater and transportation infrastructure. Assets can also be irreplaceable items within the community, such as historical structures or even vulnerable populations (including the elderly or youths).

Inventorying assets first involves determining what in the community can be affected by a hazard event. The hazard profiles contained in Section 2.2 above contain generalized loss estimates that, in some cases identify the types of facilities that could be impacted by the hazards considered in this plan. Additionally, the core planning committee used its meetings during the update process to significantly revise the original asset list that was included in this plan. In the following lists, assets are grouped into the following categories.

- **Critical Facilities:** Governmental facilities, water/wastewater facilities, emergency services facilities, medical facilities (hospitals/clinics), and transportation infrastructure.
- Vulnerable Populations: Schools, nursing homes, and senior centers.
- Economic Assets: Large commercial/industrial facilities or large employers (not covered in other categories).
- **Special Considerations:** Residences, community outreach facilities, post offices, and libraries.
- **Historical Considerations:** Areas/structures listed on the National Register of Historic Places.



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
	Х				Commerce	Home Depot	1050 Thundering Herd Dr.	Barboursville	Cabell
Х					Healthcare	Village of Riverview	1356 Riverview Dr.	Barboursville	Cabell
				Х	School	Barboursville Middle School	1400 Central Ave.	Barboursville	Cabell
	Х				Commerce	Walmart	25 Nichols Dr.	Barboursville	Cabell
				Х	School	Martha Elementary	3067 Martha Rd.	Barboursville	Cabell
				Х	School	Nichols Elementary	3505 Erwin Rd.	Barboursville	Cabell
Х					Infrastructure	Package Treatment Plant	N/A	Barboursville	Cabell
Х					Government	Post Office	404 Huntington Mall	Barboursville	Cabell
	Х				Commerce	Huntington Mall	500 Mall Rd.	Barboursville	Cabell
Х					Healthcare	EMS Station 5	5233 Hale Branch Rd.	Barboursville	Cabell
				Х	School	Davis Creek Elementary	6330 Davis Creek Rd.	Barboursville	Cabell
Х					Government	Post Office	680 Central Ave.	Barboursville	Cabell
	Х				Commerce	Lowe's	700 Mall Rd.	Barboursville	Cabell
				Х	School	Village of Barboursville Elem.	718 Central Ave.	Barboursville	Cabell
Х					Government	Barboursville City Hall	721 Central Ave.	Barboursville	Cabell
			Х		Library	Barboursville Public Library	728 Main St.	Barboursville	Cabell
Х					Healthcare	Wyngate Senior Living	750 Peyton St.	Barboursville	Cabell
Х					Law Enforcement	Barboursville Police Dept.	815 Main St.	Barboursville	Cabell
Х					Government	US Coast Guard	95 Peyton St.	Barboursville	Cabell
Х					Healthcare	EMS Station 8	Riverview Dr.	Barboursville	Cabell
Х					Healthcare	Cabell Health Care Center	1 Hidden Brooke Way	Culloden	Cabell
Х					Government	Post Office	2000 US Rt. 60	Culloden	Cabell
				Х	School	Culloden Elementary	2100 US Rt. 60	Culloden	Cabell
Х					Fire	Culloden VFD	2102 3rd St.	Culloden	Cabell
	Х				Commerce	Service Wire	310 Davis Rd.	Culloden	Cabell
Х					Government	Post Office	29272 Huntington Rd.	Glenwood	Cabell
				Х	Residence	Riverview East	225 Short St.	Guyandotte	Cabell
Х					Fire	Station 5 HFD	301 5th Ave	Guyandotte	Cabell
				Х	School	Guyandotte Elementary	607 5th Ave.	Guyandotte	Cabell
				Х	Nursing Home	Woodlands Retirement Community	1 Bradley Foster Dr.	Huntington	Cabell



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
				Х	School	Huntington East Middle School	1 Campbell Dr.	Huntington	Cabell
	Х				Commerce	Big Sandy Superstore Arena	1 Center Plaza	Huntington	Cabell
				Х	School	Huntington High School	1 Highlander Way	Huntington	Cabell
	Х				Commerce	Huntington Steel	100 3rd Ave	Huntington	Cabell
Х					Government	Post Office	1000 Virginia Ave.	Huntington	Cabell
				Х	Nursing Home	Heritage Center	101 13th St.	Huntington	Cabell
				Х	School	Cabell County Career Center	1035 Norway Ave.	Huntington	Cabell
Х					Healthcare	EMS Station 3	108 8th Ave. West	Huntington	Cabell
Х					Transportation	Tri-State Transit Authority	1120 Virginia Ave.	Huntington	Cabell
				Х	Residence	Highlawn Place	1130 3rd Ave.	Huntington	Cabell
Х					Healthcare	EMS Station 9	1133 20th St.	Huntington	Cabell
Х					Government	Post Office	1200 Veterans Memorial Blvd.	Huntington	Cabell
Х					Healthcare	River Park Hospital	1230 6th Ave.	Huntington	Cabell
Х					Healthcare	River Park Hospital	1230 6th Ave.	Huntington	Cabell
			Х		Community	Salvation Army Shelter	1277 3rd Ave.	Huntington	Cabell
Х					Government	Cabell County 911	129 Gallagher St.	Huntington	Cabell
				Х	Nursing Home	Madison Manor	1329 Madison Ave.	Huntington	Cabell
Х					Healthcare	Cabell/Huntington Hospital	1340 Hal Greer Blvd.	Huntington	Cabell
Х					Fire	Station 4 HFD	1431 West 5th Ave.	Huntington	Cabell
Х					Healthcare	Mildred Mitchel Bateman Hospital	1530 Norway Ave.	Huntington	Cabell
Х					Healthcare	VA Hospital	1540 Spring Valley Dr.	Huntington	Cabell
				Х	School	Meadows Elementary	1601 Washington Blvd.	Huntington	Cabell
	Х				Commerce	Steel of WV	1700 2nd Ave.	Huntington	Cabell
Х					Healthcare	Huntington Health and Rehab	1720 17th St	Huntington	Cabell
	Х				Commerce	Dawson/Thompson Oil Co.	1746 Virginia Ave.	Huntington	Cabell
Х					Healthcare	EMS Station 6	1766 Washington Ave.	Huntington	Cabell
				Х	Residence	Washington Square	17th St. and 8th Ave.	Huntington	Cabell
				Х	School	Spring Hill Elementary	1901 Hall Ave.	Huntington	Cabell
				Х	Residence	Trowbridge Manor	1st St. and 8th Ave.	Huntington	Cabell
	Х				Commerce	State Electric	2010 2nd Ave.	Huntington	Cabell



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
Х					Government	Post Office	2016 3rd Ave.	Huntington	Cabell
			Х		Library	Guyandotte Public Library	203 Richmond St.	Huntington	Cabell
				Х	School	Central City Elementary	2100 Washington Ave.	Huntington	Cabell
				Х	Religious	Christ Temple Church Shelter	2400 Johnstown Rd.	Huntington	Cabell
	Х				Commerce	Flint Pigment	2401 5th Ave	Huntington	Cabell
	Х				Commerce	WV Electric	250 12th St. W	Huntington	Cabell
				Х	School	Altizer Elementary School	250 3rd St	Huntington	Cabell
	Х				Commerce	Rubberlite	2501 Guyan Ave.	Huntington	Cabell
				Х	School	Highlawn Elementary	2549 1st Ave.	Huntington	Cabell
Х					Transportation	CSX	2550 6th Ave.	Huntington	Cabell
Х					Healthcare	St. Mary's Medical Center	2900 1st Ave.	Huntington	Cabell
				Х	School	Explorer Academy	2901 Saltwell Rd.	Huntington	Cabell
Х					Fire	Station 10 HFD	3131 Washington Blvd.	Huntington	Cabell
Х					Government	Special Metals	3200 Riverside Dr.	Huntington	Cabell
Х					Government	Post Office	323 Olive St.	Huntington	Cabell
	Х				Commerce	Walmart	3333 US - 60	Huntington	Cabell
Х					Healthcare	EMS Station 2	343 Norway Ave	Huntington	Cabell
			Х		Library	Gallagher Village Public Library	368 Norway Ave.	Huntington	Cabell
				Х	School	Hite Saunders Elementary	3708 Green Valley Rd.	Huntington	Cabell
Х					Infrastructure	Earthen Levee	4.55 miles around Huntington	Huntington	Cabell
	Х				Commerce	Fletchers	402 High St.	Huntington	Cabell
	Х				Commerce	Grief Brothers	409 Buffington St.	Huntington	Cabell
Х					Fire	Tri-State Fire Academy	4200 Ohio River Rd.	Huntington	Cabell
				Х	Residence	Nelson Apartments	422 9th St West	Huntington	Cabell
			Х		Library	Cabell County Public Library	455 9th St.	Huntington	Cabell
Х					Government	Corps of Engineers	502 8th St.	Huntington	Cabell
Х					Fire	Station 8 HFD	509 Camden Rd.	Huntington	Cabell
Х					Fire	Station 2 Huntington Fire Dept.	534 20th St.	Huntington	Cabell
			Х		Community	Heistad House	534 7th Ave	Huntington	Cabell
Х					Government	Huntington Water Quality Board	555 7th Ave	Huntington	Cabell



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
Х					Infrastructure	Concrete Floodwall	6.70 miles around Huntington	Huntington	Cabell
	Х				Commerce	Martin Steel	603 16th St. W	Huntington	Cabell
				Х	Residence	New Baptist Church Shelter	610 28th St.	Huntington	Cabell
			Х		Community	Vanity Fair	621 4th Ave	Huntington	Cabell
			Х		Community	Huntington City Mission	624 10th St	Huntington	Cabell
			Х	Х	Community	Harmony House Day Center	627 4th Ave	Huntington	Cabell
Х					Government	VA Huntington Regional Benefit Office	640 4th St. #100	Huntington	Cabell
	Х				Commerce	Columbia Paint	641 Jackson Ave.	Huntington	Cabell
Х					Law Enforcement	Huntington Police Dept.	675 10th St.	Huntington	Cabell
Х					Healthcare	Fairhaven Rest Home	700 Madison Ave.	Huntington	Cabell
Х					Healthcare	Cabell Huntington Health Department	703 7th Ave.	Huntington	Cabell
Х					Government	Cabell County Courthouse	750 5th Ave.	Huntington	Cabell
Х					Government	Huntington City Hall	800 5th Ave.	Huntington	Cabell
Х					Healthcare	Grayson's Caring Hands	828 Washington Ave.	Huntington	Cabell
Х					Fire	Centennial Fire Station	839 7th Ave.	Huntington	Cabell
Х					Government	US Federal Courthouse	845 5th Ave.	Huntington	Cabell
Х					Healthcare	Cabell County EMS Headquarters	846 8th Ave.	Huntington	Cabell
				Х	Residence	Carter G. Woodson Apartments	8th Ave and Hal Greer Blvd.	Huntington	Cabell
			Х		Library	West Huntington Public Library	901 14th St West	Huntington	Cabell
				Х	School	Huntington Middle School	925 3rd St.	Huntington	Cabell
				Х	School	Southside Elementary	930 2nd St.	Huntington	Cabell
				Х	Residence	WK Elliott Apartments	Bridge St. and Buffington St.	Huntington	Cabell
				Х	Residence	Marcum Terrace	Olive St.	Huntington	Cabell
Х					Healthcare	Huntington Internal Medicine Group	5170 US 60	Huntington	Cabell
				Х	School	Mount West Community and Technical College	1 Mount West Dr.	Huntington	Cabell
				Х	School	Marshall University	1 John Marshall Dr.	Huntington	Cabell
	Х				Commerce	Seaton Taylor	402 7th Ave	Huntington	Cabell
	Х				Commerce	Alcon	2 Vision Lane	Lesage	Cabell
				Х	School	Cox Landing Elementary	6358 Cox Lane	Lesage	Cabell
			Х		Library	Cabell County Public Library	6363 Cox Landing Lane	Lesage	Cabell



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
Х					Transportation	Cabell County School Bus Garage	6370 Cox Lane	Lesage	Cabell
Х					Fire	Ohio River Road VFD	6521 Ohio River Rd.	Lesage	Cabell
Х					Government	Post Office	6596 Ohio River Rd.	Lesage	Cabell
				Х	School	Milton Middle School	1 Panther Trail Way	Milton	Cabell
				Х	Religious	Milton Baptist Church	1123 Church St.	Milton	Cabell
Х					Government	Milton City Hall	1139 Smith St.	Milton	Cabell
Х					Law Enforcement	Milton Police Dept.	1139 Smith St.	Milton	Cabell
			Х		Library	Milton Public Library	1140 Smith St.	Milton	Cabell
Х					Government	Post Office	1177 W Main St.	Milton	Cabell
				Х	School	Milton Elementary	1201 Pike St.	Milton	Cabell
Х					Healthcare	EMS Station 7	1597 US Route 60	Milton	Cabell
	Х				Commerce	Cenergy	1763 US 60	Milton	Cabell
Х					Fire	Milton VFD	341 East Main St.	Milton	Cabell
	Х				Commerce	Blenko Glass	9 Bill Blenko Dr.	Milton	Cabell
Х					Healthcare	Midland Meadows	100 Weatherholt Dr.	Ona	Cabell
				Х	School	Cabell Midland High School	2300 Rt. 60 East	Ona	Cabell
Х					Government	Post Office	2332 US 60	Ona	Cabell
Х					Healthcare	EMS Station 1	2500 Rt. 60 East	Ona	Cabell
				Х	School	Ona Elementary	2701 Elementary Dr.	Ona	Cabell
Х					Fire	Ona VFD	2900 Howell's Mill Rd.	Ona	Cabell
			Х		Community	Salt Rock Senior Center Shelter	5490 WV-10	Salt Rock	Cabell
				Х	School	Salt Rock Elementary	5570 Madison Creek Rd.	Salt Rock	Cabell
			Х		Library	Salt Rock Public Library	5575 Madison Creek Rd.	Salt Rock	Cabell
Х					Government	Post Office	5577 Madison Creek Rd.	Salt Rock	Cabell
Х					Fire	Salt Rock VFD	Rt. 10 and Madison Creek Rd.	Salt Rock	Cabell
	Х				Commerce	Whittens Feed and Seed	1872 Straight Fork	Alkol	Lincoln
	Х				Commerce	Chevron	392 Midway Rd.	Alum Creek	Lincoln
	Х				Commerce	Little General	403 Midway Rd.	Alum Creek	Lincoln
	Х				Commerce	Family Dollar	4942 McClellan Hwy	Branchland	Lincoln
	Х				Commerce	Gino's/Tudors	5772 McClellan Hwy	Branchland	Lincoln



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
	Х				Commerce	Speedway	5404 McClellan Hwy	Branchland	Lincoln
Х					Healthcare	St. Mary's Physical Therapy	5780 McClellan Hwy	Branchland	Lincoln
	Х				Commerce	Dollar General/McDonald's	7305 Lynn Ave.	Hamlin	Lincoln
	Х				Commerce	Family Dollar	8333 Court Ave.	Hamlin	Lincoln
	Х				Commerce	Gino's/Tudors	8229 Court Ave.	Hamlin	Lincoln
			Х		Community	Lincoln County Opportunity Company	360 Main St.	Hamlin	Lincoln
	Х				Commerce	Little General/ Burger King	8375 Court Ave,	Hamlin	Lincoln
	Х				Commerce	Piggly Wiggly	8337 Court Ave.	Hamlin	Lincoln
	Х				Commerce	Seven Eleven	8151 Court Ave.	Hamlin	Lincoln
			Х		Community	Harts Senior Center	3 Freedom Ln.	Harts	Lincoln
	Х				Commerce	Ranger Fast Check	2908 McClellan Hwy	Ranger	Lincoln
	Х				Commerce	Storage Tanks	574 Ely Fork	Sod	Lincoln
Х					Healthcare	Dialysis Clinic	11 Lincoln Plaza	West Hamlin	Lincoln
	Х				Commerce	Family Dollar	5732 McClellan Hwy	West Hamlin	Lincoln
	Х				Commerce	Food Fair	5 Lincoln Plaza	West Hamlin	Lincoln
	Х				Commerce	Little General	5742 McClellan Hwy	West Hamlin	Lincoln
Х					Healthcare	Prestera Center	25 Lincoln Plaza	West Hamlin	Lincoln
	Х				Commerce	Dollar General	4956 Midway rd.	Yawkey	Lincoln
	Х				Commerce	Yawkey Quick Mart	4640 Straight Fork	Yawkey	Lincoln
				Х	School	Buffalo ES	2367 Buffalo Creek Rd.	Accoville	Logan
Х					Fire	Buffalo Creek VFD	70 Garrison Dr.	Amhertdale	Logan
				Х	School	Chapmanville East ES	161 Conley St.	Chapmanville	Logan
				Х	School	Chapmanville MS	774 Crawley Creek Rd.	Chapmanville	Logan
				Х	School	Chapmanville Regional HS	506 Crawley Creek Rd.	Chapmanville	Logan
Х					Fire	Chapmanville VFD	128 Tracy Vickers Ave.	Chapmanville	Logan
			Х		Community	Chief Logan Lodge	1131 Conference Center Dr.	Chapmanville	Logan
				Х	School	West Chapmanville ES	100 W. Tiger Lane	Chapmanville	Logan
Х					Law Enforcement	WVSP Logan	8040 Old Logan Rd.	Chapmanville	Logan
				Х	School	Omar ES	7061 Jerry West Hwy	Chauncey	Logan
	Х				Commerce	Aracoma Coal Inc.	634 Bandmill Holly Rd.	Ethel	Logan



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
Х					Infrastructure	Logan County Airport	3236 Bandmill Hollow Rd.	Ethel	Logan
				Х	School	Hugh Dingess ES	29 Hugh Dingess School Rd.	Harts	Logan
Х					Fire	Main Harts Creek VFD	7984 Harts Creek Rd.	Harts	Logan
Х					Fire	Henlawaon VFD	3710Old Logan Rd.	Henlawson	Logan
Х					Fire	Cora VFD	28 Old Aldrich Branch Rd.	Holden	Logan
				Х	School	Holden ES	1034 Copperas Fork Rd.	Holden	Logan
				Х	School	Lake VFD	1343 Hewitt Creek Rd.	Lake	Logan
			Х		Recreation	Chafin House	581 Main St.	Logan	Logan
			Х		Community	Crooked Creek Resource Center	100 Recovery Rd.	Logan	Logan
				Х	School	Justice ES	70 Circle Dr.	Logan	Logan
Х					EMS	LEASA	26 1/2 Main Ave.	Logan	Logan
Х					Government	Logan County BOE	506 Holly Ave.	Logan	Logan
Х					Government	Logan County Courthouse	300 Stratton Street	Logan	Logan
Х					Law Enforcement	Logan County S.O	300 Stratton Street	Logan	Logan
Х					Government	Logan EOC/911 Center	28 Main Ave.	Logan	Logan
				Х	School	Logan ES	18 Wildcat Way	Logan	Logan
Х					Fire	Logan FD	219 Dingess Street	Logan	Logan
Х					Healthcare	Logan General Hospital	20Hospital Drive	Logan	Logan
				Х	School	Logan HS	1 Wildcat Way	Logan	Logan
				Х	School	Logan MS	14 Wildcat Way	Logan	Logan
Х					Law Enforcement	Logan PD	219 Dingess Street	Logan	Logan
				Х	School	RR Willis Vocational Tech Center	144 Vocational Rd.	Logan	Logan
				Х	School	Southern WV Community College	66 District Office Dr.	Logan	Logan
Х					Law Enforcement	Town of West Logan PD	515 2nd Ave.	Logan	Logan
	Х				Commerce	Wal-Mart Logan	77 Norman Morgan Blvd.	Logan	Logan
Х					Government	WV State Office Complex	130 Stratton St.	Logan	Logan
				Х	School	Man ES	1 Pioneer Path	Mallory	Logan
				Х	School	Logan County #2 VFD	64 Hollinsworth Field Rd.	Man	Logan
				Х	School	Man HS	1 Hillbilly Circle	Man	Logan
Х					Law Enforcement	Man PD	105 Market St.	Man	Logan



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
				Х	School	South Man ES	301 E. McDonald Ave.	Man	Logan
Х					Fire	Town of Man VFD	12 Broad St.	Man	Logan
Х					Fire	Main Island Creek VFD	8 Firehouse Rd.	Omar	Logan
Х					Fire	Sharples VFD	25 Signature Circle	Sharples	Logan
				Х	School	Verdunville ES	251 Mustang Hill Rd.	Verdunville	Logan
Х					Fire	Verdunville VFD	2270 Mud Fork Road	Verdunville	Logan
	Х				Commerce	M&G Polymers	27610 Huntington Road	Apple Grove	Mason
Х					EMS	Mason County EMS - Apple Grove	Huntington Road	Apple Grove	Mason
Х					Fire	Valley Fire Department	28409 Huntington Road	Apple Grove	Mason
				Х	School	Ashton Elementary	997 Ashton Upland Road	Ashton	Mason
				Х	School	Hannan High	1 Wild Cat Way	Ashton	Mason
				Х	School	Beale Elementary	12897 Huntington Road	Gallipolis Ferry	Mason
Х					Infrastructure	R.C. Byrd Locks and Dam	1300 R C Byrd Drive	Gallipolis Ferry	Mason
	Х				Commerce	ICL Chemicals	11636 Huntington Road	Gallipolis Ferry	Mason
Х					Government	Hartford City Building	133 2nd Street	Hartford	Mason
Х					Law Enforcement	Hartford Police Department	133 2nd Street	Hartford	Mason
Х					Government	Henderson Town Hall	608 Locust Street	Henderson	Mason
Х					Government	Leon City Hall	136 Main Street	Leon	Mason
				Х	School	Leon Elementary	1226 Burdette St	Leon	Mason
Х					Fire	Leon Fire Department	76 Vine Street	Leon	Mason
Х					Infrastructure	AEP - Mountaineer Plant	1347 Graham Station Road	Letart	Mason
Х					Infrastructure	Racine Locks and Dam	9909 Graham Station Road	Letart	Mason
Х					Government	Mason City Building	656 2nd Street	Mason	Mason
Х					EMS	Mason County EMS - Mason	331 Anderson Street	Mason	Mason
Х					Fire	Mason Fire Department	1501 2nd Street	Mason	Mason
Х					Law Enforcement	Mason Police Department	656 2nd Street	Mason	Mason
				Х	School	Wahama High	1 White Falcon Dr	Mason	Mason
				Х	School	New Haven Elementary	135 Mill St	New Haven	Mason
Х					Fire	New Haven Fire Department	407 5th Street	New Haven	Mason
Х					Law Enforcement	New Haven Police Department	218 5th Street	New Haven	Mason



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
Х					Government	New Haven Town Hall	218 5th Street	New Haven	Mason
Х					Fire	Flatrock Fire Department	14480 Ripley Road	Point Pleasant	Mason
Х					Law Enforcement	Mason Count Sheriff's Department	525 Main Street	Point Pleasant	Mason
				Х	School	Mason County Career Center	281 Scenic Dr.	Point Pleasant	Mason
Х					Government	Mason County Courthouse	200 6th Street	Point Pleasant	Mason
Х					Healthcare	Pleasant Valley Hospital	2520 Valley Drive	Point Pleasant	Mason
Х					Healthcare	Pleasant Valley Nursing and Rehab	640 Sandhill Road	Point Pleasant	Mason
Х					Government	Point Pleasant City Building	400 Viand Street	Point Pleasant	Mason
Х					Fire	Point Pleasant Fire Department	2309 Jackson Ave	Point Pleasant	Mason
				Х	School	Point Pleasant Intermediate	1 Walden Roush Way	Point Pleasant	Mason
				Х	School	Point Pleasant Jr/Sr High	280 Scenic Dr.	Point Pleasant	Mason
Х					Law Enforcement	Point Pleasant Police Department	400 Viand Street	Point Pleasant	Mason
				Х	School	Point Pleasant Primary	2200 Lincoln Ave	Point Pleasant	Mason
				Х	School	Roosevelt Elementary	7953 Ripley Rd	Point Pleasant	Mason
Х					EMS	Mason County EMS - Point Pleasant	913 Emergency Drive	Point Pleasant	Mason
Х					Infrastructure	AEP - River Division	2226 Tug Drive	West Columbia	Mason
Х					Healthcare	Lakin State Hospital	11522 Ohio River Road	West Columbia	Mason
Х					Law Enforcement	WV DOC -Lakin Womens Prision	11264 Ohio River Road	West Columbia	Mason
Х					Law Enforcement	WV State Police	11344 Ohio River Road	West Columbia	Mason
Х					Fire	Baisden VFD	Rte. 13	Baisden	Mingo
				Х	School	Dingess Grade School	Main Branch 12 Pole	Chapmanville	Mingo
Х					Government	City Hall	1 Riverside Dr.	Delbarton	Mingo
Х					Law Enforcement	Delbarton PD	1 Riverside Dr.	Delbarton	Mingo
Х					Fire	Delbarton VFD	Co. Hwy 65/12	Delbarton	Mingo
				Х	School	Mingo Career & Tech Center	Route 2 Box 52A	Delbarton	Mingo
				Х	School	Burch PK-6	177 Bulldog Blvd	Delbarton	Mingo
	Х				Commerce	Laurel Creek Co. Inc.	3/3 School House Hollow Rd	Dingess	Mingo
				Х	School	Gilbert HS	US 52	Gilbert	Mingo
Х					Government	City Hall	292 Main St.	Gilbert	Mingo
				Х	School	Gilbert ES	132 US 52	Gilbert	Mingo



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
Х					Law Enforcement	Gilbert PD	44 US 52	Gilbert	Mingo
Х					Law Enforcement	Gilbert SP	41 Snowflake Lane	Gilbert	Mingo
Х					Fire	Gilbert VFD	175 3rd Ave	Gilbert	Mingo
Х					EMS	Stafford EMS	4071 Venus St	Gilbert	Mingo
	Х				Commerce	Phoenix Coal Mac, Inc.	22 Mine Rd	Holden	Mingo
Х					Government	City Hall	US 52	Kermit	Mingo
				Х	School	Kermit K-8	25674 US 52	Kermit	Mingo
Х					Law Enforcement	Kermit PD	101 Main Street	Kermit	Mingo
Х					Fire	Kermit VFD	3 Firehouse Ln	Kermit	Mingo
Х					Fire	Kermit Fire & Rescue HQ Station	49 Main St	Kermit	Mingo
	Х				Commerce	Rockhouse Creek Dev. Corp.	Rte. 10	Man	Mingo
Х					Government	City Hall	306 McCoy Alley	Matewan	Mingo
				Х	School	MatewanPK-8	100 Chambers St	Matewan	Mingo
				Х	School	Mingo Central High School	1000 King Coal Highway	Matewan	Mingo
Х					Fire	Beech Creek VFD	34 Hc 81	Meador	Mingo
	Х				Commerce	Mingo Logan Coal Company	1000 Mingo Logan Ave	Wharncliffe	Mingo
Х					Fire	Ben Creek VFD	Right Fork Bens Creek Road	Wharncliffe	Mingo
Х					Government	City Hall	107 E 4th Ave	Williamson	Mingo
Х					Government	Mingo BOE	110 Cinderella Rd	Williamson	Mingo
Х					Law Enforcement	Mingo SO	72 E 2nd Ave	Williamson	Mingo
	Х				Commerce	Mountaineer Hotel	31 E 2nd Ave	Williamson	Mingo
				Х	School	Tug Valley HS	555 Panther Ave	Williamson	Mingo
Х					Fire	Williamson FD	104 E 4th Ave	Williamson	Mingo
Х					Healthcare	Williamson Memorial Hospital	859 Alderson St	Williamson	Mingo
				Х	School	Williamson PK-8	5 Parkway Dr	Williamson	Mingo
Х					Law Enforcement	Williamson PD	108 E 4th Ave	Williamson	Mingo
Х					Law Enforcement	WV State Police	200 E 3rd Ave	Williamson	Mingo
				Х	School	Lenore K-8	Pigeon Creek	Williamson	Mingo
Х					EMS	Stat Ambulance Service	Harvey St	Williamson	Mingo
			Х		Recreation	Beech fork State Park	5601 Long Branch Road	Barboursville	Wayne



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
	Х				Commerce	AEP Ceredo Peaker Station	Walker Br Road	Ceredo	Wayne
	Х				Commerce	American National Rubber Co.	626 Main St	Ceredo	Wayne
				Х	School	Ceredo ES	700 B Street	Ceredo	Wayne
Х					Infrastructure	Ceredo Flood Wall	Main Street & Ohio River	Ceredo	Wayne
				Х	School	Ceredo Kenova Middle School	500 High Street	Ceredo	Wayne
Х					Transportation	Ceredo Liquid Dock	Main St And River	Ceredo	Wayne
				Х	Residence	Ceredo Manor	601 High Street	Ceredo	Wayne
Х					Law Enforcement	Ceredo PD	700 B Street	Ceredo	Wayne
Х					Government	Ceredo Town Hall	699 B Street	Ceredo	Wayne
Х					Healthcare	Ceredo VFD/EMS	700 B Street	Ceredo	Wayne
Х					Infrastructure	Ceredo Water	Main Street	Ceredo	Wayne
				Х	School	Ceredo-Kenova MS	500 High Street	Ceredo	Wayne
Х					Transportation	Coloumbia Gas Ceredo Compressor Station	1664 Walker Br Road	Ceredo	Wayne
Х					Transportation	Coloumbia Gas Kenova Compressor Station	70 Big Sandy Road	Ceredo	Wayne
Х					Transportation	CSX Rail Yard Ceredo	Ceredo	Ceredo	Wayne
	Х				Commerce	Federal Express Depot	1400 Airport Road	Ceredo	Wayne
Х					Infrastructure	Huntington TriState Airport	1449 Airport Road	Ceredo	Wayne
Х					Transportation	Kanawha River Terminals, Inc.	1 Main St	Ceredo	Wayne
	Х				Commerce	Kosmos Cement Cemex	100 Main Street	Ceredo	Wayne
	Х				Commerce	Mistras Testing	1200 Airport Road	Ceredo	Wayne
				Х	School	Playmates Day Care	111 4Th St	Ceredo	Wayne
			Х		Museum	ZD Ramsdell House	1108 B Street	Ceredo	Wayne
				Х	School	Crum K-8 School	150 Crum Road	Crum	Wayne
Х					Infrastructure	N&W Railroad Tunnels	Crum	Crum	Wayne
Х					Infrastructure	Crum PSD	414 Crum Road	Crum	Wayne
			Х		Community	CabWaylingo Community Center	1475 L fork Dunlow Bypass Road	Dunlow	Wayne
			Х		Recreation	Cabwaylingo state Park	4279 Cabwaylingo Road	Dunlow	Wayne
				Х	School	Dunlow Grade School	32800 WV 152	Dunlow	Wayne
Х					Fire	Dunlow VFD/EMS	Rte. 1 Box 41	Dunlow	Wayne
	Х				Commerce	Argus Energy WV, LLC.	Rural Rte. 1	Dunlow	Wayne



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
Х					Infrastructure	East Lynn Dam	683 Overlook Trail Road	East Lynn	Wayne
				Х	School	East Lynn ES	19549 East Lynn Road	East Lynn	Wayne
Х					Fire	EastLynn VFD	119123 East Lynn Road	East Lynn	Wayne
	Х				Commerce	Rockspring Development, Inc.	1 Camp Creek Road East Lynn	East Lynn	Wayne
Х					Transportation	CSX Railroad Bridge Big Sandy	Kenova	Fort Gay	Wayne
				Х	School	Fort Gay K-8 School	1 Viking Drive	Fort Gay	Wayne
Х					Infrastructure	Fort Gay Sewer Plant	3408 Wayne Street	Fort Gay	Wayne
Х					Government	Fort Gay Town Hall	3407 Wayne Street	Fort Gay	Wayne
Х					Fire	Fort Gay VFD	Court Street	Fort Gay	Wayne
Х					Infrastructure	Fort Gay Water Plant	3407 Wayne Street	Fort Gay	Wayne
Х					Transportation	Fortgay Highway Bridge	Fort Gay	Fort Gay	Wayne
	Х				Commerce	Wildcat Branch Petroglyphs	Fort Gay	Fort Gay	Wayne
				Х	School	Tolsia HS	1 Rebel Drive	Glenhayes	Wayne
				Х	School	Buffalo Middle School	298 Buffalo Creek Rd	Huntington	Wayne
				Х	School	Buffalo Grade School	331 Buffalo CK Road	Huntington	Wayne
			Х		Recreation	Camden Park Recreation Area	5000 Waverley Road	Huntington	Wayne
			Х		Recreation	Camp Mad Anthony Wayne	2125 Spring Valley Dr.	Huntington	Wayne
			Х		Recreation	Corbin park	810 Vernon St	Huntington	Wayne
			Х		Museum	Heritage Farm and Museum	3300 Harvey Road	Huntington	Wayne
Х					Infrastructure	Hunting Flood wall	555 7th Ave	Huntington	Wayne
Х					Infrastructure	Huntington Sanitary Treatment plant	5010 Sunset Dr.	Huntington	Wayne
				Х	School	Kellog ES	4415 Piedmont Rd	Huntington	Wayne
				Х	School	Playmates Day Care	3609 Hughes St	Huntington	Wayne
				Х	School	Playmates Day Care	33 Buffalo Creek	Huntington	Wayne
				Х	School	Playmates Day Care	418 Bridge St	Huntington	Wayne
				Х	School	Playmates Day Care	3606 Hughes St	Huntington	Wayne
			Х		Recreation	RPA Park	300 Spring Valley Dr.	Huntington	Wayne
				Х	School	Spring Valley High School	1 Timberwolf Drive	Huntington	Wayne
Х					Infrastructure	Spring Valley PSD Sewer	203 33rd Street	Huntington	Wayne
Х					Healthcare	Valley Health	2908 Auburn Road	Huntington	Wayne



						TABLE 2.4.A REGION 2 ASSETS			
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
Х					Healthcare	Veteran's Admin Hosp.	1340 Spring Valley Dr.	Huntington	Wayne
				Х	School	Vinson Middle School	3851 Piedmont Rd	Huntington	Wayne
Х					Government	Wayne County Commission Service Org, Inc.	3609 Hughes St	Huntington	Wayne
Х					Infrastructure	West Virginia American Water	40002 Ohio River Road	Huntington	Wayne
	Х				Commerce	Kevova /Willart Chemical Co	100 21 St Street	Kenova	Wayne
Х					Fire	Kenova FD	1600 Pine Street	Kenova	Wayne
Х					Infrastructure	2/19 SFG Tristate Airport	1 Booth Road	Kenova	Wayne
	Х				Commerce	Federal Express Depot	700 Walnut St	Kenova	Wayne
Х					Transportation	I 64 Highway Bridge Big Sandy River	Kenova	Kenova	Wayne
				Х	Residence	Joseph S. Miller House	748 Beech Street	Kenova	Wayne
Х					Government	Kenova City Hall	1501 Pine Street	Kenova	Wayne
				Х	School	Kenova ES	1600 Pine Street	Kenova	Wayne
Х					Infrastructure	Kenova Floodwall	1631 Beech St	Kenova	Wayne
Х					Law Enforcement	Kenova PD	1501 Pine Street	Kenova	Wayne
Х					Fire	Kenova VFD 2	3985 RT 75	Kenova	Wayne
				Х	School	Kenova/Ceredo Elementary	300 9th Street	Kenova	Wayne
	Х				Commerce	Marathon Petroleum Kenova Tank Farm	227 23 Street	Kenova	Wayne
	Х				Commerce	Marathon Transportation Kenova Ohio River Dock	23 Street and Ohio River	Kenova	Wayne
	Х				Commerce	Marathon Tri-State Tank Farm	23 Street And US 60	Kenova	Wayne
Х					Transportation	N&S Rail Yard Kenova	Kenova	Kenova	Wayne
Х					Transportation	N&W Ohio River Bridge	Kenova	Kenova	Wayne
				Х	School	Playmates Day Care	725 Chestnut St	Kenova	Wayne
				Х	Nursing Home	Roxanna Booth manor	1315 Chestnut St	Kenova	Wayne
Х					Transportation	US RT 60 Highway Bridge	Kenova	Kenova	Wayne
Х					Infrastructure	Beech Fork Dam	3900 Beech Fork Road	Lavalette	Wayne
				Х	Residence	Lakeview Manor	5100 W US 152	Lavalette	Wayne
Х					Infrastructure	Lavalete PSD Water	5308 US 152	Lavalette	Wayne
				Х	School	Lavalette ES	1150 Beech fork Road	Lavalette	Wayne
Х					Infrastructure	Lavalette PSD	5308 Rte. 152	Lavalette	Wayne
Х					Fire	Lavalette VFD	4502 WV 152	Lavalette	Wayne



						TABLE 2.4.A REGION 2 ASSET	ſS		
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
Х					Infrastructure	North Wayne PSD Sewer	5308 US 152	Lavalette	Wayne
				Х	School	Playmates Day Care	5185 Rte. 152	Lavalette	Wayne
	Х				Commerce	Aristech Chemical Corp.	200 Big Sandy Road	Neal	Wayne
	Х				Commerce	Ashland Chemical	100 Big Sandy Road	Neal	Wayne
	Х				Commerce	AXO Nobel Explosives	2625 US 52	Neal	Wayne
	Х				Commerce	Kenova Peaker Station	2570 Rte. 52	Neal	Wayne
Х					Infrastructure	Kenova Water Plant	US 152	Neal	Wayne
	Х				Commerce	Marathon Butane & Propane Cavern	150 Big Sandy River Rod	Neal	Wayne
	Х				Commerce	Heartland Intermodal Facility	401 Heartland Road	Prichard	Wayne
Х					Government	Prichard DOH Garage	Prichard	Prichard	Wayne
				Х	School	Prichard ES	Fire Department Road	Prichard	Wayne
				Х	School	Prichard Grade School	519 Prichard Road	Prichard	Wayne
	Х				Commerce	Prichard Industrial Park	Industrial Way	Prichard	Wayne
Х					Government	Prichard Post Office	295 Prichard Road	Prichard	Wayne
Х					Infrastructure	Prichard PSD Sewer	213 Gay Lane	Prichard	Wayne
Х					Fire	Prichard VFD/EMS	Fire Department Road	Prichard	Wayne
Х					Government	Administrative Annex 2	4 Memorial St	Wayne	Wayne
Х					Government	Administrative Annex 1	2 Memorial ST	Wayne	Wayne
Х					Transportation	Bus Garage	1302 US Rte. 152	Wayne	Wayne
				Х	Residence	Charter House	1607 Mose Aasburry Rd	Wayne	Wayne
Х					Government	County Courthouse	707 Hendricks St	Wayne	Wayne
Х					Transportation	CSX Main Line Huntington Sub	Wayne	Wayne	Wayne
				Х	School	Genoa ES	21269 RT 152	Wayne	Wayne
Х					Transportation	Norfolk Southern Pocahontas Division	Wayne	Wayne	Wayne
Х					Healthcare	Valley Health	42 Mcginnis Drive	Wayne	Wayne
	Х				Commerce	Wal-mart Inc.	100 McGuiness Dr.	Wayne	Wayne
Х					Government	Wayne 911 Communications Center	1 Hendricks St	Wayne	Wayne
Х					Healthcare	Wayne Continuous Care & Rehab	6999 RT 152	Wayne	Wayne
Х					Government	Wayne County BOE	212 N Court St	Wayne	Wayne
Х					Government	Wayne County Commission	707 Hendricks St	Wayne	Wayne



				d)	TABLE 2.4.A REGION 2 ASSETS				
Critical	Economic	Historic	Special	Vulnerable	Description	Asset Name	Address	City/Town	County
Х					Healthcare	Wayne County DHHR	26452 East Lynn Road	Wayne	Wayne
				Х	School	Wayne County ES	80 Mcginnis Dr.	Wayne	Wayne
Х					Healthcare	Wayne County Health Department	217 Kenova Ave	Wayne	Wayne
				Х	School	Wayne County HS	100 Pioneer Road	Wayne	Wayne
				Х	School	Wayne County MS	200 Pioneer Road	Wayne	Wayne
Х					Law Enforcement	Wayne County Sheriff	707 Hendricks ST	Wayne	Wayne
Х					Government	Wayne DOH Garage	326 3Rd St Wayne	Wayne	Wayne
				Х	School	Wayne Grade School	80 Mcginnis Drive	Wayne	Wayne
				Х	School	Wayne High School	1 Pioneer Drive	Wayne	Wayne
Х					Law Enforcement	Wayne PD	305 Bluefield St	Wayne	Wayne
Х					Infrastructure	Wayne Sewer Plant	308 Bluefield	Wayne	Wayne
Х					Fire	Wayne VFD	12345 WV 152 S	Wayne	Wayne
Х					Infrastructure	Wayne Water Plant	305 Bluefield St	Wayne	Wayne







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DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative









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Wayne County Assets Data Source(s): WV GIS Tech Center



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2.5 DEVELOPMENT TRENDS

§201.6(c)(2)(ii)(C) [The plan should describe vulnerability in terms of] providing a general discussion of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

When land is developed or redeveloped it can change the general characteristics of a site. For example, if an area was previously forest and in an effort to introduce agriculture it was deforested, the soil would be different and the ecosystem would change and be vulnerable to new hazards. The same goes for buildings and infrastructure; when a site is modified to add new construction, there are many elements developers should consider. In the Region 2 geographic area this is mainly flooding and the effects of severe weather.

There are some challenges to development in the region. According to the Community Economic Development Strategy (CEDS) of 2016, the following is a brief description of those challenges.

- **Outmigration**: Younger generations have and continue to be a major challenge to the advancement and development of the region. The average age of residents continues to stay above 38 years, making its population considerably older on average than similar regions across the country. Loss of labor force, taxes and revenue all are factors that have to be addressed annually and each can be attributed to this phenomena.
- Increased use of drugs and resulting drug addictions and overdoses: The local economies are having a difficult time finding applicants to fill positions for jobs due to the inability to pass drug tests. This is occurring at a time when unemployment is well over 13% in the counties located in the southern portion of the region. With the lack of job diversity compiled with the growing drug crisis, the threat to the regional economy is threatened.
- Infrastructure: Infrastructure development has been a part of the Region 2 PDC's focus for many years, and advancements have been made throughout each of the six counties. However, though water is plentiful near the rivers, many areas still depend on groundwater from wells to supply residential and commercial needs. In many places, wells regularly run dry or become contaminated from leaking septic tanks or other pollutants. This creates a lack of growth due to water situations. Steps are being taken to create a strong and safe infrastructure for all residents in each of the six counties.



• **Manufacturing**: The region faces an economic threat in terms of a lack of manufacturing locations. Mason County, located along the Ohio River and with rail access, appears to offer great opportunities to attract manufactures to the area. However, even with the efforts of county officials, the development of manufacturing sites has been limited in recent years. Lincoln County, in the latest census data, is shown to have only a few manufacturing sites in the entire county. With the downturn in the coal industry, the labor force will be in need of options. Without growth in the manufacturing sector, the threat of high unemployment and lower wages will continue to be a hindrance to the labor force and the region as whole.

Although there are challenges, there are several organizations and agencies that are working towards overcoming them. One example is the Region 2 Planning and Development Council that has worked with local officials and communities to overcome these challenges. There are over 100 projects in the region that they aim to improve the economy and general wellbeing of the population of the counties. The following is a list of projects that are in some way related to hazard mitigation activities, for example, building facilities that could be potentially used for shelters, improving flooding conditions, creating green infrastructure that can mitigate hazards, etc.

TABLE 2.5.A PROPOSED DEVELOPMENT PROJECTS											
Project	Applicant	Туре									
Beech Fork State Park Lodge	Wayne County Commission	Building									
Rural Substance Abuse Treatment Center	Mingo County Commission	Building									
Silver Jackets	Town of Hamlin	Flood Mitigation									
Mingo Co. Family Resource Center	Mingo County Commission	Building									
Community Health Resource Center	Mingo County Commission	Building									
Youth Center Remodeling	Mason County Commission	Building									
Lower Mud River Flood Control Project	City of Milton	Flood Control									
Floodwall Renovation	City of Huntington	Floodwall									
Silver Jackets	Town of New Haven	Flood Mitigation									
Town Hall / Multi-Purpose Center	Town of West Hamlin	Building									
Neighborhood Revitalization / 11 Areas	Cabell County Commission	Comm. Improv.									
Green Infrastructure	City of Huntington	Flood Mitigation									
Community Center	Town of Matewan	Building									
Landfill	City of Huntington	Landfill									
Housing Project	Lincoln County Commission	Housing									
Arlington Blvd. Storm and Flood Mitigation	City of Huntington	Mitigation									
Combined Sewer / Storm Drainage	City of Point Pleasant	Flood Control									

Another entity working to improve conditions in transportation and economy is the



West Virginia Department of Transportation in their port development division; the Cabell/Wayne Port District is being considered for an inland container port. This multimodal facility will be located in Prichard, West Virginia along the Big Sandy River and is currently under study by the West Virginia Department of Transportation, Norfolk Southern Railroad, Nick Rahall Transportation Institute, Marshall University and Clemson University. This inland container port would grant public access to both the international markets of the Virginia Port Authority as well as the Container Port of Columbus, Ohio (WV Department of Transportation, n.d.).

The Huntington Area Development Council (HADCO) maintains listings of available business sites and buildings in the area. HADCO also develops business parks and

constructs and manages available industrial buildings to accommodate business growth. They target manufacturing, metal working, chemicals & polymers, biotechnology, business services and information technology,



healthcare, automotive suppliers, and aerospace sectors. The map above is an illustration of where HADCO has buildings or lots available for development in Cabell County.

Locally, many counties have an Economic Development Authority that list available properties for commercial and industrial use. These include undeveloped land to existing buildings for redevelopment and everything in between, some with and some without utilities.

Lincoln County broadband development has outpaced regional, state, and national speeds. Now, business, government, and economic development leaders in the county are looking to reach out to potential entrepreneurs and corporate interests to make sure they know Lincoln County is at the forefront for data capabilities. At the federal level, West Virginia's two U.S. senators have been vocal on the broadband topic, strongly advocating for improvements, sponsoring legislation, and convening roundtable gatherings (O'Donoghue, n.d.).



3.0 ACTION PLAN

2017 UPDATE

The committee changed the goals and objectives in this plan update after discussions during meetings to present a more unified approach to mitigation in the region. All the projects from the previous plan have been addressed as per their status and some jurisdictions added new projects according to their current mitigation activities or issues or hazards they face in their communities.

SECTION OVERVIEW

The action plan contains information on goals that the steering committee decided upon and projects that the jurisdictions updated or created. This section explains in further detail the process by which goals were established and how existing and new projects were prioritized.



3.1 HAZARD MITIGATION GOALS AND OBJECTIVES

§201.6(c)(3)(i) [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Local mitigation goals have changed since the previous hazard mitigation plan update. The steering committee reviewed the list of goals and objectives from the previous plan and noticed that many were repeated or very similar in nature and that the list of goals was long and unmanageable. After some discussion about best practices, the committee determined that they would consider the existing list but create a new one. They set one overall regional goal and few objectives that every jurisdiction's projects would work toward achieving. In essence, all projects from all jurisdictions will work through objectives to achieve the overall regional goal.

The goal and objectives are not specific to any one hazard; rather can apply to all hazards identified in the risk assessment. The committee determined the objectives after discovering project themes from current and past mitigation projects. Generally, the projects aligned into five themes: regulation, infrastructure protection, education, flooding, and preparedness activities.

GOAL: Enhance resiliency by lessening the loss of life and property from the impacts of all hazards in Cabell, Lincoln, Logan, Mason, Mingo, and Wayne Counties and the jurisdictions therein.

- OBJECTIVE 1: Create and enforce codes, rules, regulations, ordinances, and programs that reduce the vulnerability of the population and the built environment to the impact of hazards.
- OBJECTIVE 2: Protect critical infrastructure from all hazards throughout the region.
- OBJECTIVE 3: Educate and train local officials and responders as well as the public on hazards and the different measures they can implement to reduce the impacts.
- OBJECTIVE 4: Focus efforts toward mitigating riverine and nuisance flooding in the region.
- OBJECTIVE 5: Continue to engage and participate in ongoing preparedness activities, partnerships and programs that could reduce loss of or damage to life and property.



The mitigation goals from the 2012 plan are outlined below. In general, they aim to reduce the negative effects from hazards to the region, which is now the overall regional goal.

- 1. Lessen flood related losses throughout region.
- 2. Reduce the negative effects of severe winter storms throughout the region.
- 3. Reduce the negative effects of severe thunderstorms throughout the region
- 4. Reduce damage from severe wind and tornadoes throughout the region.
- 5. Lessen the effects of landslides throughout the region.
- 6. Lessen hail damage throughout the region.
- 7. Reduce the negative effects of drought throughout the region.
- 8. Protect the population and forests from wildfire throughout the region.
- 9. Reduce the negative effects of land subsidence.
- 10. Reduce the negative effects of landslides throughout the region.
- 11. Reduce the negative effects of utility failures throughout the region.
- 12. Protect the general public from the risk of a bomb threat throughout the region.
- 13. Reduce the negative effects of a communication failure throughout the region.
- 14. Protect the general public from hazardous material incidents throughout the region.
- 15. Protect the general public from dam failures throughout the region.
- 16. Education.



3.2 PROJECT IMPLEMENTATION

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

This portion of the plan builds on the goal and objectives presented in Section 3.1. It actualizes the "action plan" portions of the hazard mitigation planning requirement. The following tables will provide specific mitigation projects for the jurisdictions participating in this update. Significantly and in accordance with one of the PDC and steering committee's 2017 planning priorities, several other government agencies/departments, community groups, private sector organizations, etc. may also under mitigation actions. These efforts may not be included in the mitigation plan because their organizers were not aware of the planning process or otherwise did not participate in the effort. The 2017 update identified these efforts and included extensions of them in the project list below. Future updates should continue to identify these types of projects and their organizers.

Mitigation Effort	Hazard of Concern
Formation and regular meetings of the Cabell-Wayne Homeland Security Committee	Acts of Violence
Ceredo floodwall	Dam/Floodwall Failure
	Flood
Huntington floodwall	Dam/Floodwall Failure
	Flood
Matewan floodwall	Dam/Floodwall Failure
	Flood
Point Pleasant floodwall	Dam/Floodwall Failure
	Flood
Williamson floodwall	Dam/Floodwall Failure
	Flood
KYOVA mobility study regarding stormwater flow through Huntington and backup in	Flood
underpasses under the rail line	
Integrating green infrastructure into hazard mitigation planning, Huntington case study	Flood
(partnership with U.S. EPA)	
Fourpole Creek Watershed Association stream cleaning projects	Flood

TABLE 3.2.A PREVIOUS MITIGATON EFFORTS CONTRIBUTING TO REGIONAL RESILIENCY, BUT UNAFFILIATED WITH THE 2012 VERSION OF THIS PLAN



TABLE 3.2.A PREVIOUS MITIGATON EFFORTS CONTRIBUTING TO REGIONAL RESILIENCY, BUT UNAFFILIATED WITH THE 2012 VERSION OF THIS PLAN

Mitigation Effort	Hazard of Concern
Fourpole Creek Watershed Association tree plantings	Flood
Fourpole Creek Watershed Association rain barrel workshops	Flood
Tug Fork Watershed Association 319 non-point source pollution projects	Flood
Guyandotte River water trail	Flood
Lincoln County private water crossings mitigation through VOAD	Flood
Williamson FD partnership with AEP to identify problem streetlights and service	Severe Summer Weather
connections throughout the city	Severe Winter Weather
Amp Gymnastic bioretention cell at Kinetic Park, Huntington	Flood
Bioretential cell at residential apartment complex on 10th Street, Huntington	Flood
Cabell-Huntington Hospital parking lot bioretention cells (13th Avenue & Cypress Street,	Flood
15 th Street, and 16 th Street)	
CVS Pharmacy bioretention cell on Fifth Avenue, Huntington	Flood
Dollar General bioretention cell on Monroe Avenue, Huntington	Flood
Family Dollar bioretention cell on Waverly Road, Huntington	Flood
RMS Pro Finishes bioretention cell on Third Avenue, Huntington	Flood
Sheetz bioretention cell on Fifth Avenue, Huntington	Flood
Beltone bioretention cell on 6 th Avenue, Huntington	Flood
Bioretention cell at residential apartments on 6th Avenue, Huntington	Flood
Taco Bell bioretention cell at Kinetic Park, Huntington	Flood
Atomic Distribution bioretention cell on 7 th Avenue, Huntington	Flood
Bimbo Bakery parking lot bioretention cell at 14th Street West & Adams, Huntington	Flood
St. Mary's Hospital bioretention cell on 1 st Avenue, Huntington	Flood
Texas Roadhouse bioretention cell on US Route 60, Huntington	Flood
Uptowner Inn impoundment lot bioretention cell at Madison Avenue & 16th Street West,	Flood
Huntington	
Huntington Gardens infiltration system on Doulton Avenue, Huntington	Flood
Sheetz infiltration system on 6 th Avenue, Huntington	Flood
River Park Hospital Gym porous pavement installation on 6th Avenue, Huntington	Flood
Sheetz porous pavement installation at 6th Avenue & 8th Street, Huntington	Flood
Porous pavement installation at residential apartments on 6th Avenue, Huntington	Flood
Buffalo Crossing Development porous pavement installation on Third Avenue,	Flood
Huntington	
Porous pavement installation at a parking lot on First Street, Huntington	Flood
Cookout Restaurant porous pavement installation on 25th Street, Huntington	Flood
Taco Bell stormwater planters at Kinetic Park, Huntington	Flood
Milton Middle School porous pavement installation	Flood
WV Silver Jackets Lincoln County mapping initiative	Flood
WV Silver Jackets New Haven stormwater management planning	Flood
Guyandotte River watershed mapping initiative	Flood

Jurisdictional projects below are listed with a timeframe, primary coordinator, support agencies, potential funding source (and cost estimate), and its current status. It is important to note that the cost estimates are tentative and meant as a starting point for research on project feasibility. More specifically, these cost estimates are only ranges of probable project costs; all figures are approximations. At the time the implementation of any strategy is



considered, a full cost estimate should be sought prior to securing funding. Possible funding sources identified include:

- Community Development Block Grant (CDBG)
- Flood Mitigation Assistance Grant
- Hazard Mitigation Grant Program (HMGP)
- Increased Cost of Compliance
- In-Kind Work (Work or Labor)
- Local Funds
- Pre-Disaster Mitigation Grant (PDM)
- Repetitive Flood Claims Program
- Severe Repetitive Loss Grant
- State Funds
- Other (includes N/A)

The benefit-cost review was emphasized in the prioritization process. Mitigation actions were evaluated by their pros and cons, which are represented as costs and benefits.

Project prioritization criteria were established during the third committee meeting utilizing the project prioritization matrix. Committee members were asked to rate each project on six criteria using a one to five scale where five is best. The criteria used are:

- Ease of Implementation: Do local policies and capabilities currently allow for the implementation of the project? Are programs available to assist in funding the implementation of the project?
- **Cost Effectiveness:** Is sufficient funding available to implement the project at a cost manageable by the local government? If not, is funding available? Will the costs of implementing the project be significantly less than the cumulative future costs potentially incurred by an un-corrected situation?
- **Social Impacts**: Will the public perceive the project as positively lessening hazardrelated losses? Will implementing the project adversely affect any segment of the population?
- Political Impacts: Will implementing the project create negative political issues?
- **Economic Impacts**: Is the cost/benefit ratio of implementing the project acceptable? Will implementing the project adversely affect the local economy?



• **Overall Positive Impact**; Do local leaders generally agree that implementing the project will be beneficial to the community?

For example, if a jurisdiction has five mitigation projects, the project number will be identified in the top row. Then each project will be given between 1 and 5 (5 being the best) points for each criterion. The points are tallied and the project with the most points will be the first priority. If two or more projects score the same amount of points, they are

considered a tie and given the same priority. The table to the right is filled out as an example. In this example, project number 4 was ranked the highest so therefore it is the number one priority for the jurisdiction, followed by project 2, then a tie between projects 1 and 3 and finally, project number 5.

TABLE 3.2.B PROJECT PRIORITIZATION MATRIX EXAMPLE											
	1	2	3	4	5						
	_		-								
Ease of Implementation	5	2	3	4	2						
Cost Effectiveness	1	3	3	2	4						
Social Impact	3	2	2	5	2						
Political Impact	5	4	3	3	1						
Economic Impact	1	3	5	4	2						
Overall Positive Impact	3	5	2	3	3						
TOTAL	18	19	18	21	14						
PRIORITY	3	2	3	1	5						



	TABLE 3.2.C REGION 2 HAZARD MITIGATION PLAN PROJECTS												
Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status Active/Inactive	Corresponding Objective	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
All Jurisdictions	Regional	Regional 1	All Hazards	1	Implement public awareness campaigns regarding all hazards via social media sites (Revised 2012 Project 8.1.1)	New	Active	3, 5	On-going	All County Commissions All County EM Agencies	All County Commissions All County EM Agencies	Minimal	Local funds In-kind funds
All Jurisdictions	Regional	Regional 2	All Hazards	3	Update and maintain mutual aid agreements amongst each county in Region 2 regarding resources that could be required for response	New	Active	3, 5	On-going	All County Commissions All County EM Agencies	All County Commissions All County EM Agencies	Minimal	Local funds In-kind funds
All Jurisdictions	Regional	Regional 3	All Hazards	2	Build partnerships with media providers to ensure the dissemination of early warning information and support municipalities in becoming storm ready through the NWS (Revised 2012 Project 5.1.1)	New	Active	3, 5	On-going	Region 2 PDC	All County Commissions All County EM Agencies Regional media outlets National Weather Service	Minimal	Local funds In-kind funds
All Jurisdictions	Regional	Regional 4	All Hazards	4	Support jurisdictional efforts to identify critical infrastructure; seek funding opportunities to equip said facilities with auxiliary power (i.e., generators)	New	Active	2	On-going	Region 2 PDC	All County EM Agencies	Up to \$50,000, depending on generator & facility needs	PDM HMGP
All Jurisdictions	Regional	Regional 5	All Hazards	5	Offer education and training to PDC and jurisdictional leaders about opportunities for integrating mitigation into other planning efforts	New	Active	5	5 years	Region 2 PDC	FEMA	N/A	N/A
Barboursville	Cabell County	Barboursville 1	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects	New	Active	4	5 years with periodic reviews of status	c Floodplain Manager	Village Council FEMA	\$114,000 per purchased home	HMGP
Barboursville	Cabell County	Barboursville 2	All Hazards	1	Conduct a study of Mud River flooding in the new Tanyard Station development area due to new construction causing runoff.	New	Active	5	3 years	Village Council	Cabell County OES Floodplain Manager	Up to \$75,000, contingent on professional services	PDM State funds
Cabell County	Cabell County	Cabell County 1	Opioid Crisis	5	Endeavor to open more drug rehabilitation centers to address the growing opioid crisis.	New	Active	1, 3	5 years	Cabell County Commission	Cabell County Health Department Local Hospitals and Clinics	Up to \$5,000,000 for in- patient facility; up to \$30,000 per 30-day treatment program	N/A
Cabell County	Cabell County	Cabell County 10	Flood	11	Provide a community-wide service to anchor mobile homes for qualifying citizens and encourage private individuals to anchor their own mobile homes. (2012 Project - No ID).	Ongoing. Identify areas for pre mitigation.	Active	1, 3, 4	5 years	Cabell County Commission	County Planning Departments Floodplain Managers	Minimal	Local funds
Cabell County	Cabell County	Cabell County 11	Flood	11	Familiarize the community with the risk of "convergence zone" type flooding. A Convergence Zone is caused when low atmospheric pressure combines with severe weather causing overflow and watershed backup (2012 Project No ID)	Ongoing. Seek community and media involvement.	Active	3,4	2 years	Cabell County Public Works Department	Floodplain Manager City/County Planning Offices	Minimal (if added into existing outreach efforts)	Local funds
Cabell County	Cabell County	Cabell County 12	Flood	12	Encourage businesses and citizens in historic flood areas to elevate their structures and valuables out of harms way. (2012 Project - No ID)	: Ongoing. Seek community involvement.	Active	2, 3, 4	2 years	Floodplain Coordinator	Cabell County OES	Minimal (if added into existing outreach efforts)	Local funds
Cabell County	Cabell County	Cabell County 13	Land Subsidence	12	Identify and implement community-wide erosion control measures. Utilize public access television to include programming on how to define the problem and how to mitigate and live with the effects of erosion. (2012 Project - No ID).	Ongoing. Continue e Implementation.	Active	3	5 years	Cabell County OES	CCERC-911 City/County Planning Departments Public Works Departments Department of Natural Resources WV DOH Army Corps of Engineers USDA Soil Conservation Office	Minimal (utilizing public access programming should minimize costs)	Local funds
Cabell County	Cabell County	Cabell County 14	All Hazards	11	Expand real estate disclosure to include all hazards. (2012 Project - No ID).	Ongoing. Expand disclosures to include all hazards.	Active	1, 3	4 years	Public Works Department	City/County Planning Departments Local Real Estate Agents	Minimal	Local funds
Cabell County	Cabell County	Cabell County 15	All Hazards	4	Examine the feasibility of implementing building codes requiring underground utilities for new development where possible. (2012 Project - No ID).	Ongoing. Continue to seek software for permits.	Active	1, 4	2 years	Cabell County Commission	City/County Planning Departments Floodplain Managers Local Utilities	Minimal	Local funds

Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status Active/Inactive	Corresponding Objective	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
Cabell County	Cabell County	Cabell County 16	All Hazards	18	Pursue recovery recommendations from FEMA to allow the Federal Highway Authority to administer both the on and off road system disaster repair recovery program. (2012 Project - No ID)	Ongoing. Continue to pursue.	Active	2, 5	4 years	Public Works Departmer	nt WVDOH FEMA FHA	N/A	N/A
Cabell County	Cabell County	Cabell County 17	Flood* +	1	Acquisition	Ongoing.	Active	4	1 year	Cabell County OES	WVDHSEM FEMA	\$96,678.38	HMGP
Cabell County	Cabell County	Cabell County 18	Flood	1	Create a watershed plan per 319 non-point source pollution efforts.	New	Active	4	3 years	Four Pole Creek Watershed Association	County Planning Department Floodplain Managers Region 2 PDC	N/A	State funds
Cabell County	Cabell County	Cabell County 2	Hazmat	3	Apply for grants for training and necessary equipment to increase hazmat response capabilities.	New	Active	5	2 years	Cabell County LEPC	Local Fire Departments	\$5,000 per project	HMEP
Cabell County	Cabell County	Cabell County 3	Flood*	11	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects and turn the area into a green space	New	Active	4	5 years with periodic reviews of status	Cabell County OES	FEMA Floodplain Manager	\$114,000 per purchased home	HMGP
Cabell County	Cabell County	Cabell County 4	Acts of Violence	18	Consider mandating rehabilitation and/or longer jail time for crimes relating to drug abuse.	New	Active	1	2 years	Cabell County Commission	Cabell County Commission Cabell County Sheriff Local Law Enforcement	N/A	N/A
Cabell County	Cabell County	Cabell County 5	Flood	5	Distribute National Flood Insurance Program (NFIP) information in utility bills on an annual basis prior to flood season. The program lead for this strategy would require the NFIP to coordinate with the local utility companies to provide and distribute the information. The local floodplain administrators would serve as the points of contact and coordination with the NFIP. (2012 Project - No ID).	Ongoing. Seek funding for implementation	Active	4	1 year	Floodplain Coordinator	Local Utilities	N/A	Local funds
Cabell County	Cabell County	Cabell County 6	Flood	5	Distribute NFIP information through the Assessor's Office with the tax statements each year. This would require coordination with the Assessor's Office, Data Processing and the local floodplain administrators. (2012	Ongoing. Continue to apply for funding	Active	4	1 year	Floodplain Coordinator	Cabell County Assessor's Office Local Floodplain Coordinators	N/A	Local funds
Cabell County	Cabell County	Cabell County 7	All Hazards	8	Develop a plan to maintain an available supply of safety and emergency preparedness supplies. (2012 Project - No	Ongoing. Continue to help with coordination.	Active	5	6 months	Cabell County OES	CCERC-911 American Red Cross Public Works Departments	N/A	Local funds
Cabell County	Cabell County	Cabell County 8	Flood	10	Streamline environmental compliance requirements for pre-flood prevention activities. (2012 Project - No ID).	Ongoing. Update countywide permit process.	Active	1, 4	3 years	Cabell County OES	CCERC-911 Public Works Departments Development Offices Army Corps of Engineers USDA Soil Conservation Office	N/A	N/A
Cabell County	Cabell County	Cabell County 9	Flood	9	Pursue FEMA Disaster Mitigation Grants which include mitigation measures for the private sector for multi-hazard risks. (2012 Project - No ID)	Ongoing. Some completed, some pending.	Active	4	3 years	Cabell County OES	CCERC-911 Floodplain Manager Public Works Departments Planning Offices	Varies	PDM HMGP
Ceredo	Wayne County	Ceredo 1	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects	New	Active	4	5 years with periodic reviews of status	Floodplain Manager	FEMA Town Council	\$85,000 per purchased home	IHMGP
Ceredo	Wayne County	Ceredo 2	All Hazards	1	Identify specific areas within the jurisdiction that are susceptible to the impacts of any hazards (e.g., site-specific flooding from stormwater backup) to develop future mitigation strategies.	New	Active	5	1 year	Town Council	Wayne County OES Floodplain Manager	Minimal (identification of areas & coordinatior should require minimal additional funding)	Local funds
Chapmanville	Logan County	Chapmanville 1	Flood	4	Periodically clean culverts and prioritize culvert replacements (2012 Project 4.2.1).	Ongoing	Active	4	5 years ongoing	Town Council	WV DOH	N/A	State funds
Chapmanville	Logan County	Chapmanville 2	Flood	1	Develop a regular stream cleaning schedule (2012 Project 4.3.2)	Ongoing	Active	4	6 months	Town Council	Army Corps of Engineers USDA Natural Resource Center	N/A	N/A

Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status	Corresponding	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
Chapmanville	Logan County	Chapmanville 3	Flood*		Continue to participate in		Active/Inactive	Objective	5 years with periodic	Town Council	FEMA	\$85,600 per purchased	HMGP
				2	acquisition/demolition, relocation, mitigation	Ongoing	Active	4	reviews of status		Floodplain Managers	home	
					(Revised 2012 Project 4.4.1)								
Chapmanville	Logan County	Chapmanville 4	Severe Summer Weather		Promote new construction and/or roof				2 years	Town Council	Municipal Code Enforcement	Minimal (through	Local funds
				3	remodeling projects to withstand 90 mph wind	Ongoing	Active	1, 5				existing permitting	
					loads per the building permit process (2012	0 0						processes)	
Delbarton	Mingo County	Delbarton 1	Flood*		Continue to participate in				5 years with periodic	Floodplain Manager	WVDHSEM	\$70,600 per purchased	HMGP
	3			2	acquisition/demolition, relocation, mitigation	New	Active	4	reviews of status		FEMA	home	
					reconstruction, and elevation projects.								
Delbarton	Mingo County	Delbarton 2	All Hazards		Identify specific areas within the jurisdiction				1 year	Town Council	Mingo County EM	Minimal (identification	Local funds
				1	that are susceptible to the impacts of any	New	Active	5			Floodplain Manager	of areas & coordination	
					Indzarus (e.g., sile-specific flooding florin stormwater backup) to develop future	NEW	Active	5				additional funding)	
					mitigation strategies.							additional runding)	
Fort Gay	Wayne County	Fort Gay 1	Flood		Continue to participate in				5 years with periodic	Floodplain Manager	FEMA	Up to \$85,000 per	HMGP
				2	acquisition/demolition, relocation, mitigation	Ongoing	Active	4	reviews of status		Town Council	purchased home	
					reconstruction, and elevation projects.								
Fort Gay	Wayne County	Fort Gay 2	All Hazards		Identify specific areas within the jurisdiction				1 year	Town Council	Wayne County OES	Minimal (identification	Local funds
5	, ,	5			that are susceptible to the impacts of any				,		Floodplain Manager	of areas & coordination	
				1	hazards (e.g., site-specific flooding from	New	Active	5				should require minimal	
					stormwater backup) to develop future							additional funding)	
Gilbert	Mingo County	Gilbert 1	Flood*		Continue to participate in				5 years with periodic	Floodplain Manager	WVDHSFM	\$70,600 per purchased	HMGP
Chibert	iningo ocany (Gibert	11000	2	acquisition/demolition, relocation, mitigation	Onnalan	0	4	reviews of status	i loouplairi managor	FEMA	home	
				2	reconstruction, and elevation projects.	Ungoing	Active	4					
					(Revised 2012 Proiect 1.5.1).								
Gilbert	Mingo County	Gilbert 2	All Hazards		Identify specific areas within the jurisdiction				1 year	Town Council	Mingo County EM	Minimal (identification	Local funds
				1	that are susceptible to the impacts of any	New	Active	5			Floodplain Manager	of areas & coordination	
				stormwater backup) to develop future	11011	7101170	°,				additional funding)		
					mitigation strategies							additional randing)	
Hamlin	Lincoln County	Hamlin 1	Flood		Update the plan to monitor and clean storm	a .			3 years	Floodplain Manager	Floodplain Manager	N/A	N/A
				2	water drainage systems within municipalities	Ongoing	Active	1,4			Town Council		
Hamlin	Lincoln County	Hamlin 2	Flood*		(2012 Project 1.1.1) Continue to participate in				5 years with periodic	Lincoln County FMA	FEMA Floodplain Manager	\$82,400 per purchased	HMGP
	Lincontrobanty			1	acquisition/demolition, relocation, mitigation	New	Active	4	reviews of status		Town Council	home	
					reconstruction, and elevation projects.						FEMA		
Hartford	Mason County	Hartford 1	Flood		Identify areas in which storm water backs up				1 year	Floodplain Manager	Local PSDs	Minimal	Local funds
				1	– primarily in municipalities – and determine	Ongoing	Active	4					
					Ine costs of corrective actions (2012 Project								
Hartford	Mason County	Hartford 2	Flood*		Continue to participate in				5 years with periodic	Floodplain Manager	WVDHSEM	\$76,900 per purchased	HMGP
				2	acquisition/demolition, relocation, mitigation	New	Active	4	reviews of status		FEMA	home	
l le mel e me e m	Masan Cauntu	l landanaan 1	[] and		reconstruction, and elevation projects.				1	Electric Menerer	Least DCD-	Minima I	L a a a l fa un da
Henderson	wason County	Henderson 1	FIOOD		Identify areas in which storm water backs up				r year	Floodplain Manager	Local PSDS	winimai	Local lunds
				1	the costs of corrective actions (2012 Project	Ongoing	Active	4					
					4.1.1).								
Henderson	Mason County	Henderson 2	Flood*		Continue to participate in				5 years with periodic	Floodplain Manager	WVDHSEM	\$76,900 per purchased	HMGP
				2	acquisition/demolition, relocation, mitigation	Ongoing	Active	4	reviews of status		FEMA	home	
					reconstruction, and elevation projects								
Huntington	Cabell County	Huntington 1	Flood		Provide for an engineering study to propose				2 years	Huntington Storm Water	City of Huntington Public Works	N/A (per pursuit of	N/A
5	,	5		4	and prepare plans to remove the flooding	Now	Activo	2.4	,	Utility	City of Huntington Planning &	partnerships)	
				4	threat of Fourpole Creek.	INCW	Active	2,4			Development		
Huntington	Cabell County	Huntington 2	Flood		Upgrado, refurbich and rehabilitate 17				E voare	Huntington Storm Water	WV Silver Jackets	Up to \$175,000 mor	
Hundington	Cabell County		FIUUU		floodwall numping stations and all gate				5 years	Litility	Floodplain Manager	op to \$175,000 per	State funds
				3	openings to current technology and	New	Active	2, 4		Curry	City Council	pump	Local funds
					standards.								

Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status Active/Inactive	Corresponding Objective	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
Huntington	Cabell County	Huntington 3	Flood*	5	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects	New	Active	4	5 years with periodic reviews of status	Floodplain Manager	City Council FEMA	\$114,000 per purchased home	HMGP
Huntington	Cabell County	Huntington 4	All Hazards †	1	11th Street Pump Station	Ongoing	Active	5	1 year	Huntington Storm Water Utility	WVDHSEM FEMA	\$1,063,810	HMGP
Huntington	Cabell County	Huntington 5	All Hazards †	1	Automatic Pumps	Ongoing	Active	5	1 year	Huntington Storm Water Utility	WVDHSEM FEMA	\$1,116,965	HMGP
Kenova	Wayne County	Kenova 1	Flood	1	Continue coordinating with the WVDOH to conduct culvert inspections/cleaning throughout the county. Protect bridges and roadways from flooding hazards (2012 Project 1.2.1)	Ongoing	Active	2, 4	5 years with periodic reviews of status	Public Works	WVDOH	Minimal (coordination should require little additional funding)	Local funds
Kenova	Wayne County	Kenova 2	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects	New	Active	4	5 years with periodic reviews of status	Floodplain Manager	FEMA Town Council	\$85,000 per purchased home	HMGP
Kermit	Mingo County	Kermit 1	Flood	1	Continue coordinating with the WVDOH to conduct culvert inspections/cleaning throughout the county. Protect bridges and roadways from flooding hazards (2012 Project 1.2.1)	Ongoing	Active	2, 4	5 years with periodic reviews of status	Public Works	WVDOH Floodplain Manager	Minimal (coordination should require little additional funding)	Local funds
Kermit	Mingo County	Kermit 2	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects	New	Active	4	5 years with periodic reviews of status	Floodplain Manager	WVDHSEM FEMA	\$70,600 per purchased home	HMGP
Leon	Mason County	Leon 1	Flood	1	Identify areas in which storm water backs up – primarily in municipalities – and determine the costs of corrective actions (2012 Project 4.1.1).	Ongoing	Active	4	1 year	Floodplain Manager	Local PSDs	Minimal (identification of areas & coordination should require minimal additional funding)	Local funds
Leon	Mason County	Leon 2	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects	New	Active	4	5 years with periodic reviews of status	Floodplain Manager	WVDHSEM FEMA	\$76,900 per purchased home	HMGP
Lincoln County	Lincoln County	Lincoln County 1	Flood	17	Educate the public in non-compliant development areas about permitting in flood zones.	New	Active	1, 3, 4	On-going	Lincoln County EMA	Lincoln County Code Enforcement Floodplain Managers	Up to \$2,500 per campaign	Local funds
Lincoln County	Lincoln County	Lincoln County 10	Flood* †	1	Acquisition 1	Ongoing	Active	4	1 year	Lincoln County EMA	WVDHSEM FEMA	\$622,810	HMGP
Lincoln County	Lincoln County	Lincoln County 11	Flood* †	1	Acquisition 2	Ongoing	Active	4	1 year	Lincoln County EMA	WVDHSEM FEMA	\$323,352	HMGP
Lincoln County	Lincoln County	Lincoln County 12	Flood* †	1	Acquisition 3	Ongoing	Active	4	1 year	Lincoln County EMA	WVDHSEM FEMA	\$608,310	HMGP
Lincoln County	Lincoln County	Lincoln County 13	Flood* †	1	Acquisition 4	Ongoing	Active	4	1 year	Lincoln County EMA	WVDHSEM FEMA	\$638,628	HMGP
Lincoln County	Lincoln County	Lincoln County 14	Flood* †	1	Acquisition 5	Ongoing	Active	4	1 year	Lincoln County EMA	WVDHSEM FEMA	\$744,468	HMGP
Lincoln County	Lincoln County	Lincoln County 15	Flood* †	1	Acquisition 6	Ongoing	Active	4	1 year	Lincoln County EMA	WVDHSEM FEMA	\$522,240	HMGP
Lincoln County	Lincoln County	Lincoln County 16	Flood* †	1	Acquisition 7	Ongoing	Active	4	1 year	Lincoln County EMA	WVDHSEM	\$1,062,900	HMGP
Lincoln County	Lincoln County	Lincoln County 17	Flood	8	Continue to identify and replace private stream crossings.	New and ongoing	Active	4, 5	5 years	Lincoln County Floodplair Manager	WV VOAD	Varies	PDM HMGP
Lincoln County	Lincoln County	Lincoln County 2	Flood	9	Partner with government agencies on the need for permitting for buildings relating to flooding.	New	Active	1, 4	On-going	Lincoln County Commission	Floodplain Manager	Minimal (coordination should require little additional funding)	Local funds
Lincoln County	Lincoln County	Lincoln County 3	Opioid Crisis	10	Continue current opioid response activities and search for new answers for the opioid crisis.	New	Active	1, 3, 5	5 years with periodic reviews of status	Lincoln County Commission	Lincoln County Health Department Lincoln County Sheriff Local Law Enforcement	Minimal (research & coordination should require little additional funding)	N/A

Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status Active/Inactive	Corresponding Objective	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
Lincoln County	Lincoln County	Lincoln County 4	Flood	17	Update the countywide permitting process which requires residents and/or developers to file a permit with the county before beginning any new construction as a means of regulating floodplain development (2012 Project 1 3 1)	Ongoing. This has been enforced.	Active	1, 4	5 years	Lincoln County Commission	Local developers Floodplain Manager	Minimal	Local funds
Lincoln County	Lincoln County	Lincoln County 5	Flood*	13	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects (Revised 2012 Project 1.3.3).	Ongoing. This was not done but acquisition/demolition mitigation is continuing.	Active	4	5 years with periodic reviews of status	Lincoln County EMA	Floodplain Manager County Commission FEMA	\$82,400 per purchased home	HMGP
Lincoln County	Lincoln County	Lincoln County 6	Flood	10	Coordinate to promote buying flood insurance (2012 Project 1.3.5).	Ongoing. People are reminded each time that an event occurs. Most people who desperately need it, cannot afford it.	Active	4, 5	On-going	Lincoln County Commission	Lincoln County EMA Floodplain Managers Town Councils	Minimal (included in existing NFIP compliance budgets)	Local funds
Lincoln County	Lincoln County	Lincoln County 7	Acts of Violence	13	Continue to train emergency responders on how to handle bomb threats (2012 Project 11.2.1)	Ongoing. No activity.	Active	3, 5	5 years with periodic reviews of status	Lincoln County EM	Local Fire Departments Local Law Enforcement	Up to \$500 per student	HMEP (if hazmat, transportation included) Local funds
Lincoln County	Lincoln County	Lincoln County 8	Hazmat	13	Continue to train first responders in dealing with Hazmat events (2012 Project 12.1.2).	Ongoing. Fire departments have limited ability to deal with hazmat events.	Active	3	5 years with periodic reviews of status	Lincoln County EM	Local Fire Departments	Up to \$495 per student (per 40-hr HAZWOPER)	HMEP Local funds
Lincoln County	Lincoln County	Lincoln County 9	Dam Failure	10	Develop a partnership with appropriate parties that are stakeholders in the monitoring and general condition of dams throughout Lincoln County. Provide technical and manpower support to evaluate the status of these dams and report to the Core Planning Team on a yearly basis. Better Early Warning System needed for potential Dam Failures. Special monitoring program for the R.D. Bailey Dam and the Upper Mud River # 2A Dam near Palermo (2012 Project 13.1.1).	Ongoing. The county reviews and signs off on plans as needed.	Active	5	5 years	Lincoln County EM	Army Corps of Engineers	Minimal (inspection & monitoring are included in various agency budgets; coordination and information sharing should require little additional funding)	N/A
Logan	Logan County	Logan 1	Dam Failure	2	Monitor dam facilities in the area and share information with appropriate officials (2012 Project 1.1.1).	Ongoing	Active	5	On-going	City Council	Army Corps of Engineers USDA Natural Resource Center	Minimal (inspection & monitoring are included in various agency budgets)	Local funds
Logan	Logan County	Logan 2	Flood	3	Periodically clean culverts and prioritize	Ongoing	Active	4	On-going	City Council	WV DOH	Minimal	Local funds
Logan	Logan County	Logan 3	Flood	1	Develop a regular stream cleaning schedule	Ongoing	Active	4	On-going	City Council	Army Corps of Engineers	Minimal	Local funds
Logan	Logan County	Logan 4	Flood*	4	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects. (Revised 2012 Project 4.4.1)	Ongoing	Active	4	5 years with periodic reviews of status	City Council	FEMA Floodplain Managers	\$85,600 per purchased home	HMGP
Logan County	Logan County	Logan County 1	Hazmat	20	Continue to apply for grants to supplement and upgrade the equipment capabilities of local fire departments (2012 Project 10.1.1).	Ongoing	Active	3, 5	5 years with periodic reviews of status	Logan County OEM	Local Fire Departments	Contingent on equipment needed	AFGP Local funds
Logan County	Logan County	Logan County 10	Flood	18	Support the design of roadways at a minimum of the 100-year base flood elevation. (2012 Project 4.4.3)	Ongoing	Active	4	On-going	Logan County OEM	WV DOH Engineering Consultants	Minimal (offering support should require little additional funding)	Local funds
Logan County	Logan County	Logan County 11	Hazmat	13	Work with local contacts at facilities that use/store hazardous materials (and file Tier II reports with the LEPC) to develop plans to address any gaps that may exist between facility response plans and the county EOP. (2012 Project 6.1.1)	Ongoing. Nine applications have been filed as of 2017	Active	5	On-going	Logan County OEM	Facilities Representatives LEPC	Minimal	Local funds

Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status Active/Inactive	Corresponding Objective	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
Logan County	Logan County	Logan County 12	All Hazards	27	Enforce countywide building codes and other general planning regulations (including land use planning), which will regulate the number of buildings and the materials used in buildings that are constructed in slide-prone areas (2012 Project 7.1.1).	Ongoing	Active	1	On-going	Logan County Commission	Logan County Code Enforcement Floodplain Managers	Minimal	Local funds
Logan County	Logan County	Logan County 13	All Hazards	23	Support local jurisdiction or agency's projects to supplement equipment and other capabilities through grant programs (2012 Project 8.1.2)	Ongoing	Active	5	On-going	Logan County Commission	Logan County OEM	Minimal	Local funds
Logan County	Logan County	Logan County 14	All Hazards	22	Ensure gas and power service can be maintained at critical facilities and at-risk residents (2012 Project 14.2.2)	Ongoing	Active	2	On-going	Logan County OEM	Mountaineer Gas American Electric Power	Minimal (supporting company efforts & providing them with information should require little additional funding)	Local funds
Logan County	Logan County	Logan County 15	All Hazards	15	Ensure backup communications capabilities during emergencies with HAM radios (2012 Project 14.2.3)	Ongoing	Active	5	On-going	Logan County OEM	HAM radio operators	Minimal (planning with local individual should require little additional funding)	Local funds
Logan County	Logan County	Logan County 16	Flood* †	1	Elevation	Ongoing	Active	4	1 year	Logan County OEM	WVDHSEM FEMA	\$73,880	HMGP
Logan County	Logan County	Logan County 17	Flood* †	1	Acquisition 1	Ongoing	Active	4	1 year	Logan County OEM	WVDHSEM FEMA	\$348,845	HMGP
Logan County	Logan County	Logan County 18	Flood* †	1	Reconstruction 1	Ongoing	Active	4	1 year	Logan County OEM	WVDHSEM FEMA	\$945,675	HMGP
Logan County	Logan County	Logan County 19	Flood* †	1	Reconstruction 2	Ongoing	Active	4	1 year	Logan County OEM	WVDHSEM FEMA	\$483,845	HMGP
Logan County	Logan County	Logan County 2	All Hazards	12	Periodically update the county asset inventory list, complete with information such as replacement values, contents values, and annual operating budgets. This information can be used to calculate loss estimates (2012 Project 14, 1, 1, 14, 1, 2)	Ongoing	Active	5	1 year	Logan County OEM	N/A	Minimal	Local funds
Logan County	Logan County	Logan County 20	Flood* †	1	Acquisition 2	Ongoing	Active	4	1 year	Logan County OEM	WVDHSEM FEMA	\$153,812	HMGP
Logan County	Logan County	Logan County 21	Flood* †	1	Mapping	Ongoing	Active	4	1 year	Logan County OEM	WVDHSEM FEMA	\$382,927	HMGP
Logan County	Logan County	Logan County 22	All Hazards +	1	Waste Water 1	Ongoing	Active	5	1 year	Logan County OEM	WVDHSEM FEMA	\$5,625,000	HMGP
Logan County	Logan County	Logan County 23	All Hazards +	1	Waste Water 2	Ongoing	Active	5	1 year	Logan County OEM	WVDHSEM FEMA	\$8,163,000	HMGP
Logan County	Logan County	Logan County 24	All Hazards +	1	Generator 1	Ongoing	Active	5	1 year	Logan County OEM	WVDHSEM FEMA	\$84,170	HMGP
Logan County	Logan County	Logan County 25	All Hazards +	1	Generator 2	Ongoing	Active	5	1 year	Logan County OEM	WVDHSEM FEMA	\$74, 170	HMGP
Logan County	Logan County	Logan County 26	All Hazards +	1	Generator 3	Ongoing	Active	5	1 year	Logan County OEM	WVDHSEM FEMA	\$215, 670	HMGP
Logan County	Logan County	Logan County 27	Flood	12	Identify private water crossings in the county that could exacerbate flood problems should they fail and seek to replace them.	New	Active	4,5	5 years	Logan County Floodplain Manager	Logan County OEM WV VOAD	Varies	PDM HMGP
Logan County	Logan County	Logan County 3	All Hazards	20	Maintain a database of residents with health problems (e.g. oxygen requirements) that require electricity (Project 14.2.1)	In progress	Active	5	On-going	Logan County OEM	Local Hospitals and Clinics Logan County Health Department	Minimal	Local funds
Logan County	Logan County	Logan County 4	All Hazards	18	Ensure a sheltering capability in the county (2012 Project 14.3.1. Revised)	Ongoing	Active	5	On-going	Logan County OEM	American Red Cross	Minimal (coordination should require little additional funding)	Local funds
Logan County	Logan County	Logan County 5	Dam Failure	25	Monitor dam facilities in Logan County and share information with appropriate public officials (2012 Project 1.1.1).	Ongoing	Active	5	On-going	Logan County OEM	Local Jurisdictions Army Corps of Engineers	Minimal (inspection is included in various agency existing budgets)	Local funds

Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status Active/Inactive	Corresponding Objective	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
Logan County	Logan County	Logan County 6	All Hazards	12	Continue efforts to extend public water service into rural areas (2012 Project 2.1.1)	Ongoing	Active	5	5 years with periodic reviews of status	Logan County OEM	Department of Public Works Public Service Departments	Up to \$2,000,000 per project	CDBG IJDC State funds Local funds
Logan County	Logan County	Logan County 7	Flood	15	Develop a regular stream cleaning schedule (2012 Project 4.3.2)	In progress	Active	4	On-going	Logan County OEM	Army Corps of Engineers USDA Natural Resource Center	Minimal	Local funds
Logan County	Logan County	Logan County 8	Flood*	23	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects (Revised 2012 Project 4.4.1)	Ongoing. Nine applications have been filed as of 2017	Active	4	5 years with periodic reviews of status	Logan County OEM	FEMA Floodplain Managers	\$85,600 per purchased home	HMGP
Logan County	Logan County	Logan County 9	Flood	26	Complete re-mapping of the Cherry Tree project. (Revised 2012 Project 4.4.2)	Ongoing	Active	4, 5	5 years	Logan County Commission	Logan County Code Enforcement	Minimal	Local funds
Man	Logan County	Man 1	Dam Failure	5	Monitor dam facilities in the area and share information with appropriate officials (2012 Project 1.1.1).	Ongoing	Active	5	On-going	Town Council	Army Corps of Engineers USDA Natural Resource Center	Minimal (inspection is included in various agency existing budgets)	Local funds
Man	Logan County	Man 2	Flood	1	Identify storm water backup areas and determine costs to correct those problems (2012 Project 4.1.1).	Ongoing	Active	4	5 years	Town Council	WV DOH Local PSDs	Minimal (identification of areas & coordination should require minimal additional funding)	Local funds
Man	Logan County	Man 3	Flood	4	Periodically clean culverts and prioritize culvert replacements (2012 Project 4.2.1).	Ongoing	Active	4	On-going	Town Council	WV DOH	Minimal	Local funds
Man	Logan County	Man 4	Flood	2	Develop a regular stream cleaning schedule (2012 Project 4.3.2)	Ongoing	Active	4	On-going	Town Council	Army Corps of Engineers USDA Natural Resource Center	Minimal	Local funds
Man	Logan County	Man 5	Flood*	6	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects (Revised 2012 Project 4.4.1)	Ongoing	Active	4	5 years with periodic reviews of status	Town Council	FEMA Floodplain Managers	\$85,600 per purchased home	HMGP
Man	Logan County	Man 6	Severe Summer Weather	3	Promote new construction and/or roof remodeling projects to withstand 90 mph wind loads per the building permit process (2012 Project 12 2 1)	Ongoing	Active	1, 5	On-going	Town Council	Municipal Code Enforcement	Minimal	Local funds
Mason	Mason County	Mason 1	Flood	1	Identify areas in which storm water backs up – primarily in municipalities – and determine the costs of corrective actions (2012 Project 4.1.1).	Ongoing	Active	4	5 years	Floodplain Manager	Local PSDs	Minimal (coordination w/ local officials to determine lists should require minimal additional (unding)	Local funds
Mason	Mason County	Mason 2	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects.	New	Active	4	5 years with periodic reviews of status	Floodplain Manager	WVDHSEM FEMA	\$76,900 per purchased home	HMGP
Mason County	Mason County	Mason County 1	Dam Failure	18	Work with the US Army Corps of Engineers to ensure that dams along the Ohio River are inspected periodically and facilitate information sharing so that local responders are prepared to assist in an incident involving one of the lock/dam facilities (2012 Project 1.1.1)	Ongoing	Active	2, 3, 4	On-going	Mason County OES	Army Corps of Engineers	Minimal	Local funds
Mason County	Mason County	Mason County 10	Severe Winter Weather	19	Inventory snow removal capabilities in local resource lists, to include coordinating with the WVDOH regarding snow removal contracts (2012 Project 13.1.1).	Ongoing	Active	5	On-going	Mason County OES	WVDOH Mason County Cities and Towns	Minimal	Local funds
Mason County	Mason County	Mason County 11	All Hazards	4	Coordinate with AEP to maintain rights of way to protect power lines from downed tree limbs (2012 14.1.1).	Ongoing	Active	5	On-going	Mason County OES	AEP WVDOH	Minimal	Local funds
Mason County	Mason County	Mason County 12	All Hazards	11	Develop a database of at-risk citizens with health problems (e.g. oxygen requirements, etc.) that need electricity. Coordinate with AEP to ensure that power is restored to them as quickly as possible (2012 Project 14.2.1).	Ongoing	Active	5	On-going	Mason County OES	AEP Mason County Health Department Local hospitals, clinics, and nursing homes Mason County Cities and Towns	Minimal	Local funds

Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status	Corresponding Objective	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
Mason County	Mason County	Mason County 13	All Hazards	3	Coordinate with the local chapter of the American Red Cross to maintain updated lists of potential shelters in Mason County (2012	Ongoing	Active	5	On-going	Mason County OES	American Red Cross Mason County Cities and Towns	Minimal	Local funds
Mason County	Mason County	Mason County 14	All Hazards	5	Project 14.3.1). Continue to develop partnerships with local amateur radio operators to create a backup communications capability for local response	Ongoing	Active	5	5 years with periodic reviews of status	Mason County OES	Local HAM Radio operators Mason County Cities and Towns	Minimal	Local funds
Mason County	Mason County	Mason County 15	All Hazards	20	Work with the Mason County Board of Education to place caller ID on all phones in Education to place caller ID on all phones in	Ongoing	Active	5	3 years	Mason County OES	Mason County Board of Education Mason County Commission	Minimal	Local funds
Mason County	Mason County	Mason County 16	All Hazards	11	Encourage the WVDOH to install signage throughout the county to denote hazard-prone areas (e.g. fog areas, busy intersections, etc.) (2012 Project 14, 3,4)	Ongoing	Active	5	On-going	Mason County OES	WVDOH	Up to \$3,250 per sign	State funds
Mason County	Mason County	Mason County 17	Dam Failure Flood	5	Work with the Army Corps of Engineers, FEMA, and the City of Point Pleasant to bring the flead wall inter compliance.	New	Active	4	On-going	Mason County OES	Army Corps of Engineers FEMA City of Point Pleasant	N/A	CDBG PDM
Mason County	Mason County	Mason County 19	All Hazards	1	Support the efforts of local water providers to extend service into areas not currently served by a public water distribution system (2012 Decised 2.1.1)	Ongoing	Active	2, 5	On-going	Floodplain Manager	Local PSDs Mason County Cities and Towns	Up to \$2,000,000 per project	CDBG IJDC State funds
Mason County	Mason County	Mason County 2	Flood	5	Support local government efforts to maintain compliance with the NFIP (2012 Project	Ongoing	Active	1, 4	On-going	Mason County Floodplain Manager	n Mason County Cities and Towns Floodplain Managers	Minimal	Local funds Local funds
Mason County	Mason County	Mason County 20	Flood*	11	4.2.2). Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects	Ongoing	Active	4	5 years with periodic reviews of status	Floodplain Manager	WVDHSEM FEMA	\$76,900 per purchased home	HMGP
Mason County	Mason County	Mason County 21	Land Subsidence	1	Coordinate with the WV Division of Forestry to promote re-seeding after lumber extraction projects (2012 Project 7.1.1)	Ongoing	Active	5	On-going	Public Works Departmen	t WV Division of Forestry	Minimal	Local funds
Mason County	Mason County	Mason County 3	Flood	11	Coordinate with the WVDOH to clear culverts that are causing flash flooding problems (2012 Project 4 3 1)	Ongoing	Active	4, 5	On-going	Mason County Floodplair Manager	n WVDOH Mason County Cities and Towns	Minimal	Local funds
Mason County	Mason County	Mason County 5	Flood	17	Partner with appropriate agencies to support the 100-year based flood elevation design of critical roadways (2012 Project 4.3.5).	Ongoing	Active	4, 5	On-going	WVDOH	Floodplain Managers Mason County Cities and Towns	Minimal	Local funds
Mason County	Mason County	Mason County 6	Hazmat	15	Compile a rail and river commodity flow study to determine what materials are flowing through Mason County (Revised 2012 Project	Ongoing	Active	2, 5	5 years	Mason County LEPC	Railways River Ports	\$5,000	НМЕР
Mason County	Mason County	Mason County 7	Hazmat	15	Coordinate with organizations filing Tier II reports to ensure information sharing and collaborative efforts to strengthen capabilities to respond to hazmat incidents. Ensure access to the reports. (Revised 2012 Project	Ongoing	Active	2, 3, 5	On-going	Mason County LEPC	WVDHSEM	Minimal	Local funds
Mason County	Mason County	Mason County 8	Acts of Violence	9	Identify areas and/or facilities that could be the target of domestic (or international) terrorism. Keep these lists secure (2012 Project 8.1.1)	Ongoing	Active	5	On-going	Mason County OES	Mason County Cities and Towns	N/A	N/A
Mason County	Mason County	Mason County 9	All Hazards	5	Encourage fire departments to apply for grants to add to equipment inventories and other capabilities (2012 Project 10.1.1)	Ongoing	Active	5	On-going	Mason County Commission	Local Fire Departments Mason County Cities and Towns	Minimal	Local funds
Mason County	Mason County	Mason County 18	Hazmat	10	Provide hazmat training of first responders to build in-county capabilities.	New	Active	3, 5	On-going	Mason County OES	Local Fire Departments	Up to \$495 per student (per 40-hr HAZWOPER)	Local funds
Matewan	Mingo County	Matewan 1	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects.	New	Active	4	5 years with periodic reviews of status	Floodplain Manager	WVDHSEM FEMA	\$70,600 per purchased home	HMGP

Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status Active/Inactive	Corresponding Objective	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
Matewan	Mingo County	Matewan 2	All Hazards	1	Identify specific areas within the jurisdiction that are susceptible to the impacts of any hazards (e.g., site-specific flooding from stormwater backup) to develop future mitigation strategies	New	Active	5	2 Years	Town Council	Mingo County EM Floodplain Manager	Minimal (identification of areas & coordinatior should require minimal additional funding)	Local funds
Milton	Cabell County	Milton 1	Flood*	3	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects.	New	Active	4	5 years with periodic reviews of status	E Floodplain Manager	City Council FEMA	\$114,000 per purchased home	HMGP
Milton	Cabell County	Milton 2	All Hazards	1	Identify specific areas within the jurisdiction that are susceptible to the impacts of any hazards (e.g., site-specific flooding from stormwater backup) to develop future mitination strategies	New	Active	5	2 Years	City Council	Cabell County OES Floodplain Manager	Minimal (identification of areas & coordinatior should require minimal additional funding)	Local funds
Milton	Cabell County	Milton 3	Hazmat	2	Conduct a Commodity Flow Study for I-64 and the railroads that surround the city.	New	Active	5	5 Years	City Council	Cabell County OES	Up to \$10,000 per study	HMEP
Mingo County	Mingo County	Mingo County 1	Flood	10	Conduct streambank restoration.	New	Active	4	5 years	Mingo County Commission	WV DOH WV DEP WV Conservation Agency	Up to \$200,000 per river mile	N/A
Mingo County	Mingo County	Mingo County 12	All Hazards	10	Continue expansion of Public Service Districts water supplied areas (2012 Project 7.1.1).	Ongoing	Active	2, 5	5 years with periodic reviews of status	: Local PSDs	Mingo County Commission City and Town Councils	Up to \$2,000,000 per project	CDBG IJDC State funds
Mingo County	Mingo County	Mingo County 13	All Hazards	13	Implement plans to address identified areas in Mingo County that need improvement and protection if possible (2012 Project 9.1.1).	Ongoing	Active	2	On-going	Mingo County EM	Mingo County Commission	N/A	N/A
Mingo County	Mingo County	Mingo County 14	All Hazards	10	Work with Pocahontas Land Management to clean up affected areas (2012 Project 9.1.2).	Ongoing	Active	5	On-going	Mingo County EM	Pocahontas Land Management	Minimal	Local funds
Mingo County	Mingo County	Mingo County 16	All Hazards	15	Continue to train HAM operators for emergency operations. Continue development of communication infrastructure. (i.e. Cellular towers and digital radio network) (2013 Project 11 1 1)	Ongoing	Active	5	5 years with periodic reviews of status	: Mingo County EM	Local HAM Radio Operators	Minimal	Local funds
Mingo County	Mingo County	Mingo County 17	Dam Failure	7	Continue to coordinate the monitoring and testing of dams in Mingo County with the Core Planning Team, so the local governments and the county commission can be informed as to the safety status of these dams (2012 Project 14.1.1).	Ongoing	Active	2, 4	5 years with periodic reviews of status	Mingo County EM	Local dam owners Mingo County Commission City and Towns Army Corps of Engineers	Minimal (monitoring and inspection of dams is currently done; additional information sharing should require minimal additional funding)	Local funds
Mingo County	Mingo County	Mingo County 18	Flood	17	Develop a plan to monitor and clean storm water drainage systems within municipalities (2012 Project 1.1.1).	Ongoing	Active	4	On-going	Local PSDs	N/A	Minimal	Local funds
Mingo County	Mingo County	Mingo County 2	Flood	5	Repair damaged roads from the floods.	New	Active	4, 5	On-going	Mingo County Commission	WV DOH	N/A	State funds Federal highway funds
Mingo County	Mingo County	Mingo County 20	Severe Winter Weather	7	Identify possible funding source for purchase of county snow clearing/removal equipment (2012 Project 2.2.2).	Ongoing	Active	5	On-going	Mingo County EM	N/A	Minimal	Local funds
Mingo County	Mingo County	Mingo County 21	Flood	13	Identify worst areas within municipalities and develop plans for structural enhancements or property buyouts (2012 Project 5.1.2).	Ongoing	Active	4	2 Years	Public Works	Mingo County EM WVDOH Floodplain Manager	Minimal (identification of areas & coordinatior should require minimal additional funding)	Local funds
Mingo County	Mingo County	Mingo County 22	Flood*	16	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects	New	Active	4	5 years with periodic reviews of status	: Floodplain Manager	WVDHSEM FEMA	\$70,600 per purchasec home	I HMGP
Mingo County	Mingo County	Mingo County 3	Severe Summer Weather Severe Winter Weather	4	Cut tree branches away from power lines to prevent them from falling on the lines and causing power outages.	New	Active	2, 5	On-going	Mingo County Commission	WV DOH Local utilities	Minimal (coordination w/ power companies should require minimal additional funding)	Local funds

Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status Active/Inactive	Corresponding Objective	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
Mingo County	Mingo County	Mingo County 4	Acts of Violence	3	Conduct outreach to faith-based organizations to promote classes to prepare members for shootings at churches.	New	Active	3, 5	3 years	Mingo County EM	Local Churches	Minimal (outreach requires little additional funding)	Local funds
Mingo County	Mingo County	Mingo County 5	Flood	5	Continue to utilize and enforce local Floodplain Management Ordinances and building code permits for the development of new and existing construction. (Revised 2012 Projects 1.3.4, 1.3.5, 4.2.1, 5.1.5, 9.1.3, 1 3 2)	Ongoing	Active	1, 4	5 years with periodic reviews of status	Mingo County Commission	Floodplain Manager	Minimal (NFIP enforcement already included in existing budgets)	Local funds
Mingo County	Mingo County	Mingo County 7	All Hazards	7	Work with the WVDOH to design road construction to elevate at risk roadways (2012 Project 1.6.1).	Ongoing	Active	5	On-going	Floodplain Manager	WVDOH	Minimal (coordination requires minimal additional funding)	Local funds
Mingo County	Mingo County	Mingo County 8	All Hazards	1	Continue monitoring and maintenance of the "Early Warning System" (2012 Project 3.1.2).	Ongoing	Active	5	5 years with periodic reviews of status	Mingo County EM	N/A	N/A	N/A
Mingo County	Mingo County	Mingo County 9	All Hazards	1	Use the WENS to alert residents of hazardous conditions (Revised 2012 Project 4.1.1).	Ongoing	Active	5	On-going	Mingo County EM	N/A	Minimal (costs built into existing agreements for service)	Local funds
Mitchell Heights	Logan County	Mitchell Heights 1	Flood	1	Identify storm water backup areas and determine costs to correct those problems (2012 Project 4.1.1)	Ongoing	Active	4	5 years	Town Council	WV DOH Local PSDs	Minimal	Local funds
Mitchell Heights	Logan County	Mitchell Heights 2	Flood	3	Periodically clean culverts and prioritize	Ongoing	Active	4	On-going	Town Council	WV DOH	Minimal	Local funds
Mitchell Heights	Logan County	Mitchell Heights 3	All Hazards	2	Promote new construction and/or roof remodeling projects to withstand 90 mph wind loads per the building permit process (2012 Project 12.2.1)	Ongoing. No activity.	Active	1, 5	On-going	Town Council	Municipal Code Enforcement	Minimal	Local funds
Mitchell Heights	Logan County	Mitchell Heights 4	Flood*	4	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects	New	Active	4	5 years with periodic reviews of status	Floodplain Manager	WVDHSEM FEMA	\$85,600 per purchased home	HMGP
New Haven	Mason County	New Haven 1	Flood	1	Identify areas in which storm water backs up – primarily in municipalities – and determine the costs of corrective actions (2012 Project 4.1.1)	Ongoing	Active	4	5 years	Floodplain Manager	Local PSDs WV Silver Jackets	Minimal	Local funds
New Haven	Mason County	New Haven 2	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects (Revised 2012 Project 4.3.4)	Ongoing	Active	4	5 years with periodic reviews of status	Floodplain Manager	WVDHSEM FEMA	\$76,900 per purchased home	HMGP
Point Pleasant	Mason County	Point Pleasant 1	Flood	1	Identify areas in which stormwater backs up –primarily in municipalities – and determine the costs of corrective actions (2012 Project 4 1 1)	Ongoing	Active	4	2 Years	Floodplain Manager	Local PSDs	N/A	N/A
Point Pleasant	Mason County	Point Pleasant 2	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects (Revised 2012 Project 4.3.4).	Ongoing	Active	4	5 years with periodic reviews of status	Floodplain Manager	WVDHSEM FEMA	\$76,900 per purchased home	HMGP
Wayne	Wayne County	Wayne 1	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects.	New	Active	4	5 years with periodic reviews of status	Floodplain Manager	FEMA Town Council	\$85,000 per purchased home	HMGP
Wayne	Wayne County	Wayne 2	All Hazards	1	Identify specific areas within the jurisdiction that are susceptible to the impacts of any hazards (e.g., site-specific flooding from stormwater backup) to develop future mitigation strategies	New	Active	5	2 Years	Town Council	Wayne County OES Floodplain Manager	Minimal (identification of areas & coordination should require minimal additional funding)	Local funds
Wayne County	Wayne County	Wayne County 1	Flood	5	Develop a plan to monitor and clean storm water drainage systems within municipalities (2012 Project 1.1.1).	Ongoing	Active	4, 5	On-going	Public Works	Local PSDs	Minimal	Local funds
Wayne County	Wayne County	Wayne County 11	All Hazards	8	Work with the WVDOH to design road construction to elevate at risk roadways (2012 Project 1.6.1).	Ongoing	Active	2, 5	On-going	Public Works	WVDOH	Minimal (coordination requires minimal fundino)	Local funds
Wayne County	Wayne County	Wayne County 12	All Hazards	2	Continue monitoring and maintenance of the "Early Warning System" (2012 Project 3.1.2).	Ongoing	Active	5	5 years with periodic reviews of status	Wayne County OES	N/A	N/A	N/A

Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status Active/Inactive	Corresponding Objective	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
Wayne County	Wayne County	Wayne County 13	All Hazards	1	Use the WENS to alert residents of hazardous conditions (Revised 2012 Project 4.1.1, 6.1.1).	Ongoing	Active	5	On-going	Wayne County OES	N/A	Minimal (currently worked into contracts for existing resources)	Local funds
Wayne County	Wayne County	Wayne County 16	All Hazards	6	Continue expansion of Public Service Districts water supplied areas (2012 Project 7.1.1).	Ongoing	Active	5	5 years with periodic reviews of status	Local PSDs	Wayne County Commission	Up to \$2,000,000 per project	CDBG IJDC State funds Local funds
Wayne County	Wayne County	Wayne County 17	All Hazards	8	Implement plans to address identified areas in Wayne County that need improvement and protection if possible (2012 Project 9.1.1).	Ongoing	Active	2, 5	On-going	Wayne County OES	Public Works WVDOH	Minimal	Local funds
Wayne County	Wayne County	Wayne County 18	All Hazards	13	Continue to train HAM operators for emergency operations. Continue development of communication infrastructure. (i.e. Cellular towers and digital radio network) (2012 Project 11 1 1)	Ongoing	Active	5	5 years with periodic reviews of status	Wayne County OES	Local HAM Radio operators	Minimal	Local funds
Wayne County	Wayne County	Wayne County 19	Dam Failure	6	Continue to develop a partnership with appropriate parties that are stakeholders in the monitoring and general condition of dams throughout Wayne County. Provide technical and manpower support to evaluate the status of these dams and report to the Core Planning Team on a yearly basis. Better Early Warning System needed for potential Dam Failures. Special monitoring program for the Beech Fork Dam and the East Lynn Dam (2012 Project 14.1.1).	Ongoing	Active	2, 4	5 years with periodic reviews of status	Wayne County OES	Public Works Floodplain Manager Wayne County Commission Army Corps of Engineers	Minimal	Local funds
Wayne County	Wayne County	Wayne County 2	All Hazards	8	Continue to maintain, improve, and enforce the building permit process and Floodplain Management Ordinates to restrict development in floodplain areas and educate the public (Revised 2012 Projects 1.3.2, 1.3.4.1.3.5.4.2.1.5.1.1.5.1.2)	Ongoing	Active	1, 3, 4	5 years with periodic reviews of status	Wayne County Commission	Local developers	Minimal (included in existing NFIP compliance budgets)	Local funds
Wayne County	Wayne County	Wayne County 20	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects (Revised 2012 Project 2.2.2)	Ongoing	Active	4	5 years with periodic reviews of status	Floodplain Manager	FEMA Wayne County Commission	\$85,000 per purchased home	HMGP
Wayne County	Wayne County	Wayne County 6	Hazmat	4	Conduct additional appropriate training for hazmat response.	New	Active	3	On-going	Wayne County OES	Local Fire Departments	Up to \$495 per student (per 40-hr HAZWOPER)	Local funds
Wayne County	Wayne County	Wayne County 7	Hazmat	8	Purchase necessary equipment to respond to bazardous materials incidents	New	Active	5	On-going	Wayne County Commission	Local Fire Departments	Contingent on equipment needed	N/A
Wayne County	Wayne County	Wayne County 8	Dam Failure	8	Implement operation maintenance of dam	New	Active	4, 5	On-going	Wayne County	Floodplain Managers	N/A	N/A
West Hamlin	Lincoln County	West Hamlin 1	Flood	2	Flood-proof West Hamlin Water and Waste Water plants to reduce repetitive losses (2012 Project 1 1 2)	Ongoing	Active	4	5 years	Local PSD	Town Council Floodplain Manager Public Works Department	Unknown until engineering study can	N/A
West Hamlin	Lincoln County	West Hamlin 2	Flood*	1	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects.	New	Active	4	5 years with periodic reviews of status	Lincoln County EMA	Floodplain Manager Town Council FEMA	\$82,400 per purchased home	HMGP
West Logan	Logan County	West Logan 1	Dam Failure	4	Monitor dam facilities in the area and share information with appropriate officials (2012 Project 1.1.1).	Ongoing	Active	5	On-going	Floodplain Manager	Army Corps of Engineers USDA Natural Resource Center	Minimal	Local funds
West Logan	Logan County	West Logan 2	Flood	1	Identify storm water backup areas and determine costs to correct those problems (2012 Project 4.1.1).	Ongoing	Active	4	5 years	Department of Public Works	WV DOH Local PSDs Town Council	Minimal	Local funds
West Logan	Logan County	West Logan 3	Flood	3	Periodically clean culverts and prioritize	Ongoing	Active	4	On-going	Town Council	WV DOH	Minimal	Local funds
West Logan	Logan County	West Logan 4	Flood	2	Develop a regular stream cleaning schedule (2012 Project 4.3.2)	Ongoing	Active	4	On-going	Town Council	Army Corps of Engineers USDA Natural Resource Center	Minimal	Local funds

Jurisdiction	County	Project Identification	Hazard of Concern	Priority	Project	Status	2017 Status Active/Inactive	Corresponding Objective	Timeframe	Lead Agency	Support Agency(ies)	Cost Estimate	Funding Source
West Logan	Logan County	West Logan 5	Flood*	5	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects (Revised 2012 Project 4.4.1)	Ongoing	Active	4	5 years with periodic reviews of status	Floodplain Manager	FEMA Town Council	\$85,600 per purchased home	HMGP
Williamson	Mingo County	Williamson 1	All Hazards	3	Implement road and walkway improvement plans for areas at higher risk of collapse (2012 Project 1.6.2).	Ongoing	Active	2	5 years	Williamson Council	WVDOH	Up to \$250,000 per area	State funds Local funds
Williamson	Mingo County	Williamson 2	All Hazards	1	Prioritize replacement/reinforcement of at risk structures such as retaining walls within the county (2012 Project 1.7.1).	Ongoing	Active	2, 4	1 year	Williamson Council	Army Corps of Engineers Mingo County EM	Prioritization requires minimal funding	Local funds
Williamson	Mingo County	Williamson 3	Flood*	2	Continue to participate in acquisition/demolition, relocation, mitigation reconstruction, and elevation projects.	New	Active	4	5 years with periodic reviews of status	Floodplain Manager	WVDHSEM FEMA	\$70,600 per purchased home	HMGP

* Acquisition/demolition, relocation, mitigation reconstruction, and elevation projects.
+ Projects awating funding pending the approval of this plan.

§201.6(c)(4)(i) [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle. §201.6(c)(4)(ii) [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate. §201.6(c)(4)(iii) [The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

4.0 PLAN MAINTENANCE

2017 UPDATE

The main change for this plan update is that the Region 2 PDC has established a solid schedule for the maintenance of this plan to which they and the committee members will adhere. This section also includes an updated description of how this plan will be implemented and incorporated into other plans and programs.

4.1 Monitoring, Evaluating, and Updating the Plan

Per regulation, and good practice, this plan must be maintained. Maintenance of a plan comes in a variety of forms; in this case, the custodial agency responsible for the maintenance and update of this hazard mitigation plan is the Region 2 Planning and Development Council. The Region 2 PDC has contracted JH Consulting, LLC not only to update the plan for 2017 but also to facilitate the periodic review and maintenance of this plan.

The Region 2 PDC and the committee decided to hold an in-person annual meeting for the next four years. These meetings will be held in the second or third quarter of the year and will be preceded by a short online survey sent out to the public and to the committee members one to two months in advance of each meeting. These surveys will serve two purposes: to keep the public involved in the plan implementation and to keep the jurisdictions and officials accountable for implementing mitigation projects.



TABLE 4.1.A COMMITTEE MAINTENANCE TASKS								
Before the Meeting	During the Meeting	After the Meeting						
 Begin to implement mitigation projects Complete online committee survey Distribute online public survey via websites and social media pages Maintain records of changes in the jurisdiction that may affect the plan Keep updated records of assets 	 Update hazard information Update jurisdictional project status Share ideas and challenges of project implementation Share economic, environmental, social, legal, or political impacts projects have had Review public and committee survey results Keep meeting minutes 	 Continue to implement mitigation projects Maintain records of changes in the jurisdiction that may affect the plan Keep updated records of assets 						

4.2 Implementation through Existing Programs

The jurisdictions participating in this planning process have used a variety of funding to complete mitigation projects in the past, including the Hazard Mitigation Grant Program, Homeland Security Grant Program, Emergency Management Performance Grant, Community Development Block Grant, and local funding. Local government policies and programs have supported the use of this funding and, thus, the implementation of mitigation projects. Further, all participating government jurisdictions have demonstrated a capability to successfully implement and administer mitigation projects.

The Region 2 PDC serves as a clearinghouse for various development projects in the region. See Table 2.5.A for a listing of projects that are active on the PDC's master list that are related to mitigation. The table thus includes specific opportunities for integrating mitigation into existing efforts. The PDC creates and maintains a regional economic development strategy with its member governments (i.e., the Community Economic Development Strategy, or "CEDS" document). This effort recurs annually, and offers an opportunity for local officials to consider this risk assessment (Section 2.0) and the hazard areas it identifies as decisions regarding regional economic development are made.

Region 2 is unique within the context of West Virginia in that it has a high number of jurisdictions with floodwalls: Ceredo, Huntington, Matewan, Point Pleasant, and Williamson. These structures were mitigation projects long before mitigation planning became a requirement. Floodwalls represent massive infrastructure projects. They require near constant maintenance to remain effective, which can be costly. Jurisdictions throughout the region have maintained their structures in a variety of ways, ranging from partnerships with organizations such as the U.S. Army Corps of Engineers to the creation of a separate entity of city government dedicated to managing the structure (e.g., the Huntington Stormwater Utility). These jurisdictions undertake strategic planning initiatives to ensure maintenance of



their floodwalls; these strategic efforts offer opportunities for plan integration.

In support of the PDC and steering committee's priorities for the 2017 update, the following table lists general opportunities for hazard mitigation plan integration with a variety of other plan types. This table can be used as an educational tool for local officials.



TABLE 4.2.A GENERAL PLAN INTEGRATION CONSIDERATIONS										
Existing Program	Responsible Agency(ies)	Applicable Plan (i.e., Document)	Mitigation Action	on Comparison						
Emergency Operations Planning	Local Emergency Managers Local Emergency Planning Committees Cabell-Wayne Homeland Security Committee	Emergency operations plans Hazard/vulnerability analyses Commodity flow studies	Ensure consistency between updated assessment portion of the plan Consider mitigation projects as part of management	hazard analyses and the risk the overall cycle of emergency						
			PLAN ELEMENTS/POLICIES Establish and maintain effective response program	ASSOC. MITIGATION OBJECTIVE 3: Educate and train local officials and responders as well as the public on hazards and the different measures they can implement to reduce the impacts.						
			Support continuity of critical infrastructure and key resources	2: Protect critical infrastructure from all hazards throughout the region.						
Transportation Planning	KYOVA Interstate Planning Commission	KYOVA 2040 Integrated Metropolitan Transportation Plan KYOVA Biennial Report: Transportation Improvement Program, Fiscal Years 2018-2021	Ensure hazards are acknowledged in Consider response elements to the ha as appropriate, with respect to trans Ensure planned transportation projects ensure projects utilize proper draina Consider the incorporation of green in as transportation projects are under green streets and alleys, etc.) PLAN ELEMENTS/POLICIES Provide for emergency access to all parts of the region and safe evacuation routes Consider upgrades to transportation infrastructures to prevent, to the extent possible, long-term infrastructure decay	 Assoc. MITIGATION OBJECTIVE 3: Educate and train local officials and responders as well as the public on hazards and the different measures they can implement to reduce the impacts. 5: Continue to engage and participate in ongoing preparedness activities, partnerships and programs that could reduce loss of or damage to life and property. 						



	TABLE 4.2.A GENERAL PLAN INTEGRATION CONSIDERATIONS										
Existing Program	Responsible Agency(ies)	Applicable Plan (i.e., Document)	Mitigation Action	on Comparison							
Floodplain Management	Jurisdictional floodplain managers	Floodplain ordinances (county and municipal levels)	Consider participation in the Community Rating System, as appropriate for the jurisdiction Continue public outreach to ensure awareness of flood risk and mitigation options								
			PLAN ELEMENTS/POLICIES Support resiliency by ensuring new development stays clear of known hazard areas or is built in such a way as to withstand the effects of known hazards	 ASSOC. MITIGATION OBJECTIVE 1: Create and enforce codes, rules, regulations, ordinances, and programs that reduce the vulnerability of the population and the built environment to the impact of hazards. 4: Focus efforts toward mitigating riverine and nuisance flooding in the region. 							
			Protect green spaces in special flood hazard areas	5: Continue to engage and participate in ongoing preparedness activities, partnerships and programs that could reduce loss of or damage to life and property.							
Infrastructure (i.e., Water, Sewer) Development	Utility providers Region 2 PDC	Jurisdictional and/or utility-specific capital improvement plans Jurisdictional source water protection plans Watershed-level non-point source pollution plans Region 2 CEDS	Ensure protection of environmental fea undertaken Support resiliency by extending or imp residents PLAN ELEMENTS/POLICIES Support infrastructure development as a means of attracting economic development	atures as infrastructure projects are roving public utility service to ASSOC. MITIGATION OBJECTIVE 2: Protect critical infrastructure from all hazards throughout the region.							



TABLE 4.2.A GENERAL PLAN INTEGRATION CONSIDERATIONS										
Existing Program	Responsible Agency(ies)	Applicable Plan (i.e., Document)	Mitigation Action	on Comparison						
Commercial/Economic Development	Jurisdictional code enforcement officers Planning commissions for counties and municipalities Region 2 PDC Economic Development Authorities for counties	Zoning ordinances Building codes Subdivision and land development ordinances Comprehensive plans	Ensure adherence to floodplain, zonin relevant ordinances Consider the implementation of storm Consider incorporating green infrastru site-specific projects (e.g., use of po initiatives, planter boxes, bio swales	g, building, subdivision, and other water management projects cture/low-impact development into rous pavement, tree planting , etc.)						
			PLAN ELEMENTS/POLICIES Encourage responsible land use	ASSOC. MITIGATION OBJECTIVE 1: Create and enforce codes, rules, regulations, ordinances, and programs that reduce the vulnerability of the population and the built environment to the impact of hazards.						
			Identify areas suitable for residential development (or redevelopment)	5: Continue to engage and participate in ongoing preparedness activities, partnerships and programs that could reduce loss of or damage to life and property.						
			Identify areas suitable for commercial development (or redevelopment)	5: Continue to engage and participate in ongoing preparedness activities, partnerships and programs that could reduce loss of or damage to life and property.						
			Identify areas suitable for industrial development (or redevelopment)	5: Continue to engage and participate in ongoing preparedness activities, partnerships and programs that could reduce loss of or damage to life and property.						



TABLE 4.2.A GENERAL PLAN INTEGRATION CONSIDERATIONS									
Existing Program	Responsible Agency(ies)	Applicable Plan (i.e., Document)	Mitigation Acti	on Comparison					
Stormwater Management	Utility providers Jurisdictional floodplain managers Huntington Stormwater Utility	Jurisdictional MS4 permitting processes (where applicable)	Identification of site-specific flooding of issues Provides a means for consideration of flood mitigation PLAN ELEMENTS/POLICIES	ASSOC. MITIGATION OBJECTIVE					
			Encourage onsite management of runoff	 Create and enforce codes, rules, regulations, ordinances, and programs that reduce the vulnerability of the population and the built environment to the impact of hazards. Continue to engage and participate in ongoing preparedness activities, partnerships and programs that could reduce loss of or damage to life and property. 					



5.0 APPENDICES

2017 UPDATE

All information presented within this section is new.

CONTENTS

- Appendix 1: Source Data
 - Includes raw data of events from sources such as NCEI, SHELDUS, PHMSA, NRC, U.S. Drought Monitor, and USDA.
- Appendix 2: Committee Involvement
 - Meeting sign in sheets
 - o Presentations
 - Completed worksheets and surveys
 - Pubic survey postings
- Appendix 3: Public Involvement
 - o Meeting announcements
 - Meeting sign in sheets
 - Raw online public survey data
- Appendix 4: Inactive Projects
- Appendix 5: Citations
- Appendix 6: Resolutions (pending final approval of plan)



APPENDIX 1 SOURCE DATA

FLOOD

Data from NCEI is presented below. There are events that took place in various counties during one day or a series of days; these are each separated by color block.

	TABLE 5.1.A FLOOD EVENTS (NCEI: 1996 – 2017)								
County	Date	Event	Deaths	Injuries	Damage to Property				
Lincoln	1/19/1996	Flash Flood	0	0	\$5,000				
Wayne	1/20/1996	Flood	0	0	\$50,000				
Mason	1/20/1996	Flood	0	0	\$150,000				
Cabell	1/20/1996	Flood	0	0	\$50,000				
Wayne	5/5/1996	Flash Flood	0	0	\$20,000				
Cabell	5/15/1996	Flash Flood	0	0	\$25,000				
Mingo	5/15/1996	Flash Flood	0	0	\$300,000				
Lincoln	5/15/1996	Flash Flood	0	0	\$150,000				
Wayne	5/15/1996	Flash Flood	0	0	\$150,000				
Logan	5/15/1996	Flash Flood	1	0	\$3,500,000				
Logan	5/21/1996	Flash Flood	0	0	\$5,000				
Cabell	6/8/1996	Flash Flood	0	0	\$35,000				
Cabell	6/23/1996	Flash Flood	1	0	\$700,000				
Mason	6/23/1996	Flash Flood	0	0	\$250,000				
Lincoln	7/2/1996	Flash Flood	0	0	\$10,000				
Cabell	7/31/1996	Flash Flood	0	0	\$100,000				
Mason	7/31/1996	Flash Flood	0	0	\$100,000				
Wayne	3/1/1997	Flash Flood	0	0	\$2,000,000				
Lincoln	3/1/1997	Flash Flood	0	0	\$700,000				
Mason	3/1/1997	Flash Flood	0	0	\$300,000				
Wayne	3/2/1997	Flash Flood	0	0	\$100,000				
Cabell	3/2/1997	Flash Flood	0	0	\$1,000,000				
Lincoln	3/2/1997	Flash Flood	0	0	\$15,000				
Mason	3/2/1997	Flood	0	0	\$700,000				
Cabell	3/2/1997	Flood	0	0	\$700,000				
Wayne	3/2/1997	Flood	2	0	\$500,000				
Lincoln	3/3/1997	Flash Flood	0	0	\$5,000				
Lincoln	6/1/1997	Flash Flood	0	0	\$150,000				
Wayne	6/2/1997	Flash Flood	0	0	\$10,000				
Logan	6/26/1997	Flash Flood	0	0	\$8,000				
Mingo	7/2/1997	Flash Flood	0	0	\$250,000				
Mason	1/10/1998	Flood	0	0	\$10,000				
Cabell	5/24/1998	Flash Flood	0	0	\$275,000				
Lincoln	5/24/1998	Flash Flood	0	0	\$10,000				



TABLE 5.1.A FLOOD EVENTS (NCEI: 1996 – 2017)									
County	Date	Event	Deaths	Injuries	Damage to Property				
Lincoln	6/15/1998	Flash Flood	0	0	\$30,000				
Mason	6/15/1998	Flash Flood	0	0	\$5,000				
Mason	6/29/1998	Flood	0	0	\$5,000				
Cabell	7/18/1998	Flash Flood	0	0	\$85,000				
Mingo	7/30/1999	Flash Flood	0	0	\$15,000				
Wayne	7/30/1999	Flash Flood	0	0	\$5,000				
Mason	2/18/2000	Flash Flood	0	0	\$50,000				
Cabell	2/18/2000	Flash Flood	0	0	\$400,000				
Wayne	2/19/2000	Flood	0	0	\$0				
Mason	2/19/2000	Flood	0	0	\$0				
Cabell	2/19/2000	Flood	0	0	\$0				
Cabell	7/10/2000	Flash Flood	0	0	\$50,000				
Cabell	7/29/2000	Flash Flood	0	0	\$5,000				
Logan	7/30/2000	Flash Flood	0	0	\$25,000				
Wayne	7/31/2000	Flash Flood	0	0	\$5,000				
Mason	8/9/2000	Flash Flood	0	0	\$5,000				
Mason	8/24/2000	Flash Flood	0	0	\$15,000				
Logan	5/18/2001	Flood	2	0	\$0				
Wayne	5/18/2001	Flash Flood	0	0	\$10,000				
Lincoln	5/18/2001	Flash Flood	0	0	\$200,000				
Cabell	5/19/2001	Flash Flood	0	0	\$15,000				
Lincoln	5/22/2001	Flash Flood	0	0	\$10,000				
Logan	5/22/2001	Flash Flood	0	0	\$10,000				
Wayne	6/5/2001	Flash Flood	0	0	\$20,000				
Lincoln	6/6/2001	Flash Flood	0	0	\$10,000				
Mingo	7/29/2001	Flash Flood	0	0	\$10,000				
Logan	7/29/2001	Flash Flood	0	0	\$15,000				
Mason	1/24/2002	Flood	0	0	\$0				
Wayne	3/20/2002	Flood	0	0	\$50,000				
Mason	3/20/2002	Flood	0	0	\$15,000				
Cabell	3/20/2002	Flood	0	0	\$200,000				
Mason	4/21/2002	Flood	0	0	\$0				
Mason	4/28/2002	Flood	0	0	\$0				
Mingo	5/2/2002	Flash Flood	0	0	\$300,000				
Logan	5/2/2002	Flash Flood	0	0	\$250,000				
Mingo	5/2/2002	Flood	0	0	\$4,000,000				
Mingo	6/1/2002	Flash Flood	0	0	\$5,000				
Logan	7/19/2002	Flash Flood	0	0	\$800,000				
Logan	7/27/2002	Flash Flood	0	0	\$25,000				
Cabell	2/15/2003	Flood	0	0	\$1,000,000				
Wayne	2/15/2003	Flood	0	0	\$2,500,000				
Mingo	2/15/2003	Flood	0	0	\$300,000				
Logan	2/15/2003	Flood	0	0	\$400,000				
Lincoln	2/15/2003	Flood	1	0	\$2,500,000				
Lincoln	2/22/2003	Flood	0	0	\$0				



TABLE 5.1.A FLOOD EVENTS (NCEI: 1996 – 2017)						
County	Date	Event	Deaths	Injuries	Damage to Property	
Mingo	2/22/2003	Flood	0	0	\$0	
Logan	2/22/2003	Flood	0	0	\$0	
Wayne	5/5/2003	Flash Flood	0	0	\$130,000	
Lincoln	6/14/2003	Flash Flood	0	0	\$25,000	
Logan	6/14/2003	Flash Flood	0	0	\$20,000	
Cabell	6/14/2003	Flash Flood	0	0	\$25,000	
Mingo	6/16/2003	Flash Flood	0	0	\$500,000	
Logan	6/16/2003	Flash Flood	0	0	\$4,000,000	
Wayne	6/16/2003	Flash Flood	0	0	\$350,000	
Mason	6/16/2003	Flash Flood	0	0	\$100,000	
Cabell	6/16/2003	Flash Flood	0	0	\$50,000	
Logan	6/17/2003	Flash Flood	0	0	\$20,000	
Wayne	6/17/2003	Flash Flood	0	0	\$10,000	
Mason	6/19/2003	Flash Flood	0	0	\$250,000	
Lincoln	7/9/2003	Flash Flood	0	0	\$250,000	
Wayne	7/9/2003	Flash Flood	0	0	\$350,000	
Mason	9/2/2003	Flood	0	0	\$15,000	
Lincoln	9/4/2003	Flood	0	0	\$30,000	
Logan	9/4/2003	Flood	0	0	\$30,000	
Cabell	11/12/2003	Flood	0	0	\$850,000	
Wayne	11/12/2003	Flood	0	0	\$400,000	
Lincoln	11/12/2003	Flood	0	0	\$5,000,000	
Logan	11/12/2003	Flash Flood	0	0	\$100,000	
Mingo	11/12/2003	Flash Flood	0	0	\$100,000	
Lincoln	11/19/2003	Flood	0	0	\$200,000	
Wayne	11/19/2003	Flood	1	0	\$300,000	
Cabell	11/19/2003	Flood	0	0	\$500,000	
Logan	11/19/2003	Flood	1	0	\$200,000	
Lincoln	2/6/2004	Flood	0	0	\$0	
Wayne	2/6/2004	Flood	0	0	\$0	
Cabell	3/6/2004	Flood	0	0	\$0	
Mason	3/6/2004	Flood	0	0	\$0	
Lincoln	3/6/2004	Flood	0	0	\$0	
Mason	5/27/2004	Flash Flood	0	0	\$40,000	
Mingo	5/30/2004	Flash Flood	0	0	\$9,000,000	
Logan	5/30/2004	Flash Flood	0	0	\$7,000,000	
Mingo	6/4/2004	Flood	0	0	\$850,000	
Logan	6/4/2004	Flood	0	0	\$150,000	
Mingo	6/12/2004	Flood	0	0	\$400,000	
Logan	6/12/2004	Flood	0	0	\$100,000	
Logan	6/25/2004	Flood	0	0	\$0	
Mingo	6/25/2004	Flood	0	0	\$25,000	
Logan	7/25/2004	Flash Flood	0	0	\$500,000	
Lincoln	7/25/2004	Flash Flood	0	0	\$200,000	
Mason	9/8/2004	Flood	0	0	\$10,000	



TABLE 5.1.A FLOOD EVENTS (NCEI: 1996 – 2017)						
County	Date	Event	Deaths	Injuries	Damage to Property	
Cabell	9/8/2004	Flood	0	0	\$50,000	
Cabell	9/17/2004	Flood	0	0	\$1,000,000	
Mingo	9/17/2004	Flood	0	0	\$250,000	
Wayne	9/17/2004	Flood	0	0	\$500,000	
Mason	9/17/2004	Flood	0	0	\$500,000	
Lincoln	9/17/2004	Flood	1	0	\$125,000	
Mason	11/4/2004	Flood	0	0	\$10,000	
Mason	1/8/2005	Flood	0	0	\$50,000	
Cabell	1/8/2005	Flood	0	0	\$20,000	
Wayne	1/8/2005	Flood	0	0	\$10,000	
Logan	4/30/2005	Flash Flood	0	0	\$40,000	
Mingo	4/30/2005	Flash Flood	0	0	\$20,000	
Wayne	4/30/2005	Flash Flood	0	0	\$5,000	
Lincoln	4/30/2005	Flash Flood	0	0	\$5,000	
Mingo	8/19/2005	Flash Flood	0	1	\$225,000	
Wayne	7/13/2006	Flash Flood	0	0	\$900,000	
Mingo	8/7/2006	Flash Flood	0	0	\$5,000	
Logan	8/11/2006	Flash Flood	0	0	\$700,000	
Wayne	8/30/2006	Flash Flood	0	0	\$50,000	
Cabell	8/30/2006	Flash Flood	0	0	\$150,000	
Cabell	9/1/2006	Flood	0	0	\$2,000	
Mason	3/17/2007	Flood	0	0	\$5,000	
Logan	4/15/2007	Flood	0	0	\$750,000	
Mingo	4/15/2007	Flood	0	0	\$600,000	
Lincoln	4/15/2007	Flood	0	0	\$200,000	
Cabell	4/15/2007	Flood	0	0	\$5,000	
Wayne	12/10/2007	Flood	0	0	\$5,000	
Cabell	12/10/2007	Flood	1	0	\$30,000	
Mason	3/6/2008	Flood	0	0	\$2,000	
Cabell	4/4/2008	Flood	0	0	\$0	
Mingo	5/9/2009	Flood	0	0	\$24,000,000	
Logan	5/9/2009	Flood	0	0	\$25,000	
Mingo	6/2/2009	Flash Flood	0	0	\$10,000	
Mingo	6/11/2009	Flash Flood	0	0	\$2,000	
Wayne	8/2/2009	Flash Flood	0	0	\$10,000	
Cabell	8/10/2009	Flash Flood	0	0	\$100,000	
Wayne	8/12/2009	Flash Flood	0	0	\$75,000	
Cabell	2/5/2010	Flood	0	0	\$1,000	
Lincoln	2/5/2010	Flood	0	0	\$1,000	
Mason	2/5/2010	Flood	0	0	\$2,000	
Mason	5/2/2010	Flood	0	0	\$25,000	
Cabell	5/2/2010	Flood	0	0	\$50,000	
Wayne	5/2/2010	Flood	0	0	\$5,000	
Lincoln	5/17/2010	Flash Flood	0	0	\$250,000	
Logan	5/17/2010	Flash Flood	0	0	\$50,000	



TABLE 5.1.A FLOOD EVENTS (NCEI: 1996 – 2017)						
County	Date	Event	Deaths	Injuries	Damage to Property	
Logan	5/18/2010	Flash Flood	0	0	\$10,000	
Logan	6/12/2010	Flash Flood	0	0	\$4,000,000	
Mingo	6/12/2010	Flash Flood	0	0	\$600,000	
Cabell	7/20/2010	Flash Flood	0	0	\$15,000	
Wayne	7/20/2010	Flash Flood	0	0	\$150,000	
Lincoln	7/21/2010	Flash Flood	0	0	\$20,000	
Cabell	8/11/2010	Flash Flood	0	0	\$200,000	
Mason	3/10/2011	Flood	0	0	\$30,000	
Wayne	3/11/2011	Flood	0	0	\$3,000	
Cabell	3/11/2011	Flood	0	0	\$25,000	
Lincoln	4/9/2011	Flash Flood	0	0	\$300,000	
Logan	4/9/2011	Flash Flood	0	0	\$175,000	
Wayne	4/16/2011	Flash Flood	0	0	\$10,000	
Lincoln	4/16/2011	Flash Flood	0	0	\$5,000	
Cabell	5/10/2011	Flash Flood	0	0	\$200,000	
Wayne	5/10/2011	Flash Flood	0	0	\$200,000	
Wayne	5/14/2011	Flash Flood	0	0	\$50,000	
Wayne	7/30/2011	Flash Flood	0	0	\$5,000	
Wayne	7/30/2011	Flash Flood	0	0	\$125,000	
Logan	3/2/2012	Flash Flood	0	0	\$10,000	
Mingo	3/2/2012	Flash Flood	0	0	\$10,000	
Lincoln	3/2/2012	Flash Flood	0	0	\$350,000	
Wayne	3/2/2012	Flash Flood	0	0	\$100,000	
Logan	3/15/2012	Flash Flood	0	0	\$5,500,000	
Mingo	3/15/2012	Flash Flood	0	0	\$900,000	
Lincoln	3/15/2012	Flash Flood	0	0	\$450,000	
Mason	5/4/2012	Flash Flood	0	0	\$75,000	
Mingo	1/31/2013	Flood	0	0	\$5,000	
Wayne	7/1/2013	Flash Flood	0	0	\$75,000	
Mason	7/19/2013	Flash Flood	0	0	\$125,000	
Lincoln	12/6/2013	Flood	0	0	\$20,000	
Cabell	4/29/2014	Flash Flood	0	0	\$15,000	
Mingo	5/13/2014	Flash Flood	0	0	\$5,000	
Cabell	6/4/2014	Flash Flood	0	0	\$20,000	
Lincoln	6/4/2014	Flash Flood	0	0	\$5,000	
Wayne	8/22/2014	Flash Flood	0	0	\$50,000	
Cabell	8/22/2014	Flash Flood	0	0	\$350,000	
Mingo	8/22/2014	Flash Flood	0	0	\$200,000	
Logan	8/22/2014	Flash Flood	0	0	\$15,000	
Lincoln	9/4/2014	Flash Flood	0	0	\$10,000	
Logan	2/21/2015	Flood	0	0	\$20,000	
Mingo	3/4/2015	Flood	0	0	\$800,000	
Logan	3/4/2015	Flood	0	0	\$400,000	
Wayne	3/4/2015	Flood	0	0	\$450,000	
Lincoln	3/4/2015	Flood	0	0	\$1,000,000	



TABLE 5.1.A FLOOD EVENTS (NCEI: 1996 – 2017)					
County	Date	Event	Deaths	Injuries	Damage to Property
Cabell	3/4/2015	Flood	0	0	\$750,000
Mason	3/4/2015	Flood	0	0	\$75,000
Wayne	4/3/2015	Flash Flood	1	0	\$450,000
Lincoln	4/3/2015	Flash Flood	0	0	\$400,000
Logan	4/3/2015	Flash Flood	0	0	\$10,000
Lincoln	4/3/2015	Flood	0	0	\$100,000
Cabell	4/3/2015	Flood	0	0	\$200,000
Lincoln	4/14/2015	Flood	0	0	\$20,000
Logan	4/14/2015	Flood	0	0	\$10,000
Lincoln	6/16/2015	Flash Flood	0	0	\$5,000
Mason	6/26/2015	Flash Flood	0	0	\$25,000
Mingo	7/5/2015	Flash Flood	0	0	\$10,000
Logan	7/5/2015	Flash Flood	0	0	\$10,000
Cabell	7/13/2015	Flash Flood	0	0	\$0
Mason	7/14/2015	Flash Flood	0	0	\$50,000
Lincoln	7/14/2015	Flash Flood	0	0	\$500,000
Cabell	7/14/2015	Flash Flood	0	0	\$25,000
Cabell	7/14/2015	Flash Flood	0	0	\$100,000
Cabell	7/21/2015	Flash Flood	0	0	\$10,000
Wayne	12/25/2015	Flash Flood	0	0	\$20,000
Lincoln	12/25/2015	Flash Flood	0	0	\$50,000
Cabell	4/27/2016	Flash Flood	0	0	\$10,000
Logan	5/1/2016	Flash Flood	0	0	\$10,000
Mingo	5/1/2016	Flash Flood	0	0	\$10,000
Lincoln	5/1/2016	Flash Flood	0	0	\$5,000
Logan	5/1/2016	Flash Flood	0	0	\$2,000
Lincoln	5/1/2016	Flash Flood	0	0	\$25,000
Logan	5/1/2016	Flash Flood	0	0	\$2,000
Mingo	5/2/2016	Flash Flood	0	0	\$5,000
Lincoln	6/27/2016	Flash Flood	0	0	\$475,000
Logan	6/27/2016	Flash Flood	0	0	\$20,000
Cabell	7/14/2016	Flash Flood	1	0	\$500,000
Cabell	7/14/2016	Flash Flood	0	0	\$0
Mingo	7/27/2016	Flash Flood	0	0	\$10,000
Cabell	8/17/2016	Flash Flood	0	0	\$10,000
Totals			13	1	\$109,565,000


		TABL	.E 5.1.B FLO	OD EVENTS (S	GHELDUS: 1960 – 1995)		
County Name	Hazard	Year	Month	<i>Crop Damage (ADJ 2016)</i>	Property Damage (ADJ 2016)	Injuries	Fatalities
Cabell	Flooding	1962	2	\$0	\$80,918	0	0.02
Lincoln	Flooding	1962	2	\$0	\$80,918	0	0.02
Logan	Flooding	1962	2	\$0	\$80,918	0	0.02
Mingo	Flooding	1962	2	\$0	\$80,918	0	0.02
Wayne	Flooding	1962	2	\$0	\$80,918	0	0.02
Cabell	Flooding	1965	5	\$0	\$1,293	0	0
Cabell	Flooding	1966	2	\$0	\$314,266	0	0
Mason	Flooding	1966	2	\$0	\$314,266	0	0
Wayne	Flooding	1966	2	\$0	\$314,266	0	0
Cabell	Flooding	1967	3	\$0	\$332,571	0	0.025
Lincoln	Flooding	1967	3	\$0	\$332,571	0	0.025
Logan	Flooding	1967	3	\$0	\$332,571	0	0.025
Mason	Flooding	1967	3	\$0	\$332,571	0	0.025
Mingo	Flooding	1967	3	\$0	\$332,571	0	0.025
Wayne	Flooding	1967	3	\$0	\$332,571	0	0.025
Cabell	Flooding	1968	5	\$0	\$2,065	0	0
Lincoln	Flooding	1968	5	\$0	\$2,065	0	0
Logan	Flooding	1968	5	\$0	\$2,065	0	0
Mason	Flooding	1968	5	\$0	\$2,065	0	0
Mingo	Flooding	1968	5	\$0	\$2,065	0	0
Wayne	Flooding	1968	5	\$0	\$2,065	0	0
Wayne	Flooding	1968	7	\$0	\$35,111	0	0
Cabell	Flooding	1970	6	\$0	\$31,491	0	0
Mingo	Flooding	1970	12	\$0	\$0	0	1
Logan	Flooding	1972	2	\$0	\$146,156	0	0
Mingo	Flooding	1972	2	\$0	\$146,156	0	0
Mingo	Flooding	1972	8	\$0	\$29,231,247	0	0
Cabell	Flooding	1973	8	\$0	\$13,760	0	0
Lincoln	Flooding	1973	11	\$0	\$34,399	0	0
Logan	Flooding	1973	11	\$0	\$34,399	0	0
Mingo	Flooding	1973	11	\$0	\$34,399	0	0
Wayne	Flooding	1973	11	\$0	\$34,399	0	0
Lincoln	Flooding	1974	1	\$0	\$3,098,038	0	0
Logan	Flooding	1974	1	\$0	\$3,098,038	0	0
Mingo	Flooding	1974	1	\$0	\$3,098,038	0	0
Wayne	Flooding	1974	1	\$0	\$3,098,038	0	0



	TABLE 5.1.B FLOOD EVENTS (SHELDUS: 1960 – 1995)									
County Name	Hazard	Year	Month	<i>Crop Damage (ADJ 2016)</i>	Property Damage (ADJ 2016)	Injuries	Fatalities			
Mingo	Flooding	1974	7	\$0	\$61,961	0	0			
Lincoln	Flooding	1977	4	\$0	\$22,403,119	0	0.22			
Logan	Flooding	1977	4	\$0	\$22,403,119	0	0.22			
Mingo	Flooding	1977	4	\$0	\$22,403,119	0	0.22			
Logan	Flooding	1977	8	\$0	\$672,094	0	0			
Mingo	Flooding	1977	8	\$0	\$672,094	0	0			
Cabell	Flooding	1978	1	\$0	\$340,732	0	0			
Lincoln	Flooding	1978	1	\$0	\$340,732	0	0			
Logan	Flooding	1978	1	\$0	\$340,732	0	0			
Mason	Flooding	1978	1	\$0	\$340,732	0	0			
Mingo	Flooding	1978	1	\$0	\$340,732	0	0			
Wayne	Flooding	1978	1	\$0	\$340,732	0	0			
Cabell	Flooding	1978	12	\$0	\$340,732	0	0			
Lincoln	Flooding	1978	12	\$0	\$340,732	0	0			
Logan	Flooding	1978	12	\$0	\$340,732	0	0			
Mason	Flooding	1978	12	\$0	\$340,732	0	0			
Mingo	Flooding	1978	12	\$0	\$340,732	0	0			
Wayne	Flooding	1978	12	\$0	\$340,732	0	0			
Mingo	Flooding	1979	8	\$0	\$1,683,011	0	0			
Cabell	Flooding	1980	7	\$71	\$7,061	0	0			
Lincoln	Flooding	1980	7	\$71	\$7,061	0	0			
Logan	Flooding	1980	7	\$71	\$7,061	0	0			
Mason	Flooding	1980	7	\$71	\$7,061	0	0			
Mingo	Flooding	1980	7	\$71	\$7,061	0	0			
Wayne	Flooding	1980	7	\$71	\$1,186,278	0	0			
Cabell	Flooding	1980	8	\$650	\$649,826	0.02	0			
Lincoln	Flooding	1980	8	\$650	\$649,826	0.02	0			
Logan	Flooding	1980	8	\$650	\$649,826	0.02	0			
Mason	Flooding	1980	8	\$650	\$649,826	0.02	0			
Mingo	Flooding	1980	8	\$650	\$649,826	0.02	0			
Wayne	Flooding	1980	8	\$650	\$649,826	0.02	0			
Cabell	Flooding	1981	6	\$2,444	\$24,440	0	0			
Lincoln	Flooding	1981	6	\$2,444	\$24,440	0	0			
Logan	Flooding	1981	6	\$3,116	\$91,649	0	0			
Mason	Flooding	1981	6	\$2,444	\$24,440	0	0			
Mingo	Flooding	1981	6	\$3,116	\$91,649	0	0			
Wayne	Flooding	1981	6	\$2,578	\$158,858	0	0			



		TABL	.E 5.1.B FLO	od events (s	SHELDUS: 1960 – 1995)		
County Name	Hazard	Year	Month	<i>Crop Damage (ADJ 2016)</i>	Property Damage (ADJ 2016)	Injuries	Fatalities
Logan	Flooding	1982	9	\$422	\$422,061	0	0
Mingo	Flooding	1982	9	\$422	\$422,061	0	0
Logan	Flooding	1984	5	\$0	\$2,940,005	2	0
Mingo	Flooding	1984	5	\$0	\$2,940,005	2	1
Mason	Flooding	1985	5	\$0	\$56,778	0	0
Logan	Flooding	1987	4	\$0	\$6,722	0	0.06
Mingo	Flooding	1987	4	\$0	\$6,722	0	0.06
Cabell	Flooding	1990	5	\$0	\$70,115	0	0
Wayne	Flooding	1990	5	\$0	\$70,115	0	0
Cabell	Flooding	1990	6	\$0	\$10,283	0	0
Wayne	Flooding	1990	6	\$0	\$9,349	0	0
Cabell	Flooding	1990	7	\$0	\$935	0	0
Wayne	Flooding	1990	7	\$0	\$1,870	0	0
Lincoln	Flooding	1990	8	\$0	\$935	0	0
Wayne	Flooding	1990	8	\$0	\$280,459	0	0
Cabell	Flooding	1990	12	\$0	\$550	0	0
Mason	Flooding	1990	12	\$0	\$550	0	0
Wayne	Flooding	1990	12	\$0	\$550	0	0
Cabell	Flooding	1991	3	\$0	\$89,711	0	0
Lincoln	Flooding	1991	3	\$0	\$897	0	0
Logan	Flooding	1991	3	\$0	\$7,177	0	0
Mingo	Flooding	1991	3	\$0	\$7,177	0	0
Wayne	Flooding	1991	3	\$0	\$89,711	0	0
Lincoln	Flooding	1991	12	\$0	\$8,971	0	0
Logan	Flooding	1991	12	\$0	\$28,474	0	0
Mason	Flooding	1991	12	\$0	\$897	0	0
Mingo	Flooding	1991	12	\$0	\$20,400	0	0
Wayne	Flooding	1991	12	\$0	\$8,971	0	0
Lincoln	Flooding	1992	6	\$0	\$871	0	0
Mingo	Flooding	1992	6	\$0	\$8,709	0	0
Cabell	Flooding	1993	3	\$0	\$216	0	0
Lincoln	Flooding	1993	3	\$0	\$216	0	0
Mason	Flooding	1993	3	\$0	\$216	0	0
Wayne	Flooding	1993	3	\$0	\$1,062	0	0
Cabell	Flooding	1994	1	\$0	\$10,347	0	0
Lincoln	Flooding	1994	1	\$0	\$92	0	0
Logan	Flooding	1994	1	\$0	\$92	0	0



	TABLE 5.1.B FLOOD EVENTS (SHELDUS: 1960 – 1995)									
County Name	Hazard	Year	Month	<i>Crop Damage (ADJ 2016)</i>	Property Damage (ADJ 2016)	Injuries	Fatalities			
Mason	Flooding	1994	1	\$0	\$10,306	0	0			
Wayne	Flooding	1994	1	\$0	\$10,347	0	0			
Wayne	Flooding	1994	2	\$0	\$824	0	1			
Cabell	Flooding	1994	3	\$0	\$824	0	0			
Cabell	Flooding	1994	4	\$0	\$824	0	0			
Lincoln	Flooding	1994	5	\$0	\$1,031	0	0			
Cabell	Flooding	1995	5	\$0	\$8,819	0	0			
Lincoln	Flooding	1995	5	\$0	\$8,819	0	0			
Mason	Flooding	1995	5	\$0	\$20,845	0	0			
Wayne	Flooding	1995	5	\$0	\$8,819	0	0			
Lincoln	Flooding	1995	6	\$10,690	\$5,345	0	0			
Lincoln	Flooding	1995	8	\$0	\$120,262	0	0			
Total				\$31,999	\$133,134,829	4.12	4.03			



DROUGHT

This table shows the weeks that each county was in a drought condition according to data from the U.S. Drought Monitor. No counties have experienced an extreme drought.

	TA	BLE 5.1.C DI	ROUGHT	CONDITIONS		
Week	DO	D1	D2	D3	D4	County
12/19/2017						Cabell
12/19/2017						Lincoln
12/19/2017						Logan
12/19/2017						Mingo
12/19/2017						Wayne
6/13/2017						Mason
12/27/2016						Wayne
12/20/2016						Wayne
12/13/2016						Cabell
12/13/2016						Lincoln
12/13/2016						Logan
12/13/2016						Mason
12/13/2016						Mingo
12/13/2016						Wayne
12/6/2016						Cabell
12/6/2016						Lincoln
12/6/2016						Logan
12/6/2016						Mason
12/6/2016						Mingo
12/6/2016						Wayne
11/29/2016						Cabell
11/29/2016						Lincoln
11/29/2016						Logan
11/29/2016						Mingo
11/29/2016						Wayne
11/22/2016						Cabell
11/22/2016						Lincoln
11/22/2016						Logan
11/22/2016						Mingo
11/22/2016						Wayne
11/15/2016						Cabell



	TA	BLE 5.1.C	DROUGHT	CONDITIONS		
Week	DO	D1	D2	D3	D4	County
11/15/2016						Lincoln
11/15/2016						Logan
11/15/2016						Mingo
11/15/2016						Wayne
11/8/2016						Cabell
11/8/2016						Lincoln
11/8/2016						Logan
11/8/2016						Mingo
11/8/2016						Wayne
11/1/2016						Cabell
11/1/2016						Lincoln
11/1/2016						Logan
11/1/2016						Mingo
11/1/2016						Wayne
10/25/2016						Cabell
10/25/2016						Lincoln
10/25/2016						Wayne
10/18/2016						Cabell
10/18/2016						Lincoln
10/18/2016						Logan
10/18/2016						Mason
10/18/2016						Mingo
10/18/2016						Wayne
10/11/2016						Cabell
10/11/2016						Lincoln
10/11/2016						Logan
10/11/2016						Mason
10/11/2016						Mingo
10/11/2016						Wayne
10/4/2016						Cabell
10/4/2016						Lincoln
10/4/2016						Logan
10/4/2016						Mason
10/4/2016						Mingo
10/4/2016						Wayne



	TABLE 5.1.C DROUGHT CONDITIONS									
Week	DO	D1	D2	D3	D4	County				
9/27/2016						Cabell				
9/27/2016						Lincoln				
9/27/2016						Logan				
9/27/2016						Mason				
9/27/2016						Mingo				
9/27/2016						Wayne				
9/20/2016						Cabell				
9/20/2016						Lincoln				
9/20/2016						Logan				
9/20/2016						Mason				
9/20/2016						Mingo				
9/20/2016						Wayne				
9/13/2016						Cabell				
9/13/2016						Lincoln				
9/13/2016						Logan				
9/13/2016						Mason				
9/13/2016						Wayne				
9/6/2016						Mason				
8/30/2016						Mason				
5/10/2016						Logan				
5/10/2016						Mingo				
5/3/2016						Lincoln				
5/3/2016						Logan				
5/3/2016						Mingo				
5/3/2016						Wayne				
4/26/2016						Cabell				
4/26/2016						Lincoln				
4/26/2016						Logan				
4/26/2016						Mason				
4/26/2016						Mingo				
4/26/2016						Wayne				
4/19/2016						Cabell				
4/19/2016						Lincoln				
4/19/2016						Logan				
4/19/2016						Mason				



	TA	BLE 5.1.C [DROUGHT	CONDITIONS		
Week	DO	D1	D2	D3	D4	County
4/19/2016						Mingo
4/19/2016						Wayne
4/12/2016						Cabell
4/12/2016						Lincoln
4/12/2016						Logan
4/12/2016						Mingo
4/12/2016						Wayne
11/24/2015						Cabell
11/24/2015						Lincoln
11/24/2015						Wayne
11/17/2015						Cabell
11/17/2015						Lincoln
11/17/2015						Wayne
11/10/2015						Cabell
11/10/2015						Lincoln
11/10/2015						Wayne
11/3/2015						Cabell
11/3/2015						Lincoln
11/3/2015						Wayne
10/27/2015						Cabell
10/27/2015						Lincoln
10/27/2015						Mason
10/27/2015						Wayne
10/20/2015						Cabell
10/20/2015						Lincoln
10/20/2015						Mason
10/20/2015						Wayne
10/13/2015						Cabell
10/13/2015						Lincoln
10/13/2015						Mason
10/13/2015						Wayne
10/6/2015						Cabell
10/6/2015						Lincoln
10/6/2015						Logan
10/6/2015						Mindo



	TABLE 5.1.C DROUGHT CONDITIONS									
Week	DO	D1	D2	D3	D4	County				
10/6/2015						Wayne				
9/29/2015						Cabell				
9/29/2015						Lincoln				
9/29/2015						Logan				
9/29/2015						Mason				
9/29/2015						Mingo				
9/29/2015						Wayne				
9/22/2015						Cabell				
9/22/2015						Lincoln				
9/22/2015						Logan				
9/22/2015						Mason				
9/22/2015						Mingo				
9/22/2015						Wayne				
9/15/2015						Cabell				
9/15/2015						Lincoln				
9/15/2015						Logan				
9/15/2015						Mingo				
9/15/2015						Wayne				
9/8/2015						Cabell				
9/8/2015						Lincoln				
9/8/2015						Logan				
9/8/2015						Mingo				
9/8/2015						Wayne				
6/30/2015						Logan				
6/30/2015						Mingo				
6/23/2015						Cabell				
6/23/2015						Lincoln				
6/23/2015						Logan				
6/23/2015						Mason				
6/23/2015						Mingo				
6/23/2015						Wayne				
6/16/2015						Cabell				
6/16/2015						Lincoln				
6/16/2015						Logan				
6/16/2015						Mason				



	TABLE 5.1.C DROUGHT CONDITIONS									
Week	DO	D1	D2	D3	D4	County				
6/16/2015						Mingo				
6/16/2015						Wayne				
6/9/2015						Cabell				
6/9/2015						Lincoln				
6/9/2015						Logan				
6/9/2015						Mason				
6/9/2015						Mingo				
6/9/2015						Wayne				
6/2/2015						Cabell				
6/2/2015						Lincoln				
6/2/2015						Logan				
6/2/2015						Mason				
6/2/2015						Mingo				
6/2/2015						Wayne				
5/26/2015						Cabell				
5/26/2015						Lincoln				
5/26/2015						Logan				
5/26/2015						Mason				
5/26/2015						Mingo				
5/26/2015						Wayne				
10/7/2014						Mason				
9/30/2014						Mason				
8/19/2014						Wayne				
8/12/2014						Wayne				
8/5/2014						Wayne				
7/29/2014						Wayne				
7/22/2014						Wayne				
7/15/2014						Wayne				
7/8/2014						Wayne				
6/10/2014						Logan				
6/10/2014						Mingo				
6/3/2014						Lincoln				
6/3/2014						Logan				
6/3/2014						Mingo				
5/27/2014						Lincoln				



	TABLE 5.1.C DROUGHT CONDITIONS									
Week	DO	D1	D2	D3	D4	County				
5/27/2014						Logan				
5/27/2014						Mingo				
5/20/2014						Lincoln				
5/20/2014						Logan				
5/20/2014						Mingo				
5/13/2014						Lincoln				
5/13/2014						Logan				
5/13/2014						Mason				
5/13/2014						Mingo				
5/6/2014						Lincoln				
5/6/2014						Logan				
5/6/2014						Mason				
5/6/2014						Mingo				
5/21/2013						Lincoln				
5/21/2013						Logan				
5/14/2013						Lincoln				
5/14/2013						Logan				
5/7/2013						Lincoln				
5/7/2013						Logan				
5/7/2013						Mason				
10/30/2012						Mason				
10/23/2012						Mason				
10/16/2012						Mason				
10/9/2012						Mason				
10/2/2012						Mason				
9/25/2012						Cabell				
9/25/2012						Lincoln				
9/25/2012						Mason				
9/25/2012						Wayne				
9/18/2012						Cabell				
9/18/2012						Lincoln				
9/18/2012						Logan				
9/18/2012						Mason				
9/18/2012						Mingo				
9/18/2012						Wayne				



	TA	BLE 5.1.C [DROUGHT	CONDITIONS		
Week	DO	D1	D2	D3	D4	County
9/11/2012						Cabell
9/11/2012						Lincoln
9/11/2012						Logan
9/11/2012						Mason
9/11/2012						Mingo
9/11/2012						Wayne
9/4/2012						Mason
7/31/2012						Mason
7/24/2012						Cabell
7/24/2012						Mason
7/24/2012						Wayne
7/17/2012						Cabell
7/17/2012						Logan
7/17/2012						Mason
7/17/2012						Mingo
7/17/2012						Wayne
7/10/2012						Cabell
7/10/2012						Lincoln
7/10/2012						Logan
7/10/2012						Mason
7/10/2012						Mingo
7/10/2012						Wayne
7/3/2012						Cabell
7/3/2012						Lincoln
7/3/2012						Logan
7/3/2012						Mason
7/3/2012						Mingo
7/3/2012						Wayne
6/26/2012						Cabell
6/26/2012						Lincoln
6/26/2012						Logan
6/26/2012						Mason
6/26/2012						Mingo
6/26/2012						Wayne
6/19/2012						Cabell



TABLE 5.1.C DROUGHT CONDITIONS									
Week	DO	D1	D2	D3	D4	County			
6/19/2012						Lincoln			
6/19/2012						Logan			
6/19/2012						Mason			
6/19/2012						Mingo			
6/19/2012						Wayne			
3/1/2011						Lincoln			
3/1/2011						Logan			
3/1/2011						Mingo			
2/22/2011						Lincoln			
2/22/2011						Logan			
2/22/2011						Mingo			
2/15/2011						Lincoln			
2/15/2011						Logan			
2/15/2011						Mason			
2/15/2011						Mingo			
2/8/2011						Lincoln			
2/8/2011						Logan			
2/8/2011						Mason			
2/8/2011						Mingo			
11/30/2010						Cabell			
11/30/2010						Lincoln			
11/30/2010						Logan			
11/30/2010						Mason			
11/30/2010						Mingo			
11/30/2010						Wayne			
11/23/2010						Cabell			
11/23/2010						Lincoln			
11/23/2010						Logan			
11/23/2010						Mason			
11/23/2010						Mingo			
11/23/2010						Wayne			
11/16/2010						Cabell			
11/16/2010						Lincoln			
11/16/2010						Logan			
11/16/2010						Mason			



TABLE 5.1.C DROUGHT CONDITIONS									
Week	DO	D1	D2	D3	D4	County			
11/16/2010						Mingo			
11/16/2010						Wayne			
11/9/2010						Cabell			
11/9/2010						Lincoln			
11/9/2010						Logan			
11/9/2010						Mason			
11/9/2010						Mingo			
11/9/2010						Wayne			
11/2/2010						Cabell			
11/2/2010						Lincoln			
11/2/2010						Logan			
11/2/2010						Mason			
11/2/2010						Mingo			
11/2/2010						Wayne			
10/26/2010						Cabell			
10/26/2010						Lincoln			
10/26/2010						Logan			
10/26/2010						Mason			
10/26/2010						Mingo			
10/26/2010						Wayne			
10/19/2010						Cabell			
10/19/2010						Lincoln			
10/19/2010						Logan			
10/19/2010						Mason			
10/19/2010						Mingo			
10/19/2010						Wayne			
10/12/2010						Cabell			
10/12/2010						Lincoln			
10/12/2010						Logan			
10/12/2010						Mason			
10/12/2010						Mingo			
10/12/2010						Wayne			
10/5/2010						Cabell			
10/5/2010						Lincoln			
10/5/2010						Logan			



TABLE 5.1.C DROUGHT CONDITIONS									
Week	DO	D1	D2	D3	D4	County			
10/5/2010						Mason			
10/5/2010						Mingo			
10/5/2010						Wayne			
9/28/2010						Cabell			
9/28/2010						Lincoln			
9/28/2010						Logan			
9/28/2010						Mason			
9/28/2010						Mingo			
9/28/2010						Wayne			
4/27/2010						Mason			
9/22/2009						Mason			
4/28/2009						Mason			
4/21/2009						Mason			
4/14/2009						Mason			
4/7/2009						Lincoln			
4/7/2009						Logan			
4/7/2009						Mason			
3/31/2009						Cabell			
3/31/2009						Lincoln			
3/31/2009						Logan			
3/31/2009						Mason			
3/31/2009						Mingo			
3/31/2009						Wayne			
3/24/2009						Cabell			
3/24/2009						Lincoln			
3/24/2009						Logan			
3/24/2009						Mason			
3/24/2009						Mingo			
3/24/2009						Wayne			
3/17/2009						Logan			
3/17/2009						Mingo			
3/10/2009						Logan			
3/10/2009						Mingo			
3/3/2009						Logan			
3/3/2009						Minao			



TABLE 5.1.C DROUGHT CONDITIONS									
Week	DO	D1	D2	D3	D4	County			
2/24/2009						Logan			
2/24/2009						Mingo			
2/17/2009						Logan			
2/17/2009						Mingo			
2/10/2009						Logan			
2/10/2009						Mingo			
2/3/2009						Logan			
2/3/2009						Mingo			
1/27/2009						Cabell			
1/27/2009						Lincoln			
1/27/2009						Logan			
1/27/2009						Mason			
1/27/2009						Mingo			
1/27/2009						Wayne			
1/20/2009						Cabell			
1/20/2009						Lincoln			
1/20/2009						Logan			
1/20/2009						Mason			
1/20/2009						Mingo			
1/20/2009						Wayne			
1/13/2009						Cabell			
1/13/2009						Lincoln			
1/13/2009						Logan			
1/13/2009						Mason			
1/13/2009						Mingo			
1/13/2009						Wayne			
1/6/2009						Cabell			
1/6/2009						Lincoln			
1/6/2009						Logan			
1/6/2009						Mason			
1/6/2009						Mingo			
1/6/2009						Wayne			
12/30/2008						Cabell			
12/30/2008						Lincoln			
12/30/2008						Logan			



TABLE 5.1.C DROUGHT CONDITIONS								
Week	D0	D1	D2	D3	D4	County		
12/30/2008						Mason		
12/30/2008						Mingo		
12/30/2008						Wayne		
12/23/2008						Cabell		
12/23/2008						Lincoln		
12/23/2008						Logan		
12/23/2008						Mason		
12/23/2008						Mingo		
12/23/2008						Wayne		
12/16/2008						Cabell		
12/16/2008						Lincoln		
12/16/2008						Logan		
12/16/2008						Mason		
12/16/2008						Mingo		
12/16/2008						Wayne		
12/9/2008						Cabell		
12/9/2008						Lincoln		
12/4/2007						Cabell		
12/9/2008						Mason		
11/27/2007						Cabell		
12/9/2008						Wayne		
12/2/2008						Cabell		
12/2/2008						Lincoln		
11/20/2007						Cabell		
12/2/2008						Mason		
11/13/2007						Cabell		
11/6/2007						Cabell		
11/25/2008						Cabell		
11/25/2008						Lincoln		
10/30/2007						Cabell		
11/25/2008						Mason		
10/23/2007						Cabell		
10/16/2007						Cabell		
11/18/2008						Cabell		
11/18/2008						Lincoln		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	Ľ	01	D2	D3	D4	County	
10/9/2007							Cabell	
11/18/2008							Mason	
10/2/2007							Cabell	
9/25/2007							Cabell	
11/11/2008							Cabell	
9/18/2007							Cabell	
9/11/2007							Cabell	
11/11/2008							Mason	
9/4/2007							Cabell	
8/28/2007							Cabell	
11/4/2008							Cabell	
8/21/2007							Cabell	
8/14/2007							Cabell	
11/4/2008							Mason	
8/7/2007							Cabell	
7/31/2007							Cabell	
10/28/2008							Cabell	
7/24/2007							Cabell	
7/17/2007							Cabell	
10/28/2008							Mason	
7/10/2007							Cabell	
7/3/2007							Cabell	
10/21/2008							Cabell	
6/26/2007							Cabell	
12/27/2005							Cabell	
10/21/2008							Mason	
12/20/2005							Cabell	
12/13/2005							Cabell	
10/14/2008							Cabell	
12/6/2005							Cabell	
11/29/2005							Cabell	
10/14/2008							Mason	
9/24/2002							Cabell	
9/17/2002							Cabell	
10/7/2008							Cabell	



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
10/7/2008						Lincoln		
10/7/2008						Logan		
10/7/2008						Mason		
10/7/2008						Mingo		
10/7/2008						Wayne		
9/30/2008						Cabell		
9/30/2008						Lincoln		
9/30/2008						Logan		
9/30/2008						Mason		
9/30/2008						Mingo		
9/30/2008						Wayne		
9/23/2008						Cabell		
9/23/2008						Lincoln		
9/23/2008						Logan		
9/23/2008						Mason		
9/23/2008						Mingo		
9/23/2008						Wayne		
9/16/2008						Cabell		
9/16/2008						Lincoln		
9/16/2008						Logan		
9/16/2008						Mingo		
9/16/2008						Wayne		
9/9/2008						Cabell		
9/9/2008						Lincoln		
9/9/2008						Logan		
9/9/2008						Mingo		
9/9/2008						Wayne		
9/2/2008						Cabell		
9/2/2008						Lincoln		
9/2/2008						Logan		
9/2/2008						Mingo		
9/2/2008						Wayne		
8/26/2008						Cabell		
8/26/2008						Lincoln		
8/26/2008						Logan		



TABLE 5.1.C DROUGHT CONDITIONS									
Week	DO	D1	D2	D3	D4	County			
8/26/2008						Mason			
8/26/2008						Mingo			
8/26/2008						Wayne			
8/19/2008						Lincoln			
8/19/2008						Logan			
8/19/2008						Mingo			
8/19/2008						Wayne			
7/8/2008						Logan			
7/8/2008						Mingo			
7/1/2008						Logan			
7/1/2008						Mingo			
6/24/2008						Logan			
6/24/2008						Mingo			
6/17/2008						Logan			
6/17/2008						Mingo			
6/10/2008						Logan			
6/10/2008						Mingo			
3/18/2008						Mingo			
3/11/2008						Mingo			
3/4/2008						Logan			
3/4/2008						Mingo			
3/4/2008						Wayne			
2/26/2008						Logan			
2/26/2008						Mingo			
2/26/2008						Wayne			
2/19/2008						Lincoln			
2/19/2008						Logan			
2/19/2008						Mingo			
2/19/2008						Wayne			
2/12/2008						Lincoln			
2/12/2008						Logan			
2/12/2008						Mingo			
2/12/2008						Wayne			
2/5/2008						Lincoln			
2/5/2008						Logan			



TABLE 5.1.C DROUGHT CONDITIONS									
Week	DO	D1	D2	D3	D4	County			
2/5/2008						Mingo			
2/5/2008						Wayne			
1/29/2008						Lincoln			
1/29/2008						Logan			
1/29/2008						Mingo			
1/29/2008						Wayne			
1/22/2008						Lincoln			
1/22/2008						Logan			
1/22/2008						Mingo			
1/22/2008						Wayne			
1/15/2008						Cabell			
1/15/2008						Lincoln			
1/15/2008						Logan			
1/15/2008						Mingo			
1/15/2008						Wayne			
1/8/2008						Cabell			
1/8/2008						Lincoln			
1/8/2008						Logan			
9/10/2002						Cabell			
1/8/2008						Wayne			
1/1/2008						Cabell			
1/1/2008						Lincoln			
1/1/2008						Logan			
9/3/2002						Cabell			
1/1/2008						Wayne			
12/25/2007						Cabell			
12/25/2007						Lincoln			
12/25/2007						Logan			
5/15/2001						Cabell			
12/25/2007						Wayne			
12/18/2007						Cabell			
12/18/2007						Lincoln			
12/18/2007						Logan			
11/11/2008						Lincoln			
12/18/2007						Wavne			



	TABLE 5.1.C DROUGHT CONDITIONS									
Week	DO	D1	D2	D3	D4	County				
12/11/2007						Cabell				
11/4/2008						Lincoln				
10/28/2008						Lincoln				
12/11/2007						Mason				
10/21/2008						Lincoln				
10/14/2008						Lincoln				
12/11/2007						Lincoln				
12/4/2007						Lincoln				
11/27/2007						Lincoln				
11/20/2007						Lincoln				
11/13/2007						Lincoln				
11/6/2007						Lincoln				
10/30/2007						Lincoln				
10/23/2007						Lincoln				
10/16/2007						Lincoln				
10/9/2007						Lincoln				
10/2/2007						Lincoln				
9/25/2007						Lincoln				
9/18/2007						Lincoln				
9/11/2007						Lincoln				
9/4/2007						Lincoln				
8/28/2007						Lincoln				
8/21/2007						Lincoln				
8/14/2007						Lincoln				
8/7/2007						Lincoln				
7/31/2007						Lincoln				
7/24/2007						Lincoln				
7/17/2007						Lincoln				
7/10/2007						Lincoln				
7/3/2007						Lincoln				
6/26/2007						Lincoln				
5/15/2001						Lincoln				
12/9/2008						Logan				
12/2/2008						Logan				
11/25/2008						Logan				



	TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County			
11/18/2008						Logan			
11/11/2008						Logan			
11/4/2008						Logan			
10/28/2008						Logan			
10/21/2008						Logan			
10/14/2008						Logan			
12/11/2007						Logan			
12/4/2007						Logan			
11/27/2007						Logan			
11/20/2007						Logan			
11/13/2007						Logan			
11/6/2007						Logan			
10/30/2007						Logan			
10/23/2007						Logan			
10/16/2007						Logan			
10/9/2007						Logan			
10/2/2007						Logan			
9/25/2007						Logan			
9/18/2007						Logan			
9/11/2007						Logan			
9/4/2007						Logan			
8/28/2007						Logan			
8/21/2007						Logan			
8/14/2007						Logan			
8/7/2007						Logan			
7/31/2007						Logan			
7/24/2007						Logan			
7/17/2007						Logan			
7/10/2007						Logan			
7/3/2007						Logan			
6/26/2007						Logan			
9/17/2002						Logan			
9/10/2002						Logan			
5/15/2001						Logan			
5/8/2001						Logan			



	TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County			
1/16/2001						Logan			
1/9/2001						Logan			
12/12/2000						Logan			
12/4/2007						Mason			
11/27/2007						Mason			
11/20/2007						Mason			
11/13/2007						Mason			
11/6/2007						Mason			
10/30/2007						Mason			
10/23/2007						Mason			
10/16/2007						Mason			
10/9/2007						Mason			
10/2/2007						Mason			
9/25/2007						Mason			
9/18/2007						Mason			
9/11/2007						Mason			
9/4/2007						Mason			
8/28/2007						Mason			
8/21/2007						Mason			
8/14/2007						Mason			
8/7/2007						Mason			
7/31/2007						Mason			
7/24/2007						Mason			
7/17/2007						Mason			
7/10/2007						Mason			
7/3/2007						Mason			
6/26/2007						Mason			
9/24/2002						Mason			
9/17/2002						Mason			
9/10/2002						Mason			
9/3/2002						Mason			
5/15/2001						Mason			
12/9/2008						Mingo			
12/2/2008						Mingo			
11/25/2008						Mingo			



TABLE 5.1.C DROUGHT CONDITIONS							
Week	DO	D1	D2	D3	D4	County	
11/18/2008						Mingo	
11/11/2008						Mingo	
11/4/2008						Mingo	
10/28/2008						Mingo	
10/21/2008						Mingo	
10/14/2008						Mingo	
1/8/2008						Mingo	
1/1/2008						Mingo	
12/25/2007						Mingo	
12/18/2007						Mingo	
12/11/2007						Mingo	
12/4/2007						Mingo	
11/27/2007						Mingo	
11/20/2007						Mingo	
11/13/2007						Mingo	
11/6/2007						Mingo	
10/30/2007						Mingo	
10/23/2007						Mingo	
10/16/2007						Mingo	
10/9/2007						Mingo	
10/2/2007						Mingo	
9/25/2007						Mingo	
9/18/2007						Mingo	
9/11/2007						Mingo	
9/4/2007						Mingo	
8/28/2007						Mingo	
8/21/2007						Mingo	
8/14/2007						Mingo	
8/7/2007						Mingo	
7/31/2007						Mingo	
7/24/2007						Mingo	
7/17/2007						Mingo	
7/10/2007						Mingo	
7/3/2007						Mingo	
6/26/2007						Mingo	



TABLE 5.1.C DROUGHT CONDITIONS							
Week	DO	D1	D2	D3	D4	County	
9/17/2002						Mingo	
9/10/2002						Mingo	
5/15/2001						Mingo	
5/8/2001						Mingo	
1/16/2001						Mingo	
1/9/2001						Mingo	
12/12/2000						Mingo	
12/5/2000						Mingo	
12/2/2008						Wayne	
11/25/2008						Wayne	
6/19/2007						Cabell	
6/19/2007						Lincoln	
6/19/2007						Logan	
6/19/2007						Mason	
6/19/2007						Mingo	
11/18/2008						Wayne	
6/12/2007						Cabell	
6/12/2007						Lincoln	
6/12/2007						Logan	
6/12/2007						Mason	
6/12/2007						Mingo	
6/12/2007						Wayne	
6/5/2007						Cabell	
6/5/2007						Lincoln	
6/5/2007						Logan	
6/5/2007						Mason	
6/5/2007						Mingo	
6/5/2007						Wayne	
5/29/2007						Cabell	
5/29/2007						Lincoln	
5/29/2007						Logan	
5/29/2007						Mason	
5/29/2007						Mingo	
5/29/2007						Wayne	
5/22/2007						Cabell	



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
5/22/2007						Lincoln		
5/22/2007						Logan		
5/22/2007						Mason		
5/22/2007						Mingo		
5/22/2007						Wayne		
5/15/2007						Cabell		
5/15/2007						Lincoln		
5/15/2007						Logan		
5/15/2007						Mason		
5/15/2007						Mingo		
5/15/2007						Wayne		
4/10/2007						Lincoln		
4/10/2007						Logan		
4/10/2007						Mingo		
4/10/2007						Wayne		
4/3/2007						Logan		
4/3/2007						Mingo		
4/3/2007						Wayne		
3/27/2007						Lincoln		
3/27/2007						Logan		
3/27/2007						Mingo		
3/27/2007						Wayne		
3/20/2007						Lincoln		
3/20/2007						Logan		
3/20/2007						Mingo		
3/20/2007						Wayne		
3/13/2007						Cabell		
3/13/2007						Lincoln		
3/13/2007						Logan		
3/13/2007						Mingo		
3/13/2007						Wayne		
3/6/2007						Lincoln		
3/6/2007						Logan		
3/6/2007						Mingo		
3/6/2007						Wayne		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
2/27/2007						Lincoln		
2/27/2007						Logan		
2/27/2007						Mingo		
2/27/2007						Wayne		
2/20/2007						Cabell		
2/20/2007						Lincoln		
2/20/2007						Logan		
2/20/2007						Mason		
2/20/2007						Mingo		
2/20/2007						Wayne		
2/13/2007						Cabell		
2/13/2007						Lincoln		
2/13/2007						Logan		
2/13/2007						Mason		
2/13/2007						Mingo		
2/13/2007						Wayne		
2/6/2007						Cabell		
2/6/2007						Lincoln		
2/6/2007						Logan		
2/6/2007						Mason		
2/6/2007						Mingo		
2/6/2007						Wayne		
1/30/2007						Cabell		
1/30/2007						Lincoln		
1/30/2007						Logan		
1/30/2007						Mason		
1/30/2007						Mingo		
1/30/2007						Wayne		
1/23/2007						Lincoln		
1/23/2007						Logan		
1/23/2007						Mingo		
1/23/2007						Wayne		
1/16/2007						Lincoln		
1/16/2007						Logan		
1/16/2007						Minao		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
1/16/2007						Wayne		
1/9/2007						Cabell		
1/9/2007						Lincoln		
1/9/2007						Logan		
1/9/2007						Mason		
1/9/2007						Mingo		
1/9/2007						Wayne		
1/2/2007						Cabell		
1/2/2007						Lincoln		
1/2/2007						Logan		
1/2/2007						Mason		
1/2/2007						Mingo		
1/2/2007						Wayne		
12/26/2006						Logan		
12/19/2006						Logan		
9/5/2006						Cabell		
9/5/2006						Lincoln		
9/5/2006						Logan		
9/5/2006						Mason		
9/5/2006						Mingo		
9/5/2006						Wayne		
8/29/2006						Cabell		
8/29/2006						Lincoln		
8/29/2006						Logan		
8/29/2006						Mason		
8/29/2006						Mingo		
8/29/2006						Wayne		
8/22/2006						Cabell		
8/22/2006						Lincoln		
8/22/2006						Logan		
8/22/2006						Mason		
8/22/2006						Mingo		
8/22/2006						Wayne		
8/15/2006						Cabell		
8/15/2006						Lincoln		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
8/15/2006						Logan		
8/15/2006						Mason		
8/15/2006						Mingo		
8/15/2006						Wayne		
8/8/2006						Wayne		
6/20/2006						Cabell		
6/20/2006						Lincoln		
6/20/2006						Logan		
6/20/2006						Mason		
6/20/2006						Mingo		
6/20/2006						Wayne		
6/13/2006						Cabell		
6/13/2006						Lincoln		
6/13/2006						Logan		
6/13/2006						Mason		
6/13/2006						Mingo		
6/13/2006						Wayne		
6/6/2006						Cabell		
6/6/2006						Lincoln		
6/6/2006						Logan		
6/6/2006						Mason		
6/6/2006						Mingo		
6/6/2006						Wayne		
5/30/2006						Cabell		
5/30/2006						Lincoln		
5/30/2006						Logan		
5/30/2006						Mason		
5/30/2006						Mingo		
5/30/2006						Wayne		
5/23/2006						Cabell		
5/23/2006						Lincoln		
5/23/2006						Logan		
5/23/2006						Mason		
5/23/2006						Mingo		
5/23/2006						Wayne		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
5/16/2006						Cabell		
5/16/2006						Lincoln		
5/16/2006						Logan		
5/16/2006						Mason		
5/16/2006						Mingo		
5/16/2006						Wayne		
5/9/2006						Cabell		
5/9/2006						Lincoln		
5/9/2006						Logan		
5/9/2006						Mason		
5/9/2006						Mingo		
5/9/2006						Wayne		
5/2/2006						Mingo		
4/11/2006						Mingo		
4/11/2006						Wayne		
4/4/2006						Cabell		
4/4/2006						Lincoln		
4/4/2006						Logan		
4/4/2006						Mason		
4/4/2006						Mingo		
4/4/2006						Wayne		
3/28/2006						Cabell		
3/28/2006						Lincoln		
3/28/2006						Logan		
3/28/2006						Mason		
3/28/2006						Mingo		
3/28/2006						Wayne		
3/21/2006						Cabell		
3/21/2006						Lincoln		
3/21/2006						Logan		
3/21/2006						Mason		
3/21/2006						Mingo		
3/21/2006						Wayne		
3/14/2006						Cabell		
3/14/2006						Lincoln		



	TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County			
3/14/2006						Logan			
3/14/2006						Mason			
3/14/2006						Mingo			
3/14/2006						Wayne			
3/7/2006						Cabell			
3/7/2006						Lincoln			
3/7/2006						Logan			
3/7/2006						Mason			
3/7/2006						Mingo			
3/7/2006						Wayne			
2/28/2006						Cabell			
2/28/2006						Lincoln			
2/28/2006						Logan			
2/28/2006						Mason			
2/28/2006						Mingo			
2/28/2006						Wayne			
2/21/2006						Cabell			
2/21/2006						Wayne			
2/14/2006						Cabell			
2/14/2006						Wayne			
2/7/2006						Cabell			
2/7/2006						Wayne			
1/31/2006						Cabell			
1/31/2006						Wayne			
1/24/2006						Cabell			
1/24/2006						Wayne			
1/17/2006						Cabell			
1/17/2006						Lincoln			
1/17/2006						Logan			
1/17/2006						Mason			
1/17/2006						Mingo			
1/17/2006						Wayne			
1/10/2006						Cabell			
1/10/2006						Lincoln			
1/10/2006						Logan			



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
1/10/2006						Mason		
1/10/2006						Mingo		
1/10/2006						Wayne		
1/3/2006						Cabell		
1/3/2006						Lincoln		
1/3/2006						Logan		
1/3/2006						Mason		
1/3/2006						Mingo		
1/3/2006						Wayne		
11/11/2008						Wayne		
12/27/2005						Lincoln		
12/27/2005						Logan		
12/27/2005						Mason		
12/27/2005						Mingo		
11/4/2008						Wayne		
10/28/2008						Wayne		
12/20/2005						Lincoln		
12/20/2005						Logan		
12/20/2005						Mason		
12/20/2005						Mingo		
10/21/2008						Wayne		
10/14/2008						Wayne		
12/13/2005						Lincoln		
12/13/2005						Logan		
12/13/2005						Mason		
12/13/2005						Mingo		
12/11/2007						Wayne		
12/4/2007						Wayne		
12/6/2005						Lincoln		
12/6/2005						Logan		
12/6/2005						Mason		
12/6/2005						Mingo		
11/27/2007						Wayne		
11/20/2007						Wayne		
11/29/2005						Lincoln		



	TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County			
11/29/2005						Logan			
11/29/2005						Mason			
11/29/2005						Mingo			
11/13/2007						Wayne			
11/22/2005						Cabell			
11/22/2005						Lincoln			
11/22/2005						Logan			
11/22/2005						Mason			
11/22/2005						Mingo			
11/6/2007						Wayne			
11/15/2005						Cabell			
11/15/2005						Lincoln			
11/15/2005						Logan			
11/15/2005						Mason			
11/15/2005						Mingo			
10/30/2007						Wayne			
11/8/2005						Cabell			
11/8/2005						Lincoln			
11/8/2005						Logan			
11/8/2005						Mason			
11/8/2005						Mingo			
10/23/2007						Wayne			
11/1/2005						Cabell			
11/1/2005						Lincoln			
11/1/2005						Logan			
11/1/2005						Mason			
11/1/2005						Mingo			
10/16/2007						Wayne			
10/25/2005						Cabell			
10/25/2005						Lincoln			
10/25/2005						Logan			
10/25/2005						Mason			
10/25/2005						Mingo			
10/9/2007						Wayne			
10/18/2005						Cabell			



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
10/18/2005						Lincoln		
10/18/2005						Logan		
10/18/2005						Mason		
10/18/2005						Mingo		
10/2/2007						Wayne		
10/11/2005						Cabell		
10/11/2005						Lincoln		
10/11/2005						Logan		
10/11/2005						Mason		
10/11/2005						Mingo		
9/25/2007						Wayne		
10/4/2005						Cabell		
10/4/2005						Lincoln		
10/4/2005						Logan		
10/4/2005						Mason		
10/4/2005						Mingo		
10/4/2005						Wayne		
9/27/2005						Cabell		
9/27/2005						Mason		
9/27/2005						Wayne		
9/20/2005						Cabell		
9/20/2005						Mason		
9/20/2005						Wayne		
9/13/2005						Cabell		
9/13/2005						Mason		
9/13/2005						Wayne		
9/6/2005						Cabell		
9/6/2005						Mason		
9/6/2005						Wayne		
8/30/2005						Cabell		
8/30/2005						Mason		
8/30/2005						Wayne		
8/23/2005						Cabell		
8/23/2005						Lincoln		
8/23/2005						Mason		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	D0	D1	D2	D3	D4	County		
8/23/2005						Wayne		
8/16/2005						Cabell		
8/16/2005						Lincoln		
8/16/2005						Logan		
8/16/2005						Mason		
8/16/2005						Mingo		
8/16/2005						Wayne		
8/9/2005						Cabell		
8/9/2005						Lincoln		
8/9/2005						Mason		
8/9/2005						Mingo		
8/9/2005						Wayne		
7/19/2005						Cabell		
7/19/2005						Mason		
7/19/2005						Wayne		
7/12/2005						Cabell		
7/12/2005						Mason		
7/12/2005						Wayne		
7/5/2005						Cabell		
7/5/2005						Lincoln		
7/5/2005						Logan		
7/5/2005						Mason		
7/5/2005						Mingo		
7/5/2005						Wayne		
6/28/2005						Cabell		
6/28/2005						Lincoln		
6/28/2005						Logan		
6/28/2005						Mason		
6/28/2005						Mingo		
6/28/2005						Wayne		
4/29/2003						Mason		
10/29/2002						Logan		
10/29/2002						Mingo		
10/22/2002						Logan		
10/22/2002						Minao		


TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
10/15/2002						Cabell		
10/15/2002						Lincoln		
10/15/2002						Logan		
10/15/2002						Mason		
10/15/2002						Mingo		
10/15/2002						Wayne		
10/8/2002						Cabell		
10/8/2002						Lincoln		
10/8/2002						Logan		
10/8/2002						Mason		
10/8/2002						Mingo		
10/8/2002						Wayne		
10/1/2002						Cabell		
10/1/2002						Lincoln		
10/1/2002						Logan		
10/1/2002						Mason		
10/1/2002						Mingo		
10/1/2002						Wayne		
9/18/2007						Wayne		
9/24/2002						Lincoln		
9/24/2002						Logan		
9/11/2007						Wayne		
9/24/2002						Mingo		
9/4/2007						Wayne		
8/28/2007						Wayne		
9/17/2002						Lincoln		
8/21/2007						Wayne		
8/14/2007						Wayne		
8/7/2007						Wayne		
7/31/2007						Wayne		
7/24/2007						Wayne		
9/10/2002						Lincoln		
7/17/2007						Wayne		
7/10/2007						Wayne		
7/3/2007						Wavne		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
6/26/2007						Wayne		
6/19/2007						Wayne		
9/3/2002						Lincoln		
9/3/2002						Logan		
12/27/2005						Wayne		
9/3/2002						Mingo		
12/20/2005						Wayne		
8/27/2002						Cabell		
8/27/2002						Lincoln		
8/27/2002						Logan		
8/27/2002						Mason		
8/27/2002						Mingo		
8/27/2002						Wayne		
8/20/2002						Cabell		
8/20/2002						Lincoln		
8/20/2002						Logan		
8/20/2002						Mason		
8/20/2002						Mingo		
8/20/2002						Wayne		
8/13/2002						Cabell		
8/13/2002						Lincoln		
8/13/2002						Logan		
8/13/2002						Mason		
8/13/2002						Mingo		
8/13/2002						Wayne		
8/6/2002						Cabell		
8/6/2002						Lincoln		
8/6/2002						Logan		
8/6/2002						Mason		
8/6/2002						Mingo		
8/6/2002						Wayne		
4/9/2002						Logan		
4/2/2002						Logan		
3/26/2002						Cabell		
3/26/2002						Lincoln		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
3/26/2002						Logan		
3/26/2002						Mason		
3/26/2002						Mingo		
3/26/2002						Wayne		
3/19/2002						Cabell		
3/19/2002						Lincoln		
3/19/2002						Logan		
3/19/2002						Mason		
3/19/2002						Mingo		
3/19/2002						Wayne		
3/12/2002						Cabell		
3/12/2002						Lincoln		
3/12/2002						Logan		
3/12/2002						Mason		
3/12/2002						Mingo		
3/12/2002						Wayne		
3/5/2002						Cabell		
3/5/2002						Lincoln		
3/5/2002						Logan		
3/5/2002						Mason		
3/5/2002						Mingo		
3/5/2002						Wayne		
2/26/2002						Cabell		
2/26/2002						Lincoln		
2/26/2002						Logan		
2/26/2002						Mason		
2/26/2002						Mingo		
2/26/2002						Wayne		
2/19/2002						Cabell		
2/19/2002						Lincoln		
2/19/2002						Logan		
2/19/2002						Mason		
2/19/2002						Mingo		
2/19/2002						Wayne		
2/12/2002						Cabell		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
2/12/2002						Lincoln		
2/12/2002						Logan		
2/12/2002						Mason		
2/12/2002						Mingo		
2/12/2002						Wayne		
2/5/2002						Cabell		
2/5/2002						Lincoln		
2/5/2002						Logan		
2/5/2002						Mason		
2/5/2002						Mingo		
2/5/2002						Wayne		
1/29/2002						Cabell		
1/29/2002						Lincoln		
1/29/2002						Logan		
1/29/2002						Mason		
1/29/2002						Mingo		
1/29/2002						Wayne		
1/22/2002						Cabell		
1/22/2002						Lincoln		
1/22/2002						Logan		
1/22/2002						Mason		
1/22/2002						Mingo		
1/22/2002						Wayne		
1/15/2002						Cabell		
1/15/2002						Lincoln		
1/15/2002						Logan		
1/15/2002						Mason		
1/15/2002						Mingo		
1/15/2002						Wayne		
1/8/2002						Cabell		
1/8/2002						Lincoln		
1/8/2002						Logan		
1/8/2002						Mason		
1/8/2002						Mingo		
1/8/2002						Wayne		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
1/1/2002						Cabell		
1/1/2002						Lincoln		
1/1/2002						Logan		
1/1/2002						Mingo		
1/1/2002						Wayne		
12/25/2001						Cabell		
12/25/2001						Lincoln		
12/25/2001						Logan		
12/25/2001						Mingo		
12/25/2001						Wayne		
12/18/2001						Cabell		
12/18/2001						Lincoln		
12/18/2001						Logan		
12/18/2001						Mingo		
12/18/2001						Wayne		
12/11/2001						Cabell		
12/11/2001						Lincoln		
12/11/2001						Logan		
12/11/2001						Mingo		
12/11/2001						Wayne		
12/4/2001						Cabell		
12/4/2001						Lincoln		
12/4/2001						Logan		
12/4/2001						Mason		
12/4/2001						Mingo		
12/4/2001						Wayne		
11/27/2001						Cabell		
11/27/2001						Lincoln		
11/27/2001						Logan		
11/27/2001						Mason		
11/27/2001						Mingo		
11/27/2001						Wayne		
11/20/2001						Cabell		
11/20/2001						Lincoln		
11/20/2001						Logan		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
11/20/2001						Mason		
11/20/2001						Mingo		
11/20/2001						Wayne		
11/13/2001						Cabell		
11/13/2001						Lincoln		
11/13/2001						Logan		
11/13/2001						Mason		
11/13/2001						Mingo		
11/13/2001						Wayne		
11/6/2001						Cabell		
11/6/2001						Lincoln		
11/6/2001						Logan		
11/6/2001						Mason		
11/6/2001						Mingo		
11/6/2001						Wayne		
10/30/2001						Lincoln		
10/30/2001						Logan		
10/30/2001						Mingo		
10/30/2001						Wayne		
5/29/2001						Lincoln		
5/29/2001						Logan		
5/29/2001						Mingo		
5/29/2001						Wayne		
5/22/2001						Cabell		
5/22/2001						Lincoln		
5/22/2001						Logan		
5/22/2001						Mason		
5/22/2001						Mingo		
5/22/2001						Wayne		
12/13/2005						Wayne		
12/6/2005						Wayne		
11/29/2005						Wayne		
11/22/2005						Wayne		
11/15/2005						Wayne		
11/8/2005						Wayne		



	TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County			
5/8/2001						Cabell			
5/8/2001						Lincoln			
11/1/2005						Wayne			
5/8/2001						Mason			
10/25/2005						Wayne			
5/8/2001						Wayne			
5/1/2001						Cabell			
5/1/2001						Lincoln			
5/1/2001						Logan			
5/1/2001						Mason			
5/1/2001						Mingo			
5/1/2001						Wayne			
4/24/2001						Cabell			
4/24/2001						Lincoln			
4/24/2001						Logan			
4/24/2001						Mason			
4/24/2001						Mingo			
4/24/2001						Wayne			
4/17/2001						Cabell			
4/17/2001						Lincoln			
4/17/2001						Logan			
4/17/2001						Mason			
4/17/2001						Mingo			
4/17/2001						Wayne			
4/10/2001						Cabell			
4/10/2001						Lincoln			
4/10/2001						Logan			
4/10/2001						Mason			
4/10/2001						Mingo			
4/10/2001						Wayne			
4/3/2001						Cabell			
4/3/2001						Lincoln			
4/3/2001						Logan			
4/3/2001						Mason			
4/3/2001						Minao			



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
4/3/2001						Wayne		
3/27/2001						Cabell		
3/27/2001						Lincoln		
3/27/2001						Logan		
3/27/2001						Mason		
3/27/2001						Mingo		
3/27/2001						Wayne		
3/20/2001						Lincoln		
3/20/2001						Logan		
3/20/2001						Mingo		
3/13/2001						Lincoln		
3/13/2001						Logan		
3/13/2001						Mingo		
3/6/2001						Lincoln		
3/6/2001						Logan		
3/6/2001						Mingo		
2/27/2001						Lincoln		
2/27/2001						Logan		
2/27/2001						Mingo		
2/27/2001						Wayne		
2/20/2001						Lincoln		
2/20/2001						Logan		
2/20/2001						Mingo		
2/20/2001						Wayne		
2/13/2001						Cabell		
2/13/2001						Lincoln		
2/13/2001						Logan		
2/13/2001						Mason		
2/13/2001						Mingo		
2/13/2001						Wayne		
2/6/2001						Cabell		
2/6/2001						Lincoln		
2/6/2001						Logan		
2/6/2001						Mason		
2/6/2001						Minao		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
2/6/2001						Wayne		
1/30/2001						Cabell		
1/30/2001						Lincoln		
1/30/2001						Logan		
1/30/2001						Mason		
1/30/2001						Mingo		
1/30/2001						Wayne		
1/23/2001						Cabell		
1/23/2001						Lincoln		
1/23/2001						Logan		
1/23/2001						Mason		
1/23/2001						Mingo		
1/23/2001						Wayne		
1/16/2001						Cabell		
1/16/2001						Lincoln		
10/18/2005						Wayne		
1/16/2001						Mason		
10/11/2005						Wayne		
1/16/2001						Wayne		
1/9/2001						Cabell		
1/9/2001						Lincoln		
9/24/2002						Wayne		
1/9/2001						Mason		
9/17/2002						Wayne		
1/9/2001						Wayne		
1/2/2001						Cabell		
1/2/2001						Lincoln		
1/2/2001						Logan		
1/2/2001						Mason		
1/2/2001						Mingo		
1/2/2001						Wayne		
12/26/2000						Cabell		
12/26/2000						Lincoln		
12/26/2000						Logan		
12/26/2000						Mason		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
12/26/2000						Mingo		
12/26/2000						Wayne		
12/19/2000						Cabell		
12/19/2000						Lincoln		
12/19/2000						Logan		
12/19/2000						Mason		
12/19/2000						Mingo		
12/19/2000						Wayne		
12/12/2000						Cabell		
12/12/2000						Lincoln		
9/10/2002						Wayne		
12/12/2000						Mason		
9/3/2002						Wayne		
12/12/2000						Wayne		
12/5/2000						Cabell		
12/5/2000						Lincoln		
12/5/2000						Logan		
12/5/2000						Mason		
5/15/2001						Wayne		
12/5/2000						Wayne		
11/28/2000						Cabell		
11/28/2000						Lincoln		
11/28/2000						Logan		
11/28/2000						Mason		
11/28/2000						Mingo		
11/28/2000						Wayne		
11/21/2000						Logan		
11/21/2000						Mingo		
11/14/2000						Logan		
11/14/2000						Mingo		
11/14/2000						Wayne		
11/7/2000						Cabell		
11/7/2000						Lincoln		
11/7/2000						Logan		
11/7/2000						Mason		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
11/7/2000						Mingo		
11/7/2000						Wayne		
10/31/2000						Cabell		
10/31/2000						Lincoln		
10/31/2000						Logan		
10/31/2000						Mason		
10/31/2000						Mingo		
10/31/2000						Wayne		
10/24/2000						Logan		
10/24/2000						Mingo		
10/17/2000						Logan		
10/17/2000						Mingo		
7/4/2000						Logan		
7/4/2000						Mingo		
6/27/2000						Lincoln		
6/27/2000						Logan		
6/27/2000						Mingo		
6/27/2000						Wayne		
6/20/2000						Lincoln		
6/20/2000						Logan		
6/20/2000						Mingo		
6/20/2000						Wayne		
6/13/2000						Logan		
6/13/2000						Mingo		
6/13/2000						Wayne		
6/6/2000						Logan		
6/6/2000						Mingo		
5/30/2000						Logan		
5/30/2000						Mingo		
5/23/2000						Logan		
5/23/2000						Mingo		
5/16/2000						Logan		
5/16/2000						Mingo		
5/9/2000						Logan		
5/9/2000						Minao		



TABLE 5.1.C DROUGHT CONDITIONS								
Week	DO	D1	D2	D3	D4	County		
5/2/2000						Logan		
5/2/2000						Mingo		
4/25/2000						Logan		
4/25/2000						Mingo		
4/18/2000						Cabell		
4/18/2000						Lincoln		
4/18/2000						Logan		
4/18/2000						Mason		
4/18/2000						Mingo		
4/18/2000						Wayne		
4/11/2000						Lincoln		
4/11/2000						Logan		
4/11/2000						Mingo		
4/11/2000						Wayne		
4/4/2000						Cabell		
4/4/2000						Lincoln		
4/4/2000						Logan		
4/4/2000						Mingo		
4/4/2000						Wayne		
3/28/2000						Cabell		
3/28/2000						Lincoln		
3/28/2000						Logan		
3/28/2000						Mingo		
3/28/2000						Wayne		
3/21/2000						Cabell		
3/21/2000						Lincoln		
3/21/2000						Logan		
3/21/2000						Mingo		
3/21/2000						Wayne		
3/14/2000						Cabell		
3/14/2000						Lincoln		
3/14/2000						Logan		
3/14/2000						Mason		
3/14/2000						Mingo		
3/14/2000						Wayne		



	TÆ	ABLE 5.1.C	DROUGHT	CONDITIONS		
Week	DO	D1	D2	D3	D4	County
3/7/2000						Cabell
3/7/2000						Lincoln
3/7/2000						Logan
3/7/2000						Mingo
3/7/2000						Wayne
2/22/2000						Lincoln
2/22/2000						Logan
2/22/2000						Mingo
2/22/2000						Wayne
2/15/2000						Cabell
2/15/2000						Lincoln
2/15/2000						Logan
2/15/2000						Mason
2/15/2000						Mingo
2/15/2000						Wayne
2/8/2000						Cabell
2/8/2000						Lincoln
2/8/2000						Logan
2/8/2000						Mason
2/8/2000						Mingo
2/8/2000						Wayne
2/1/2000						Cabell
2/1/2000						Lincoln
2/1/2000						Logan
2/1/2000						Mason
2/1/2000						Mingo
2/1/2000						Wayne
1/25/2000						Cabell
1/25/2000						Lincoln
1/25/2000						Logan
1/25/2000						Mason
1/25/2000						Mingo
1/25/2000						Wayne
1/18/2000						Cabell
1/18/2000						Lincoln



TABLE 5.1.C DROUGHT CONDITIONS						
Week	DO	D1	D2	D3	D4	County
1/18/2000						Logan
1/18/2000						Mason
1/18/2000						Mingo
1/18/2000						Wayne
1/11/2000						Cabell
1/11/2000						Lincoln
1/11/2000						Logan
1/11/2000						Mason
1/11/2000						Mingo
1/11/2000						Wayne
1/4/2000						Cabell
1/4/2000						Lincoln
1/4/2000						Logan
1/4/2000						Mason
1/4/2000						Mingo
1/4/2000						Wayne



TABLE 5.1.D USDA CENSUS AND SURVEY INFORMATION						
Program	Year	County	Commodity	Data Item	Value	
Survey	2016	Mason	Corn	Corn, grain - acres harvested	3,070	
Census	2012	Cabell	Corn	Corn, grain - acres harvested	103	
Census	2012	Cabell	Нау	Hay - acres harvested	4,510	
Census	2012	Lincoln	Corn	Corn, grain - acres harvested	(D)	
Census	2012	Lincoln	Нау	Hay - acres harvested	1,940	
Census	2012	Logan	Corn	Corn, grain - acres harvested	(D)	
Census	2012	Logan	Нау	Hay - acres harvested	(D)	
Census	2012	Mason	Corn	Corn, grain - acres harvested	4,874	
Census	2012	Mason	Нау	Hay - acres harvested	19,037	
Census	2012	Mason	Wheat	Wheat - acres harvested	(D)	
Census	2012	Mingo	Нау	Hay - acres harvested	(D)	
Census	2012	Wayne	Corn	Corn, grain - acres harvested	139	
Census	2012	Wayne	Нау	Hay - acres harvested	2,214	
Census	2007	Cabell	Corn	Corn, grain - acres harvested	34	
Census	2007	Cabell	Нау	Hay - acres harvested	4,613	
Census	2007	Lincoln	Corn	Corn, grain - acres harvested	46	
Census	2007	Lincoln	Нау	Hay - acres harvested	2,600	
Census	2007	Logan	Нау	Hay - acres harvested	81	
Census	2007	Mason	Corn	Corn, grain - acres harvested	4,343	
Census	2007	Mason	Нау	Hay - acres harvested	21,089	
Census	2007	Mason	Wheat	Wheat - acres harvested	289	
Census	2007	Mingo	Нау	Hay - acres harvested	(D)	
Census	2007	Wayne	Corn	Corn, grain - acres harvested	168	
Census	2007	Wayne	Нау	Hay - acres harvested	4,215	

USDA Census and Survey information (corn, hay, wheat)

(D) Data withheld to avoid disclosing data for individual operations.



EXTREME TEMPERATURES

The following table shows the extreme temperature events according to data from NCEI. Data is available from 1996. Each event is separated by color.

	TABLE 5.1.E EXTREME TEMPERATURE EVENTS (NCEI)				
County	Date	Event	Property Damage		
Cabell	2/4/1996	Cold/Wind Chill	\$15,000		
Mingo	2/4/1996	Cold/Wind Chill	\$0		
Lincoln	2/4/1996	Cold/Wind Chill	\$0		
Mason	2/4/1996	Cold/Wind Chill	\$0		
Logan	2/4/1996	Cold/Wind Chill	\$0		
Wayne	2/4/1996	Cold/Wind Chill	\$0		
Wayne	2/27/1996	Heat	\$0		
Cabell	2/27/1996	Heat	\$0		
Mason	2/27/1996	Heat	\$0		
Lincoln	2/27/1996	Heat	\$0		
Mingo	2/27/1996	Heat	\$0		
Logan	2/27/1996	Heat	\$0		
Mason	3/10/1996	Cold/Wind Chill	\$0		
Mingo	3/10/1996	Cold/Wind Chill	\$0		
Logan	3/10/1996	Cold/Wind Chill	\$0		
Wayne	3/10/1996	Cold/Wind Chill	\$0		
Cabell	3/10/1996	Cold/Wind Chill	\$0		
Lincoln	3/10/1996	Cold/Wind Chill	\$0		
Logan	5/13/1996	Cold/Wind Chill	\$0		
Wayne	5/13/1996	Cold/Wind Chill	\$0		
Cabell	5/13/1996	Cold/Wind Chill	\$0		
Lincoln	5/13/1996	Cold/Wind Chill	\$0		
Mason	5/13/1996	Cold/Wind Chill	\$0		
Mingo	5/13/1996	Cold/Wind Chill	\$0		
Wayne	1/1/1997	Heat	\$0		
Cabell	1/1/1997	Heat	\$0		
Mason	1/1/1997	Heat	\$0		
Lincoln	1/1/1997	Heat	\$0		
Mingo	1/1/1997	Heat	\$0		
Logan	1/1/1997	Heat	\$0		
Mason	1/16/1997	Cold/Wind Chill	\$0		
Lincoln	1/16/1997	Cold/Wind Chill	\$0		
Wayne	1/16/1997	Cold/Wind Chill	\$0		
Mingo	1/16/1997	Cold/Wind Chill	\$5,000		
Logan	1/16/1997	Cold/Wind Chill	\$0		
Cabell	1/16/1997	Cold/Wind Chill	\$5,000		
Wayne	2/21/1997	Heat	\$0		
Cabell	2/21/1997	Heat	\$0		
Mason	2/21/1997	Heat	\$0		
Lincoln	2/21/1997	Heat	\$0		



TABLE 5.1.E EXTREME TEMPERATURE EVENTS (NCEI)				
County	Date	Event	Property Damage	
Mingo	2/21/1997	Heat	\$0	
Logan	2/21/1997	Heat	\$0	
Cabell	4/1/1997	Cold/Wind Chill	\$0	
Mason	4/1/1997	Cold/Wind Chill	\$0	
Logan	4/1/1997	Cold/Wind Chill	\$0	
Lincoln	4/1/1997	Cold/Wind Chill	\$0	
Mingo	4/1/1997	Cold/Wind Chill	\$0	
Wayne	4/1/1997	Cold/Wind Chill	\$0	
Logan	5/1/1997	Cold/Wind Chill	\$0	
Mingo	5/1/1997	Cold/Wind Chill	\$0	
Mingo	5/11/1997	Cold/Wind Chill	\$0	
Logan	5/11/1997	Cold/Wind Chill	\$0	
Mason	9/4/1997	Cold/Wind Chill	\$0	
Cabell	9/4/1997	Cold/Wind Chill	\$0	
Wayne	9/4/1997	Cold/Wind Chill	\$0	
Lincoln	9/4/1997	Cold/Wind Chill	\$0	
Mingo	9/4/1997	Cold/Wind Chill	\$0	
Logan	9/4/1997	Cold/Wind Chill	\$0	
Mingo	10/23/1997	Cold/Wind Chill	\$0	
Mason	10/23/1997	Cold/Wind Chill	\$0	
Logan	10/23/1997	Cold/Wind Chill	\$0	
Wayne	10/23/1997	Cold/Wind Chill	\$0	
Cabell	10/23/1997	Cold/Wind Chill	\$0	
Lincoln	10/23/1997	Cold/Wind Chill	\$0	
Mason	11/1/1997	Cold/Wind Chill	\$0	
Wayne	11/1/1997	Cold/Wind Chill	\$0	
Mingo	11/1/1997	Cold/Wind Chill	\$0	
Cabell	11/1/1997	Cold/Wind Chill	\$0	
Lincoln	11/1/1997	Cold/Wind Chill	\$0	
Logan	11/1/1997	Cold/Wind Chill	\$0	
Lincoln	3/10/1998	Cold/Wind Chill	\$0	
Logan	3/10/1998	Cold/Wind Chill	\$0	
Wayne	3/10/1998	Cold/Wind Chill	\$0	
Cabell	3/10/1998	Cold/Wind Chill	\$0	
Mingo	3/10/1998	Cold/Wind Chill	\$0	
Mason	3/10/1998	Cold/Wind Chill	\$0	
Cabell	3/26/1998	Heat	\$0	
Lincoln	3/26/1998	Heat	\$0	
Logan	3/26/1998	Heat	\$0	
Mason	3/26/1998	Heat	\$0	
Mingo	3/26/1998	Heat	\$0	
Wayne	3/26/1998	Heat	\$0	
Cabell	9/14/1998	Heat	\$0	
Lincoln	9/14/1998	Heat	\$0	
Logan	9/14/1998	Heat	\$0	



	TABLE 5.1.E EXTREME TEMPERATURE EVENTS (NCEI)				
County	Date	Event	Property Damage		
Mason	9/14/1998	Heat	\$0		
Mingo	9/14/1998	Heat	\$0		
Wayne	9/14/1998	Heat	\$0		
Cabell	12/6/1998	Heat	\$0		
Lincoln	12/6/1998	Heat	\$0		
Logan	12/6/1998	Heat	\$0		
Mason	12/6/1998	Heat	\$0		
Mingo	12/6/1998	Heat	\$0		
Wayne	12/6/1998	Heat	\$0		
Cabell	1/22/1999	Heat	\$0		
Lincoln	1/22/1999	Heat	\$0		
Logan	1/22/1999	Heat	\$0		
Mason	1/22/1999	Heat	\$0		
Mingo	1/22/1999	Heat	\$0		
Wayne	1/22/1999	Heat	\$0		
Cabell	2/11/1999	Heat	\$0		
Lincoln	2/11/1999	Heat	\$0		
Logan	2/11/1999	Heat	\$0		
Mason	2/11/1999	Heat	\$0		
Mingo	2/11/1999	Heat	\$0		
Wayne	2/11/1999	Heat	\$0		
Wayne	3/1/1999	Cold/Wind Chill	\$0		
Mingo	3/1/1999	Cold/Wind Chill	\$0		
Lincoln	3/1/1999	Cold/Wind Chill	\$0		
Logan	3/1/1999	Cold/Wind Chill	\$0		
Mason	3/1/1999	Cold/Wind Chill	\$0		
Cabell	3/1/1999	Cold/Wind Chill	\$0		
Cabell	1/2/2000	Excessive Heat	\$0		
Lincoln	1/2/2000	Excessive Heat	\$0		
Logan	1/2/2000	Excessive Heat	\$0		
Mason	1/2/2000	Excessive Heat	\$0		
Mingo	1/2/2000	Excessive Heat	\$0		
Wayne	1/2/2000	Excessive Heat	\$0		
Cabell	1/28/2000	Extreme Cold/Wind Chill	\$0		
Mingo	1/28/2000	Extreme Cold/Wind Chill	\$0		
Lincoln	1/28/2000	Extreme Cold/Wind Chill	\$0		
Logan	1/28/2000	Extreme Cold/Wind Chill	\$0		
Mason	1/28/2000	Extreme Cold/Wind Chill	\$0		
Wayne	1/28/2000	Extreme Cold/Wind Chill	\$0		
Cabell	2/25/2000	Excessive Heat	\$0		
Lincoln	2/25/2000	Excessive Heat	\$0		
Logan	2/25/2000	Excessive Heat	\$0		
Mason	2/25/2000	Excessive Heat	\$0		
Mingo	2/25/2000	Excessive Heat	\$0		
Wayne	2/25/2000	Excessive Heat	\$0		



TABLE 5.1.E EXTREME TEMPERATURE EVENTS (NCEI)					
County	Date	Event	Property Damage		
Cabell	2/26/2000	Excessive Heat	\$0		
Lincoln	2/26/2000	Excessive Heat	\$0		
Logan	2/26/2000	Excessive Heat	\$0		
Mason	2/26/2000	Excessive Heat	\$0		
Mingo	2/26/2000	Excessive Heat	\$0		
Wayne	2/26/2000	Excessive Heat	\$0		
Cabell	3/8/2000	Excessive Heat	\$0		
Lincoln	3/8/2000	Excessive Heat	\$0		
Logan	3/8/2000	Excessive Heat	\$0		
Mason	3/8/2000	Excessive Heat	\$0		
Mingo	3/8/2000	Excessive Heat	\$0		
Wayne	3/8/2000	Excessive Heat	\$0		
Mason	10/8/2000	Cold/Wind Chill	\$0		
Cabell	10/8/2000	Cold/Wind Chill	\$0		
Wayne	10/8/2000	Cold/Wind Chill	\$0		
Mingo	10/8/2000	Cold/Wind Chill	\$0		
Lincoln	10/8/2000	Cold/Wind Chill	\$0		
Logan	10/8/2000	Cold/Wind Chill	\$0		
Logan	11/21/2000	Extreme Cold/Wind Chill	\$0		
Lincoln	11/21/2000	Extreme Cold/Wind Chill	\$0		
Cabell	11/21/2000	Extreme Cold/Wind Chill	\$0		
Wayne	11/21/2000	Extreme Cold/Wind Chill	\$0		
Mingo	11/21/2000	Extreme Cold/Wind Chill	\$0		
Mason	11/21/2000	Extreme Cold/Wind Chill	\$0		
Logan	12/1/2000	Cold/Wind Chill	\$0		
Wayne	12/1/2000	Cold/Wind Chill	\$0		
Lincoln	12/1/2000	Cold/Wind Chill	\$0		
Cabell	12/1/2000	Cold/Wind Chill	\$0		
Mason	12/1/2000	Cold/Wind Chill	\$0		
Mingo	12/1/2000	Cold/Wind Chill	\$0		
Cabell	2/9/2001	Excessive Heat	\$0		
Lincoln	2/9/2001	Excessive Heat	\$0		
Logan	2/9/2001	Excessive Heat	\$0		
Mason	2/9/2001	Excessive Heat	\$0		
Mingo	2/9/2001	Excessive Heat	\$0		
Wayne	2/9/2001	Excessive Heat	\$0		
Mason	3/1/2001	Cold/Wind Chill	\$0		
Lincoln	3/1/2001	Cold/Wind Chill	\$0		
Logan	3/1/2001	Cold/Wind Chill	\$0		
Mingo	3/1/2001	Cold/Wind Chill	\$0		
Wayne	3/1/2001	Cold/Wind Chill	\$0		
Cabell	3/1/2001	Cold/Wind Chill	\$0		
Mingo	10/8/2001	Cold/Wind Chill	\$0		
Lincoln	10/8/2001	Cold/Wind Chill	\$0		
Logan	10/8/2001	Cold/Wind Chill	\$0		



TABLE 5.1.E EXTREME TEMPERATURE EVENTS (NCEI)				
County	Date	Event	Property Damage	
Mason	10/8/2001	Cold/Wind Chill	\$0	
Cabell	10/8/2001	Cold/Wind Chill	\$0	
Wayne	10/8/2001	Cold/Wind Chill	\$0	
Cabell	12/1/2001	Heat	\$0	
Lincoln	12/1/2001	Heat	\$0	
Logan	12/1/2001	Heat	\$0	
Mason	12/1/2001	Heat	\$0	
Mingo	12/1/2001	Heat	\$0	
Wayne	12/1/2001	Heat	\$0	
Cabell	1/28/2002	Excessive Heat	\$0	
Lincoln	1/28/2002	Excessive Heat	\$0	
Logan	1/28/2002	Excessive Heat	\$0	
Mason	1/28/2002	Excessive Heat	\$0	
Mingo	1/28/2002	Excessive Heat	\$0	
Wayne	1/28/2002	Excessive Heat	\$0	
Cabell	1/31/2002	Excessive Heat	\$0	
Lincoln	1/31/2002	Excessive Heat	\$0	
Logan	1/31/2002	Excessive Heat	\$0	
Mason	1/31/2002	Excessive Heat	\$0	
Mingo	1/31/2002	Excessive Heat	\$0	
Wayne	1/31/2002	Excessive Heat	\$0	
Cabell	4/16/2002	Excessive Heat	\$0	
Lincoln	4/16/2002	Excessive Heat	\$0	
Logan	4/16/2002	Excessive Heat	\$0	
Mason	4/16/2002	Excessive Heat	\$0	
Mingo	4/16/2002	Excessive Heat	\$0	
Wayne	4/16/2002	Excessive Heat	\$0	
Wayne	5/19/2002	Extreme Cold/Wind Chill	\$0	
Mingo	5/19/2002	Extreme Cold/Wind Chill	\$0	
Cabell	5/19/2002	Extreme Cold/Wind Chill	\$0	
Mason	5/19/2002	Extreme Cold/Wind Chill	\$0	
Logan	5/19/2002	Extreme Cold/Wind Chill	\$0	
Lincoln	5/19/2002	Extreme Cold/Wind Chill	\$0	
Lincoln	1/14/2003	Cold/Wind Chill	\$0	
Wayne	1/14/2003	Cold/Wind Chill	\$0	
Logan	1/14/2003	Cold/Wind Chill	\$0	
Mason	1/14/2003	Cold/Wind Chill	\$0	
Mingo	1/14/2003	Cold/Wind Chill	\$0	
Cabell	1/14/2003	Cold/Wind Chill	\$0	
Cabell	8/16/2007	Excessive Heat	\$0	
Wavne	8/16/2007	Excessive Heat	\$0	
Mason	8/16/2007	Excessive Heat	\$0	
Lincoln	8/16/2007	Excessive Heat	\$0	
Logan	8/16/2007	Excessive Heat	\$0	
Minao	8/16/2007	Excessive Heat	\$0	



TABLE 5.1.E EXTREME TEMPERATURE EVENTS (NCEI)					
County	Date	Event	Property Damage		
Cabell	7/12/2011	Heat	\$0		
Mason	7/12/2011	Heat	\$0		
Lincoln	7/12/2011	Heat	\$0		
Wayne	7/12/2011	Heat	\$0		
Cabell	7/20/2011	Heat	\$0		
Lincoln	7/20/2011	Heat	\$0		
Logan	7/20/2011	Heat	\$0		
Mason	7/20/2011	Heat	\$0		
Mingo	7/20/2011	Heat	\$0		
Wayne	7/20/2011	Heat	\$0		
Cabell	7/28/2011	Heat	\$0		
Lincoln	7/28/2011	Heat	\$0		
Logan	7/28/2011	Heat	\$0		
Mason	7/28/2011	Heat	\$0		
Mingo	7/28/2011	Heat	\$0		
Wayne	7/28/2011	Heat	\$0		
Wayne	1/6/2014	Extreme Cold/Wind Chill	\$20,000		
Cabell	1/6/2014	Extreme Cold/Wind Chill	\$400,000		
Lincoln	1/6/2014	Extreme Cold/Wind Chill	\$20,000		
Logan	1/6/2014	Extreme Cold/Wind Chill	\$20,000		
Mason	1/6/2014	Extreme Cold/Wind Chill	\$200,000		
Mingo	1/6/2014	Extreme Cold/Wind Chill	\$20,000		
Lincoln	1/27/2014	Extreme Cold/Wind Chill	\$25,000		
Cabell	1/27/2014	Extreme Cold/Wind Chill	\$75,000		
Mingo	1/27/2014	Extreme Cold/Wind Chill	\$25,000		
Mason	1/27/2014	Extreme Cold/Wind Chill	\$25,000		
Wayne	1/27/2014	Extreme Cold/Wind Chill	\$25,000		
Logan	1/27/2014	Extreme Cold/Wind Chill	\$25,000		
Cabell	2/14/2015	Cold/Wind Chill	\$0		
Mason	2/14/2015	Cold/Wind Chill	\$0		
Lincoln	2/14/2015	Cold/Wind Chill	\$0		
Logan	2/14/2015	Cold/Wind Chill	\$0		
Wayne	2/14/2015	Cold/Wind Chill	\$0		
Mingo	2/14/2015	Cold/Wind Chill	\$0		
Wayne	2/18/2015	Extreme Cold/Wind Chill	\$0		
Cabell	2/18/2015	Extreme Cold/Wind Chill	\$50,000		
Lincoln	2/18/2015	Extreme Cold/Wind Chill	\$0		
Logan	2/18/2015	Extreme Cold/Wind Chill	\$0		
Mason	2/18/2015	Extreme Cold/Wind Chill	\$0		
Mingo	2/18/2015	Extreme Cold/Wind Chill	\$0		
Mason	2/23/2015	Cold/Wind Chill	\$0		
Wayne	3/6/2015	Cold/Wind Chill	\$0		
Mason	3/6/2015	Cold/Wind Chill	\$0		
Lincoln	3/6/2015	Cold/Wind Chill	\$0		
Cabell	3/6/2015	Cold/Wind Chill	\$0		



TABLE 5.1.F EXTREME TEMPRATURE EVENTS (SHELDUS)					
County Name	Hazard	Year	Month	Injuries	
Cabell	Heat	1991	7	3	
Wayne	Heat	1991	7	3	
Cabell	Heat	1991	8	6	
Cabell	Heat	1993	7	0.02	
Lincoln	Heat	1993	7	0.02	
Logan	Heat	1993	7	0.02	
Mason	Heat	1993	7	0.02	
Mingo	Heat	1993	7	0.02	
Wayne	Heat	1993	7	0.02	



HAZMAT

The following table lists all the available data from PHMSA and the NRC regarding hazardous materials incidents.

TABLE 5.1.G. HAZMAT INCIDENTS						
Date	County	City	Туре	Cause	Agency	
2/29/2000	Cabell	Huntington	Air	Equipment Failure	PHMSA	
3/8/2000	Logan	Logan	Highway	Operator Error	PHMSA	
6/15/2000	Cabell	Huntington	Highway	Equipment Failure	PHMSA	
8/19/2000	Cabell	Huntington	Air	Equipment Failure	PHMSA	
9/4/2000	Cabell	Huntington	Air	Operator Error	PHMSA	
9/9/2000	Cabell	Huntington	Rail	Operator Error	PHMSA	
12/26/2000	Cabell	Huntington	Highway	Operator Error	PHMSA	
1/26/2001	Wayne	Kenova	Highway	Operator Error	PHMSA	
3/13/2001	Cabell	Huntington	Air	Equipment Failure	PHMSA	
5/1/2001	Mason	Henderson	Highway	Operator Error	PHMSA	
6/25/2001	Cabell	Huntington	Air	Operator Error	PHMSA	
8/27/2002	Wayne	Kenova	Highway	Operator Error	PHMSA	
8/29/2002	Cabell	Huntington	Air	Operator Error	PHMSA	
1/29/2003	Wayne	Kenova	Rail	Operator Error	PHMSA	
3/10/2003	Mingo	Williamson	Highway	Operator Error	PHMSA	
6/6/2003	Wayne	Fort Gay	Highway	Equipment Failure	PHMSA	
10/20/2003	Logan	Logan	Highway	Equipment Failure	PHMSA	
1/14/2004	Cabell	Huntington	Rail	Equipment Failure	PHMSA	
3/1/2004	Cabell	Huntington	Rail	Operator Error	PHMSA	
3/8/2004	Cabell	Huntington	Highway	Operator Error	PHMSA	
3/16/2004	Cabell	Huntington	Highway	Operator Error	PHMSA	
3/23/2004	Cabell	Huntington	Rail	Operator Error	PHMSA	
5/17/2004	Cabell	Huntington	Air	Operator Error	PHMSA	
5/26/2004	Wayne	Kenova	Highway	Operator Error	PHMSA	
8/26/2004	Cabell	Huntington	Air	Operator Error	PHMSA	
9/1/2004	Cabell	Huntington	Air	Operator Error	PHMSA	
10/28/2004	Cabell	Huntington	Rail	Equipment Failure	PHMSA	
10/28/2004	Cabell	Huntington	Rail	Equipment Failure	PHMSA	
3/29/2005	Logan	Man	Highway	Equipment Failure	PHMSA	
4/13/2005	Cabell	Huntington	Highway	Operator Error	PHMSA	
8/1/2005	Cabell	Huntington	Air	Operator Error	PHMSA	
8/4/2005	Wayne	Kenova	Highway	Operator Error	PHMSA	
2/10/2006	Cabell	Milton	Fixed Facility	Dumping	NRC	
3/31/2006	Cabell	Huntington	Air	Operator Error	PHMSA	
12/5/2006	Wayne	Kenova	Highway	Operator Error	PHMSA	
2/26/2007	Mingo	Williamson	Rail	Equipment Failure	PHMSA	
3/27/2007	Wayne	Kenova	Highway	Operator Error	PHMSA	
10/4/2007	Wayne	Kenova	Highway	Operator Error	PHMSA	
1/28/2008	Cabell	Huntington	Fixed Facility	Dumping	NRC	
3/6/2009	Cabell	Huntington	Highway	Operator Error	PHMSA	



	TABLE 5.1.G. HAZMAT INCIDENTS					
Date	County	City	Туре	Cause	Agency	
9/14/2009	Wayne	Kenova	Highway	Operator Error	PHMSA	
10/5/2009	Cabell	Huntington	Air	Operator Error	PHMSA	
11/2/2009	Wayne	Kenova	Highway	Operator Error	PHMSA	
11/27/2009	Cabell	Huntington	Air	Operator Error	PHMSA	
12/7/2009	Mingo	Ragland	Fixed Facility	Other / Unknown	NRC	
1/18/2010	Mason	New Haven	Unknown Sheen	Other / Unknown	NRC	
1/24/2010	Logan	Man	Fixed Facility	Dumping	NRC	
2/22/2010	Mingo	Williamson	Rail	Equipment Failure	NRC	
2/28/2010	Wayne	Kenova	Storage Tank	Equipment Failure	NRC	
3/1/2010	Mingo	Unknown	Rail	Other / Unknown	NRC	
3/9/2010	Wayne	Kenova	Highway	Operator Error	PHMSA	
3/19/2010	Mingo	Gilbert	Rail	Other / Unknown	NRC	
3/30/2010	Cabell	Unknown	Rail	Operator Error	NRC	
4/1/2010	Mingo	Unknown	Fixed Facility	Other / Unknown	NRC	
4/10/2010	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
5/1/2010	Wayne	Kenova	Rail	Equipment Failure	NRC	
5/1/2010	Logan	Deepmsey Branch	Fixed Facility	Other / Unknown	NRC	
5/12/2010	Mason	New Haven	Fixed Facility	Natural Phenomenon	NRC	
5/16/2010	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC	
5/26/2010	Cabell	Milton	Fixed Facility	Other / Unknown	NRC	
6/1/2010	Mingo	Gilbert	Rail	Other / Unknown	NRC	
6/13/2010	Minao	Williamson	Rail	Equipment Failure	NRC	
6/14/2010	Wayne	Wavne	Fixed Facility	Other / Unknown	NRC	
6/16/2010	Wayne	Ceredo	Unknown Sheen	Other / Unknown	NRC	
6/18/2010	Cabell	Huntington	Storage Tank	Other / Unknown	NRC	
6/21/2010	Cabell	Huntinaton	Rail	Other / Unknown	NRC	
6/29/2010	Cabell	Huntington	Highway	Operator Error	NRC	
7/8/2010	Cabell	Huntinaton	Storage Tank	Other / Unknown	NRC	
7/9/2010	Wayne	Kenova	Vessel	Fauipment Failure	NRC	
7/18/2010	Mingo	Gilbert	Rail	Other / Unknown	NRC	
7/18/2010	Wayne	Kenova	Vessel	Fauinment Failure	NRC	
8/3/2010	Mason	West Columbia	Fixed Facility	Other / Unknown	NRC	
8/12/2010	Mingo	Devon	Rail	Operator Error	NRC	
8/21/2010	Mason	New Haven	Fixed Facility	Fauinment Failure	NRC	
8/26/2010	Mason	Point Pleasant	Fixed Facility	Other / Unknown	NRC	
9/1/2010	Wayne	Kenova	Highway	Fauinment Failure	PHMSA	
9/3/2010	Cabell	Huntington	Storage Tank	Fauinment Failure	NRC	
9/20/2010	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
9/29/2010	Wavne	Stentown	Rail	Fauinment Failure	NRC	
10/8/2010	Logan	Chanmanville	Rail	Derailment	NRC	
10/11/2010	Mason	New Haven	Fixed Facility	Fauinment Failure	NRC	
10/13/2010	Wavne	Criim	Rail	Other / Unknown	NRC	
10/15/2010	Minao	Williamson	Fived Facility	Dumning	NRC	
11/3/2010	wiingo	Williamson		Dumping		
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TABLE 5.1.G. HAZMAT INCIDENTS							
Date	County	City	Туре	Cause	Agency		
11/20/2010	Mingo	Williamson	Fixed Facility	Equipment Failure	NRC		
11/29/2010	Mingo	Gilbert	Highway	Operator Error	PHMSA		
11/29/2010	Mingo	Gilbert	Fixed Facility	Other / Unknown	NRC		
12/8/2010	Mason	New Haven	Unknown Sheen	Other / Unknown	NRC		
1/3/2011	Cabell	Lesage	Rail	Equipment Failure	NRC		
1/3/2011	Cabell	Lesage	Rail	Equipment Failure	NRC		
1/3/2011	Lincoln	Midkiff	Rail	Other / Unknown	NRC		
1/18/2011	Cabell	Huntington	Highway	Operator Error	PHMSA		
1/20/2011	Cabell	Unknown	Vessel	Vessel Sinking	NRC		
1/22/2011	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC		
1/27/2011	Mingo	Gilbert	Rail	Equipment Failure	NRC		
2/1/2011	Mingo	Lobata	Rail	Other / Unknown	NRC		
2/1/2011	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC		
2/2/2011	Cabell	Guyandotte	Vessel	Vessel Sinking	NRC		
2/17/2011	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC		
2/27/2011	Mingo	Delbarton	Fixed Facility	Equipment Failure	NRC		
3/2/2011	Cabell	Huntington	Rail	Natural Phenomenon	NRC		
3/7/2011	Wayne	Kenova	Rail	Other / Unknown	NRC		
3/16/2011	Mingo	Ragland	Rail	Other / Unknown	NRC		
3/17/2011	Mingo	Delbarton	Rail	Equipment Failure	NRC		
3/19/2011	Wayne	White Creek	Rail	Other / Unknown	NRC		
3/22/2011	Mason	New Haven	Fixed Facility Equipment Failure		NRC		
3/28/2011	Logan	Unknown	Rail	Derailment	NRC		
4/8/2011	Mingo	Timbar	Rail	Other / Unknown	NRC		
4/13/2011	Mingo	McCarr	Rail	Equipment Failure	NRC		
4/16/2011	Mingo	Delbarton	Rail	Equipment Failure	NRC		
4/26/2011	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC		
4/30/2011	Mason	Point Pleasant	Vessel	Other / Unknown	NRC		
5/5/2011	Cabell	Huntington	Rail	Other / Unknown	NRC		
5/5/2011	Mingo	Williamson	Rail	Other / Unknown	NRC		
5/16/2011	Cabell	Huntington	Rail	Other / Unknown	NRC		
5/20/2011	Mason	Henderson	Vessel	Other / Unknown	NRC		
5/24/2011	Wayne	Lavalette	Fixed Facility	Dumping	NRC		
6/6/2011	Mingo	Spriggs	Rail	Other / Unknown	NRC		
6/17/2011	Logan	Omar	Highway	Operator Error	NRC		
6/21/2011	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC		
7/14/2011	Mingo	Williamson	Fixed Facility	Other / Unknown	NRC		
7/21/2011	Wayne	Kenova	Highway	Operator Error	PHMSA		
8/16/2011	Mason	New Haven	Unknown Sheen	Other / Unknown	NRC		
8/20/2011	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC		
8/24/2011	Mingo	Grey Eagle	Storage Tank	Other / Unknown	NRC		
9/2/2011	Mingo	Rawl	Rail	Other / Unknown	NRC		
9/19/2011	Mingo	Lenore	Rail	Derailment	NRC		
9/21/2011	Mason	Leon	Fixed Facility	Dumping	NRC		
10/4/2011	Mingo	Devon	Rail	Equipment Failure	NRC		



TABLE 5.1.G. HAZMAT INCIDENTS							
Date	County	City	Туре	Cause	Agency		
10/26/2011	Wayne	East Lynn	Fixed Facility	Other / Unknown	NRC		
10/30/2011	Wayne	Neal	Rail	Equipment Failure	NRC		
11/7/2011	Cabell	Huntington	Rail	Other / Unknown	NRC		
11/11/2011	Wayne	Crum	Fixed Facility	Dumping	NRC		
11/18/2011	Mingo	Wharncliffe	Rail	Operator Error	NRC		
12/1/2011	Wayne	Huntington	Highway	Other / Unknown	NRC		
12/20/2011	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC		
12/28/2011	Mingo	Williamson	Rail	Equipment Failure	NRC		
1/7/2012	Mason	Point Pleasant	Unknown Sheen	Other / Unknown	NRC		
1/18/2012	Mason	Henderson	Unknown Sheen	Other / Unknown	NRC		
1/20/2012	Logan	Verundville	Unknown Sheen	Other / Unknown	NRC		
1/25/2012	Logan	Chapmanville	Storage Tank	Other / Unknown	NRC		
1/25/2012	Logan	Chapmanville	Storage Tank	Other / Unknown	NRC		
1/25/2012	Mingo	Lenore	Unknown Sheen	Other / Unknown	NRC		
1/26/2012	Mingo	Lenore	Storage Tank	Other / Unknown	NRC		
1/26/2012	Wayne	Ceredo	Vessel	Equipment Failure	NRC		
2/2/2012	Cabell	Huntington	Air	Operator Error	PHMSA		
2/8/2012	Wayne	Kenova	Storage Tank	Other / Unknown	NRC		
2/17/2012	Cabell	Huntington	Rail	Equipment Failure	NRC		
2/18/2012	Wayne	Kenova	Rail	Equipment Failure	NRC		
2/20/2012	Mingo	Sycamore	Rail	Equipment Failure	NRC		
3/2/2012	Lincoln	Sod	Fixed Facility	Natural Phenomenon	NRC		
3/5/2012	Cabell	Huntington	Fixed Facility	Dumping	NRC		
3/9/2012	Lincoln	West Hamlin	Fixed Facility	Other / Unknown	NRC		
3/16/2012	Mingo	Williamson	Rail	Equipment Failure	NRC		
3/19/2012	Cabell	Huntington	Fixed Facility	Dumping	NRC		
3/19/2012	Mingo	Wharncliffe	Rail	Equipment Failure	NRC		
3/26/2012	Mingo	Naugatuck	Rail	Equipment Failure	NRC		
4/11/2012	Wayne	Kenova	Highway	Operator Error	PHMSA		
4/17/2012	Mason	West Columbia	Storage Tank	Other / Unknown	NRC		
4/20/2012	Mingo	Goodman	Rail	Equipment Failure	NRC		
5/4/2012	Mason	New Haven	Fixed Facility	Other / Unknown	NRC		
5/4/2012	Mason	Gallipolis Ferry	Fixed Facility	Other / Unknown	NRC		
5/17/2012	Logan	Logan	Rail	Other / Unknown	NRC		
6/13/2012	Mingo	Williamson	Fixed Facility	Other / Unknown	NRC		
6/20/2012	Cabell	Huntington	Storage Tank	Operator Error	NRC		
6/27/2012	Mason	Gallipolis Ferry	Storage Tank	Other / Unknown	NRC		
6/29/2012	Mason	Point Pleasant	Vessel	Other / Unknown	NRC		
7/10/2012	Cabell	Huntington	Rail	Other / Unknown	NRC		
7/18/2012	Mason	Leon	Fixed Facility	Other / Unknown	NRC		
7/23/2012	Mingo	Williamson	Rail	Operator Error	NRC		
7/26/2012	Cabell	Huntington	Storage Tank	Equipment Failure	NRC		
7/28/2012	Mason	New Haven	Vessel	Equipment Failure	NRC		
8/4/2012	Cabell	Huntinaton	Rail	Other / Unknown	NRC		
8/6/2012	Wavne	Kenova	Vessel	Equipment Failure	NRC		



TABLE 5.1.G. HAZMAT INCIDENTS							
Date	County	City	Туре	Cause	Agency		
8/8/2012	Lincoln	Danville	Fixed Facility	Other / Unknown	NRC		
8/13/2012	Mingo	Williamson	Rail	Equipment Failure	NRC		
8/16/2012	Mingo	Lenore	Rail	Other / Unknown	NRC		
8/17/2012	Logan	Logan	Pipeline	Other / Unknown	NRC		
9/7/2012	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC		
9/19/2012	Cabell	Huntington	Rail	Other / Unknown	NRC		
9/21/2012	Cabell	Huntington	Storage Tank	Other / Unknown	NRC		
10/19/2012	Mason	West Columbia	Vessel	Equipment Failure	NRC		
11/2/2012	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC		
11/13/2012	Cabell	Huntington	Rail	Equipment Failure	NRC		
12/14/2012	Cabell	Huntington	Rail	Other / Unknown	NRC		
12/27/2012	Mingo	Noland	Rail	Other / Unknown	NRC		
12/28/2012	Mingo	Ragland	Rail	Equipment Failure	NRC		
1/14/2013	Mason	Henderson	Vessel	Equipment Failure	NRC		
1/15/2013	Cabell	Huntington	Fixed Facility	Equipment Failure	NRC		
1/27/2013	Wayne	East Lynn	Fixed Facility	Other / Unknown	NRC		
2/3/2013	Logan	Peach Creek	Rail	Equipment Failure	NRC		
2/8/2013	Logan	Logan	Fixed Facility	Other / Unknown	NRC		
2/11/2013	Logan	Peach Creek	Rail	Equipment Failure	NRC		
2/12/2013	Wayne	Ceredo	Vessel	Equipment Failure	NRC		
2/26/2013	Mason	Point Pleasant	Vessel	Other / Unknown	NRC		
3/11/2013	Wayne	Kenova	Highway	Operator Error	PHMSA		
3/15/2013	Cabell	Huntington	Highway	Other / Unknown	NRC		
3/18/2013	Mingo	Williamson	Rail	Other / Unknown	NRC		
3/21/2013	Logan	Unknown	Highway	Other / Unknown	NRC		
3/21/2013	Cabell	Huntington	Fixed Facility	Dumping	NRC		
3/22/2013	Cabell	Unknown	Rail	Equipment Failure	NRC		
3/30/2013	Wayne	Prichard	Fixed Facility	Operator Error	NRC		
3/31/2013	Mingo	Varney	Fixed Facility	Other / Unknown	NRC		
4/11/2013	Mason	West Columbia	Unknown Sheen	Other / Unknown	NRC		
4/20/2013	Cabell	Huntington	Rail	Equipment Failure	NRC		
4/28/2013	Mingo	Noland	Rail	Equipment Failure	NRC		
4/29/2013	Cabell	Huntington	Rail	Equipment Failure	NRC		
4/29/2013	Wayne	Ceredo	Unknown Sheen	Other / Unknown	NRC		
5/1/2013	Cabell	Huntington	Rail	Equipment Failure	NRC		
5/3/2013	Cabell	Huntington	Rail	Equipment Failure	NRC		
5/17/2013	Mingo	Spriggs	Rail	Equipment Failure	NRC		
5/18/2013	Mason	Apple Grove	Rail	Other / Unknown	NRC		
6/10/2013	Logan	Holden	Unknown Sheen	Other / Unknown	NRC		
6/29/2013	Mason	West Columbia	Unknown Sheen	Other / Unknown	NRC		
7/1/2013	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC		
7/1/2013	Wayne	Ceredo	Unknown Sheen	Other / Unknown	NRC		
7/7/2013	Mason	New Haven	Fixed Facility	Other / Unknown	NRC		
7/7/2013	Wayne	Huntington	Unknown Sheen	Other / Unknown	NRC		
7/19/2013	Mason	Mason	Vessel	Other / Unknown	NRC		



TABLE 5.1.G. HAZMAT INCIDENTS							
Date County City Type Cause Agency							
7/21/2013	Logan	Brayeholm	Fixed Facility	Other / Unknown	NRC		
7/27/2013	Wayne	Huntington	Fixed Facility	Other / Unknown	NRC		
8/1/2013	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC		
8/2/2013	Mingo	Ragland	Rail	Equipment Failure	NRC		
8/6/2013	Logan	Logan	Rail	Other / Unknown	NRC		
8/10/2013	Wayne	Ceredo	Fixed Facility	Other / Unknown	NRC		
8/16/2013	Logan	Lorado	Highway	Other / Unknown	NRC		
8/22/2013	Mason	West Columbia	Unknown Sheen	Other / Unknown	NRC		
8/27/2013	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC		
8/31/2013	Logan	Unknown	Rail	Other / Unknown	NRC		
9/16/2013	Logan	Stollings	Fixed Facility	Other / Unknown	NRC		
9/18/2013	Lincoln	Unknown	Rail	Equipment Failure	NRC		
9/20/2013	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC		
9/24/2013	Cabell	Barboursville	Storage Tank	Operator Error	NRC		
9/27/2013	Mingo	Bias	Rail	Equipment Failure	NRC		
9/28/2013	Mingo	Williamson	Rail	Other / Unknown	NRC		
9/30/2013	Cabell	Huntington	Highway	Other / Unknown	NRC		
10/12/2013	Mingo	Williamson	Rail	Equipment Failure	NRC		
10/17/2013	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC		
10/22/2013	Wayne	East Lynn	Rail	Derailment	NRC		
10/23/2013	Mingo	Mingo	Rail	Equipment Failure	NRC		
11/8/2013	Mingo	Williamson	Rail	Other / Unknown	NRC		
11/10/2013	Mason	Frasers Bottom	Fixed Facility	Dumping	NRC		
11/13/2013	Cabell	Kenova	Unknown Sheen	Other / Unknown	NRC		
11/19/2013	Logan	Unknown	Fixed Facility	Other / Unknown	NRC		
11/29/2013	Mingo	Matewan	Rail	Other / Unknown	NRC		
11/29/2013	Cabell	Huntington	Fixed Facility	Dumping	NRC		
11/29/2013	Mingo	North Matewan	Rail	Other / Unknown	NRC		
12/2/2013	Mingo	Unknown	Rail	Equipment Failure	NRC		
12/16/2013	Wayne	Kenova	Fixed Facility	Equipment Failure	NRC		
12/20/2013	Cabell	Huntington	Highway	Other / Unknown	NRC		
12/22/2013	Mingo	Williamson	Rail	Equipment Failure	NRC		
12/27/2013	Mingo	Naugatuck	Rail	Other / Unknown	NRC		
1/10/2014	Wayne	Unknown	Pipeline	Equipment Failure	NRC		
1/19/2014	Cabell	Huntinaton	Fixed Facility	Other / Unknown	NRC		
1/26/2014	Mason	Henderson	Vessel	Operator Error	NRC		
1/30/2014	Cabell	Huntinaton	Rail	Equipment Failure	NRC		
2/2/2014	Wayne	Prichard	Rail	Other / Unknown	NRC		
2/12/2014	Cabell	Huntington	Rail	Other / Unknown	NRC		
2/20/2014	Wavne	Kenova	Fixed Facility	Equipment Failure	NRC		
2/27/2014	Cabell	Milton	Pipeline	Equipment Failure	NRC		
3/2/2014	Wavne	Kenova	Rail	Other / Unknown	NRC		
3/11/2014	Cabell	Huntinaton	Rail	Other / Unknown	NRC		
3/11/2014	Mingo	Williamson	Rail	Other / Unknown	NRC		
3/30/2014	Cabell	Unknown	Unknown Sheen	Other / Unknown	NRC		



TABLE 5.1.G. HAZMAT INCIDENTS							
Date	County	City	Туре	Cause	Agency		
4/3/2014	Mingo	Williamson	Fixed Facility	Other / Unknown	NRC		
4/5/2014	Logan	Logan	Highway	Equipment Failure	NRC		
4/16/2014	Cabell	Huntington	Rail	Other / Unknown	NRC		
4/16/2014	Cabell	Huntington	Rail	Equipment Failure	NRC		
4/16/2014	Cabell	Huntington	Rail	Other / Unknown	NRC		
4/23/2014	Cabell	Huntington	Rail	Equipment Failure	NRC		
4/23/2014	Lincoln	Spurlockville	Fixed Facility	Other / Unknown	NRC		
4/30/2014	Mason	Point Pleasant	Unknown Sheen	Other / Unknown	NRC		
5/4/2014	Logan	Lake	Storage Tank	Other / Unknown	NRC		
5/6/2014	Wayne	Huntington	Fixed Facility	Dumping	NRC		
5/15/2014	Cabell	Kenova	Unknown Sheen	Other / Unknown	NRC		
5/17/2014	Mingo	Gilbert	Rail	Other / Unknown	NRC		
5/22/2014	Mingo	Delbarton	Rail	Other / Unknown	NRC		
5/29/2014	Cabell	Huntington	Rail	Equipment Failure	NRC		
5/30/2014	Mingo	Taylorville	Highway	Other / Unknown	NRC		
6/5/2014	Cabell	Huntington	Highway	Operator Error	PHMSA		
6/10/2014	Cabell	Huntington	Rail	Other / Unknown	NRC		
6/23/2014	Cabell	Huntington	Vessel	Other / Unknown	NRC		
7/1/2014	Lincoln	Laurel Hill	Fixed Facility	Other / Unknown	NRC		
7/1/2014	Mingo	Chattaroy	Rail	Equipment Failure	NRC		
7/2/2014	Logan	Logan	Fixed Facility	Dumping	NRC		
7/22/2014	Mingo	Williamson	Rail	Other / Unknown	NRC		
8/5/2014	Cabell	Glenwood	Rail	Other / Unknown	NRC		
8/11/2014	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC		
8/14/2014	Mingo	Delmore	Rail	Equipment Failure	NRC		
8/18/2014	Wayne	Fort Gay	Fixed Facility	Other / Unknown	NRC		
8/20/2014	Lincoln	McCorkle	Fixed Facility	Other / Unknown	NRC		
8/22/2014	Mingo	Gilbert	Fixed Facility	Dumping	NRC		
8/23/2014	Wayne	Ceredo	Unknown Sheen	Other / Unknown	NRC		
8/23/2014	Wayne	Huntington	Unknown Sheen	Other / Unknown	NRC		
8/27/2014	Mingo	Naugatuck	Rail	Other / Unknown	NRC		
8/29/2014	Mason	Gallipolis Ferry	Fixed Facility	Operator Error	NRC		
9/4/2014	Wayne	Fort Gay	Rail	Other / Unknown	NRC		
9/20/2014	Cabell	Huntington	Vessel	Other / Unknown	NRC		
9/26/2014	Mingo	Naugatuck	Rail	Other / Unknown	NRC		
10/6/2014	Mingo	Naugatuck	Rail	Other / Unknown	NRC		
10/8/2014	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC		
10/13/2014	Mingo	Williamson	Rail	Equipment Failure	NRC		
10/15/2014	Wayne	Kenova	Highway	Operator Error	PHMSA		
10/29/2014	Mingo	Williamson	Highway	Equipment Failure	NRC		
11/5/2014	Logan	Rita	Highway	Other / Unknown	NRC		
11/14/2014	Wayne	Kenova	Fixed Facility	Other / Unknown	NRC		
11/18/2014	Mingo	Matewan	Fixed Facility	Equipment Failure	NRC		
11/23/2014	Wayne	Fort Gay	Highway	Other / Unknown	NRC		
11/27/2014	Mingo	Williamson	Rail	Equipment Failure	NRC		



Date County City Type Cause Agency 12/12/2014 Mingo Gilbert Rail Equipment Failure NRC 1/3/2015 Wayne Kenova Unknown Sheen Other / Unknown NRC 1/17/2015 Wayne Unknown Rail Equipment Failure NRC 1/17/2015 Wayne Huntington Fixed Facility Other / Unknown NRC 1/27/2015 Wayne Kenova Rail Other / Unknown NRC 1/27/2015 Cabell Huntington Rial Other / Unknown NRC 1/27/2015 Cabell Huntington Rail Other / Unknown NRC 2/3/2015 Cabell Huntington Rail Other / Unknown NRC 2/1/2015 Cabell Huntington Rail Derailment NRC 2/1/2015 Cabell Huntington Rail Derailment NRC 2/1/2015 Cabell Huntington Fixed Facility Dumping N	TABLE 5.1.G. HAZMAT INCIDENTS							
12/12/2014 Mingo Gilbert Rail Equipment Failure NRC 13/2015 Wayne Unknown Rail Equipment Failure NRC 1/11/2015 Mingo Williamson Rail Equipment Failure NRC 1/17/2015 Wayne Hunlington Fixed Facility Other / Unknown NRC 1/28/2015 Cabell Hunlington Rail Other / Unknown NRC 1/28/2015 Cabell Hunlington Fixed Facility Other / Unknown NRC 2/3/2015 Cabell Hunlington Fixed Facility Other / Unknown NRC 2/9/2015 Cabell Hunlington Rail Equipment Failure NRC 2/16/2015 Cabell Hunlington Rail Derailment NRC 3/2/2015 Wayne Kernova Rail Derailment NRC 3/2/2015 Wayne Kernova Rail Derailment NRC 3/2/2015 Wayne Keronva Rail Dther / Unkno	Date	County	City	Туре	Cause	Agency		
1/3/2015 Wayne Kenova Unknown Rail Equipment Failure NRC 1/11/2015 Wayne Unknown Rail Equipment Failure NRC 1/17/2015 Wayne Huntington Rail Equipment Failure NRC 1/17/2015 Wayne Kenova Rail Other / Unknown NRC 1/28/2015 Cabell Huntington Rail Equipment Failure NRC 2/3/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 2/3/2015 Cabell Huntington Rail Equipment Failure NRC 2/10/2015 Cabell Huntington Rail Equipment Failure NRC 2/13/2015 Cabell Huntington Rail Derailment NRC 2/13/2015 Cabell Huntington Rail Equipment Failure NRC 3/3/2015 Wayne Kermit Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington R	12/12/2014	Mingo	Gilbert	Rail	Equipment Failure	NRC		
1/11/2015 Wayne Unknown Rail Equipment Failure NRC 1/17/2015 Mingo Williamson Rail Equipment Failure NRC 1/17/2015 Wayne Huntington Fixed Facility Other / Unknown NRC 1/2/2015 Cabell Huntington Rail Other / Unknown NRC 1/2/2015 Cabell Huntington Rail Equipment Failure NRC 2/3/2015 Cabell Huntington Rail Other / Unknown NRC 2/1/2015 Cabell Huntington Rail Equipment Failure NRC 2/1/2015 Cabell Huntington Rail Equipment Failure NRC 2/1/2015 Cabell Huntington Rail Derailment NRC 2/1/2015 Wayne Kenova Rail Derailment NRC 2/1/2015 Mago Williamson Rail Derailment NRC 2/1/2015 Cabell Huntington Fixed Facility Dumping	1/3/2015	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC		
1/17/2015 Mingo Williamson Rail Equipment Failure NRC 1/17/2015 Wayne Huntington Fixed Facility Other / Unknown NRC 1/27/2015 Cabell Huntington Rail Other / Unknown NRC 1/28/2015 Cabell Huntington Rail Equipment Failure NRC 2/3/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 2/9/2015 Cabell Huntington Rail Equipment Failure NRC 2/10/2015 Cabell Huntington Rail Equipment Failure NRC 2/16/2015 Cabell Huntington Rail Derailment NRC 3/2/2015 Mayne Kermit Fixed Facility Dumping NRC 3/4/2015 Cabell Huntington Rail Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Fa	1/11/2015	Wayne	Unknown	Rail	Equipment Failure	NRC		
1/17/2015 Wayne Hunlington Fixed Facility Other / Unknown NRC 1/28/2015 Cabell Huntington Rail Other / Unknown NRC 1/30/2015 Mingo Kerniti Rail Equipment Failure NRC 2/3/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 2/3/2015 Cabell Huntington Rail Equipment Failure NRC 2/9/2015 Cabell Huntington Rail Equipment Failure NRC 2/10/2015 Cabell Huntington Rail Equipment Failure NRC 2/12/2015 Cabell Huntington Rail Equipment Failure NRC 3/2/2015 Mingo Willamson Rail Equipment Failure NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/10/2015 Cabell Huntington	1/17/2015	Mingo	Williamson	Rail	Equipment Failure	NRC		
1/27/2015 Wayne Kenova Rail Other / Unknown NRC 1/28/2015 Cabell Huntington Rail Equipment Failure NRC 2/3/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 2/3/2015 Cabell Huntington Highway Other / Unknown NRC 2/3/2015 Cabell Huntington Rail Equipment Failure NRC 2/10/2015 Cabell Huntington Rail Derailment NRC 2/11/2015 Gabell Barboursville Highway Other / Unknown NRC 2/16/2015 Wayne Kernova Rail Derailment NRC 3/2/2015 Wayne Kermit Fixed Facility Dumping NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/10/2015 Cabell Huntington Fixed Facility<	1/17/2015	Wayne	Huntington	Fixed Facility	Other / Unknown	NRC		
1/28/2015 Cabell Huntington Rail Other / Unknown NRC 1/30/2015 Mingo Kermit Rail Equipment Failure NRC 2/8/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 2/9/2015 Cabell Huntington Rail Other / Unknown NRC 2/9/2015 Cabell Huntington Rail Equipment Failure NRC 2/10/2015 Cabell Huntington Rail Equipment Failure NRC 2/16/2015 Wayne Kernit Fixed Facility Dumping NRC 3/2/2015 Cabell Huntington Rail Equipment Failure NRC 3/4/2015 Cabell Huntington Fixed Facility Dumping NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/1/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/1/2015 Cabell Huntington Fixed	1/27/2015	Wayne	Kenova	Rail	Other / Unknown	NRC		
1/30/2015 Mingo Kermit Rail Equipment Failure NRC 2/3/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 2/9/2015 Mingo Williamson Rail Other / Unknown NRC 2/9/2015 Cabell Huntington Rail Equipment Failure NRC 2/10/2015 Cabell Huntington Rail Equipment Failure NRC 2/13/2015 Wayne Kenova Rail Derailment NRC 3/3/2015 Wayne Kermit Fixed Facility Dumping NRC 3/4/2015 Cabell Huntington Rail Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/6/2015 Lincoln Branchland Fixed Facil	1/28/2015	Cabell	Huntington	Rail	Other / Unknown	NRC		
2/3/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 2/8/2015 Mingo Williamson Rail Other / Unknown NRC 2/9/2015 Cabell Huntington Highway Other / Unknown NRC 2/10/2015 Cabell Huntington Rail Equipment Failure NRC 2/11/2015 Cabell Barboursville Highway Other / Unknown NRC 2/16/2015 Wayne Kenova Rail Derailment NRC 3/2/2015 Wayne Kernit Fixed Facility Dumping NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/10/2015 Cabell Huntington	1/30/2015	Mingo	Kermit	Rail	Equipment Failure	NRC		
2/8/2015 Mingo Williamson Rail Other / Unknown NRC 2/9/2015 Cabell Huntington Rail Equipment Failure NRC 2/10/2015 Cabell Barboursville Highway Other / Unknown NRC 2/11/2015 Cabell Barboursville Highway Other / Unknown NRC 3/2/2015 Wayne Kenova Rail Derailment NRC 3/2/2015 Wayne Kernit Fixed Facility Dumping NRC 3/4/2015 Cabell Huntington Rail Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Natural Phenomenon NRC 3/6/2015 Lincoln Branchland Fixed Facility Other / Unknown NRC 3/11/2015 Cabell Huntington	2/3/2015	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC		
2/9/2015 Cabell Huntington Highway Other / Unknown NRC 2/10/2015 Cabell Huntington Rail Equipment Failure NRC 2/16/2015 Cabell Barboursville Highway Other / Unknown NRC 2/16/2015 Wayne Kenova Rail Derailment NRC 3/2/2015 Mingo Williamson Rail Durpming NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/4/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/6/2015 Lincoln Barachland Fixed Facility Natural Phenomenon NRC 3/10/2015 Cabell Huntington Fixed Facility Other / Unknown NRC 3/11/2015 Cabell Huntington Rail Equipment Failure NRC 3/16/2015 Wayne Kenova	2/8/2015	Mingo	Williamson	Rail	Other / Unknown	NRC		
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7/23/2015 Milligo Maluer Rali Equipment Failure MRC	7/20/2015	Mingo	Nougatuck		Equipment Failure			
	7/20/2015	Mingo	Williamson					



TABLE 5.1.G. HAZMAT INCIDENTS						
Date	County	City	Туре	Cause	Agency	
8/4/2015	Logan	Lorado	Rail	Other / Unknown	NRC	
8/7/2015	Mingo	Kermit	Fixed Facility	Natural Phenomenon	NRC	
9/13/2015	Wayne	Kenova	Rail	Equipment Failure	NRC	
10/5/2015	Mason	Apple Grove	Fixed Facility	Equipment Failure	NRC	
10/13/2015	Mingo	Williamson	Rail	Equipment Failure	NRC	
10/19/2015	Wayne	Kenova	Vessel	Other / Unknown	NRC	
10/25/2015	Mingo	Beech Creek	Rail	Equipment Failure	NRC	
10/27/2015	Wayne	Huntington	Highway	Other / Unknown	NRC	
10/28/2015	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
10/28/2015	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
12/8/2015	Mason	Henderson	Highway	Equipment Failure	NRC	
1/7/2016	Wayne	Huntington	Fixed Facility	Dumping	NRC	
1/16/2016	Mason	Henderson	Unknown Sheen	Other / Unknown	NRC	
1/19/2016	Wayne	Kenova	Highway	Equipment Failure	NRC	
1/25/2016	Wayne	Kenova	Rail	Other / Unknown	NRC	
2/8/2016	Mingo	Delbarton	Rail	Equipment Failure	NRC	
2/19/2016	Cabell	Huntington	Rail	Other / Unknown	NRC	
3/1/2016	Mason	Point Pleasant	Fixed Facility	Dumping	NRC	
3/15/2016	Cabell	Huntington	Highway	Equipment Failure	NRC	
3/30/2016	Mason	Point Pleasant	leasant Vessel Operator		NRC	
4/6/2016	Lincoln	Hamlin	Fixed Facility	Other / Unknown	NRC	
4/11/2016	Cabell	Huntington	Fixed Facility	Other / Unknown	NRC	
4/12/2016	Mingo	Williamson	Rail	Other / Unknown	NRC	
4/14/2016	Wayne	Prichard	Highway	Operator Error	NRC	
5/14/2016	Mingo	Ragland	Rail	Equipment Failure	NRC	
5/20/2016	Cabell	Huntington	Highway	Operator Error	NRC	
5/22/2016	Cabell	Huntington	Rail	Other / Unknown	NRC	
5/24/2016	Cabell	Huntington	Fixed Facility	Equipment Failure	NRC	
5/24/2016	Cabell	Huntinaton	Fixed Facility	Other / Unknown	NRC	
6/16/2016	Mingo	Delbarton	Fixed Facility	Other / Unknown	NRC	
6/16/2016	Mingo	Unknown	Rail	Other / Unknown	NRC	
6/18/2016	Minao	Williamson	Rail	Other / Unknown	NRC	
7/6/2016	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
7/13/2016	Cabell	Huntinaton	Rail	Other / Unknown	NRC	
7/14/2016	Mingo	Radland	Rail	Fouipment Failure	NRC	
7/20/2016	Mason	Point Pleasant	Unknown Sheen	Other / Unknown	NRC	
7/28/2016	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
8/10/2016	Cabell	Barboursville	Hinhway	Other / Unknown	NRC	
8/10/2016	Mason	Lakin	Unknown Sheen	Other / Unknown	NRC	
8/24/2016	Cabell	Salt Rock	Fixed Facility	Dumning	NRC.	
8/31/2016	Mason	Gallipolis Ferry	Fixed Facility	Other / Unknown	NRC.	
9/1/2016	Mingo	Gilhert	Rail	Other / Unknown	NRC	
9/2/2016	Mingo	Williamson	Rail	Fauinment Failure	NRC	
9/3/2016	Mason	New Haven	Fixed Facility	Fauinment Failure	NRC	
9/7/2016	Mason	New Haven	Fixed Facility	Operator Error	NRC.	



TABLE 5.1.G. HAZMAT INCIDENTS						
Date County City Type Cause Agence						
9/8/2016	Mingo	Williamson	Rail	Other / Unknown	NRC	
9/11/2016	Mingo	Unknown	Rail	Equipment Failure	NRC	
9/15/2016	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
9/25/2016	Mingo	Naugatuck	Rail	Equipment Failure	NRC	
9/27/2016	Mason	Gallipolis Ferry	Fixed Facility	Equipment Failure	NRC	
10/7/2016	Mingo	Scarlet Glen	Rail	Equipment Failure	NRC	
10/9/2016	Mingo	Delbarton	Pipeline	Equipment Failure	NRC	
10/9/2016	Mingo	Unknown	Fixed Facility	Equipment Failure	NRC	
10/12/2016	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
10/27/2016	Cabell	Huntington	Rail	Equipment Failure	NRC	
10/29/2016	Mingo	Naugatuck	Rail	Equipment Failure	NRC	
12/3/2016	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
12/15/2016	Mingo	Scarlet Glen	Rail	Equipment Failure	NRC	
12/22/2016	Mingo	Ragland	Rail	Other / Unknown	NRC	
12/27/2016	Mingo	Williamson	Rail	Equipment Failure	NRC	
12/29/2016	Wayne	Kenova	Highway	Operator Error	PHMSA	
1/11/2017	Cabell	Milton	Highway	Operator Error	PHMSA	
1/13/2017	Mingo	Naugatuck	Rail	Other / Unknown	NRC	
1/24/2017	Wayne	Ceredo	Unknown Sheen	Other / Unknown	NRC	
1/24/2017	Mason	Henderson	Unknown Sheen	Other / Unknown	NRC	
2/1/2017	Mingo	Borderland	Fixed Facility	Equipment Failure	NRC	
3/2/2017	Mason	Unknown	Vessel	Operator Error	NRC	
3/28/2017	Wayne	Unknown	Pipeline	Equipment Failure	NRC	
4/8/2017	Mingo	Gilbert	Rail	Other / Unknown	NRC	
4/12/2017	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
4/23/2017	Wayne	Kenova	Fixed Facility	Other / Unknown	NRC	
4/29/2017	Logan	Man	Rail	Other / Unknown	NRC	
4/29/2017	Mingo	Justice	Rail	Equipment Failure	NRC	
5/4/2017	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
5/5/2017	Mason	Gallipolis Ferry	Vessel	Vessel Sinking	NRC	
5/12/2017	Wayne	Kenova	Fixed Facility	Other / Unknown	NRC	
5/16/2017	Logan	Clothier	Fixed Facility	Other / Unknown	NRC	
5/18/2017	Wayne	Glen Hayes	Rail	Equipment Failure	NRC	
6/6/2017	Logan	Logan	Rail	Equipment Failure	NRC	
6/16/2017	Cabell	Huntington	Rail	Other / Unknown	NRC	
6/20/2017	Wayne	Kenova	Fixed Facility	Equipment Failure	NRC	
6/28/2017	Cabell	Huntington	Rail	Equipment Failure	NRC	
7/5/2017	Wayne	Kenova	Rail	Equipment Failure	PHMSA	
7/5/2017	Wayne	Kenova	Rail	Equipment Failure	NRC	
7/11/2017	Cabell	Huntington	Rail	Other / Unknown	NRC	
7/16/2017	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC	
7/21/2017	Logan	Pecks Mill	Fixed Facility	Other / Unknown	NRC	
7/24/2017	Cabell	Huntington	Pipeline	Equipment Failure	NRC	
7/28/2017	Cabell	Huntington	Fixed Facility	Natural Phenomenon	NRC	
8/3/2017	Mason	Henderson	Unknown Sheen	Other / Unknown	NRC	



TABLE 5.1.G. HAZMAT INCIDENTS							
Date	County	ty City Type Cause					
9/3/2017	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC		
9/6/2017	Cabell	Huntington	Rail	Equipment Failure	NRC		
9/12/2017	Mingo	Kermit	Rail	Equipment Failure	NRC		
9/15/2017	Wayne	Kenova	Unknown Sheen	Other / Unknown	NRC		
9/17/2017	Wayne	Kenova	Rail	Rail Equipment Failure			
10/17/2017	Wayne	White Creek	Pipeline	Equipment Failure	NRC		
10/17/2017	Cabell	Huntington	Fixed Facility	Equipment Failure	NRC		
10/18/2017	Wayne	Kenova	Storage Tank	Other / Unknown	NRC		
10/21/2017	Mingo	Williamson	Rail	Equipment Failure	NRC		
11/2/2017	Wayne	Wayne	Storage Tank	Other / Unknown	NRC		
11/2/2017	Mingo	Williamson	Fixed Facility	Other / Unknown	NRC		
11/28/2017	Mason	Henderson	Vessel	Operator Error	NRC		



SEVERE SUMMER WEATHER

TABLE 5.1.H TORNADO EVENTS (NCEI)									
County	Date	Туре	Magnitude	Deaths	Injuries	Damage to Property	Tornado Length (MI)	Tornado Width (FT)	
Wayne	4/8/1965	Tornado	F3	0	3	\$250,000	3.6	220	
Mason	4/24/1970	Tornado	FO	0	0	\$2,500	0.3	33	
Lincoln	9/29/1972	Tornado	F1	0	0	\$2,500	20.9	70	
Wayne	6/5/1973	Tornado	FO	0	0	\$0	0	33	
Lincoln	8/8/1979	Tornado	FO	0	0	\$2,500	0	33	
Mason	6/2/1998	Tornado	F1	0	1	\$75,000	0.7	40	
Cabell	8/9/2000	Tornado	F1	0	0	\$275,000	0.5	75	
Lincoln	8/9/2000	Tornado	F1	0	0	\$200,000	1.5	100	
Mason	6/27/2007	Tornado	EF1	0	0	\$8,000	1.16	50	
Wayne	3/2/2012	Tornado	EF3	0	0	\$1,900,000	16.61	1000	
Lincoln	3/2/2012	Tornado	EF1	0	0	\$200,000	8.88	200	
Lincoln	3/2/2012	Tornado	EF1	0	0	\$150,000	16.02	300	
Mingo	3/2/2012	Tornado	EF2	0	0	\$90,000	1.2	250	
Cabell	6/4/2014	Tornado	EF1	0	0	\$30,000	0.51	400	
Wayne	7/4/2016	Tornado	EF0	0	0	\$1,000	0.25	20	
Lincoln	7/4/2016	Tornado	EF0	0	0	\$30,000	0.23	50	
			Totals	0	4	\$3,216,500			

		TABL	E 5.1.I HAIL I	EVENTS (NC	EI)	
County	Date	Туре	Magnitude	Deaths	Injuries	Damage to Property
Wayne	7/22/1962	Hail	1	0	0	\$0
Wayne	7/23/1962	Hail	2.5	0	0	\$0
Wayne	5/30/1969	Hail	1	0	0	\$0
Logan	5/6/1977	Hail	1	0	0	\$0
Cabell	9/2/1977	Hail	0.75	0	0	\$0
Cabell	6/22/1979	Hail	1	0	0	\$0
Lincoln	6/22/1979	Hail	2	0	0	\$0
Mingo	4/8/1980	Hail	1.75	0	0	\$0
Cabell	11/5/1981	Hail	1	0	0	\$0
Mingo	5/27/1982	Hail	1.75	0	0	\$0
Lincoln	3/6/1983	Hail	0.75	0	0	\$0
Cabell	3/7/1983	Hail	1.25	0	0	\$0
Cabell	7/17/1983	Hail	0.75	0	0	\$0
Cabell	8/8/1983	Hail	1	0	0	\$0
Cabell	8/9/1983	Hail	1	0	0	\$0
Mason	8/11/1983	Hail	1.5	0	0	\$0
Mason	8/11/1983	Hail	1.5	0	0	\$0
Mason	8/11/1983	Hail	1.5	0	0	\$0
Wayne	8/31/1983	Hail	0.75	0	0	\$0
Cabell	7/26/1984	Hail	1.75	0	0	\$0



TABLE 5.1.I HAIL EVENTS (NCEI)								
County	Date	Туре	Magnitude	Deaths	Injuries	Damage to Property		
Wayne	7/26/1984	Hail	1.75	0	0	\$0		
Cabell	7/26/1984	Hail	1	0	0	\$0		
Cabell	5/7/1986	Hail	0.75	0	0	\$0		
Cabell	5/8/1986	Hail	0.75	0	0	\$0		
Mason	5/11/1988	Hail	0.75	0	0	\$0		
Wayne	9/16/1989	Hail	0.75	0	0	\$0		
Cabell	5/28/1990	Hail	0.75	0	0	\$0		
Logan	9/7/1990	Hail	0.75	0	0	\$0		
Cabell	4/9/1991	Hail	1.75	0	0	\$0		
Wayne	4/9/1991	Hail	1	0	0	\$0		
Lincoln	4/9/1991	Hail	0.75	0	0	\$0		
Mason	4/9/1991	Hail	1.75	0	0	\$0		
Wayne	4/1/1992	Hail	1	0	0	\$0		
Mingo	4/24/1992	Hail	0.75	0	0	\$0		
Mingo	2/21/1993	Hail	0.75	0	0	\$0		
Mingo	2/21/1993	Hail	0.75	0	0	\$0		
Mingo	2/21/1993	Hail	0.75	0	0	\$0		
Wayne	2/21/1993	Hail	0.75	0	0	\$0		
Mason	5/11/1993	Hail	1	0	0	\$0		
Mason	5/11/1993	Hail	0.75	0	0	\$0		
Cabell	5/12/1993	Hail	0.75	0	0	\$0		
Wayne	5/12/1993	Hail	0.75	0	0	\$0		
Wayne	11/17/1993	Hail	0.88	0	0	\$5,000		
Cabell	4/15/1994	Hail	0.75	0	0	\$0		
Cabell	6/7/1994	Hail	0.75	0	0	\$0		
Mason	6/7/1994	Hail	1	0	0	\$5,000		
Cabell	6/11/1994	Hail	0.75	0	0	\$0		
Wayne	6/11/1994	Hail	1	0	0	\$0		
Logan	6/11/1994	Hail	1.75	0	0	\$5,000		
Logan	6/11/1994	Hail	0.88	0	0	\$0		
Cabell	7/29/1994	Hail	0.75	0	0	\$0		
Mingo	9/25/1994	Hail	0.75	0	0	\$0		
Mingo	9/25/1994	Hail	0.75	0	0	\$0		
Mingo	9/25/1994	Hail	0.75	0	0	\$0		
Mingo	9/25/1994	Hail	0.75	0	0	\$0		
Lincoln	9/25/1994	Hail	0.75	0	0	\$0		
Logan	9/25/1994	Hail	1.75	0	0	\$5,000		
Mason	9/25/1994	Hail	2.75	0	0	\$500,000		
Cabell	3/20/1995	Hail	1.75	0	0	\$0		
Wayne	5/10/1995	Hail	0.75	0	0	\$0		
Lincoln	5/10/1995	Hail	0.75	0	0	\$0		
Mingo	5/18/1995	Hail	0.88	0	0	\$0		
Logan	6/14/1995	Hail	0.75	0	0	\$0		
Mingo	6/20/1995	Hail	1	0	0	\$5,000		
Mingo	8/18/1995	Hail	0.75	0	0	\$0		



TABLE 5.1.I HAIL EVENTS (NCEI)						
County	Date	Туре	Magnitude	Deaths	Injuries	Damage to Property
Lincoln	4/15/1996	Hail	0.75	0	0	\$0
Lincoln	5/24/1996	Hail	1	0	0	\$0
Lincoln	5/24/1996	Hail	0.75	0	0	\$0
Cabell	5/28/1996	Hail	0.75	0	0	\$0
Lincoln	5/28/1996	Hail	0.88	0	0	\$0
Logan	6/3/1996	Hail	0.75	0	0	\$0
Cabell	6/22/1996	Hail	0.75	0	0	\$0
Lincoln	6/22/1996	Hail	0.75	0	0	\$0
Logan	6/22/1996	Hail	0.75	0	0	\$0
Cabell	7/2/1996	Hail	0.75	0	0	\$0
Wayne	5/14/1997	Hail	0.75	0	0	\$0
Wayne	5/14/1997	Hail	1	0	0	\$0
Lincoln	5/14/1997	Hail	0.88	0	0	\$0
Wayne	5/14/1997	Hail	0.75	0	0	\$0
Cabell	5/14/1997	Hail	0.75	0	0	\$0
Wayne	6/2/1997	Hail	0.75	0	0	\$0
Logan	7/2/1997	Hail	0.75	0	0	\$0
Mingo	7/2/1997	Hail	1.25	0	0	\$0
Lincoln	7/22/1997	Hail	0.75	0	0	\$0
Cabell	8/15/1997	Hail	0.88	0	0	\$0
Wayne	8/17/1997	Hail	0.75	0	0	\$0
Mason	1/8/1998	Hail	1	0	0	\$0
Mingo	5/3/1998	Hail	0.75	0	0	\$0
Logan	5/3/1998	Hail	0.75	0	0	\$0
Cabell	5/24/1998	Hail	1.25	0	0	\$250,000
Cabell	5/24/1998	Hail	0.75	0	0	\$0
Cabell	5/24/1998	Hail	1.25	0	0	\$250,000
Wayne	5/24/1998	Hail	0.88	0	0	\$10,000
Lincoln	5/24/1998	Hail	0.75	0	0	\$0
Mingo	5/24/1998	Hail	1	0	0	\$0
Mason	6/10/1998	Hail	0.75	0	0	\$0
Lincoln	6/10/1998	Hail	1.75	0	0	\$5,000
Mason	6/15/1998	Hail	0.75	0	0	\$0
Wayne	6/16/1998	Hail	1	0	0	\$35,000
Mason	6/16/1998	Hail	1	0	0	\$0
Cabell	6/29/1998	Hail	0.75	0	0	\$0
Cabell	7/2/1998	Hail	0.88	0	0	\$0
Wayne	7/2/1998	Hail	0.88	0	0	\$0
Cabell	9/6/1998	Hail	1	0	0	\$0
Mingo	1/18/1999	Hail	0.75	0	0	\$0
Mingo	1/18/1999	Hail	1.25	0	0	\$0
Lincoln	1/21/1999	Hail	0.75	0	0	\$0
Mingo	4/8/1999	Hail	0.75	0	0	\$0
Mingo	4/23/1999	Hail	1.75	0	0	\$0
Logan	7/25/1999	Hail	1	0	0	\$0


TABLE 5.1.I HAIL EVENTS (NCEI)							
County	Date	Туре	Magnitude	Deaths	Injuries	Damage to Property	
Mingo	7/25/1999	Hail	1	0	0	\$0	
Wayne	7/30/1999	Hail	0.75	0	0	\$0	
Mingo	4/17/2000	Hail	0.75	0	0	\$0	
Mason	5/24/2000	Hail	1	0	0	\$0	
Logan	6/15/2000	Hail	1	0	0	\$0	
Lincoln	7/14/2000	Hail	0.75	0	0	\$0	
Cabell	7/14/2000	Hail	0.75	0	0	\$0	
Mingo	4/10/2001	Hail	1	0	0	\$0	
Mingo	4/10/2001	Hail	0.75	0	0	\$0	
Mason	5/18/2001	Hail	2	0	0	\$150,000	
Mason	5/18/2001	Hail	1.25	0	0	\$50,000	
Mason	5/18/2001	Hail	1	0	0	\$0	
Mingo	5/19/2001	Hail	0.75	0	0	\$0	
Mason	6/2/2001	Hail	0.75	0	0	\$0	
Cabell	6/2/2001	Hail	0.88	0	0	\$0	
Mingo	8/23/2001	Hail	0.75	0	0	\$0	
Cabell	2/20/2002	Hail	1	0	0	\$0	
Wayne	4/28/2002	Hail	0.75	0	0	\$0	
Logan	4/28/2002	Hail	0.75	0	0	\$0	
Logan	4/28/2002	Hail	1.25	0	0	\$15,000	
Mingo	4/28/2002	Hail	1.5	0	0	\$20,000	
Mingo	4/28/2002	Hail	1	0	0	\$5,000	
Mingo	6/1/2002	Hail	0.75	0	0	\$0	
Logan	7/2/2002	Hail	1	0	0	\$0	
Wayne	2/22/2003	Hail	0.75	0	0	\$0	
Wayne	2/22/2003	Hail	0.75	0	0	\$0	
Lincoln	2/22/2003	Hail	0.75	0	0	\$0	
Mingo	3/20/2003	Hail	1	0	0	\$0	
Wayne	3/20/2003	Hail	1.25	0	0	\$0	
Cabell	5/10/2003	Hail	1	0	0	\$0	
Logan	5/10/2003	Hail	1.25	0	0	\$0	
Logan	5/10/2003	Hail	1.5	0	0	\$0	
Logan	5/10/2003	Hail	1	0	0	\$0	
Cabell	5/10/2003	Hail	0.75	0	0	\$0	
Mingo	6/11/2003	Hail	0.88	0	0	\$0	
Wayne	7/8/2003	Hail	0.75	0	0	\$0	
Cabell	7/9/2003	Hail	0.75	0	0	\$0	
Cabell	7/12/2003	Hail	0.75	0	0	\$0	
Logan	8/4/2003	Hail	1	0	0	\$0	
Lincoln	5/25/2004	Hail	0.75	0	0	\$0	
Lincoln	5/25/2004	Hail	1	0	0	\$0	
Mason	5/26/2004	Hail	1	0	0	\$0	
Logan	5/30/2004	Hail	1	0	0	\$0	
Mason	6/14/2004	Hail	0.88	0	0	\$0	
Mason	8/10/2004	Hail	0.02	0	0	\$5,000	



TABLE 5.1.I HAIL EVENTS (NCEI)							
County	Date	Туре	Magnitude	Deaths	Injuries	Damage to Property	
Mason	8/10/2004	Hail	0.75	0	0	\$0	
Mingo	3/23/2005	Hail	0.75	0	0	\$0	
Logan	3/23/2005	Hail	0.75	0	0	\$0	
Wayne	3/23/2005	Hail	0.75	0	0	\$0	
Wayne	5/13/2005	Hail	0.88	0	0	\$0	
Lincoln	5/13/2005	Hail	0.88	0	0	\$0	
Cabell	5/13/2005	Hail	0.75	0	0	\$0	
Cabell	5/13/2005	Hail	0.88	0	0	\$0	
Cabell	5/13/2005	Hail	1	0	0	\$1,000	
Logan	5/13/2005	Hail	1	0	0	\$0	
Mingo	7/27/2005	Hail	0.88	0	0	\$0	
Mingo	8/16/2005	Hail	0.75	0	0	\$0	
Mason	11/8/2005	Hail	0.75	0	0	\$0	
Mason	12/28/2005	Hail	0.88	0	0	\$0	
Wayne	4/7/2006	Hail	0.88	0	0	\$0	
Mingo	4/7/2006	Hail	1	0	0	\$0	
Lincoln	4/7/2006	Hail	1	0	0	\$0	
Lincoln	4/7/2006	Hail	1.25	0	0	\$0	
Logan	4/7/2006	Hail	1.75	0	0	\$25,000	
Wayne	4/14/2006	Hail	0.88	0	0	\$0	
Logan	4/14/2006	Hail	0.88	0	0	\$0	
Mingo	4/17/2006	Hail	1	0	0	\$0	
Wayne	4/20/2006	Hail	0.75	0	0	\$0	
Cabell	4/20/2006	Hail	0.88	0	0	\$0	
Logan	5/31/2006	Hail	1.5	0	0	\$0	
Logan	6/4/2006	Hail	1	0	0	\$0	
Wayne	6/4/2006	Hail	0.75	0	0	\$0	
Mingo	6/4/2006	Hail	1	0	0	\$0	
Lincoln	6/19/2006	Hail	1	0	0	\$0	
Mingo	6/20/2006	Hail	0.75	0	0	\$0	
Logan	6/20/2006	Hail	1	0	0	\$0	
Logan	6/20/2006	Hail	1.75	0	0	\$0	
Wayne	6/22/2006	Hail	0.75	0	0	\$0	
Lincoln	6/22/2006	Hail	0.75	0	0	\$0	
Mason	7/4/2006	Hail	0.88	0	0	\$0	
Logan	7/4/2006	Hail	1	0	0	\$0	
Logan	7/4/2006	Hail	0.88	0	0	\$0	
Lincoln	7/4/2006	Hail	0.75	0	0	\$0	
Lincoln	7/4/2006	Hail	1	0	0	\$0	
Wayne	7/21/2006	Hail	0.75	0	0	\$0	
Logan	10/11/2006	Hail	1	0	0	\$0	
Logan	10/11/2006	Hail	1.25	0	0	\$0	
Lincoln	3/14/2007	Hail	1	0	0	\$0	
Wayne	5/2/2007	Hail	0.75	0	0	\$0	
Mason	6/13/2007	Hail	0.88	0	0	\$0	



TABLE 5.1.I HAIL EVENTS (NCEI)							
County	Date	Туре	Magnitude	Deaths	Injuries	Damage to Property	
Mason	7/24/2007	Hail	0.75	0	0	\$0	
Mason	7/24/2007	Hail	0.88	0	0	\$0	
Mason	7/26/2007	Hail	0.75	0	0	\$0	
Mingo	4/11/2008	Hail	1.75	0	0	\$5,000	
Mingo	5/9/2008	Hail	0.88	0	0	\$0	
Mingo	5/9/2008	Hail	1	0	0	\$0	
Mingo	5/9/2008	Hail	1.25	0	0	\$0	
Mingo	5/9/2008	Hail	1.75	0	0	\$5,000	
Lincoln	5/9/2008	Hail	1.75	0	0	\$0	
Cabell	5/9/2008	Hail	0.75	0	0	\$0	
Cabell	6/1/2008	Hail	0.88	0	0	\$0	
Cabell	6/1/2008	Hail	0.88	0	0	\$0	
Mason	6/4/2008	Hail	0.75	0	0	\$0	
Mason	6/4/2008	Hail	0.88	0	0	\$0	
Mingo	6/9/2008	Hail	1	0	0	\$0	
Mingo	6/9/2008	Hail	0.75	0	0	\$0	
Mingo	6/9/2008	Hail	1	0	0	\$0	
Mingo	6/9/2008	Hail	0.75	0	0	\$0	
Logan	6/9/2008	Hail	0.88	0	0	\$0	
Mingo	6/9/2008	Hail	0.88	0	0	\$0	
Cabell	6/16/2008	Hail	0.88	0	0	\$0	
Cabell	6/16/2008	Hail	0.75	0	0	\$0	
Lincoln	6/16/2008	Hail	1	0	0	\$0	
Wayne	6/16/2008	Hail	1.75	0	0	\$5,000	
Wayne	6/16/2008	Hail	1	0	0	\$0	
Wayne	6/16/2008	Hail	1	0	0	\$0	
Logan	6/16/2008	Hail	0.88	0	0	\$0	
Mingo	6/16/2008	Hail	0.88	0	0	\$0	
Logan	6/16/2008	Hail	1.75	0	0	\$0	
Logan	6/16/2008	Hail	1.75	0	0	\$20,000	
Mingo	6/16/2008	Hail	1	0	0	\$0	
Cabell	6/22/2008	Hail	1	0	0	\$0	
Cabell	6/22/2008	Hail	0.75	0	0	\$0	
Mason	6/23/2008	Hail	0.75	0	0	\$0	
Mason	6/23/2008	Hail	0.88	0	0	\$0	
Logan	6/27/2008	Hail	0.88	0	0	\$0	
Wayne	6/30/2008	Hail	0.75	0	0	\$0	
Mingo	7/22/2008	Hail	0.75	0	0	\$0	
Logan	4/5/2009	Hail	0.75	0	0	\$0	
Logan	4/5/2009	Hail	0.88	0	0	\$0	
Wayne	4/10/2009	Hail	0.88	0	0	\$0	
Mason	5/26/2009	Hail	0.88	0	0	\$0	
Lincoln	5/30/2009	Hail	0.75	0	0	\$0	
Cabell	5/30/2009	Hail	1.75	0	0	\$10,000	
Cabell	5/30/2009	Hail	1	0	0	\$0	



TABLE 5.1.I HAIL EVENTS (NCEI)							
County	Date	Туре	Magnitude	Deaths	Injuries	Damage to Property	
Cabell	5/30/2009	Hail	1.75	0	0	\$25,000	
Cabell	5/30/2009	Hail	0.88	0	0	\$0	
Cabell	5/30/2009	Hail	1	0	0	\$0	
Wayne	5/30/2009	Hail	1	0	0	\$0	
Wayne	5/30/2009	Hail	1	0	0	\$2,000	
Wayne	5/30/2009	Hail	1.75	0	0	\$10,000	
Cabell	5/30/2009	Hail	0.75	0	0	\$0	
Wayne	5/30/2009	Hail	1	0	0	\$0	
Mingo	5/31/2009	Hail	0.88	0	0	\$0	
Mason	6/2/2009	Hail	1	0	0	\$0	
Mason	6/2/2009	Hail	1	0	0	\$0	
Mingo	6/2/2009	Hail	1	0	0	\$0	
Lincoln	6/8/2009	Hail	0.75	0	0	\$0	
Lincoln	4/5/2010	Hail	1	0	0	\$0	
Wayne	4/5/2010	Hail	0.75	0	0	\$0	
Lincoln	4/5/2010	Hail	0.75	0	0	\$0	
Lincoln	4/5/2010	Hail	1	0	0	\$0	
Mason	4/5/2010	Hail	1.25	0	0	\$0	
Mason	4/5/2010	Hail	1	0	0	\$0	
Mason	4/5/2010	Hail	1	0	0	\$0	
Mingo	5/14/2010	Hail	1	0	0	\$0	
Mingo	5/14/2010	Hail	1.75	0	0	\$0	
Lincoln	5/14/2010	Hail	1.25	0	0	\$0	
Mingo	5/14/2010	Hail	1.25	0	0	\$0	
Mingo	2/28/2011	Hail	1	0	0	\$0	
Mingo	2/28/2011	Hail	1	0	0	\$0	
Mingo	2/28/2011	Hail	0.75	0	0	\$0	
Mason	3/21/2011	Hail	0.88	0	0	\$0	
Cabell	3/21/2011	Hail	0.75	0	0	\$0	
Lincoln	3/23/2011	Hail	0.88	0	0	\$0	
Lincoln	3/23/2011	Hail	0.75	0	0	\$0	
Lincoln	4/4/2011	Hail	0.75	0	0	\$0	
Wayne	4/8/2011	Hail	0.75	0	0	\$0	
Wayne	4/8/2011	Hail	1.75	0	0	\$5,000	
Mason	4/8/2011	Hail	0.88	0	0	\$0	
Mason	4/8/2011	Hail	0.75	0	0	\$0	
Lincoln	4/8/2011	Hail	1	0	0	\$0	
Lincoln	4/8/2011	Hail	1	0	0	\$0	
Logan	4/8/2011	Hail	1	0	0	\$0	
Logan	4/8/2011	Hail	0.88	0	0	\$0	
Logan	4/8/2011	Hail	1	0	0	\$0	
Logan	4/8/2011	Hail	1.25	0	0	\$0	
Logan	4/8/2011	Hail	0.75	0	0	\$0	
Logan	4/8/2011	Hail	0.88	0	0	\$0	
Logan	4/8/2011	Hail	1	0	0	\$0	



TABLE 5.1.I HAIL EVENTS (NCEI)							
County	Date	Туре	Magnitude	Deaths	Injuries	Damage to Property	
Wayne	4/9/2011	Hail	1	0	0	\$0	
Mingo	4/9/2011	Hail	1	0	0	\$0	
Mingo	4/9/2011	Hail	1	0	0	\$0	
Logan	4/9/2011	Hail	1.75	0	0	\$10,000	
Logan	4/9/2011	Hail	0.88	0	0	\$0	
Wayne	5/10/2011	Hail	0.75	0	0	\$0	
Cabell	5/10/2011	Hail	1	0	0	\$20,000	
Wayne	5/22/2011	Hail	1	0	0	\$0	
Wayne	5/22/2011	Hail	1	0	0	\$0	
Wayne	6/21/2011	Hail	0.88	0	0	\$0	
Lincoln	6/21/2011	Hail	1	0	0	\$0	
Wayne	6/23/2011	Hail	0.88	0	0	\$0	
Mingo	9/3/2011	Hail	0.88	0	0	\$0	
Lincoln	9/3/2011	Hail	0.88	0	0	\$0	
Mason	9/14/2011	Hail	0.88	0	0	\$0	
Cabell	9/26/2011	Hail	1	0	0	\$1,000	
Cabell	9/26/2011	Hail	0.88	0	0	\$0	
Cabell	9/26/2011	Hail	1	0	0	\$0	
Mingo	3/2/2012	Hail	1.5	0	0	\$5,000	
Wayne	3/2/2012	Hail	1.75	0	0	\$10,000	
Wayne	3/2/2012	Hail	1.75	0	0	\$10,000	
Wayne	3/2/2012	Hail	1.75	0	0	\$5,000	
Logan	3/2/2012	Hail	1	0	0	\$3,000	
Logan	3/2/2012	Hail	0.75	0	0	\$3,000	
Wayne	3/2/2012	Hail	1.75	0	0	\$0	
Lincoln	3/2/2012	Hail	1.75	0	0	\$5,000	
Cabell	3/15/2012	Hail	0.75	0	0	\$0	
Lincoln	3/15/2012	Hail	0.88	0	0	\$0	
Lincoln	3/15/2012	Hail	0.88	0	0	\$0	
Wayne	3/28/2012	Hail	1	0	0	\$0	
Wayne	3/28/2012	Hail	1	0	0	\$0	
Cabell	3/28/2012	Hail	0.75	0	0	\$0	
Cabell	3/28/2012	Hail	1	0	0	\$0	
Wayne	3/28/2012	Hail	0.88	0	0	\$0	
Mason	3/28/2012	Hail	1.25	0	0	\$0	
Logan	4/26/2012	Hail	1	0	0	\$2,000	
Logan	4/26/2012	Hail	1.25	0	0	\$10,000	
Logan	4/26/2012	Hail	0.88	0	0	\$0	
Mingo	5/4/2012	Hail	0.88	0	0	\$0	
Logan	8/1/2012	Hail	0.88	0	0	\$0	
Mason	9/26/2012	Hail	1	0	0	\$0	
Wayne	9/26/2012	Hail	0.88	0	0	\$0	
Logan	10/18/2012	Hail	1	0	0	\$700,000	
Logan	10/18/2012	Hail	1	0	0	\$0	
Mason	5/27/2014	Hail	1	0	0	\$0	



	TABLE 5.1.I HAIL EVENTS (NCEI)								
County	Date	Туре	Magnitude	Deaths	Injuries	Damage to Property			
Cabell	7/8/2014	Hail	0.88	0	0	\$0			
Lincoln	10/7/2014	Hail	1	0	0	\$0			
Mingo	4/8/2015	Hail	1.25	0	0	\$20,000			
Mingo	4/8/2015	Hail	1.25	0	0	\$0			
Lincoln	5/11/2015	Hail	0.88	0	0	\$0			
Mingo	6/1/2015	Hail	1	0	0	\$0			
Wayne	6/8/2015	Hail	0.88	0	0	\$0			
Wayne	6/25/2015	Hail	1.5	0	0	\$10,000			
Cabell	6/26/2015	Hail	1	0	0	\$5,000			
Wayne	4/22/2016	Hail	0.75	0	0	\$0			
Wayne	5/1/2016	Hail	1	0	0	\$0			
Mason	5/1/2016	Hail	1	0	0	\$0			
Mingo	5/1/2016	Hail	1.75	0	0	\$20,000			
Logan	5/1/2016	Hail	2	0	0	\$50,000			
Lincoln	5/1/2016	Hail	1.75	0	0	\$25,000			
Lincoln	5/1/2016	Hail	1	0	0	\$0			
Logan	5/1/2016	Hail	1	0	0	\$0			
Mingo	5/2/2016	Hail	1	0	0	\$0			
Mingo	6/16/2016	Hail	0.75	0	0	\$0			
Mason	6/21/2016	Hail	1.75	0	0	\$0			
Total				0	0	\$2,347,000			

	TABLE 5.1.J HEAVY RAIN EVENTS (NCEI)						
County	Date	Туре	Deaths	Injuries	Damage to Property		
Mason	5/5/1996	Heavy Rain	1	0	\$0		
Cabell	7/9/1997	Heavy Rain	1	0	\$0		
Cabell	9/1/1998	Heavy Rain	0	0	\$0		
Mason	9/1/1998	Heavy Rain	0	0	\$0		
Wayne	9/1/1998	Heavy Rain	0	0	\$0		
Logan	10/1/1998	Heavy Rain	0	0	\$0		
Cabell	1/1/1999	Heavy Rain	0	0	\$0		
Lincoln	1/1/1999	Heavy Rain	0	0	\$0		
Logan	1/1/1999	Heavy Rain	0	0	\$0		
Mason	1/1/1999	Heavy Rain	0	0	\$0		
Mingo	1/1/1999	Heavy Rain	0	0	\$0		
Wayne	1/1/1999	Heavy Rain	0	0	\$0		
Cabell	10/1/2000	Heavy Rain	0	0	\$0		
Lincoln	10/1/2000	Heavy Rain	0	0	\$0		
Logan	10/1/2000	Heavy Rain	0	0	\$0		
Mason	10/1/2000	Heavy Rain	0	0	\$0		
Mingo	10/1/2000	Heavy Rain	0	0	\$0		
Wayne	10/1/2000	Heavy Rain	0	0	\$0		
Cabell	11/1/2000	Heavy Rain	0	0	\$0		



TABLE 5.1.J HEAVY RAIN EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property		
Lincoln	11/1/2000	Heavy Rain	0	0	\$0		
Logan	11/1/2000	Heavy Rain	0	0	\$0		
Mason	11/1/2000	Heavy Rain	0	0	\$0		
Mingo	11/1/2000	Heavy Rain	0	0	\$0		
Wayne	11/1/2000	Heavy Rain	0	0	\$0		
Cabell	1/18/2001	Heavy Rain	0	0	\$0		
Lincoln	1/18/2001	Heavy Rain	0	0	\$0		
Logan	1/18/2001	Heavy Rain	0	0	\$0		
Mingo	1/18/2001	Heavy Rain	0	0	\$0		
Wayne	1/18/2001	Heavy Rain	0	0	\$0		
Cabell	5/1/2001	Heavy Rain	0	0	\$0		
Lincoln	5/1/2001	Heavy Rain	0	0	\$0		
Mason	5/1/2001	Heavy Rain	0	0	\$0		
Wayne	5/1/2001	Heavy Rain	0	0	\$0		
Cabell	9/1/2001	Heavy Rain	0	0	\$0		
Wayne	9/1/2001	Heavy Rain	0	0	\$0		
Mingo	10/1/2001	Heavy Rain	0	0	\$0		
Logan	11/1/2001	Heavy Rain	0	0	\$0		
Mingo	11/1/2001	Heavy Rain	0	0	\$0		
Cabell	2/1/2002	Heavy Rain	0	0	\$0		
Lincoln	2/1/2002	Heavy Rain	0	0	\$0		
Logan	2/1/2002	Heavy Rain	0	0	\$0		
Mason	2/1/2002	Heavy Rain	0	0	\$0		
Minao	2/1/2002	Heavy Rain	0	0	\$0		
Wayne	2/1/2002	Heavy Rain	0	0	\$0		
Cabell	3/1/2002	Heavy Rain	0	0	\$0		
Wavne	3/1/2002	Heavy Rain	0	0	\$0		
Minao	8/1/2002	Heavy Rain	0	0	\$0		
Wayne	8/1/2002	Heavy Rain	0	0	\$0		
Cabell	8/1/2002	Heavy Rain	0	0	\$0		
Lincoln	8/1/2002	Heavy Rain	0	0	\$0		
Logan	8/1/2002	Heavy Rain	0	0	\$0		
Mason	8/1/2002	Heavy Rain	0	0	\$0		
Cabell	10/1/2002	Heavy Rain	0	0	\$0		
Lincoln	10/1/2002	Heavy Rain	0	0	\$0		
Logan	10/1/2002	Heavy Rain	0	0	\$0		
Mason	10/1/2002	Heavy Rain	0	0	\$0		
Minao	10/1/2002	Heavy Rain	0	0	\$0		
Wavne	10/1/2002	Heavy Rain	0	0	\$0		
Wavne	5/4/2009	Heavy Rain	0	0	\$3,000		
Lincoln	5/4/2009	Heavy Rain	0	0	\$3.000		
Cabell	6/10/2009	Heavy Rain	0	0	\$5.000		
Wavne	7/11/2009	Heavy Rain	0	0	\$15,000		
Cabell	7/31/2009	Heavy Rain	0	0	\$1,000		
Cabell	9/26/2009	Heavy Rain	0	0	\$0		



TABLE 5.1.J HEAVY RAIN EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property		
Cabell	8/19/2011	Heavy Rain	0	0	\$25,000		
Mason	1/30/2013	Heavy Rain	1	0	\$0		
Mason	6/13/2013	Heavy Rain	0	0	\$400,000		
Wayne	7/6/2013	Heavy Rain	0	0	\$5,000		
Cabell	7/21/2013	Heavy Rain	0	0	\$20,000		
Lincoln	7/4/2015	Heavy Rain	1	0	\$0		
Wayne	6/12/2016	Heavy Rain	0	0	\$5,000		
		Total	4	0	\$482,000		

	TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property			
Cabell	3/22/1955	Thunderstorm Wind	0	0	\$0			
Wayne	7/4/1966	Thunderstorm Wind	0	0	\$0			
Wayne	5/28/1967	Thunderstorm Wind	0	0	\$0			
Wayne	4/23/1968	Thunderstorm Wind	0	0	\$0			
Wayne	6/12/1968	Thunderstorm Wind	0	0	\$0			
Mason	7/22/1968	Thunderstorm Wind	0	0	\$0			
Cabell	8/14/1968	Thunderstorm Wind	0	0	\$0			
Mason	6/7/1969	Thunderstorm Wind	0	0	\$0			
Mason	6/25/1971	Thunderstorm Wind	0	0	\$0			
Logan	3/5/1974	Thunderstorm Wind	0	0	\$0			
Cabell	4/14/1974	Thunderstorm Wind	0	0	\$0			
Cabell	8/2/1974	Thunderstorm Wind	0	0	\$0			
Wayne	12/5/1977	Thunderstorm Wind	0	0	\$0			
Mingo	4/8/1980	Thunderstorm Wind	0	0	\$0			
Logan	4/8/1980	Thunderstorm Wind	0	0	\$0			
Cabell	7/9/1980	Thunderstorm Wind	0	0	\$0			
Cabell	4/17/1981	Thunderstorm Wind	0	0	\$0			
Mason	5/14/1981	Thunderstorm Wind	0	0	\$0			
Cabell	6/21/1981	Thunderstorm Wind	0	0	\$0			
Lincoln	6/21/1981	Thunderstorm Wind	0	0	\$0			
Mason	6/16/1982	Thunderstorm Wind	0	0	\$0			
Cabell	3/27/1983	Thunderstorm Wind	0	0	\$0			
Mason	3/27/1983	Thunderstorm Wind	0	0	\$0			
Wayne	3/27/1983	Thunderstorm Wind	0	0	\$0			
Mason	8/1/1983	Thunderstorm Wind	0	0	\$0			
Mason	8/1/1983	Thunderstorm Wind	0	0	\$0			
Cabell	8/8/1983	Thunderstorm Wind	0	0	\$0			
Mason	8/11/1983	Thunderstorm Wind	0	0	\$0			
Logan	6/16/1984	Thunderstorm Wind	0	0	\$0			
Logan	7/12/1986	Thunderstorm Wind	0	0	\$0			
Mason	7/14/1986	Thunderstorm Wind	0	0	\$0			
Lincoln	7/20/1986	Thunderstorm Wind	0	0	\$0			



	TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property			
Mason	8/5/1989	Thunderstorm Wind	0	0	\$0			
Cabell	8/5/1989	Thunderstorm Wind	0	0	\$0			
Lincoln	8/5/1989	Thunderstorm Wind	0	0	\$0			
Mason	6/8/1990	Thunderstorm Wind	0	0	\$0			
Mason	6/9/1990	Thunderstorm Wind	0	0	\$0			
Mingo	9/7/1990	Thunderstorm Wind	0	0	\$0			
Lincoln	4/9/1991	Thunderstorm Wind	0	0	\$0			
Wayne	4/9/1991	Thunderstorm Wind	0	0	\$0			
Mason	4/9/1991	Thunderstorm Wind	0	0	\$0			
Cabell	4/9/1991	Thunderstorm Wind	1	0	\$0			
Mingo	4/9/1991	Thunderstorm Wind	0	0	\$0			
Logan	4/9/1991	Thunderstorm Wind	0	0	\$0			
Mason	7/12/1991	Thunderstorm Wind	0	0	\$0			
Cabell	7/13/1991	Thunderstorm Wind	0	0	\$0			
Mason	7/23/1991	Thunderstorm Wind	0	0	\$0			
Cabell	7/23/1991	Thunderstorm Wind	0	0	\$0			
Lincoln	7/23/1991	Thunderstorm Wind	0	0	\$0			
Wayne	7/23/1991	Thunderstorm Wind	0	0	\$0			
Cabell	7/23/1991	Thunderstorm Wind	0	0	\$0			
Cabell	7/23/1991	Thunderstorm Wind	0	0	\$0			
Logan	4/24/1992	Thunderstorm Wind	0	0	\$0			
Mason	6/24/1992	Thunderstorm Wind	0	0	\$0			
Cabell	6/24/1992	Thunderstorm Wind	0	3	\$0			
Wayne	7/9/1992	Thunderstorm Wind	0	0	\$0			
Cabell	7/11/1992	Thunderstorm Wind	0	0	\$0			
Mason	7/11/1992	Thunderstorm Wind	0	0	\$0			
Mason	7/18/1992	Thunderstorm Wind	0	0	\$0			
Cabell	7/18/1992	Thunderstorm Wind	0	0	\$0			
Wayne	7/21/1992	Thunderstorm Wind	0	0	\$0			
Wayne	7/30/1992	Thunderstorm Wind	0	0	\$0			
Wayne	7/31/1992	Thunderstorm Wind	0	0	\$0			
Cabell	2/21/1993	Thunderstorm Wind	0	0	\$50,000			
Wayne	2/21/1993	Thunderstorm Wind	0	0	\$5,000			
Wayne	2/21/1993	Thunderstorm Wind	0	0	\$500,000			
Lincoln	2/21/1993	Thunderstorm Wind	0	0	\$50,000			
Mason	2/21/1993	Thunderstorm Wind	0	0	\$5,000			
Cabell	4/15/1993	Thunderstorm Wind	0	0	\$5,000			
Wayne	4/15/1993	Thunderstorm Wind	0	0	\$5,000			
Mason	4/15/1993	Thunderstorm Wind	0	0	\$5,000			
Mason	5/11/1993	Thunderstorm Wind	0	0	\$0			
Cabell	5/12/1993	Thunderstorm Wind	0	0	\$0			
Cabell	5/12/1993	Thunderstorm Wind	0	0	\$0			
Wayne	5/12/1993	Thunderstorm Wind	0	0	\$0			
Logan	5/18/1993	Thunderstorm Wind	0	0	\$5,000			
Wayne	9/25/1993	Thunderstorm Wind	0	0	\$5,000			



	TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property			
Cabell	11/17/1993	Thunderstorm Wind	0	0	\$50,000			
Cabell	11/17/1993	Thunderstorm Wind	0	0	\$50,000			
Wayne	11/17/1993	Thunderstorm Wind	0	0	\$50,000			
Cabell	4/15/1994	Thunderstorm Wind	0	0	\$0			
Mason	4/26/1994	Thunderstorm Wind	0	0	\$0			
Cabell	4/28/1994	Thunderstorm Wind	0	0	\$0			
Wayne	4/29/1994	Thunderstorm Wind	0	0	\$0			
Cabell	6/7/1994	Thunderstorm Wind	0	0	\$5,000			
Cabell	6/7/1994	Thunderstorm Wind	0	0	\$0			
Mason	6/7/1994	Thunderstorm Wind	0	0	\$5,000			
Logan	6/11/1994	Thunderstorm Wind	0	0	\$5,000			
Lincoln	6/20/1994	Thunderstorm Wind	0	0	\$5,000			
Mason	7/29/1994	Thunderstorm Wind	0	0	\$0			
Cabell	9/25/1994	Thunderstorm Wind	0	0	\$0			
Cabell	5/10/1995	Thunderstorm Wind	0	0	\$15,000			
Wayne	5/10/1995	Thunderstorm Wind	0	0	\$5,000			
Mason	5/10/1995	Thunderstorm Wind	0	0	\$15,000			
Cabell	5/18/1995	Thunderstorm Wind	0	0	\$25,000			
Mingo	5/18/1995	Thunderstorm Wind	0	0	\$20,000			
Wayne	5/18/1995	Thunderstorm Wind	0	1	\$30,000			
Lincoln	5/18/1995	Thunderstorm Wind	0	0	\$15,000			
Cabell	6/8/1995	Thunderstorm Wind	0	0	\$35,000			
Wayne	6/8/1995	Thunderstorm Wind	0	0	\$10,000			
Wayne	6/8/1995	Thunderstorm Wind	0	0	\$20,000			
Wayne	6/8/1995	Thunderstorm Wind	0	0	\$5,000			
Lincoln	6/8/1995	Thunderstorm Wind	0	0	\$5,000			
Logan	6/8/1995	Thunderstorm Wind	0	0	\$10,000			
Cabell	6/10/1995	Thunderstorm Wind	0	0	\$10,000			
Mason	6/10/1995	Thunderstorm Wind	0	0	\$10,000			
Logan	6/11/1995	Thunderstorm Wind	0	0	\$0			
Cabell	6/29/1995	Thunderstorm Wind	0	0	\$10,000			
Logan	8/1/1995	Thunderstorm Wind	0	0	\$0			
Mingo	4/20/1996	Thunderstorm Wind	0	0	\$20,000			
Wayne	4/20/1996	Thunderstorm Wind	0	0	\$0			
Cabell	4/23/1996	Thunderstorm Wind	0	0	\$50,000			
Cabell	4/23/1996	Thunderstorm Wind	0	0	\$0			
Mason	4/23/1996	Thunderstorm Wind	0	0	\$5,000			
Mason	4/23/1996	Thunderstorm Wind	0	0	\$15,000			
Cabell	4/26/1996	Strong Wind	0	0	\$10,000			
Wayne	5/4/1996	Thunderstorm Wind	0	0	\$5,000			
Wayne	5/4/1996	Thunderstorm Wind	0	0	\$3,000			
Mason	5/4/1996	Thunderstorm Wind	0	0	\$10,000			
Wayne	5/8/1996	Thunderstorm Wind	0	0	\$10,000			
Cabell	5/27/1996	Thunderstorm Wind	0	0	\$5,000			
Wayne	5/27/1996	Thunderstorm Wind	0	0	\$3,000			



TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property		
Wayne	5/27/1996	Thunderstorm Wind	0	0	\$30,000		
Lincoln	5/27/1996	Thunderstorm Wind	0	0	\$15,000		
Wayne	6/8/1996	Thunderstorm Wind	0	0	\$1,000		
Cabell	6/8/1996	Thunderstorm Wind	0	0	\$5,000		
Cabell	6/22/1996	Thunderstorm Wind	0	0	\$3,000		
Logan	6/22/1996	Thunderstorm Wind	0	0	\$5,000		
Logan	6/22/1996	Thunderstorm Wind	0	0	\$25,000		
Cabell	6/24/1996	Thunderstorm Wind	0	0	\$5,000		
Mason	6/24/1996	Thunderstorm Wind	0	0	\$1,000		
Wayne	6/24/1996	Thunderstorm Wind	0	0	\$1,000		
Lincoln	6/24/1996	Thunderstorm Wind	0	0	\$3,000		
Lincoln	7/2/1996	Thunderstorm Wind	0	0	\$200,000		
Cabell	7/2/1996	Thunderstorm Wind	0	0	\$3,000		
Mason	8/8/1996	Thunderstorm Wind	0	0	\$2,000		
Mingo	1/5/1997	Thunderstorm Wind	0	0	\$1,000		
Logan	1/5/1997	Thunderstorm Wind	0	0	\$1,000		
Mason	7/2/1997	Thunderstorm Wind	0	0	\$20,000		
Lincoln	7/2/1997	Thunderstorm Wind	0	0	\$2,000		
Lincoln	7/2/1997	Thunderstorm Wind	0	0	\$5,000		
Logan	7/2/1997	Thunderstorm Wind	0	0	\$2,000		
Mingo	7/2/1997	Thunderstorm Wind	0	0	\$1,000		
Cabell	7/9/1997	Thunderstorm Wind	0	0	\$3,000		
Wayne	7/9/1997	Thunderstorm Wind	0	0	\$2,000		
Wayne	7/22/1997	Thunderstorm Wind	0	0	\$3,000		
Mason	7/28/1997	Thunderstorm Wind	0	0	\$2,000		
Mason	7/28/1997	Thunderstorm Wind	0	0	\$5,000		
Cabell	7/28/1997	Thunderstorm Wind	0	0	\$5,000		
Cabell	7/28/1997	Thunderstorm Wind	0	0	\$5,000		
Cabell	7/28/1997	Thunderstorm Wind	0	0	\$5,000		
Mason	8/4/1997	Thunderstorm Wind	0	0	\$2,000		
Cabell	8/17/1997	Thunderstorm Wind	0	0	\$2,000		
Mason	8/17/1997	Thunderstorm Wind	0	0	\$2,000		
Mason	8/17/1997	Thunderstorm Wind	0	0	\$15,000		
Cabell	8/17/1997	Thunderstorm Wind	0	0	\$2,000		
Wayne	8/17/1997	Thunderstorm Wind	0	0	\$2,000		
Wayne	8/17/1997	Thunderstorm Wind	0	0	\$2,000		
Wayne	8/17/1997	Thunderstorm Wind	0	0	\$2,000		
Wayne	8/17/1997	Thunderstorm Wind	0	0	\$1,000		
Cabell	8/17/1997	Thunderstorm Wind	0	0	\$15,000		
Lincoln	8/17/1997	Thunderstorm Wind	0	0	\$2,000		
Wayne	2/17/1998	Thunderstorm Wind	0	0	\$3,000		
Wayne	4/15/1998	Thunderstorm Wind	0	0	\$5,000		
Mingo	5/20/1998	Thunderstorm Wind	0	0	\$2,000		
Cabell	5/24/1998	Thunderstorm Wind	0	0	\$50,000		
Mason	6/15/1998	Thunderstorm Wind	0	0	\$2,000		



TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property		
Cabell	6/16/1998	Thunderstorm Wind	0	0	\$5,000		
Mingo	6/24/1998	Thunderstorm Wind	0	0	\$2,000		
Mason	6/29/1998	Thunderstorm Wind	0	0	\$10,000		
Mason	9/7/1998	Thunderstorm Wind	0	0	\$1,000		
Wayne	1/18/1999	Thunderstorm Wind	0	0	\$2,000		
Wayne	1/18/1999	Thunderstorm Wind	0	0	\$2,000		
Mingo	1/18/1999	Thunderstorm Wind	0	0	\$2,000		
Cabell	2/7/1999	Strong Wind	0	0	\$0		
Wayne	2/7/1999	Strong Wind	0	0	\$0		
Mingo	4/8/1999	Thunderstorm Wind	0	0	\$2,000		
Mingo	4/8/1999	Thunderstorm Wind	0	1	\$5,000		
Cabell	4/9/1999	Thunderstorm Wind	0	0	\$2,000		
Cabell	4/16/1999	Strong Wind	0	0	\$0		
Lincoln	4/16/1999	Strong Wind	0	0	\$0		
Logan	4/16/1999	Strong Wind	0	0	\$0		
Mason	4/16/1999	Strong Wind	0	0	\$0		
Mingo	4/16/1999	Strong Wind	0	0	\$0		
Wayne	4/16/1999	Strong Wind	0	0	\$0		
Mingo	4/23/1999	Thunderstorm Wind	0	0	\$5,000		
Mingo	7/25/1999	Thunderstorm Wind	0	0	\$2,000		
Mason	7/30/1999	Thunderstorm Wind	0	0	\$10,000		
Wayne	7/30/1999	Thunderstorm Wind	0	0	\$2,000		
Wayne	7/30/1999	Thunderstorm Wind	0	0	\$2,000		
Cabell	8/13/1999	Thunderstorm Wind	0	0	\$2,000		
Lincoln	8/13/1999	Thunderstorm Wind	0	0	\$3,000		
Mingo	8/13/1999	Thunderstorm Wind	0	0	\$5,000		
Lincoln	8/19/1999	Thunderstorm Wind	0	0	\$15,000		
Lincoln	10/13/1999	Thunderstorm Wind	0	0	\$15,000		
Wayne	10/13/1999	Thunderstorm Wind	0	0	\$0		
Wayne	10/13/1999	Thunderstorm Wind	0	0	\$20,000		
Cabell	10/13/1999	Thunderstorm Wind	0	0	\$5,000		
Cabell	1/10/2000	High Wind	0	0	\$0		
Lincoln	1/10/2000	High Wind	0	0	\$0		
Logan	1/10/2000	High Wind	0	0	\$0		
Mason	1/10/2000	High Wind	0	0	\$0		
Mingo	1/10/2000	High Wind	0	0	\$0		
Wayne	1/10/2000	High Wind	0	0	\$0		
Cabell	1/11/2000	High Wind	0	0	\$0		
Lincoln	1/11/2000	High Wind	0	0	\$0		
Logan	1/11/2000	High Wind	0	0	\$0		
Mason	1/11/2000	High Wind	0	0	\$0		
Mingo	1/11/2000	High Wind	0	0	\$0		
Wayne	1/11/2000	High Wind	0	0	\$0		
Logan	5/28/2000	Thunderstorm Wind	0	0	\$1,000		
Lincoln	6/14/2000	Thunderstorm Wind	0	0	\$2,000		



	TABLE 5.1.K WIND EVENTS (NCEI)						
County	Date	Туре	Deaths	Injuries	Damage to Property		
Lincoln	6/14/2000	Thunderstorm Wind	0	0	\$1,000		
Logan	6/15/2000	Thunderstorm Wind	0	0	\$5,000		
Mason	6/15/2000	Thunderstorm Wind	0	0	\$1,000		
Wayne	6/21/2000	Thunderstorm Wind	0	0	\$1,000		
Lincoln	7/10/2000	Thunderstorm Wind	0	0	\$5,000		
Mingo	7/10/2000	Thunderstorm Wind	0	0	\$4,000		
Lincoln	7/14/2000	Thunderstorm Wind	0	0	\$2,000		
Cabell	7/14/2000	Thunderstorm Wind	0	0	\$15,000		
Cabell	7/28/2000	Thunderstorm Wind	0	0	\$200,000		
Wayne	7/28/2000	Thunderstorm Wind	0	0	\$1,000		
Logan	7/28/2000	Thunderstorm Wind	0	0	\$3,000		
Wayne	7/29/2000	Thunderstorm Wind	0	0	\$1,000		
Wayne	7/29/2000	Thunderstorm Wind	0	0	\$1,000		
Lincoln	7/29/2000	Thunderstorm Wind	0	0	\$1,000		
Wayne	8/7/2000	Thunderstorm Wind	0	0	\$5,000		
Logan	8/7/2000	Thunderstorm Wind	0	0	\$2,000		
Mingo	8/7/2000	Thunderstorm Wind	0	0	\$5,000		
Mason	8/9/2000	Thunderstorm Wind	0	0	\$5,000		
Mason	8/9/2000	Thunderstorm Wind	0	0	\$2,000		
Mason	8/9/2000	Thunderstorm Wind	0	0	\$15,000		
Cabell	8/9/2000	Thunderstorm Wind	0	0	\$10,000		
Wayne	8/9/2000	Thunderstorm Wind	0	0	\$25,000		
Lincoln	8/9/2000	Thunderstorm Wind	0	0	\$10,000		
Wayne	8/27/2000	Thunderstorm Wind	0	0	\$3,000		
Mason	9/20/2000	Thunderstorm Wind	0	0	\$0		
Cabell	11/9/2000	High Wind	0	0	\$0		
Lincoln	11/9/2000	High Wind	0	0	\$0		
Logan	11/9/2000	High Wind	0	0	\$0		
Mason	11/9/2000	High Wind	0	0	\$0		
Mingo	11/9/2000	High Wind	0	0	\$0		
Wayne	11/9/2000	High Wind	0	0	\$0		
Lincoln	12/11/2000	High Wind	0	0	\$0		
Logan	12/11/2000	High Wind	0	0	\$0		
Mason	12/11/2000	High Wind	0	0	\$0		
Mingo	12/11/2000	High Wind	0	0	\$0		
Wayne	12/11/2000	High Wind	0	0	\$0		
Cabell	12/11/2000	High Wind	0	0	\$0		
Cabell	2/9/2001	High Wind	0	0	\$0		
Lincoln	2/9/2001	High Wind	0	0	\$0		
Logan	2/9/2001	High Wind	0	0	\$0		
Mason	2/9/2001	High Wind	0	0	\$0		
Mingo	2/9/2001	High Wind	0	0	\$0		
Wayne	2/9/2001	High Wind	0	0	\$0		
Cabell	2/25/2001	High Wind	0	0	\$0		
Lincoln	2/25/2001	High Wind	0	0	\$0		



	TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property			
Logan	2/25/2001	High Wind	0	0	\$0			
Mason	2/25/2001	High Wind	0	0	\$0			
Mingo	2/25/2001	High Wind	0	0	\$0			
Wayne	2/25/2001	High Wind	0	0	\$0			
Cabell	3/13/2001	High Wind	0	0	\$0			
Lincoln	3/13/2001	High Wind	0	0	\$0			
Mason	3/13/2001	High Wind	0	0	\$0			
Wayne	3/13/2001	High Wind	0	0	\$0			
Mason	5/17/2001	Thunderstorm Wind	0	0	\$15,000			
Cabell	5/17/2001	Thunderstorm Wind	0	0	\$5,000			
Lincoln	5/17/2001	Thunderstorm Wind	0	0	\$1,000			
Lincoln	5/21/2001	Thunderstorm Wind	0	0	\$5,000			
Lincoln	5/21/2001	Thunderstorm Wind	0	0	\$2,000			
Logan	5/21/2001	Thunderstorm Wind	0	0	\$5,000			
Mason	6/6/2001	Thunderstorm Wind	0	0	\$2,000			
Cabell	6/6/2001	Thunderstorm Wind	0	0	\$3,000			
Lincoln	7/5/2001	Thunderstorm Wind	0	0	\$3,000			
Logan	10/24/2001	Thunderstorm Wind	0	0	\$3,000			
Cabell	12/14/2001	High Wind	0	0	\$0			
Lincoln	12/14/2001	High Wind	0	0	\$0			
Logan	12/14/2001	High Wind	0	0	\$0			
Mason	12/14/2001	High Wind	0	0	\$0			
Mingo	12/14/2001	High Wind	0	0	\$0			
Wayne	12/14/2001	High Wind	0	0	\$20,000			
Cabell	3/9/2002	High Wind	0	0	\$25,000			
Lincoln	3/9/2002	High Wind	0	0	\$1,000			
Mason	3/9/2002	High Wind	0	0	\$6,000			
Wayne	3/9/2002	High Wind	0	0	\$5,000			
Logan	5/2/2002	Thunderstorm Wind	0	0	\$2,000			
Mingo	5/2/2002	Thunderstorm Wind	0	0	\$10,000			
Mason	5/8/2002	Thunderstorm Wind	0	0	\$2,000			
Logan	5/13/2002	Thunderstorm Wind	0	0	\$1,000			
Mingo	6/25/2002	Thunderstorm Wind	0	0	\$1,000			
Wayne	11/10/2002	Thunderstorm Wind	0	0	\$1,000			
Lincoln	11/10/2002	Thunderstorm Wind	0	0	\$3,000			
Mason	11/10/2002	Thunderstorm Wind	0	0	\$1,000			
Mason	11/10/2002	Thunderstorm Wind	0	0	\$1,000			
Wayne	11/10/2002	Thunderstorm Wind	0	0	\$2,000			
Wayne	11/10/2002	Thunderstorm Wind	0	0	\$2,000			
Wayne	2/22/2003	Thunderstorm Wind	0	0	\$0			
Cabell	2/22/2003	Thunderstorm Wind	0	0	\$0			
Mingo	2/22/2003	Thunderstorm Wind	0	0	\$0			
Cabell	5/1/2003	Thunderstorm Wind	0	0	\$15,000			
Wayne	5/10/2003	Thunderstorm Wind	0	0	\$2,000			
Mingo	5/10/2003	Thunderstorm Wind	0	0	\$1,000			



	TABLE 5.1.K WIND EVENTS (NCEI)						
County	Date	Туре	Deaths	Injuries	Damage to Property		
Lincoln	7/6/2003	Thunderstorm Wind	0	0	\$0		
Mingo	7/9/2003	Thunderstorm Wind	0	0	\$0		
Logan	7/9/2003	Thunderstorm Wind	0	0	\$0		
Cabell	7/10/2003	Thunderstorm Wind	0	0	\$0		
Wayne	7/10/2003	Thunderstorm Wind	0	0	\$0		
Cabell	7/10/2003	Thunderstorm Wind	0	0	\$0		
Lincoln	7/10/2003	Thunderstorm Wind	0	0	\$0		
Lincoln	7/10/2003	Thunderstorm Wind	0	0	\$0		
Wayne	7/10/2003	Thunderstorm Wind	0	0	\$0		
Lincoln	8/4/2003	Thunderstorm Wind	0	0	\$0		
Mason	3/7/2004	Thunderstorm Wind	0	0	\$10,000		
Wayne	5/25/2004	Thunderstorm Wind	0	0	\$0		
Logan	5/25/2004	Thunderstorm Wind	0	0	\$0		
Mason	5/27/2004	Thunderstorm Wind	0	0	\$0		
Mason	5/27/2004	Thunderstorm Wind	0	0	\$0		
Mingo	5/30/2004	Thunderstorm Wind	0	0	\$0		
Wayne	5/31/2004	Thunderstorm Wind	0	0	\$0		
Cabell	5/31/2004	Thunderstorm Wind	0	0	\$0		
Logan	5/31/2004	Thunderstorm Wind	0	0	\$0		
Mingo	6/1/2004	Thunderstorm Wind	0	0	\$0		
Cabell	6/1/2004	Thunderstorm Wind	0	1	\$75,000		
Wayne	6/1/2004	Thunderstorm Wind	0	0	\$0		
Mason	6/1/2004	Thunderstorm Wind	0	0	\$0		
Lincoln	6/1/2004	Thunderstorm Wind	0	0	\$0		
Cabell	6/11/2004	Thunderstorm Wind	0	0	\$0		
Lincoln	6/11/2004	Thunderstorm Wind	0	0	\$0		
Mason	6/14/2004	Thunderstorm Wind	0	0	\$0		
Mason	6/14/2004	Thunderstorm Wind	0	0	\$0		
Mingo	8/4/2004	Thunderstorm Wind	0	0	\$0		
Cabell	12/7/2004	High Wind	0	0	\$0		
Mason	12/7/2004	High Wind	0	0	\$0		
Wayne	12/7/2004	High Wind	0	0	\$0		
Lincoln	12/10/2004	Thunderstorm Wind	0	0	\$0		
Mingo	5/13/2005	Thunderstorm Wind	0	0	\$0		
Lincoln	5/13/2005	Thunderstorm Wind	0	0	\$0		
Wayne	6/14/2005	Thunderstorm Wind	0	0	\$0		
Cabell	6/14/2005	Thunderstorm Wind	0	0	\$0		
Lincoln	6/14/2005	Thunderstorm Wind	0	0	\$0		
Logan	7/3/2005	Thunderstorm Wind	0	0	\$20,000		
Cabell	7/25/2005	Thunderstorm Wind	1	0	\$1,000		
Mason	7/25/2005	Thunderstorm Wind	0	0	\$1,000		
Cabell	7/27/2005	Thunderstorm Wind	0	0	\$0		
Mason	7/27/2005	Thunderstorm Wind	0	0	\$1,000		
Mason	8/5/2005	Thunderstorm Wind	0	0	\$0		
Wayne	4/7/2006	Thunderstorm Wind	0	0	\$0		



TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property		
Mingo	4/7/2006	Thunderstorm Wind	0	2	\$900,000		
Logan	4/7/2006	Thunderstorm Wind	0	1	\$50,000		
Cabell	4/20/2006	Thunderstorm Wind	0	0	\$0		
Mingo	6/4/2006	Thunderstorm Wind	0	0	\$0		
Mason	6/22/2006	Thunderstorm Wind	0	0	\$0		
Cabell	6/22/2006	Thunderstorm Wind	0	0	\$5,000		
Logan	6/23/2006	Thunderstorm Wind	0	0	\$0		
Cabell	7/3/2006	Thunderstorm Wind	0	0	\$0		
Lincoln	7/3/2006	Thunderstorm Wind	0	0	\$0		
Mason	7/4/2006	Thunderstorm Wind	0	0	\$5,000		
Wayne	7/4/2006	Thunderstorm Wind	0	0	\$0		
Lincoln	7/4/2006	Thunderstorm Wind	0	0	\$0		
Cabell	7/14/2006	Thunderstorm Wind	0	0	\$0		
Wayne	7/14/2006	Thunderstorm Wind	0	0	\$0		
Mason	7/14/2006	Thunderstorm Wind	0	0	\$0		
Wayne	7/21/2006	Thunderstorm Wind	0	0	\$5,000		
Cabell	7/21/2006	Thunderstorm Wind	0	0	\$0		
Cabell	7/21/2006	Thunderstorm Wind	0	0	\$0		
Lincoln	7/21/2006	Thunderstorm Wind	0	0	\$0		
Mingo	8/7/2006	Thunderstorm Wind	0	0	\$0		
Wayne	8/19/2006	Thunderstorm Wind	0	0	\$0		
Cabell	8/30/2006	Thunderstorm Wind	0	0	\$0		
Wayne	8/30/2006	Thunderstorm Wind	0	0	\$0		
Logan	3/14/2007	Thunderstorm Wind	0	0	\$0		
Mingo	6/24/2007	Thunderstorm Wind	0	0	\$0		
Cabell	6/27/2007	Thunderstorm Wind	0	0	\$1,000		
Mason	7/17/2007	Thunderstorm Wind	0	0	\$0		
Cabell	7/17/2007	Thunderstorm Wind	0	0	\$40,000		
Cabell	7/17/2007	Thunderstorm Wind	0	0	\$4,000		
Wayne	7/19/2007	Thunderstorm Wind	0	0	\$0		
Cabell	7/19/2007	Thunderstorm Wind	0	0	\$0		
Logan	7/19/2007	Thunderstorm Wind	0	0	\$0		
Wayne	7/19/2007	Thunderstorm Wind	0	0	\$0		
Lincoln	7/19/2007	Thunderstorm Wind	0	0	\$0		
Logan	7/19/2007	Thunderstorm Wind	0	0	\$0		
Wayne	7/26/2007	Thunderstorm Wind	0	0	\$0		
Wayne	7/26/2007	Thunderstorm Wind	0	0	\$0		
Lincoln	7/26/2007	Thunderstorm Wind	0	0	\$0		
Lincoln	7/26/2007	Thunderstorm Wind	0	1	\$0		
Logan	7/26/2007	Thunderstorm Wind	0	0	\$0		
Mingo	7/26/2007	Thunderstorm Wind	0	0	\$0		
Mason	7/27/2007	Thunderstorm Wind	0	0	\$0		
Cabell	8/16/2007	Thunderstorm Wind	0	0	\$0		
Mason	8/16/2007	Thunderstorm Wind	0	0	\$0		
Mason	8/16/2007	Thunderstorm Wind	0	0	\$0		



TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property		
Logan	8/16/2007	Thunderstorm Wind	0	0	\$0		
Mingo	8/16/2007	Thunderstorm Wind	0	0	\$0		
Cabell	1/29/2008	Thunderstorm Wind	0	0	\$1,000		
Mason	1/29/2008	Thunderstorm Wind	0	0	\$2,000		
Wayne	1/29/2008	Thunderstorm Wind	0	0	\$0		
Cabell	2/6/2008	Thunderstorm Wind	0	0	\$0		
Cabell	2/6/2008	Thunderstorm Wind	0	0	\$5,000		
Cabell	2/6/2008	Thunderstorm Wind	0	0	\$0		
Logan	2/6/2008	Thunderstorm Wind	0	0	\$0		
Mingo	2/6/2008	Thunderstorm Wind	0	0	\$0		
Mingo	4/11/2008	Thunderstorm Wind	0	0	\$2,000		
Logan	4/11/2008	Thunderstorm Wind	0	0	\$0		
Logan	4/11/2008	Thunderstorm Wind	0	1	\$200,000		
Cabell	5/11/2008	Thunderstorm Wind	0	0	\$0		
Lincoln	5/11/2008	Thunderstorm Wind	0	0	\$0		
Wayne	5/11/2008	Thunderstorm Wind	0	0	\$0		
Logan	5/11/2008	Thunderstorm Wind	0	0	\$0		
Mingo	5/11/2008	Thunderstorm Wind	0	0	\$0		
Logan	5/11/2008	Thunderstorm Wind	0	0	\$0		
Logan	5/11/2008	Thunderstorm Wind	0	0	\$0		
Mason	6/4/2008	Thunderstorm Wind	0	0	\$0		
Mason	6/4/2008	Thunderstorm Wind	0	0	\$0		
Wayne	6/4/2008	Thunderstorm Wind	0	0	\$0		
Cabell	6/4/2008	Thunderstorm Wind	0	0	\$0		
Cabell	6/4/2008	Thunderstorm Wind	0	0	\$0		
Mason	6/4/2008	Thunderstorm Wind	0	0	\$0		
Cabell	6/4/2008	Thunderstorm Wind	0	0	\$0		
Mason	6/12/2008	Thunderstorm Wind	0	0	\$0		
Lincoln	6/13/2008	Thunderstorm Wind	0	0	\$0		
Mason	6/28/2008	Thunderstorm Wind	0	0	\$2,000		
Lincoln	6/28/2008	Thunderstorm Wind	0	0	\$2,000		
Cabell	6/28/2008	Thunderstorm Wind	0	0	\$0		
Wayne	6/28/2008	Thunderstorm Wind	0	0	\$0		
Wayne	7/20/2008	Thunderstorm Wind	0	0	\$0		
Cabell	7/20/2008	Thunderstorm Wind	0	0	\$0		
Wayne	7/20/2008	Thunderstorm Wind	0	0	\$0		
Logan	7/22/2008	Thunderstorm Wind	0	0	\$0		
Logan	7/22/2008	Thunderstorm Wind	0	0	\$0		
Logan	2/11/2009	Thunderstorm Wind	0	0	\$5,000		
Logan	2/11/2009	Thunderstorm Wind	0	0	\$0		
Mason	2/11/2009	Thunderstorm Wind	0	0	\$0		
Wayne	2/11/2009	Thunderstorm Wind	0	0	\$10,000		
Cabell	2/11/2009	Thunderstorm Wind	0	0	\$10,000		
Mingo	2/11/2009	Thunderstorm Wind	0	0	\$10,000		
Mingo	2/11/2009	Thunderstorm Wind	0	0	\$15,000		



TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property		
Mason	2/11/2009	Thunderstorm Wind	0	0	\$5,000		
Logan	2/11/2009	Thunderstorm Wind	0	0	\$5,000		
Lincoln	2/11/2009	Thunderstorm Wind	0	0	\$20,000		
Lincoln	4/5/2009	Thunderstorm Wind	0	0	\$2,000		
Logan	4/5/2009	Thunderstorm Wind	0	0	\$15,000		
Mingo	4/5/2009	Thunderstorm Wind	0	0	\$2,000		
Logan	4/5/2009	Thunderstorm Wind	0	0	\$0		
Logan	4/5/2009	Thunderstorm Wind	0	0	\$0		
Logan	4/5/2009	Thunderstorm Wind	0	0	\$2,000		
Lincoln	5/28/2009	Thunderstorm Wind	0	0	\$0		
Wayne	5/30/2009	Thunderstorm Wind	0	0	\$0		
Lincoln	5/30/2009	Thunderstorm Wind	0	0	\$0		
Mingo	5/31/2009	Thunderstorm Wind	0	0	\$0		
Mingo	6/2/2009	Thunderstorm Wind	0	0	\$1,000		
Logan	6/2/2009	Thunderstorm Wind	0	0	\$0		
Logan	6/2/2009	Thunderstorm Wind	0	0	\$0		
Logan	6/2/2009	Thunderstorm Wind	0	0	\$0		
Mingo	7/25/2009	Thunderstorm Wind	0	0	\$0		
Mingo	7/25/2009	Thunderstorm Wind	0	0	\$0		
Mingo	5/8/2010	Thunderstorm Wind	0	0	\$0		
Cabell	6/21/2010	Thunderstorm Wind	0	0	\$2,000		
Wayne	6/21/2010	Thunderstorm Wind	0	0	\$10,000		
Lincoln	6/21/2010	Thunderstorm Wind	0	0	\$2,000		
Mingo	6/21/2010	Thunderstorm Wind	0	0	\$1,000		
Lincoln	6/23/2010	Thunderstorm Wind	0	0	\$3,000		
Cabell	6/27/2010	Thunderstorm Wind	0	0	\$10,000		
Cabell	6/27/2010	Thunderstorm Wind	0	0	\$15,000		
Lincoln	8/4/2010	Thunderstorm Wind	0	0	\$10,000		
Cabell	8/5/2010	Thunderstorm Wind	0	0	\$10,000		
Wayne	8/14/2010	Thunderstorm Wind	0	0	\$3,000		
Wayne	8/14/2010	Thunderstorm Wind	0	0	\$5,000		
Cabell	8/14/2010	Thunderstorm Wind	0	0	\$1,000		
Cabell	8/14/2010	Thunderstorm Wind	0	0	\$2,000		
Cabell	10/26/2010	Thunderstorm Wind	0	0	\$20,000		
Mason	10/26/2010	Thunderstorm Wind	0	0	\$2,000		
Mason	10/26/2010	Thunderstorm Wind	0	0	\$2,000		
Mason	10/26/2010	Thunderstorm Wind	0	0	\$2,000		
Mason	10/26/2010	Thunderstorm Wind	0	0	\$10,000		
Mingo	10/26/2010	Thunderstorm Wind	0	0	\$1,000		
Mingo	10/26/2010	Thunderstorm Wind	0	0	\$1,000		
Lincoln	10/26/2010	Thunderstorm Wind	0	0	\$5,000		
Lincoln	2/28/2011	Thunderstorm Wind	0	0	\$2,000		
Cabell	2/28/2011	Thunderstorm Wind	0	0	\$2,000		
Lincoln	3/23/2011	Thunderstorm Wind	0	0	\$1,000		
Lincoln	4/4/2011	Thunderstorm Wind	0	0	\$20,000		



	TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property			
Logan	4/4/2011	Thunderstorm Wind	0	0	\$5,000			
Cabell	4/4/2011	Thunderstorm Wind	0	0	\$20,000			
Lincoln	4/4/2011	Thunderstorm Wind	0	0	\$5,000			
Logan	4/8/2011	Thunderstorm Wind	0	0	\$2,000			
Mingo	4/25/2011	Thunderstorm Wind	0	0	\$1,000			
Cabell	4/25/2011	Thunderstorm Wind	0	0	\$1,000			
Cabell	4/25/2011	Thunderstorm Wind	0	0	\$10,000			
Wayne	4/25/2011	Thunderstorm Wind	0	0	\$1,000			
Wayne	4/25/2011	Thunderstorm Wind	0	0	\$1,000			
Wayne	4/25/2011	Thunderstorm Wind	0	0	\$1,000			
Wayne	5/10/2011	Thunderstorm Wind	0	0	\$100,000			
Cabell	5/23/2011	Thunderstorm Wind	0	0	\$15,000			
Cabell	5/23/2011	Thunderstorm Wind	0	0	\$5,000			
Mason	6/7/2011	Thunderstorm Wind	0	0	\$2,000			
Wayne	6/21/2011	Thunderstorm Wind	0	0	\$5,000			
Lincoln	6/21/2011	Thunderstorm Wind	0	0	\$2,000			
Cabell	6/21/2011	Thunderstorm Wind	0	0	\$15,000			
Cabell	6/23/2011	Thunderstorm Wind	0	0	\$1,000			
Wayne	6/23/2011	Thunderstorm Wind	0	0	\$8,000			
Wayne	6/23/2011	Thunderstorm Wind	0	0	\$1,000			
Logan	7/22/2011	Thunderstorm Wind	0	0	\$1,000			
Cabell	7/24/2011	Thunderstorm Wind	0	0	\$75,000			
Mingo	9/3/2011	Thunderstorm Wind	0	0	\$0			
Lincoln	9/3/2011	Thunderstorm Wind	0	0	\$10,000			
Mingo	2/29/2012	Thunderstorm Wind	0	0	\$4,000			
Wayne	6/22/2012	Thunderstorm Wind	0	0	\$2,000			
Mason	6/29/2012	Thunderstorm Wind	0	0	\$50,000			
Wayne	6/29/2012	Thunderstorm Wind	0	0	\$0			
Mason	6/29/2012	Thunderstorm Wind	0	0	\$0			
Mason	6/29/2012	Thunderstorm Wind	0	0	\$20,000			
Mason	6/29/2012	Thunderstorm Wind	0	0	\$1,500,000			
Mason	6/29/2012	Thunderstorm Wind	0	0	\$15,000			
Cabell	6/29/2012	Thunderstorm Wind	0	0	\$25,000			
Cabell	6/29/2012	Thunderstorm Wind	0	0	\$75,000			
Cabell	6/29/2012	Thunderstorm Wind	0	0	\$3,000,000			
Wayne	6/29/2012	Thunderstorm Wind	0	0	\$1,000,000			
Lincoln	6/29/2012	Thunderstorm Wind	0	0	\$750,000			
Logan	6/29/2012	Thunderstorm Wind	0	0	\$10,000			
Logan	6/29/2012	Thunderstorm Wind	0	0	\$750,000			
Mingo	6/29/2012	Thunderstorm Wind	0	0	\$750,000			
Logan	7/1/2012	Thunderstorm Wind	0	0	\$50,000			
Logan	7/1/2012	Thunderstorm Wind	0	0	\$1,000			
Mingo	7/1/2012	Thunderstorm Wind	0	0	\$5,000			
Logan	7/5/2012	Thunderstorm Wind	0	0	\$5,000			
Logan	7/5/2012	Thunderstorm Wind	0	0	\$10,000			



TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property		
Logan	7/5/2012	Thunderstorm Wind	0	0	\$0		
Mingo	7/5/2012	Thunderstorm Wind	0	0	\$15,000		
Lincoln	7/5/2012	Thunderstorm Wind	0	0	\$10,000		
Lincoln	7/5/2012	Thunderstorm Wind	0	0	\$50,000		
Cabell	7/8/2012	Thunderstorm Wind	0	0	\$8,000		
Wayne	7/8/2012	Thunderstorm Wind	0	0	\$15,000		
Mingo	7/18/2012	Thunderstorm Wind	0	0	\$1,000		
Cabell	7/19/2012	Thunderstorm Wind	0	0	\$5,000		
Cabell	7/19/2012	Thunderstorm Wind	0	0	\$5,000		
Wayne	7/24/2012	Thunderstorm Wind	0	0	\$2,000		
Cabell	1/30/2013	Thunderstorm Wind	0	0	\$5,000		
Cabell	1/30/2013	Thunderstorm Wind	0	0	\$2,000		
Cabell	5/10/2013	Thunderstorm Wind	0	0	\$50,000		
Lincoln	5/21/2013	Thunderstorm Wind	0	0	\$5,000		
Lincoln	5/21/2013	Thunderstorm Wind	0	0	\$5,000		
Lincoln	5/21/2013	Thunderstorm Wind	0	0	\$5,000		
Lincoln	5/21/2013	Thunderstorm Wind	0	0	\$5,000		
Lincoln	5/21/2013	Thunderstorm Wind	0	0	\$5,000		
Mingo	5/21/2013	Thunderstorm Wind	0	0	\$2,000		
Mingo	5/21/2013	Thunderstorm Wind	0	0	\$1,000		
Logan	7/1/2013	Thunderstorm Wind	0	0	\$5,000		
Wayne	11/1/2013	Thunderstorm Wind	0	0	\$0		
Wayne	11/1/2013	Thunderstorm Wind	0	0	\$150,000		
Cabell	11/1/2013	Thunderstorm Wind	0	0	\$250,000		
Cabell	11/1/2013	Thunderstorm Wind	0	0	\$0		
Cabell	11/1/2013	Thunderstorm Wind	0	0	\$25,000		
Cabell	11/1/2013	Thunderstorm Wind	0	0	\$10,000		
Mason	11/17/2013	Thunderstorm Wind	0	0	\$1,000		
Cabell	11/17/2013	Thunderstorm Wind	0	0	\$3,000		
Wayne	12/22/2013	Thunderstorm Wind	0	0	\$5,000		
Cabell	12/22/2013	Thunderstorm Wind	0	0	\$10,000		
Mason	12/22/2013	Thunderstorm Wind	0	0	\$8,000		
Lincoln	12/22/2013	Thunderstorm Wind	0	0	\$5,000		
Wayne	2/21/2014	Thunderstorm Wind	0	0	\$20,000		
Wayne	2/21/2014	Thunderstorm Wind	0	0	\$25,000		
Mingo	2/21/2014	Thunderstorm Wind	0	0	\$25,000		
Lincoln	2/21/2014	Thunderstorm Wind	0	0	\$30,000		
Lincoln	2/21/2014	Thunderstorm Wind	0	0	\$15,000		
Cabell	2/21/2014	Thunderstorm Wind	0	0	\$200,000		
Mingo	2/21/2014	Thunderstorm Wind	0	0	\$20,000		
Wayne	3/12/2014	Strong Wind	0	0	\$25,000		
Lincoln	4/3/2014	Thunderstorm Wind	0	0	\$2,000		
Wayne	4/29/2014	Thunderstorm Wind	0	0	\$5,000		
Mingo	5/13/2014	Thunderstorm Wind	0	0	\$5,000		
Mason	6/3/2014	Thunderstorm Wind	0	0	\$2,000		



TABLE 5.1.K WIND EVENTS (NCEI)							
County	Date	Туре	Deaths	Injuries	Damage to Property		
Cabell	6/10/2014	Thunderstorm Wind	0	0	\$200,000		
Wayne	6/10/2014	Thunderstorm Wind	0	0	\$2,000		
Wayne	6/10/2014	Thunderstorm Wind	0	0	\$5,000		
Cabell	6/10/2014	Thunderstorm Wind	0	0	\$10,000		
Mason	7/8/2014	Thunderstorm Wind	0	0	\$2,000		
Cabell	8/2/2014	Thunderstorm Wind	0	0	\$2,000		
Cabell	8/2/2014	Thunderstorm Wind	0	0	\$2,000		
Cabell	8/2/2014	Thunderstorm Wind	0	0	\$5,000		
Mason	8/2/2014	Thunderstorm Wind	0	0	\$1,000		
Cabell	8/2/2014	Thunderstorm Wind	0	0	\$25,000		
Lincoln	10/7/2014	Thunderstorm Wind	0	0	\$0		
Cabell	11/1/2014	Strong Wind	0	0	\$10,000		
Lincoln	11/1/2014	Strong Wind	0	0	\$5,000		
Logan	11/1/2014	Strong Wind	0	0	\$2,000		
Mason	11/1/2014	Strong Wind	0	0	\$5,000		
Mingo	11/1/2014	Strong Wind	0	0	\$2,000		
Wayne	11/1/2014	Strong Wind	0	0	\$15,000		
Mason	4/8/2015	Thunderstorm Wind	0	0	\$0		
Mingo	6/1/2015	Thunderstorm Wind	0	0	\$2,000		
Lincoln	6/8/2015	Thunderstorm Wind	0	0	\$2,000		
Lincoln	6/8/2015	Thunderstorm Wind	0	0	\$10,000		
Mingo	6/8/2015	Thunderstorm Wind	0	0	\$2,000		
Cabell	6/26/2015	Thunderstorm Wind	0	0	\$50,000		
Cabell	6/26/2015	Thunderstorm Wind	0	0	\$10,000		
Cabell	7/7/2015	Thunderstorm Wind	0	0	\$5,000		
Mingo	7/9/2015	Thunderstorm Wind	0	0	\$5,000		
Mingo	7/9/2015	Thunderstorm Wind	0	0	\$25,000		
Mingo	7/9/2015	Thunderstorm Wind	0	0	\$25,000		
Logan	7/9/2015	Thunderstorm Wind	0	0	\$10,000		
Logan	7/9/2015	Thunderstorm Wind	0	0	\$5,000		
Logan	7/9/2015	Thunderstorm Wind	0	0	\$10,000		
Mason	7/13/2015	Thunderstorm Wind	0	0	\$10,000		
Mason	7/13/2015	Thunderstorm Wind	0	0	\$2,000		
Lincoln	7/13/2015	Thunderstorm Wind	0	0	\$2,000		
Logan	7/13/2015	Thunderstorm Wind	0	0	\$1,000		
Logan	7/13/2015	Thunderstorm Wind	0	0	\$1,000		
Lincoln	7/13/2015	Thunderstorm Wind	0	0	\$2,000		
Mason	7/14/2015	Thunderstorm Wind	0	0	\$5,000		
Mason	7/14/2015	Thunderstorm Wind	0	0	\$20,000		
Logan	7/14/2015	Thunderstorm Wind	0	0	\$5,000		
Logan	7/14/2015	Thunderstorm Wind	0	0	\$20,000		
Mingo	7/14/2015	Thunderstorm Wind	0	0	\$25,000		
Mingo	7/14/2015	Thunderstorm Wind	0	0	\$10,000		
Mingo	7/14/2015	Thunderstorm Wind	0	0	\$10,000		
Cabell	7/14/2015	Thunderstorm Wind	0	0	\$100,000		



	TABLE 5.1.K WIND EVENTS (NCEI)						
County	Date	Туре	Deaths	Injuries	Damage to Property		
Lincoln	7/14/2015	Thunderstorm Wind	0	0	\$25,000		
Wayne	7/14/2015	Thunderstorm Wind	0	0	\$50,000		
Cabell	3/1/2016	Strong Wind	0	0	\$25,000		
Lincoln	3/1/2016	Strong Wind	0	0	\$50,000		
Mason	3/1/2016	Strong Wind	0	0	\$25,000		
Wayne	3/1/2016	Strong Wind	0	0	\$25,000		
Cabell	4/2/2016	Strong Wind	0	0	\$25,000		
Lincoln	4/2/2016	Strong Wind	0	0	\$15,000		
Logan	4/2/2016	Strong Wind	0	0	\$10,000		
Mason	4/2/2016	Strong Wind	0	0	\$10,000		
Mingo	4/2/2016	Strong Wind	0	0	\$10,000		
Wayne	4/2/2016	Strong Wind	0	0	\$10,000		
Wayne	5/1/2016	Thunderstorm Wind	0	0	\$1,000		
Lincoln	6/15/2016	Thunderstorm Wind	0	0	\$5,000		
Wayne	6/15/2016	Thunderstorm Wind	0	0	\$0		
Wayne	6/15/2016	Thunderstorm Wind	0	0	\$0		
Mingo	6/16/2016	Thunderstorm Wind	0	0	\$0		
Logan	6/16/2016	Thunderstorm Wind	0	0	\$0		
Mingo	6/21/2016	Thunderstorm Wind	0	0	\$2,000		
Mason	6/23/2016	Thunderstorm Wind	0	0	\$10,000		
Lincoln	6/23/2016	Thunderstorm Wind	0	0	\$0		
Wayne	6/23/2016	Thunderstorm Wind	0	0	\$0		
Wayne	6/23/2016	Thunderstorm Wind	0	0	\$0		
Mingo	6/23/2016	Thunderstorm Wind	0	0	\$0		
Mason	6/23/2016	Thunderstorm Wind	0	0	\$1,000		
Mason	6/23/2016	Thunderstorm Wind	0	0	\$1,000		
Mason	7/6/2016	Thunderstorm Wind	0	0	\$2,000		
Mason	7/6/2016	Thunderstorm Wind	0	0	\$2,000		
Wayne	7/6/2016	Thunderstorm Wind	0	0	\$2,000		
Cabell	7/6/2016	Thunderstorm Wind	0	0	\$1,000		
Mingo	7/8/2016	Thunderstorm Wind	0	0	\$1,000		
Mingo	7/8/2016	Thunderstorm Wind	0	0	\$1,000		
Lincoln	7/8/2016	Thunderstorm Wind	0	0	\$1,000		
Cabell	7/8/2016	Thunderstorm Wind	0	0	\$1,000		
Logan	7/8/2016	Thunderstorm Wind	0	0	\$1,000		
Logan	7/8/2016	Thunderstorm Wind	0	0	\$1,000		
Lincoln	7/8/2016	Thunderstorm Wind	0	0	\$0		
Mason	7/15/2016	Thunderstorm Wind	0	0	\$0		
Mason	7/25/2016	Thunderstorm Wind	0	0	\$0		
Wayne	8/16/2016	Thunderstorm Wind	0	0	\$0		
Lincoln	8/16/2016	Thunderstorm Wind	0	0	\$0		
Cabell	11/30/2016	Strong Wind	0	0	\$10,000		
		Total	2	11	\$14,158,000		



TABLE 5.1.L LIGHTNING EVENTS (NCEI)									
County	Date	Туре	Deaths	Injuries	Damage to Property				
Cabell	9/12/1996	Lightning	0	0	\$2,000				
Mason	8/10/2009	Lightning	0	0	\$90,000				
Wayne	6/21/2011	Lightning	0	1	\$0				
Cabell	7/24/2011	Lightning	0	1	\$0				
Cabell	4/16/2013	Lightning	0	0	\$2,000				
Logan	6/10/2014	Lightning	0	1	\$0				
Cabell	6/24/2014	Lightning	0	0	\$8,000				
Lincoln	8/27/2014	Lightning	0	0	\$20,000				
Mason	7/5/2016	Lightning	0	0	\$8,000				
Mingo	7/28/2016	Lightning	0	0	\$5,000				
Total			0	3	\$135,000				

TABLE 5.1.M SEVERE STORM EVENTS (SHELDUS)										
Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities				
Cabell	Severe Storm/Thunder Storm	1960	8	\$751	0	0.02				
Lincoln	Severe Storm/Thunder Storm	1960	8	\$751	0	0.02				
Logan	Severe Storm/Thunder Storm	1960	8	\$751	0	0.02				
Mason	Severe Storm/Thunder Storm	1960	8	\$751	0	0.02				
Mingo	Severe Storm/Thunder Storm	1960	8	\$751	0	0.02				
Wayne	Severe Storm/Thunder Storm	1960	8	\$751	0	0.02				
Cabell	Severe Storm/Thunder Storm	1961	3	\$20,433	0	0				
Cabell	Severe Storm/Thunder Storm	1962	2	\$80,918	0	0.02				
Lincoln	Severe Storm/Thunder Storm	1962	2	\$80,918	0	0.02				
Logan	Severe Storm/Thunder Storm	1962	2	\$80,918	0	0.02				
Mingo	Severe Storm/Thunder Storm	1962	2	\$80,918	0	0.02				
Wayne	Severe Storm/Thunder Storm	1962	2	\$80,918	0	0.02				
Lincoln	Severe Storm/Thunder Storm	1962	4	\$202,296	0	0				
Cabell	Severe Storm/Thunder Storm	1962	7	\$87,661	0	0				
Lincoln	Severe Storm/Thunder Storm	1962	7	\$4,496	0	0				
Logan	Severe Storm/Thunder Storm	1962	7	\$4,496	0	0				
Mingo	Severe Storm/Thunder Storm	1962	7	\$4,496	0	0				
Wayne	Severe Storm/Thunder Storm	1962	7	\$11,239	0	0				
Cabell	Severe Storm/Thunder Storm	1964	6	\$717	0	0				
Lincoln	Severe Storm/Thunder Storm	1964	6	\$717	0	0				
Logan	Severe Storm/Thunder Storm	1964	6	\$717	0	0				
Mason	Severe Storm/Thunder Storm	1964	6	\$717	0	0				
Mingo	Severe Storm/Thunder Storm	1964	6	\$717	0	0				
Wayne	Severe Storm/Thunder Storm	1964	6	\$717	0	0				
Cabell	Severe Storm/Thunder Storm	1964	8	\$19,708	0.15	0				
Lincoln	Severe Storm/Thunder Storm	1964	8	\$19,708	0.15	0				



TABLE 5.1.M SEVERE STORM EVENTS (SHELDUS)										
Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities				
Logan	Severe Storm/Thunder Storm	1964	8	\$19,708	0.15	0				
Mingo	Severe Storm/Thunder Storm	1964	8	\$19,708	0.15	0				
Wayne	Severe Storm/Thunder Storm	1964	8	\$19,708	0.15	0				
Cabell	Severe Storm/Thunder Storm	1965	4	\$1,322	0.01	0				
Lincoln	Severe Storm/Thunder Storm	1965	4	\$1,322	0.01	0				
Logan	Severe Storm/Thunder Storm	1965	4	\$1,322	0.01	0				
Mason	Severe Storm/Thunder Storm	1965	4	\$353	0.01	0				
Mingo	Severe Storm/Thunder Storm	1965	4	\$1,322	0.01	0				
Wayne	Severe Storm/Thunder Storm	1965	4	\$1,322	0.01	0				
Cabell	Severe Storm/Thunder Storm	1965	5	\$1,487	0	0				
Cabell	Severe Storm/Thunder Storm	1965	6	\$194	0	0				
Cabell	Severe Storm/Thunder Storm	1965	10	\$4	0	0				
Lincoln	Severe Storm/Thunder Storm	1965	10	\$4	0	0				
Logan	Severe Storm/Thunder Storm	1965	10	\$4	0	0				
Mason	Severe Storm/Thunder Storm	1965	10	\$4	0	0				
Mingo	Severe Storm/Thunder Storm	1965	10	\$4	0	0				
Wayne	Severe Storm/Thunder Storm	1965	10	\$4	0	0				
Cabell	Severe Storm/Thunder Storm	1967	3	\$332,571	0	0.025				
Lincoln	Severe Storm/Thunder Storm	1967	3	\$332,571	0	0.025				
Logan	Severe Storm/Thunder Storm 1		3	\$332,571	0	0.025				
Mason	Severe Storm/Thunder Storm		3	\$332,571	0	0.025				
Mingo	Severe Storm/Thunder Storm		3	\$332,571	0	0.025				
Wayne	Severe Storm/Thunder Storm	1967	3	\$332,571	0	0.025				
Cabell	Severe Storm/Thunder Storm	1968	7	\$3,511	0	0				
Mason	Severe Storm/Thunder Storm	1968	7	\$17,556	0	0				
Cabell	Severe Storm/Thunder Storm	1968	8	\$3,511	0	0				
Cabell	Severe Storm/Thunder Storm	1970	2	\$16,574	0	0				
Lincoln	Severe Storm/Thunder Storm	1970	2	\$16,574	0	0				
Logan	Severe Storm/Thunder Storm	1970	2	\$16,574	0	0				
Mingo	Severe Storm/Thunder Storm	1970	2	\$16,574	0	0				
Wayne	Severe Storm/Thunder Storm	1970	2	\$16,574	0	0				
Lincoln	Severe Storm/Thunder Storm	1971	7	\$150,848	0	0				
Cabell	Severe Storm/Thunder Storm	1973	8	\$13,760	0	0				
Cabell	Severe Storm/Thunder Storm	1974	4	\$12,392	0.5	0				
Mingo	Severe Storm/Thunder Storm	1974	7	\$61,961	0	0				
Cabell	Severe Storm/Thunder Storm	1978	7	\$94	0	0				
Lincoln	Severe Storm/Thunder Storm	1978	7	\$94	0	0				
Logan	Severe Storm/Thunder Storm	1978	7	\$94	0	0				
Mason	Severe Storm/Thunder Storm	1978	7	\$94	0	0				
Mingo	Severe Storm/Thunder Storm	1978	7	\$94	0	0				
Wayne	Severe Storm/Thunder Storm	1978	7	\$94	0	0				
Cabell	Severe Storm/Thunder Storm	1979	8	\$306	0.01	0				
Lincoln	Severe Storm/Thunder Storm	1979	8	\$306	0.01	0				
Logan	Severe Storm/Thunder Storm	1979	8	\$306	0.01	0				
Mason	Severe Storm/Thunder Storm	1979	8	\$306	0.01	0				



TABLE 5.1.M SEVERE STORM EVENTS (SHELDUS)										
Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities				
Mingo	Severe Storm/Thunder Storm	1979	8	\$306	0.01	0				
Wayne	Severe Storm/Thunder Storm	1979	8	\$306	0.01	0				
Mingo	Severe Storm/Thunder Storm	1980	4	\$741	0	0				
Cabell	Severe Storm/Thunder Storm	1980	7	\$175	0	0				
Lincoln	Severe Storm/Thunder Storm	1980	7	\$175	0	0				
Logan	Severe Storm/Thunder Storm	1980	1980 7 \$175		0	0				
Mason	Severe Storm/Thunder Storm	1980	7	\$175	0	0				
Mingo	Severe Storm/Thunder Storm	1980	7	\$175	0	0				
Wayne	Severe Storm/Thunder Storm	1980	7	\$175	0	0				
Cabell	Severe Storm/Thunder Storm	1980	8	\$27	0	0				
Lincoln	Severe Storm/Thunder Storm	1980	8	\$27	0	0				
Logan	Severe Storm/Thunder Storm	1980	8	\$27	0	0				
Mason	Severe Storm/Thunder Storm	1980	8	\$27	0	0				
Mingo	Severe Storm/Thunder Storm	1980	8	\$27	0	0				
Wayne	Severe Storm/Thunder Storm	1980	8	\$27	0	0				
Cabell	Severe Storm/Thunder Storm	1980	9	\$13	0	0				
Lincoln	Severe Storm/Thunder Storm	1980	9	\$13	0	0				
Logan	Severe Storm/Thunder Storm	1980	9	\$13	0	0				
Mason	Severe Storm/Thunder Storm	1980	9	\$13	0	0				
Mingo	Severe Storm/Thunder Storm 1		9	\$13	0	0				
Wayne	Severe Storm/Thunder Storm 1		9	\$13	0	0				
Cabell	Severe Storm/Thunder Storm		4	\$67,209	0.5	0				
Cabell	Severe Storm/Thunder Storm	1981	5	\$1,344	0	0				
Lincoln	Severe Storm/Thunder Storm	1981	5	\$1,344	0	0				
Logan	Severe Storm/Thunder Storm	1981	5	\$1,344	0	0				
Mason	Severe Storm/Thunder Storm	1981	5	\$1,344	0	0				
Mingo	Severe Storm/Thunder Storm	1981	5	\$1,344	0	0				
Wayne	Severe Storm/Thunder Storm	1981	5	\$1,344	0	0				
Cabell	Severe Storm/Thunder Storm	1982	3	\$230	0	0				
Lincoln	Severe Storm/Thunder Storm	1982	3	\$230	0	0				
Logan	Severe Storm/Thunder Storm	1982	3	\$230	0	0				
Mason	Severe Storm/Thunder Storm	1982	3	\$230	0	0				
Mingo	Severe Storm/Thunder Storm	1982	3	\$230	0	0				
Wayne	Severe Storm/Thunder Storm	1982	3	\$230	0	0				
Cabell	Severe Storm/Thunder Storm	1983	8	\$204	0	0				
Mason	Severe Storm/Thunder Storm	1983	8	\$409	0	0				
Wayne	Severe Storm/Thunder Storm	1983	8	\$204	0	0				
Cabell	Severe Storm/Thunder Storm	1989	8	\$49	0	0				
Mason	Severe Storm/Thunder Storm	1990	6	\$935	0	0				
Mason	Severe Storm/Thunder Storm	1990	7	\$467	0	0				
Cabell	Severe Storm/Thunder Storm	1991	4	\$44,856	0	0.5				
Lincoln	Severe Storm/Thunder Storm	1991	4	\$44,856	0	0				
Logan	Severe Storm/Thunder Storm	1991	4	\$44,856	0	0				
Mason	Severe Storm/Thunder Storm	1991	4	\$44,856	0	0				
Mingo	Severe Storm/Thunder Storm	1991	4	\$4,486	0	0				



TABLE 5.1.M SEVERE STORM EVENTS (SHELDUS)										
Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities				
Wayne	Severe Storm/Thunder Storm	1991	4	\$44,856	0	0				
Cabell	Severe Storm/Thunder Storm	1991	7	\$897	0	0				
Cabell	Severe Storm/Thunder Storm	1991	8	\$1,794	0	0				
Cabell	Severe Storm/Thunder Storm	1992	6	\$871	0	0				
Mason	Severe Storm/Thunder Storm	1992	6	\$871	0	0				
Mason	Severe Storm/Thunder Storm	1992	7	\$871	0	0				
Wayne	Severe Storm/Thunder Storm	1992	7	\$10,451	0	0				
Cabell	Severe Storm/Thunder Storm	1993	2	\$4,228	0	0				
Lincoln	Severe Storm/Thunder Storm	1993	2	\$4,228	0	0				
Mason	Severe Storm/Thunder Storm	1993	2	\$423	0	0				
Wayne	Severe Storm/Thunder Storm	1993	2	\$42,702	0	0				
Cabell	Severe Storm/Thunder Storm	1993	4	\$423	0	0				
Mason	Severe Storm/Thunder Storm	1993	4	\$423	0	0				
Wayne	Severe Storm/Thunder Storm	1993	4	\$423	0	0				
Logan	Severe Storm/Thunder Storm	1993	5	\$846	0	0				
Cabell	Severe Storm/Thunder Storm	1993	6	\$1,099	0	0				
Logan	Severe Storm/Thunder Storm	1993	6	\$85	0	0				
Mingo	Severe Storm/Thunder Storm	1993	6	\$85	4	0				
Wayne	Severe Storm/Thunder Storm	1993	6	\$254	0	0				
Cabell	Severe Storm/Thunder Storm	1993	7	\$338	0	0				
Mason	Severe Storm/Thunder Storm	1993	7	\$930	0	0				
Wayne	Severe Storm/Thunder Storm	1993	7	\$85	0	0				
Wayne	Severe Storm/Thunder Storm	1993	9	\$846	0	0				
Cabell	Severe Storm/Thunder Storm	1993	11	\$8,456	0	0				
Wayne	Severe Storm/Thunder Storm	1993	11	\$4,228	0	0				
Cabell	Severe Storm/Thunder Storm	1994	6	\$824	0	0				
Lincoln	Severe Storm/Thunder Storm	1994	6	\$824	0	0				
Logan	Severe Storm/Thunder Storm	1994	6	\$275	0	0				
Mason	Severe Storm/Thunder Storm	1994	6	\$275	0	0				
Cabell	Severe Storm/Thunder Storm	1995	5	\$32,070	0	0				
Lincoln	Severe Storm/Thunder Storm	1995	5	\$12,026	0	0				
Mason	Severe Storm/Thunder Storm	1995	5	\$12,026	0	0				
Mingo	Severe Storm/Thunder Storm	1995	5	\$16,035	0	0				
Wayne	Severe Storm/Thunder Storm	1995	5	\$28,061	0.5	0				
Cabell	Severe Storm/Thunder Storm	1995	6	\$44,096	0	0				
Lincoln	Severe Storm/Thunder Storm	1995	6	\$4,009	0	0				
Logan	Severe Storm/Thunder Storm	1995	6	\$8,017	0	0				
Mason	Severe Storm/Thunder Storm	1995	6	\$8,017	0	0				
Wayne	Severe Storm/Thunder Storm	1995	6	\$48,105	0	0				
Cabell	Severe Storm/Thunder Storm	1996	4	\$38,938	0	0				
Mason	Severe Storm/Thunder Storm	1996	4	\$15,575	0	0				
Mingo	Severe Storm/Thunder Storm	1996	4	\$15,575	0	0				
Cabell	Severe Storm/Thunder Storm	1996	5	\$3,894	0	0				
Lincoln	Severe Storm/Thunder Storm	1996	5	\$11,681	0	0				
Mason	Severe Storm/Thunder Storm	1996	5	\$7,788	0	1				



TABLE 5.1.M SEVERE STORM EVENTS (SHELDUS)										
Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities				
Wayne	Severe Storm/Thunder Storm	1996	5	\$39,716	0	0				
Cabell	Severe Storm/Thunder Storm	1996	6	\$10,124	0	0				
Lincoln	Severe Storm/Thunder Storm	1996	6	\$2,336	0	0				
Logan	Severe Storm/Thunder Storm	1996	6	\$23,363	0	0				
Mason	Severe Storm/Thunder Storm	1996	6	\$779	0	0				
Wayne	Severe Storm/Thunder Storm	1996	6	\$1,558	0	0				
Cabell	Severe Storm/Thunder Storm	1996	7	\$2,336	0	0				
Lincoln	Severe Storm/Thunder Storm	1996	7	\$155,751	0	0				
Mason	Severe Storm/Thunder Storm	1996	8	\$1,558	0	0				
Logan	Severe Storm/Thunder Storm	1997	1	\$761	0	0				
Mingo	Severe Storm/Thunder Storm	1997	1	\$761	0	0				
Cabell	Severe Storm/Thunder Storm	1997	7	\$13,703	0	1				
Lincoln	Severe Storm/Thunder Storm	1997	7	\$5,329	0	0				
Logan	Severe Storm/Thunder Storm	1997	7	\$1,523	0	0				
Mason	Severe Storm/Thunder Storm	1997	7	\$20,555	0	0				
Mingo	Severe Storm/Thunder Storm	1997	7	\$761	0	0				
Wayne	Severe Storm/Thunder Storm	1997	7	\$3,806	0	0				
Cabell	Severe Storm/Thunder Storm	1997	8	\$14,464	0	0				
Lincoln	Severe Storm/Thunder Storm	1997	8	\$1,523	0	0				
Mason	Severe Storm/Thunder Storm	1997	8	\$14,464	0	0				
Wayne	Severe Storm/Thunder Storm 1		8	\$5,329	0	0				
Wayne	Severe Storm/Thunder Storm		2	\$2,249	0	0				
Wayne	Severe Storm/Thunder Storm	1998	4	\$3,748	0	0				
Cabell	Severe Storm/Thunder Storm	1998	5	\$37,481	0	0				
Mingo	Severe Storm/Thunder Storm	1998	5	\$1,499	0	0				
Cabell	Severe Storm/Thunder Storm	1998	6	\$3,748	0	0				
Mason	Severe Storm/Thunder Storm	1998	6	\$8,995	0	0				
Mingo	Severe Storm/Thunder Storm	1998	6	\$1,499	0	0				
Mason	Severe Storm/Thunder Storm	1998	9	\$750	0	0				
Mingo	Severe Storm/Thunder Storm	1999	1	\$1,467	0	0				
Wayne	Severe Storm/Thunder Storm	1999	1	\$2,934	0	0				
Cabell	Severe Storm/Thunder Storm	1999	4	\$1,467	0	0				
Mingo	Severe Storm/Thunder Storm	1999	4	\$8,801	0.5	0				
Mason	Severe Storm/Thunder Storm	1999	7	\$7,334	0	0				
Mingo	Severe Storm/Thunder Storm	1999	7	\$1,467	0	0				
Wayne	Severe Storm/Thunder Storm	1999	7	\$2,934	0	0				
Cabell	Severe Storm/Thunder Storm	1999	8	\$1,467	0	0				
Lincoln	Severe Storm/Thunder Storm	1999	8	\$13,201	0	0				
Mingo	Severe Storm/Thunder Storm	1999	8	\$3,667	0	0				
Cabell	Severe Storm/Thunder Storm	1999	10	\$3,667	0	0				
Lincoln	Severe Storm/Thunder Storm	1999	10	\$11,001	0	0				
Wayne	Severe Storm/Thunder Storm	1999	10	\$14,668	0	0				
Logan	Severe Storm/Thunder Storm	2000	5	\$710	0	0				
Lincoln	Severe Storm/Thunder Storm	2000	6	\$2,129	0	0				
Logan	Severe Storm/Thunder Storm	2000	6	\$3,548	0	0				



TABLE 5.1.M SEVERE STORM EVENTS (SHELDUS)										
Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities				
Mason	Severe Storm/Thunder Storm	2000	6	\$710	0	0				
Wayne	Severe Storm/Thunder Storm	2000	6	\$710	0	0				
Cabell	Severe Storm/Thunder Storm	2000	7	\$152,556	0	0				
Lincoln	Severe Storm/Thunder Storm	2000	7	\$5,676	0	0				
Logan	Severe Storm/Thunder Storm	2000	7	\$2,129	0	0				
Mingo	Severe Storm/Thunder Storm	2000	7	\$2,838	0	0				
Wayne	Severe Storm/Thunder Storm	2000	7	\$2,129	0	0				
Cabell	Severe Storm/Thunder Storm	2000	8	\$7,096	0	0				
Lincoln	Severe Storm/Thunder Storm	2000	8	\$7,096	0	0				
Logan	Severe Storm/Thunder Storm	2000 8 \$1,419				0				
Mason	Severe Storm/Thunder Storm	2000	8	\$15,610	0	0				
Mingo	Severe Storm/Thunder Storm	2000	8	\$3,548	0	0				
Wayne	Severe Storm/Thunder Storm	2000	8	\$23,416	0	0				
Cabell	Severe Storm/Thunder Storm	2001	5	\$3,450	0	0				
Lincoln	Severe Storm/Thunder Storm	2001	5	\$5,519	0	0				
Logan	Severe Storm/Thunder Storm	2001	5	\$3,450	0	0				
Mason	Severe Storm/Thunder Storm	2001	5	\$10,349	0	0				
Cabell	Severe Storm/Thunder Storm	2001	6	\$2,070	0	0				
Mason	Severe Storm/Thunder Storm	2001	6	\$1,380	0	0				
Lincoln	Severe Storm/Thunder Storm	2001	7	\$2,070	0	0				
Logan	Severe Storm/Thunder Storm	2001	10	\$2,070	0	0				
Logan	Severe Storm/Thunder Storm	2002	5	\$2,038	0	0				
Mason	Severe Storm/Thunder Storm	2002	5	\$1,358	0	0				
Mingo	Severe Storm/Thunder Storm	2002	5	\$6,792	0	0				
Mingo	Severe Storm/Thunder Storm	2002	6	\$679	0	0				
Lincoln	Severe Storm/Thunder Storm	2002	11	\$2,038	0	0				
Mason	Severe Storm/Thunder Storm	2002	11	\$1,358	0	0				
Wayne	Severe Storm/Thunder Storm	2002	11	\$3,396	0	0				
Cabell	Severe Storm/Thunder Storm	2003	5	\$9,961	0	0				
Mingo	Severe Storm/Thunder Storm	2003	5	\$664	0	0				
Wayne	Severe Storm/Thunder Storm	2003	5	\$1,328	0	0				
Mason	Severe Storm/Thunder Storm	2004	3	\$6,468	0	0				
Cabell	Severe Storm/Thunder Storm	2004	6	\$48,512	0.5	0				
Cabell	Severe Storm/Thunder Storm	2005	7	\$626	0	0.5				
Logan	Severe Storm/Thunder Storm	2005	7	\$12,513	0	0				
Mason	Severe Storm/Thunder Storm	2005	7	\$1,251	0	0				
Logan	Severe Storm/Thunder Storm	2006	4	\$30,304	0.5	0				
Mingo	Severe Storm/Thunder Storm	2006	4	\$545,476	1	0				
Cabell	Severe Storm/Thunder Storm	2006	6	\$3,030	0	0				
Mason	Severe Storm/Thunder Storm	2006	7	\$3,030	0	0				
Wayne	Severe Storm/Thunder Storm	2006	7	\$3,030	0	0				
Cabell	Severe Storm/Thunder Storm	2007	6	\$589	0	0				
Cabell	Severe Storm/Thunder Storm	2007	7	\$25,929	0	0				
Cabell	Severe Storm/Thunder Storm	2008	1	\$568	0	0				
Mason	Severe Storm/Thunder Storm	2008	1	\$1,135	0	0				



TABLE 5.1.M SEVERE STORM EVENTS (SHELDUS)										
Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities				
Cabell	Severe Storm/Thunder Storm	2008	2	\$2,838	0	0				
Logan	Severe Storm/Thunder Storm	2008	4	\$113,502	0.5	0				
Mingo	Severe Storm/Thunder Storm	2008	4	\$1,135	0	0				
Lincoln	Severe Storm/Thunder Storm	2008	6	\$1,135	0	0				
Mason	Severe Storm/Thunder Storm	2008	6	\$1,135	0	0				
Cabell	Severe Storm/Thunder Storm	2009	2	\$5,695	0	0				
Lincoln	Severe Storm/Thunder Storm	2009	2	\$11,391	0	0				
Logan	Severe Storm/Thunder Storm	2009	2	\$5,695	0	0				
Mason	Severe Storm/Thunder Storm	2009	2	\$2,848	0	0				
Mingo	Severe Storm/Thunder Storm	2009	2	\$14,238	0	0				
Lincoln	Severe Storm/Thunder Storm	2009	4	\$1,139	0	0				
Logan	Severe Storm/Thunder Storm	2009	4	\$8,543	0	0				
Mingo	Severe Storm/Thunder Storm	2009	4	\$1,139	0	0				
Lincoln	Severe Storm/Thunder Storm	2009	5	\$3,417	0	0				
Wayne	Severe Storm/Thunder Storm	2009	5	\$3,417	0	0				
Cabell	Severe Storm/Thunder Storm	2009	6	\$5,695	0	0				
Mingo	Severe Storm/Thunder Storm	2009	6	\$570	0	0				
Cabell	Severe Storm/Thunder Storm	2009	7	\$1,139	0	0				
Logan	Severe Storm/Thunder Storm	2009	7	\$1,139	0	0				
Wayne	Severe Storm/Thunder Storm	2009	7	\$17,086	0	0				
Cabell	Severe Storm/Thunder Storm	2010	6	\$15,129	0	0				
Lincoln	Severe Storm/Thunder Storm	2010	6	\$2,802	0	0				
Mingo	Severe Storm/Thunder Storm	2010	6	\$560	0	0				
Wayne	Severe Storm/Thunder Storm	2010	6	\$5,603	0	0				
Cabell	Severe Storm/Thunder Storm	2010	8	\$7,284	0	0				
Lincoln	Severe Storm/Thunder Storm	2010	8	\$5,603	0	0				
Wayne	Severe Storm/Thunder Storm	2010	8	\$4,483	0	0				
Cabell	Severe Storm/Thunder Storm	2010	10	\$11,207	0	0				
Lincoln	Severe Storm/Thunder Storm	2010	10	\$2,802	0	0				
Mason	Severe Storm/Thunder Storm	2010	10	\$8,966	0	0				
Mingo	Severe Storm/Thunder Storm	2010	10	\$1,121	0	0				
Cabell	Severe Storm/Thunder Storm	2011	2	\$1,086	0	0				
Lincoln	Severe Storm/Thunder Storm	2011	2	\$1,086	0	0				
Lincoln	Severe Storm/Thunder Storm	2011	3	\$543	0	0				
Cabell	Severe Storm/Thunder Storm	2011	4	\$16,839	0	0				
Lincoln	Severe Storm/Thunder Storm	2011	4	\$13,580	0	0				
Logan	Severe Storm/Thunder Storm	2011	4	\$3,802	0	0				
Mingo	Severe Storm/Thunder Storm	2011	4	\$543	0	0				
Wayne	Severe Storm/Thunder Storm	2011	4	\$1,630	0	0				
Cabell	Severe Storm/Thunder Storm	2011	5	\$10,864	0	0				
Wayne	Severe Storm/Thunder Storm	2011	5	\$54,320	0	0				
Cabell	Severe Storm/Thunder Storm	2011	6	\$8,691	0	0				
Lincoln	Severe Storm/Thunder Storm	2011	6	\$1,086	0	0				
Mason	Severe Storm/Thunder Storm	2011	6	\$1,086	0	0				
Wayne	Severe Storm/Thunder Storm	2011	6	\$7,605	0	0				



TABLE 5.1.M SEVERE STORM EVENTS (SHELDUS)										
Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities				
Cabell	Severe Storm/Thunder Storm	2011	7	\$40,740	0	0				
Logan	Severe Storm/Thunder Storm	2011	7	\$543	0	0				
Cabell	Severe Storm/Thunder Storm	2011	8	\$27,160	0	0				
Lincoln	Severe Storm/Thunder Storm	2011	9	\$5,432	0	0				
Mingo	Severe Storm/Thunder Storm	2012	2	\$2,129	0	0				
Cabell	Severe Storm/Thunder Storm	2012	6	\$1,649,775	0	0				
Lincoln	Severe Storm/Thunder Storm	2012	6	\$399,139	0	0				
Logan	Severe Storm/Thunder Storm	2012	6	\$404,461	0	0				
Mason	Severe Storm/Thunder Storm	2012	6	\$843,514	0	0				
Mingo	Severe Storm/Thunder Storm	2012	6	\$399,139	0	0				
Wayne	Severe Storm/Thunder Storm	2012	6	\$533,250	0	0				
Cabell	Severe Storm/Thunder Storm	2012	7	\$9,579	0	0				
Lincoln	Severe Storm/Thunder Storm	2012	7	\$31,931	0	0				
Logan	Severe Storm/Thunder Storm	2012	7	\$35,124	0	0				
Mingo	Severe Storm/Thunder Storm	2012	7	\$11,176	0	0				
Wayne	Severe Storm/Thunder Storm	2012	7	\$9,047	0	0				
Cabell	Severe Storm/Thunder Storm	2013	1	\$3,672	0	0				
Mason	Severe Storm/Thunder Storm	2013	1	\$0	0	1				
Cabell	Severe Storm/Thunder Storm	2013	5	\$26,225	0	0				
Lincoln	Severe Storm/Thunder Storm 2		5	\$13,113	0	0				
Mingo	Severe Storm/Thunder Storm		5	\$1,574	0	0				
Mason	Severe Storm/Thunder Storm		6	\$419,602	0	0				
Cabell	Severe Storm/Thunder Storm	2013	7	\$20,980	0	0				
Logan	Severe Storm/Thunder Storm	2013	7	\$2,623	0	0				
Wayne	Severe Storm/Thunder Storm	2013	7	\$5,245	0	0				
Cabell	Severe Storm/Thunder Storm	2013	11	\$151,057	0	0				
Mason	Severe Storm/Thunder Storm	2013	11	\$525	0	0				
Wayne	Severe Storm/Thunder Storm	2013	11	\$78,675	0	0				
Cabell	Severe Storm/Thunder Storm	2013	12	\$5,245	0	0				
Lincoln	Severe Storm/Thunder Storm	2013	12	\$2,623	0	0				
Mason	Severe Storm/Thunder Storm	2013	12	\$4,196	0	0				
Wayne	Severe Storm/Thunder Storm	2013	12	\$2,623	0	0				
Cabell	Severe Storm/Thunder Storm	2014	2	\$103,226	0	0				
Lincoln	Severe Storm/Thunder Storm	2014	2	\$23,226	0	0				
Mingo	Severe Storm/Thunder Storm	2014	2	\$23,226	0	0				
Wayne	Severe Storm/Thunder Storm	2014	2	\$23,226	0	0				
Lincoln	Severe Storm/Thunder Storm	2014	4	\$1,032	0	0				
Wayne	Severe Storm/Thunder Storm	2014	4	\$2,581	0	0				
Mingo	Severe Storm/Thunder Storm	2014	5	\$2,581	0	0				
Cabell	Severe Storm/Thunder Storm	2014	6	\$108,387	0	0				
Mason	Severe Storm/Thunder Storm	2014	6	\$1,032	0	0				
Wayne	Severe Storm/Thunder Storm	2014	6	\$3,613	0	0				
Mason	Severe Storm/Thunder Storm	2014	7	\$1,032	0	0				
Cabell	Severe Storm/Thunder Storm	2014	8	\$17,548	0	0				
Mason	Severe Storm/Thunder Storm	2014	8	\$516	0	0				



TABLE 5.1.M SEVERE STORM EVENTS (SHELDUS)										
Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities				
Cabell	Severe Storm/Thunder Storm	2015	6	\$30,931	0	0				
Lincoln	Severe Storm/Thunder Storm	2015	6	\$6,186	0	0				
Mingo	Severe Storm/Thunder Storm	2015	6	\$2,062	0	0				
Cabell	Severe Storm/Thunder Storm	2015	7	\$54,129	0	0				
Lincoln	Severe Storm/Thunder Storm	2015	7	\$14,950	0	1				
Logan	Severe Storm/Thunder Storm	2015	7	\$26,807	0	0				
Mason	Severe Storm/Thunder Storm	2015	7	\$19,074	0	0				
Mingo	Severe Storm/Thunder Storm	2015	7	\$51,552	0	0				
Wayne	Severe Storm/Thunder Storm	2015	7	\$25,776	0	0				
Wayne	Severe Storm/Thunder Storm	2016	5	\$0	0	0				
Lincoln	Severe Storm/Thunder Storm	2016	6	\$0	0	0				
Mason	Severe Storm/Thunder Storm	2016	6	\$0	0	0				
Mingo	Severe Storm/Thunder Storm	2016	6	\$0	0	0				
Wayne	Severe Storm/Thunder Storm	2016	6	\$0	0	0				
Cabell	Severe Storm/Thunder Storm	2016	7	\$0	0	0				
Lincoln	Severe Storm/Thunder Storm	2016	7	\$0	0	0				
Logan	Severe Storm/Thunder Storm	2016	7	\$0	0	0				
Mason	Severe Storm/Thunder Storm	2016	7	\$0	0	0				
Mingo	Severe Storm/Thunder Storm	2016	7	\$0	0	0				
Wayne	Severe Storm/Thunder Storm	2016	7	\$0	0	0				
Total				\$11,405,963	9	5				

TABLE 5.1.N HAIL EVENTS (SHELDUS)									
County	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities			
Cabell	Hail	1962	7	\$6,743	0	0			
Lincoln	Hail	1962	7	\$0	0	0			
Wayne	Hail	1962	7	\$6,743	0	0			
Cabell	Hail	1964	4	\$24	0	0			
Lincoln	Hail	1964	4	\$24	0	0			
Logan	Hail	1964	4	\$24	0	0			
Mason	Hail	1964	4	\$24	0	0			
Mingo	Hail	1964	4	\$24	0	0			
Wayne	Hail	1964	4	\$24	0	0			
Cabell	Hail	1969	6	\$303	0	0			
Lincoln	Hail	1969	6	\$303	0	0			
Logan	Hail	1969	6	\$303	0	0			
Mason	Hail	1969	6	\$303	0	0			
Mingo	Hail	1969	6	\$303	0	0			
Wayne	Hail	1969	6	\$303	0	0			
Cabell	Hail	1975	5	\$223	4.90333	0			
Lincoln	Hail	1975	5	\$223	4.90333	0			
Logan	Hail	1975	5	\$223	4.90333	0			



TABLE 5.1.N HAIL EVENTS (SHELDUS)									
County	Hazard	Year	Month	Property Damage (AD L 2016)	Injuries	Fatalities			
Mason	Hail	1975	5	\$223	4.90333	0			
Mingo	Hail	1975	5	\$223	4.90333	0			
Wayne	Hail	1975	5	\$223	4.90333	0			
Cabell	Hail	1979	6	\$31	0	0			
Lincoln	Hail	1979	6	\$31	0	0			
Logan	Hail	1979	6	\$31	0	0			
Mason	Hail	1979	6	\$31	0	0			
Mingo	Hail	1979	6	\$31	0	0			
Wayne	Hail	1979	6	\$31	0	0			
Logan	Hail	1980	4	\$74,142	1	0			
Mingo	Hail	1980	4	\$741	0	0			
Mingo	Hail	1982	5	\$63	0	0			
Wayne	Hail	1982	5	\$63	0	0			
Lincoln	Hail	1983	3	\$409	0	0			
Cabell	Hail	1983	8	\$204	0	0			
Mason	Hail	1983	8	\$409	0	0			
Wayne	Hail	1983	8	\$204	0	0			
Cabell	Hail	1986	7	\$68	0	0			
Lincoln	Hail	1986	7	\$68	0	0			
Logan	Hail	1986	7	\$68	0	0			
Mason	Hail	1986	7	\$68	0	0			
Mingo	Hail	1986	7	\$68	0	0			
Wayne	Hail	1986	7	\$68	0	0			
Cabell	Hail	1993	6	\$169	0	0			
Logan	Hail	1993	6	\$85	0	0			
Mingo	Hail	1993	6	\$85	0	0			
Wayne	Hail	1993	11	\$846	0	0			
Logan	Hail	1994	6	\$275	0	0			
Mason	Hail	1994	6	\$275	0	0			
Wayne	Hail	1994	6	\$0	0	0			
Logan	Hail	1994	9	\$824	0	0			
Mason	Hail	1994	9	\$82,447	0	0			
Mingo	Hail	1995	6	\$8,017	0	0			
Cabell	Hail	1998	5	\$749,611	0	0			
Wayne	Hail	1998	5	\$14,992	0	0			
Lincoln	Hail	1998	6	\$7,496	0	0			
Wayne	Hail	1998	6	\$52,473	0	0			
Mason	Hail	2001	5	\$275,972	0	0			
Logan	Hail	2002	4	\$20,376	0	0			
Mingo	Hail	2002	4	\$33,960	0	0			
Mason	Hail	2004	8	\$6,468	0	0			
Cabell	Hail	2005	5	\$1,251	0	0			
Logan	Hail	2006	4	\$30,304	0	0			
Mingo	Hail	2008	4	\$5,675	0	0			
Mingo	Hail	2008	5	\$5,675	0	0			



TABLE 5.1.N HAIL EVENTS (SHELDUS)								
County	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities		
Logan	Hail	2008	6	\$22,700	0	0		
Wayne	Hail	2008	6	\$5,675	0	0		
Cabell	Hail	2009	5	\$39,868	0	0		
Wayne	Hail	2009	5	\$13,669	0	0		
Logan	Hail	2011	4	\$10,864	0	0		
Wayne	Hail	2011	4	\$5,432	0	0		
Cabell	Hail	2011	5	\$21,728	0	0		
Cabell	Hail	2011	9	\$1,086	0	0		
Lincoln	Hail	2012	3	\$5,322	0	0		
Logan	Hail	2012	3	\$6,386	0	0		
Mingo	Hail	2012	3	\$5,322	0	0		
Wayne	Hail	2012	3	\$26,609	0	0		
Logan	Hail	2012	4	\$12,772	0	0		
Logan	Hail	2012	10	\$745,060	0	0		
Mingo	Hail	2015	4	\$20,621	0	0		
Cabell	Hail	2015	6	\$5,155	0	0		
Wayne	Hail	2015	6	\$10,310	0	0		
Lincoln	Hail	2016	5	\$0	0	0		
Logan	Hail	2016	5	\$0	0	0		
Mingo	Hail	2016	5	\$0	0	0		
Total				\$2,349,464	\$30	\$0		

		ABLE 5.1.0	LIGHTNING	EVENTS (SHELDUS)	
Name	Hazard	Year	Month	Property Damage ADJ 2016)	Injuries	Fatalities
Cabell	Lightning	1964	4	\$24	0	0
Lincoln	Lightning	1964	4	\$24	0	0
Logan	Lightning	1964	4	\$24	0	0
Mason	Lightning	1964	4	\$24	0	0
Mingo	Lightning	1964	4	\$24	0	0
Wayne	Lightning	1964	4	\$24	0	0
Cabell	Lightning	1965	7	\$4,267	0	0
Cabell	Lightning	1966	7	\$3,428	0	0
Lincoln	Lightning	1966	7	\$3,428	0	0
Logan	Lightning	1966	7	\$3,428	0	0
Mason	Lightning	1966	7	\$3,428	0	0
Mingo	Lightning	1966	7	\$3,428	0	0
Wayne	Lightning	1966	7	\$3,428	0	0
Cabell	Lightning	1966	8	\$686	0.02	0
Lincoln	Lightning	1966	8	\$686	0.02	0
Logan	Lightning	1966	8	\$686	0.02	0
Mason	Lightning	1966	8	\$686	0.02	0
Mingo	Lightning	1966	8	\$686	0.02	0



TABLE 5.1.0 LIGHTNING EVENTS (SHELDUS)							
Name	Hazard	Year	Month	Property Damage ADJ 2016)	Injuries	Fatalities	
Wayne	Lightning	1966	8	\$686	0.02	0	
Cabell	Lightning	1968	6	\$35,111	0	0	
Mason	Lightning	1969	6	\$3,329	0	0	
Cabell	Lightning	1970	7	\$0	0	1	
Wayne	Lightning	1971	9	\$0	1	0	
Cabell	Lightning	1972	4	\$2,923	0	0	
Cabell	Lightning	1975	5	\$223	4.90333	0	
Lincoln	Lightning	1975	5	\$223	4.90333	0	
Logan	Lightning	1975	5	\$223	4.90333	0	
Mason	Lightning	1975	5	\$223	4.90333	0	
Mingo	Lightning	1975	5	\$223	4.90333	0	
Wayne	Lightning	1975	5	\$223	4.90333	0	
Lincoln	Lightning	1975	8	\$227,113	0	0	
Cabell	Lightning	1976	6	\$1,952	0	0	
Lincoln	Lightning	1976	6	\$1,952	0	0	
Logan	Lightning	1976	6	\$1,952	0	0	
Mason	Lightning	1976	6	\$1,952	0	0	
Mingo	Lightning	1976	6	\$1,952	0	0	
Wayne	Lightning	1976	6	\$1,952	0	0	
Cabell	Lightning	1976	7	\$4,668	0.5	0	
Lincoln	Lightning	1976	7	\$4,668	0	0	
Logan	Lightning	1976	7	\$4,668	0	0	
Mason	Lightning	1976	7	\$4,668	0	0	
Mingo	Lightning	1976	7	\$4,668	0	0	
Wayne	Lightning	1976	7	\$4,668	0	0	
Wayne	Lightning	1977	8	\$0	0	1	
Mason	Lightning	1980	7	\$0	0	1	
Wayne	Lightning	1980	7	\$148,285	0	0	
Cabell	Lightning	1986	7	\$68	0	0	
Lincoln	Lightning	1986	7	\$68	0	0	
Logan	Lightning	1986	7	\$68	0	0	
Mason	Lightning	1986	7	\$68	0	0	
Mingo	Lightning	1986	7	\$68	0	0	
Wayne	Lightning	1986	7	\$68	0	0	
Cabell	Lightning	1986	8	\$1,115	3	0	
Lincoln	Lightning	1987	6	\$10,756	0	0	
Mason	Lightning	1991	6	\$1,794	0	0	
Cabell	Lightning	1993	5	\$846	0	0	
Mason	Lightning	1995	8	\$0	1	1	
Cabell	Lightning	1996	9	\$3,115	0	0	
Mason	Lightning	2009	8	\$102,517	0	0	
Wayne	Lightning	2011	6	\$0	1	0	
Cabell	Lightning	2011	7	\$0	1	0	
Cabell	Lightning	2013	4	\$2,098	0	0	
Cabell	Lightning	2014	6	\$8,258	0	0	



TABLE 5.1.0 LIGHTNING EVENTS (SHELDUS)								
Name	Hazard	Year	Month	Property Damage ADJ 2016)	Injuries	Fatalities		
Logan	Lightning	2014	6	\$0	1	0		
Lincoln	Lightning	2014	8	\$20,645	0	0		
Mason	Lightning	2016	7	\$0	0	0		
Mingo	Lightning	2016	7	\$0	0	0		
Total				\$638,462	38	4		

TABLE 5.1.P TORNADO EVENTS (SHELDUS)								
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities		
Wayne	Tornado	1965	4	\$387,894	3	0		
Mason	Tornado	1970	4	\$3,149	0	0		
Lincoln	Tornado	1972	9	\$974	0	0		
Logan	Tornado	1972	9	\$974	0	0		
Cabell	Tornado	1976	7	\$10,737	0	0		
Lincoln	Tornado	1979	8	\$1,683	0	0		
Lincoln	Tornado	1980	7	\$14,828	0	0		
Cabell	Tornado	1993	6	\$846	0	0		
Mason	Tornado	1998	6	\$112,442	1	0		
Cabell	Tornado	2000	8	\$390,259	0	0		
Lincoln	Tornado	2000	8	\$283,825	0	0		
Mason	Tornado	2007	6	\$9,429	0	0		
Lincoln	Tornado	2012	3	\$372,530	0	0		
Mingo	Tornado	2012	3	\$95,793	0	0		
Wayne	Tornado	2012	3	\$2,022,305	0	0		
Cabell	Tornado	2014	6	\$30,968	0	0		
Lincoln	Tornado	2016	7	\$0	0	0		
Wayne	Tornado	2016	7	\$0	0	0		
Total				\$3,738,637	4	0		

TABLE 5.1.Q WIND EVENTS (SHELDUS)							
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities	
Cabell	Wind	1960	2	\$751	0	0	
Lincoln	Wind	1960	2	\$751	0	0	
Logan	Wind	1960	2	\$751	0	0	
Mason	Wind	1960	2	\$751	0	0	
Mingo	Wind	1960	2	\$751	0	0	
Wayne	Wind	1960	2	\$751	0	0	
Cabell	Wind	1961	3	\$20,433	0	0	
Cabell	Wind	1962	7	\$6,743	0	0	
Lincoln	Wind	1962	7	\$0	0	0	



TABLE 5.1.Q WIND EVENTS (SHELDUS)								
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities		
Wayne	Wind	1962	7	\$6,743	0	0		
Cabell	Wind	1964	4	\$24	0	0		
Lincoln	Wind	1964	4	\$24	0	0		
Logan	Wind	1964	4	\$24	0	0		
Mason	Wind	1964	4	\$24	0	0		
Mingo	Wind	1964	4	\$24	0	0		
Wayne	Wind	1964	4	\$24	0	0		
Cabell	Wind	1965	4	\$1,322	0.01	0		
Lincoln	Wind	1965	4	\$1,322	0.01	0		
Logan	Wind	1965	4	\$1,322	0.01	0		
Mason	Wind	1965	4	\$353	0.01	0		
Mingo	Wind	1965	4	\$1,322	0.01	0		
Wayne	Wind	1965	4	\$1,322	0.01	0		
Cabell	Wind	1965	5	\$1,487	0	0		
Cabell	Wind	1965	6	\$194	0	0		
Cabell	Wind	1965	10	\$4	0	0		
Lincoln	Wind	1965	10	\$4	0	0		
Logan	Wind	1965	10	\$4	0	0		
Mason	Wind	1965	10	\$4	0	0		
Mingo	Wind	1965	10	\$4	0	0		
Wayne	Wind	1965	10	\$4	0	0		
Cabell	Wind	1965	11	\$71	0	0		
Lincoln	Wind	1965	11	\$71	0	0		
Logan	Wind	1965	11	\$71	0	0		
Mason	Wind	1965	11	\$71	0	0		
Mingo	Wind	1965	11	\$71	0	0		
Wayne	Wind	1965	11	\$71	0	0		
Cabell	Wind	1966	7	\$7,200	0	0		
Lincoln	Wind	1966	7	\$3,428	0	0		
Logan	Wind	1966	7	\$3,428	0	0		
Mason	Wind	1966	7	\$3,428	0	0		
Mingo	Wind	1966	7	\$3,428	0	0		
Wayne	Wind	1966	7	\$3,428	0	0		
Cabell	Wind	1967	2	\$6,651	0	0		
Lincoln	Wind	1967	2	\$6,651	0	0		
Logan	Wind	1967	2	\$6,651	0	0		
Mason	Wind	1967	2	\$6,651	0	0		
Mingo	Wind	1967	2	\$6,651	0	0		
Wayne	Wind	1967	2	\$6,651	0	0		
Cabell	Wind	1968	4	\$3,511	0	0		
Mason	Wind	1968	7	\$17,556	0	0		
Cabell	Wind	1968	12	\$351	0	0		
Cabell	Wind	1969	6	\$303	0	0		
Lincoln	Wind	1969	6	\$303	0	0		
Logan	Wind	1969	6	\$303	0	0		


TABLE 5.1.Q WIND EVENTS (SHELDUS)								
County Name	County Hazard Year Month Property Damage Injuries Fatalities Name Hazard Year Month (ADJ 2016)							
Mason	Wind	1969	6	\$303	0	0		
Mingo	Wind	1969	6	\$303	0	0		
Wayne	Wind	1969	6	\$303	0	0		
Cabell	Wind	1971	1	\$5,485	0	0		
Lincoln	Wind	1971	1	\$5,485	0	0		
Logan	Wind	1971	1	\$5,485	0	0		
Mason	Wind	1971	1	\$5,485	0	0		
Mingo	Wind	1971	1	\$5,485	0	0		
Wayne	Wind	1971	1	\$5,485	0	0		
Logan	Wind	1971	4	\$302	0	0		
Mason	Wind	1971	6	\$3,017	0	0		
Cabell	Wind	1971	12	\$302	1	0		
Logan	Wind	1974	3	\$24,784	0	0		
Cabell	Wind	1974	4	\$12,392	0.5	0		
Cabell	Wind	1974	12	\$0	0	0.01		
Lincoln	Wind	1974	12	\$0	0	0.01		
Logan	Wind	1974	12	\$0	0	0.01		
Mason	Wind	1974	12	\$0	0	0.01		
Mingo	Wind	1974	12	\$0	0	0.01		
Wayne	Wind	1974	12	\$0	0	0.01		
Cabell	Wind	1975	1	\$413	0	0.02		
Lincoln	Wind	1975	1	\$413	0	0.02		
Logan	Wind	1975	1	\$413	0	0.02		
Mason	Wind	1975	1	\$413	0	0.02		
Mingo	Wind	1975	1	\$413	0	0.02		
Wayne	Wind	1975	1	\$413	0	0.02		
Cabell	Wind	1975	5	\$223	4.90333	0		
Lincoln	Wind	1975	5	\$223	4.90333	0		
Logan	Wind	1975	5	\$223	4.90333	0		
Mason	Wind	1975	5	\$223	4.90333	0		
Mingo	Wind	1975	5	\$223	4.90333	0		
Wayne	Wind	1975	5	\$223	4.90333	0		
Cabell	Wind	1975	8	\$22,711	0	0		
Cabell	Wind	1976	1	\$3,904	0	0		
Lincoln	Wind	1976	1	\$3,904	0	0		
Logan	Wind	1976	1	\$3,904	0	0		
Mason	Wind	1976	1	\$3,904	0	0		
Mingo	Wind	1976	1	\$3,904	0	0		
Wayne	Wind	1976	1	\$3,904	0	0		
Cabell	Wind	1976	6	\$1,952	0	0		
Lincoln	Wind	1976	6	\$1,952	0	0		
Logan	Wind	1976	6	\$1,952	0	0		
Mason	Wind	1976	6	\$1,952	0	0		
Mingo	Wind	1976	6	\$1,952	0	0		
Wayne	Wind	1976	6	\$1,952	0	0		



	TABLE 5.1.Q WIND EVENTS (SHELDUS)					
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities
Cabell	Wind	1976	7	\$15,405	0.5	0
Lincoln	Wind	1976	7	\$4,668	0	0
Logan	Wind	1976	7	\$4,668	0	0
Mason	Wind	1976	7	\$4,668	0	0
Mingo	Wind	1976	7	\$4,668	0	0
Wayne	Wind	1976	7	\$4,668	0	0
Cabell	Wind	1977	12	\$10,081	0	0
Cabell	Wind	1978	1	\$3,407	0	0
Lincoln	Wind	1978	1	\$3,407	0	0
Logan	Wind	1978	1	\$3,407	0	0
Mason	Wind	1978	1	\$3,407	0	0
Mingo	Wind	1978	1	\$3,407	0	0
Wayne	Wind	1978	1	\$3,407	0	0
Cabell	Wind	1979	4	\$306	0	0
Lincoln	Wind	1979	4	\$306	0	0
Logan	Wind	1979	4	\$306	0	0
Mason	Wind	1979	4	\$306	0	0
Mingo	Wind	1979	4	\$306	0	0
Wayne	Wind	1979	4	\$306	0	0
Cabell	Wind	1979	8	\$306	0.01	0
Lincoln	Wind	1979	8	\$306	0.01	0
Logan	Wind	1979	8	\$306	0.01	0
Mason	Wind	1979	8	\$306	0.01	0
Mingo	Wind	1979	8	\$306	0.01	0
Wayne	Wind	1979	8	\$306	0.01	0
Cabell	Wind	1980	3	\$27	0	0
Lincoln	Wind	1980	3	\$27	0	0
Logan	Wind	1980	3	\$27	0	0
Mason	Wind	1980	3	\$27	0	0
Mingo	Wind	1980	3	\$27	0	0
Wayne	Wind	1980	3	\$27	0	0
Cabell	Wind	1980	7	\$148	0	0
Lincoln	Wind	1980	7	\$148	0	0
Logan	Wind	1980	7	\$148	0	0
Mason	Wind	1980	7	\$148	0	0
Mingo	Wind	1980	7	\$148	0	0
Wayne	Wind	1980	7	\$148	0	0
Cabell	Wind	1980	9	\$13	0	0
Lincoln	Wind	1980	9	\$13	0	0
Logan	Wind	1980	9	\$13	0	0
Mason	Wind	1980	9	\$13	0	0
Mingo	Wind	1980	9	\$13	0	0
Wayne	Wind	1980	9	\$13	0	0
Cabell	Wind	1981	2	\$244	0	0
Lincoln	Wind	1981	2	\$244	0	0



	TABLE 5.1.Q WIND EVENTS (SHELDUS)							
County Name	County Hazard Year Month Property Damage Injuries Fatalities Name Hazard Year Month (ADJ 2016)							
Logan	Wind	1981	2	\$244	0	0		
Mason	Wind	1981	2	\$244	0	0		
Mingo	Wind	1981	2	\$244	0	0		
Wayne	Wind	1981	2	\$244	0	0		
Cabell	Wind	1981	4	\$67,209	0.5	0		
Cabell	Wind	1981	5	\$1,344	0	0		
Lincoln	Wind	1981	5	\$1,344	0	0		
Logan	Wind	1981	5	\$1,344	0	0		
Mason	Wind	1981	5	\$1,344	0	0		
Mingo	Wind	1981	5	\$1,344	0	0		
Wayne	Wind	1981	5	\$1,344	0	0		
Cabell	Wind	1981	6	\$2,444	0	0		
Lincoln	Wind	1981	6	\$2,444	0	0		
Logan	Wind	1981	6	\$2,444	0	0		
Mason	Wind	1981	6	\$2,444	0	0		
Mingo	Wind	1981	6	\$2,444	0	0		
Wayne	Wind	1981	6	\$2,444	0	0		
Mason	Wind	1982	6	\$126,618	1	0		
Cabell	Wind	1983	8	\$204	0	0		
Mason	Wind	1983	8	\$409	0	0		
Wayne	Wind	1983	8	\$204	0	0		
Cabell	Wind	1986	7	\$68	0	0		
Lincoln	Wind	1986	7	\$68	0	0		
Logan	Wind	1986	7	\$68	0	0		
Mason	Wind	1986	7	\$2,297	0	0		
Mingo	Wind	1986	7	\$68	0	0		
Wayne	Wind	1986	7	\$68	0	0		
Cabell	Wind	1987	12	\$5,661	0	0		
Lincoln	Wind	1987	12	\$5,661	0	0		
Mason	Wind	1987	12	\$5,661	0	0		
Wayne	Wind	1987	12	\$5,661	0	0		
Cabell	Wind	1989	8	\$49	0	0		
Mason	Wind	1990	6	\$935	0	0		
Mason	Wind	1990	7	\$467	0	0		
Logan	Wind	1990	11	\$935	0	0		
Cabell	Wind	1991	4	\$44,856	0	0.5		
Lincoln	Wind	1991	4	\$44,856	0	0		
Logan	Wind	1991	4	\$44,856	0	0		
Mason	Wind	1991	4	\$44,856	0	0		
Mingo	Wind	1991	4	\$4,486	0	0		
Wayne	Wind	1991	4	\$44,856	0	0		
Cabell	Wind	1991	7	\$897	0	0		
Cabell	Wind	1992	1	\$2,074	0	0		
Lincoln	Wind	1992	1	\$2,074	0	0		
Logan	Wind	1992	1	\$2,074	0	0		



	TABLE 5.1.Q WIND EVENTS (SHELDUS)					
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities
Mason	Wind	1992	1	\$2,074	0	0
Mingo	Wind	1992	1	\$2,074	0	0
Wayne	Wind	1992	1	\$2,074	0	0
Cabell	Wind	1992	11	\$189	0	0
Lincoln	Wind	1992	11	\$189	0	0
Logan	Wind	1992	11	\$189	0	0
Mason	Wind	1992	11	\$189	0	0
Mingo	Wind	1992	11	\$189	0	0
Wayne	Wind	1992	11	\$189	0	0
Cabell	Wind	1993	2	\$4,228	0	0
Lincoln	Wind	1993	2	\$4,228	0	0
Mason	Wind	1993	2	\$423	0	0
Wayne	Wind	1993	2	\$42,702	0	0
Cabell	Wind	1993	4	\$423	0	0
Mason	Wind	1993	4	\$423	0	0
Wayne	Wind	1993	4	\$423	0	0
Cabell	Wind	1993	11	\$8,456	0	0
Wayne	Wind	1993	11	\$4,228	0	0
Cabell	Wind	1994	3	\$242	0	0
Lincoln	Wind	1994	3	\$242	0	0
Mason	Wind	1994	3	\$242	0	0
Wayne	Wind	1994	3	\$242	0	0
Logan	Wind	1994	6	\$275	0	0
Mason	Wind	1994	6	\$275	0	0
Cabell	Wind	1995	5	\$32,070	0	0
Lincoln	Wind	1995	5	\$12,026	0	0
Mason	Wind	1995	5	\$12,026	0	0
Mingo	Wind	1995	5	\$16,035	0	0
Wayne	Wind	1995	5	\$28,061	0.5	0
Cabell	Wind	1995	6	\$44,096	0	0
Lincoln	Wind	1995	6	\$4,009	0	0
Logan	Wind	1995	6	\$8,017	0	0
Mason	Wind	1995	6	\$8,017	0	0
Wayne	Wind	1995	6	\$8,017	0	0
Cabell	Wind	1996	4	\$54,513	0	0
Mason	Wind	1996	4	\$15,575	0	0
Mingo	Wind	1996	4	\$15,575	0	0
Cabell	Wind	1996	5	\$3,894	0	0
Lincoln	Wind	1996	5	\$11,681	0	0
Mason	Wind	1996	5	\$7,788	0	0
Wayne	Wind	1996	5	\$39,716	0	0
Cabell	Wind	1996	6	\$10,124	0	0
Lincoln	Wind	1996	6	\$2,336	0	0
Logan	Wind	1996	6	\$23,363	0	0
Mason	Wind	1996	6	\$779	0	0



TABLE 5.1.Q WIND EVENTS (SHELDUS)								
County Name	County Hazard Year Month Property Damage Injuries Fatalities							
Wayne	Wind	1996	6	\$1,558	0	0		
Cabell	Wind	1996	7	\$2,336	0	0		
Lincoln	Wind	1996	7	\$155,751	0	0		
Mason	Wind	1996	8	\$1,558	0	0		
Logan	Wind	1997	1	\$761	0	0		
Mingo	Wind	1997	1	\$761	0	0		
Cabell	Wind	1997	7	\$13,703	0	0		
Lincoln	Wind	1997	7	\$5,329	0	0		
Logan	Wind	1997	7	\$1,523	0	0		
Mason	Wind	1997	7	\$20,555	0	0		
Mingo	Wind	1997	7	\$761	0	0		
Wayne	Wind	1997	7	\$3,806	0	0		
Cabell	Wind	1997	8	\$14,464	0	0		
Lincoln	Wind	1997	8	\$1,523	0	0		
Mason	Wind	1997	8	\$14,464	0	0		
Wayne	Wind	1997	8	\$5,329	0	0		
Wayne	Wind	1998	2	\$2,249	0	0		
Wayne	Wind	1998	4	\$3,748	0	0		
Cabell	Wind	1998	5	\$37,481	0	0		
Mingo	Wind	1998	5	\$1,499	0	0		
Cabell	Wind	1998	6	\$3,748	0	0		
Mason	Wind	1998	6	\$8,995	0	0		
Mingo	Wind	1998	6	\$1,499	0	0		
Mason	Wind	1998	9	\$750	0	0		
Mingo	Wind	1999	1	\$1,467	0	0		
Wayne	Wind	1999	1	\$2,934	0	0		
Cabell	Wind	1999	4	\$1,467	0	0		
Mingo	Wind	1999	4	\$8,801	0.5	0		
Mason	Wind	1999	7	\$7,334	0	0		
Mingo	Wind	1999	7	\$1,467	0	0		
Wayne	Wind	1999	7	\$2,934	0	0		
Cabell	Wind	1999	8	\$1,467	0	0		
Lincoln	Wind	1999	8	\$13,201	0	0		
Mingo	Wind	1999	8	\$3,667	0	0		
Cabell	Wind	1999	10	\$3,667	0	0		
Lincoln	Wind	1999	10	\$11,001	0	0		
Wayne	Wind	1999	10	\$14,668	0	0		
Logan	Wind	2000	5	\$710	0	0		
Lincoln	Wind	2000	6	\$2,129	0	0		
Logan	Wind	2000	6	\$3,548	0	0		
Mason	Wind	2000	6	\$710	0	0		
Wayne	Wind	2000	6	\$710	0	0		
Cabell	Wind	2000	7	\$152,556	0	0		
Lincoln	Wind	2000	7	\$5,676	0	0		
Logan	Wind	2000	7	\$2,129	0	0		



TABLE 5.1.Q WIND EVENTS (SHELDUS)								
County Name	County Hazard Year Month Property Damage Injuries Fatalities							
Mingo	Wind	2000	7	\$2,838	0	0		
Wayne	Wind	2000	7	\$2,129	0	0		
Cabell	Wind	2000	8	\$7,096	0	0		
Lincoln	Wind	2000	8	\$7,096	0	0		
Logan	Wind	2000	8	\$1,419	0	0		
Mason	Wind	2000	8	\$15,610	0	0		
Mingo	Wind	2000	8	\$3,548	0	0		
Wayne	Wind	2000	8	\$23,416	0	0		
Cabell	Wind	2001	3	\$138	0	0		
Lincoln	Wind	2001	3	\$138	0	0		
Mason	Wind	2001	3	\$138	0	0		
Wayne	Wind	2001	3	\$138	0	0		
Cabell	Wind	2001	5	\$3,450	0	0		
Lincoln	Wind	2001	5	\$5,519	0	0		
Logan	Wind	2001	5	\$3,450	0	2		
Mason	Wind	2001	5	\$10,349	0	0		
Cabell	Wind	2001	6	\$2,070	0	0		
Mason	Wind	2001	6	\$1,380	0	0		
Lincoln	Wind	2001	7	\$2,070	0	0		
Logan	Wind	2001	10	\$2,070	0	0		
Cabell	Wind	2001	12	\$0	0	0		
Lincoln	Wind	2001	12	\$0	0	0		
Logan	Wind	2001	12	\$0	0	0		
Mason	Wind	2001	12	\$0	0	0		
Mingo	Wind	2001	12	\$0	0	0		
Wayne	Wind	2001	12	\$0	0	0		
Cabell	Wind	2002	3	\$4,075	0	0		
Lincoln	Wind	2002	3	\$4,075	0	0		
Mason	Wind	2002	3	\$4,075	0	0		
Wayne	Wind	2002	3	\$4,075	0	0		
Logan	Wind	2002	5	\$2,038	0	0		
Mason	Wind	2002	5	\$1,358	0	0		
Mingo	Wind	2002	5	\$6,792	0	0		
Mingo	Wind	2002	6	\$679	0	0		
Lincoln	Wind	2002	11	\$2,038	0	0		
Mason	Wind	2002	11	\$1,358	0	0		
Wayne	Wind	2002	11	\$3,396	0	0		
Cabell	Wind	2003	5	\$9,961	0	0		
Mingo	Wind	2003	5	\$664	0	0		
Wayne	Wind	2003	5	\$1,328	0	0		
Mason	Wind	2004	3	\$6,468	0	0		
Cabell	Wind	2004	6	\$48,512	0.5	0		
Cabell	Wind	2005	7	\$626	0	0.5		
Logan	Wind	2005	7	\$12,513	0	0		
Mason	Wind	2005	7	\$1,251	0	0		



TABLE 5.1.Q WIND EVENTS (SHELDUS)								
County Name	County Hazard Year Month Property Damage Injuries Fatalities Name Hazard Year Month (ADJ 2016)							
Logan	Wind	2006	4	\$30,304	0.5	0		
Mingo	Wind	2006	4	\$545,476	1	0		
Cabell	Wind	2006	6	\$3,030	0	0		
Mason	Wind	2006	7	\$3,030	0	0		
Wayne	Wind	2006	7	\$3,030	0	0		
Cabell	Wind	2007	6	\$589	0	0		
Cabell	Wind	2007	7	\$25,929	0	0		
Cabell	Wind	2008	1	\$568	0	0		
Mason	Wind	2008	1	\$1,135	0	0		
Cabell	Wind	2008	2	\$2,838	0	0		
Logan	Wind	2008	4	\$113,502	0.5	0		
Mingo	Wind	2008	4	\$1,135	0	0		
Lincoln	Wind	2008	6	\$1,135	0	0		
Mason	Wind	2008	6	\$1,135	0	0		
Cabell	Wind	2009	2	\$5,695	0	0		
Lincoln	Wind	2009	2	\$11,391	0	0		
Logan	Wind	2009	2	\$5,695	0	0		
Mason	Wind	2009	2	\$2,848	0	0		
Mingo	Wind	2009	2	\$14,238	0	0		
Lincoln	Wind	2009	4	\$1,139	0	0		
Logan	Wind	2009	4	\$8,543	0	0		
Mingo	Wind	2009	4	\$1,139	0	0		
Mingo	Wind	2009	6	\$570	0	0		
Logan	Wind	2009	7	\$1,139	0	0		
Cabell	Wind	2010	6	\$15,129	0	0		
Lincoln	Wind	2010	6	\$2,802	0	0		
Mingo	Wind	2010	6	\$560	0	0		
Wayne	Wind	2010	6	\$5,603	0	0		
Cabell	Wind	2010	8	\$7,284	0	0		
Lincoln	Wind	2010	8	\$5,603	0	0		
Wayne	Wind	2010	8	\$4,483	0	0		
Cabell	Wind	2010	10	\$11,207	0	0		
Lincoln	Wind	2010	10	\$2,802	0	0		
Mason	Wind	2010	10	\$8,966	0	0		
Mingo	Wind	2010	10	\$1,121	0	0		
Cabell	Wind	2011	2	\$1,086	0	0		
Lincoln	Wind	2011	2	\$1,086	0	0		
Lincoln	Wind	2011	3	\$543	0	0		
Cabell	Wind	2011	4	\$16,839	0	0		
Lincoln	Wind	2011	4	\$13,580	0	0		
Logan	Wind	2011	4	\$3,802	0	0		
Mingo	Wind	2011	4	\$543	0	0		
Wayne	Wind	2011	4	\$1,630	0	0		
Cabell	Wind	2011	5	\$10,864	0	0		
Wayne	Wind	2011	5	\$54,320	0	0		



	TABLE 5.1.Q WIND EVENTS (SHELDUS)					
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities
Cabell	Wind	2011	6	\$8,691	0	0
Lincoln	Wind	2011	6	\$1,086	0	0
Mason	Wind	2011	6	\$1,086	0	0
Wayne	Wind	2011	6	\$7,605	0	0
Cabell	Wind	2011	7	\$40,740	0	0
Logan	Wind	2011	7	\$543	0	0
Lincoln	Wind	2011	9	\$5,432	0	0
Mingo	Wind	2012	2	\$2,129	0	0
Cabell	Wind	2012	6	\$1,649,775	0	0
Lincoln	Wind	2012	6	\$399,139	0	0
Logan	Wind	2012	6	\$404,461	0	0
Mason	Wind	2012	6	\$843,514	0	0
Mingo	Wind	2012	6	\$399,139	0	0
Wayne	Wind	2012	6	\$533,250	0	0
Cabell	Wind	2012	7	\$9,579	0	0
Lincoln	Wind	2012	7	\$31,931	0	0
Logan	Wind	2012	7	\$35,124	0	0
Mingo	Wind	2012	7	\$11,176	0	0
Wayne	Wind	2012	7	\$9,047	0	0
Cabell	Wind	2013	1	\$3,672	0	0
Cabell	Wind	2013	5	\$26,225	0	0
Lincoln	Wind	2013	5	\$13,113	0	0
Mingo	Wind	2013	5	\$1,574	0	0
Logan	Wind	2013	7	\$2,623	0	0
Cabell	Wind	2013	11	\$151,057	0	0
Mason	Wind	2013	11	\$525	0	0
Wayne	Wind	2013	11	\$78,675	0	0
Cabell	Wind	2013	12	\$5,245	0	0
Lincoln	Wind	2013	12	\$2,623	0	0
Mason	Wind	2013	12	\$4,196	0	0
Wayne	Wind	2013	12	\$2,623	0	0
Cabell	Wind	2014	1	\$245,162	0	0
Lincoln	Wind	2014	1	\$23,226	0	0
Logan	Wind	2014	1	\$23,226	0	0
Mason	Wind	2014	1	\$116,129	0	0
Mingo	Wind	2014	1	\$23,226	0	0
Wayne	Wind	2014	1	\$23,226	0	0
Cabell	Wind	2014	2	\$103,226	0	0
Lincoln	Wind	2014	2	\$23,226	0	0
Mingo	Wind	2014	2	\$23,226	0	0
Wayne	Wind	2014	2	\$23,226	0	0
Wayne	Wind	2014	3	\$25,807	0	0
Lincoln	Wind	2014	4	\$1,032	0	0
Wayne	Wind	2014	4	\$2,581	0	0
Mingo	Wind	2014	5	\$2,581	0	0



	TABLE 5.1.Q WIND EVENTS (SHELDUS)					
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities
Cabell	Wind	2014	6	\$108,387	0	0
Mason	Wind	2014	6	\$1,032	0	0
Wayne	Wind	2014	6	\$3,613	0	0
Mason	Wind	2014	7	\$1,032	0	0
Cabell	Wind	2014	8	\$17,548	0	0
Mason	Wind	2014	8	\$516	0	0
Cabell	Wind	2014	11	\$10,323	0	0
Lincoln	Wind	2014	11	\$5,161	0	0
Logan	Wind	2014	11	\$2,065	0	0
Mason	Wind	2014	11	\$5,161	0	0
Mingo	Wind	2014	11	\$2,065	0	0
Wayne	Wind	2014	11	\$15,484	0	0
Cabell	Wind	2015	2	\$25,776	0	0
Cabell	Wind	2015	6	\$30,931	0	0
Lincoln	Wind	2015	6	\$6,186	0	0
Mingo	Wind	2015	6	\$2,062	0	0
Cabell	Wind	2015	7	\$54,129	0	0
Lincoln	Wind	2015	7	\$14,950	0	0
Logan	Wind	2015	7	\$26,807	0	0
Mason	Wind	2015	7	\$19,074	0	0
Mingo	Wind	2015	7	\$51,552	0	0
Wayne	Wind	2015	7	\$25,776	0	0
Cabell	Wind	2016	3	\$0	0	0
Lincoln	Wind	2016	3	\$0	0	0
Mason	Wind	2016	3	\$0	0	0
Wayne	Wind	2016	3	\$0	0	0
Cabell	Wind	2016	4	\$0	0	0
Lincoln	Wind	2016	4	\$0	0	0
Logan	Wind	2016	4	\$0	0	0
Mason	Wind	2016	4	\$0	0	0
Mingo	Wind	2016	4	\$0	0	0
Wayne	Wind	2016	4	\$0	0	0
Wayne	Wind	2016	5	\$0	0	0
Lincoln	Wind	2016	6	\$0	0	0
Mason	Wind	2016	6	\$0	0	0
Mingo	Wind	2016	6	\$0	0	0
Cabell	Wind	2016	7	\$0	0	0
Lincoln	Wind	2016	1	\$0	0	0
Logan	Wind	2016	7	\$0	0	0
Mason	Wind	2016	7	\$0	0	0
Mingo	Wind	2016	7	\$0	0	0
Wayne	Wind	2016	7	\$0	0	0
Cabell	Wind	2016	11	\$0	0	0
Total				\$8,744,255	37	3



SEVERE WINTER WEATHER

The following table shows the severe winter events in all the counties of Region 2. Each event is separated by color.

TABLE	TABLE 5.1.R SEVERE WINTER WEATHER EVENTS (NCEI)						
County	Date	Event	Property Damage				
Mingo	1/1/1996	Heavy Snow	\$0				
Logan	1/1/1996	Heavy Snow	\$0				
Wayne	1/6/1996	Heavy Snow	\$0				
Mason	1/6/1996	Heavy Snow	\$0				
Cabell	1/6/1996	Heavy Snow	\$0				
Lincoln	1/6/1996	Heavy Snow	\$0				
Logan	1/6/1996	Heavy Snow	\$0				
Mingo	1/6/1996	Heavy Snow	\$0				
Wayne	1/11/1996	Heavy Snow	\$0				
Logan	1/11/1996	Heavy Snow	\$0				
Mingo	1/11/1996	Heavy Snow	\$0				
Lincoln	1/11/1996	Heavy Snow	\$0				
Mason	1/11/1996	Heavy Snow	\$0				
Cabell	1/11/1996	Heavy Snow	\$0				
Lincoln	2/2/1996	Heavy Snow	\$0				
Mason	2/2/1996	Heavy Snow	\$0				
Cabell	2/2/1996	Heavy Snow	\$0				
Wayne	2/2/1996	Heavy Snow	\$0				
Mingo	2/2/1996	Heavy Snow	\$0				
Logan	2/2/1996	Heavy Snow	\$0				
Lincoln	12/27/1997	Winter Weather	\$0				
Wayne	2/3/1998	Winter Storm	\$200,000				
Cabell	2/3/1998	Winter Storm	\$250,000				
Logan	2/3/1998	Winter Storm	\$0				
Mingo	2/3/1998	Winter Storm	\$50,000				
Mason	2/3/1998	Winter Storm	\$0				
Lincoln	2/3/1998	Winter Storm	\$50,000				
Lincoln	1/8/1999	Ice Storm	\$0				
Wayne	1/8/1999	Ice Storm	\$0				
Cabell	1/8/1999	Ice Storm	\$0				
Lincoln	2/12/1999	Winter Weather	\$0				



TABLE 5.1.R SEVERE WINTER WEATHER EVENTS (NCEI)					
County	Date	Event	Property Damage		
Cabell	2/12/1999	Winter Weather	\$0		
Wayne	2/12/1999	Winter Weather	\$0		
Mingo	2/12/1999	Winter Weather	\$0		
Mason	2/12/1999	Winter Weather	\$0		
Logan	2/12/1999	Winter Weather	\$0		
Mingo	1/18/2000	Heavy Snow	\$0		
Logan	1/18/2000	Heavy Snow	\$0		
Cabell	1/29/2000	Winter Storm	\$0		
Wayne	1/29/2000	Winter Storm	\$0		
Mingo	2/4/2000	Heavy Snow	\$0		
Wayne	1/6/2002	Heavy Snow	\$0		
Mingo	1/6/2002	Heavy Snow	\$0		
Logan	1/6/2002	Heavy Snow	\$0		
Lincoln	1/6/2002	Heavy Snow	\$0		
Wayne	1/19/2002	Heavy Snow	\$0		
Mingo	1/19/2002	Heavy Snow	\$0		
Logan	1/19/2002	Heavy Snow	\$0		
Lincoln	1/19/2002	Heavy Snow	\$0		
Cabell	1/19/2002	Heavy Snow	\$0		
Lincoln	12/4/2002	Winter Storm	\$0		
Mingo	12/4/2002	Winter Storm	\$0		
Wayne	12/4/2002	Winter Storm	\$0		
Logan	12/4/2002	Winter Storm	\$0		
Cabell	12/4/2002	Heavy Snow	\$0		
Mason	12/4/2002	Heavy Snow	\$0		
Cabell	2/16/2003	Winter Storm	\$0		
Wayne	2/16/2003	Winter Storm	\$50,000		
Mason	2/16/2003	Ice Storm	\$1,000,000		
Wayne	10/3/2003	Frost/Freeze	\$0		
Cabell	10/3/2003	Frost/Freeze	\$0		
Logan	10/3/2003	Frost/Freeze	\$0		
Lincoln	10/3/2003	Frost/Freeze	\$0		
Mason	10/3/2003	Frost/Freeze	\$0		
Mingo	10/3/2003	Frost/Freeze	\$0		
Mingo	1/25/2004	Winter Storm	\$0		



TABLE 5.1.R SEVERE WINTER WEATHER EVENTS (NCEI)					
County	Date	Event	Property Damage		
Cabell	1/25/2004	Winter Storm	\$0		
Logan	1/25/2004	Winter Storm	\$0		
Lincoln	1/25/2004	Winter Storm	\$0		
Wayne	1/25/2004	Winter Storm	\$0		
Mason	1/25/2004	Winter Storm	\$0		
Mason	4/28/2004	Frost/Freeze	\$0		
Cabell	5/4/2004	Frost/Freeze	\$0		
Wayne	5/4/2004	Frost/Freeze	\$0		
Mingo	5/4/2004	Frost/Freeze	\$0		
Mason	5/4/2004	Frost/Freeze	\$0		
Logan	5/4/2004	Frost/Freeze	\$0		
Lincoln	5/4/2004	Frost/Freeze	\$0		
Lincoln	2/7/2007	Winter Weather	\$0		
Wayne	2/7/2007	Winter Weather	\$0		
Cabell	2/7/2007	Winter Weather	\$0		
Mingo	2/7/2007	Winter Weather	\$0		
Mason	2/7/2007	Winter Weather	\$0		
Logan	2/7/2007	Winter Weather	\$0		
Mason	2/20/2008	Winter Weather	\$0		
Cabell	12/23/2008	Winter Weather	\$0		
Wayne	12/23/2008	Winter Weather	\$0		
Mason	1/27/2009	Winter Storm	\$50,000		
Wayne	1/27/2009	Winter Storm	\$50,000		
Cabell	1/27/2009	Winter Storm	\$250,000		
Lincoln	1/27/2009	Winter Storm	\$0		
Logan	2/3/2009	Heavy Snow	\$0		
Mingo	2/3/2009	Heavy Snow	\$0		
Mingo	12/18/2009	Heavy Snow	\$700,000		
Logan	12/18/2009	Heavy Snow	\$200,000		
Wayne	12/18/2009	Heavy Snow	\$50,000		
Cabell	12/18/2009	Heavy Snow	\$25,000		
Lincoln	12/18/2009	Heavy Snow	\$50,000		
Mingo	1/29/2010	Heavy Snow	\$0		
Logan	1/30/2010	Heavy Snow	\$0		
Wayne	1/30/2010	Heavy Snow	\$0		



TABLE 5.1.R SEVERE WINTER WEATHER EVENTS (NCEI)						
County	Date	Event	Property Damage			
Lincoln	1/30/2010	Heavy Snow	\$0			
Cabell	12/16/2010	Heavy Snow	\$0			
Logan	12/16/2010	Winter Storm	\$0			
Wayne	12/16/2010	Heavy Snow	\$0			
Mason	12/16/2010	Heavy Snow	\$0			
Lincoln	12/16/2010	Heavy Snow	\$0			
Mingo	12/16/2010	Winter Storm	\$0			
Logan	12/25/2010	Winter Weather	\$0			
Mingo	12/25/2010	Winter Weather	\$0			
Logan	2/19/2012	Heavy Snow	\$50,000			
Mingo	2/19/2012	Heavy Snow	\$50,000			
Wayne	3/5/2012	Heavy Snow	\$0			
Cabell	3/5/2012	Winter Weather	\$0			
Logan	3/5/2012	Winter Weather	\$0			
Mingo	3/5/2012	Winter Weather	\$0			
Mingo	10/29/2012	Heavy Snow	\$250,000			
Logan	10/29/2012	Heavy Snow	\$400,000			
Lincoln	10/29/2012	Heavy Snow	\$750,000			
Wayne	10/29/2012	Heavy Snow	\$200,000			
Mason	3/17/2013	Winter Weather	\$0			
Cabell	12/8/2013	Heavy Snow	\$0			
Logan	1/2/2014	Winter Weather	\$50,000			
Wayne	1/21/2014	Heavy Snow	\$0			
Cabell	1/21/2014	Heavy Snow	\$0			
Lincoln	1/21/2014	Heavy Snow	\$0			
Logan	1/21/2014	Heavy Snow	\$0			
Mingo	1/21/2014	Heavy Snow	\$0			
Wayne	1/25/2014	Winter Weather	\$0			
Mason	1/25/2014	Winter Weather	\$0			
Cabell	1/25/2014	Winter Weather	\$0			
Lincoln	1/25/2014	Winter Weather	\$0			
Logan	1/25/2014	Winter Weather	\$0			
Mingo	1/25/2014	Winter Weather	\$0			
Mason	2/2/2014	Heavy Snow	\$0			
Mingo	2/12/2014	Heavy Snow	\$0			



TABLE 5.1.R SEVERE WINTER WEATHER EVENTS (NCEI)						
County	Date	Event	Property Damage			
Logan	2/12/2014	Heavy Snow	\$0			
Lincoln	2/12/2014	Heavy Snow	\$0			
Mason	3/2/2014	Winter Storm	\$0			
Cabell	3/2/2014	Winter Storm	\$0			
Wayne	3/2/2014	Winter Storm	\$0			
Lincoln	3/2/2014	Winter Storm	\$0			
Logan	3/2/2014	Winter Storm	\$0			
Mingo	3/2/2014	Winter Storm	\$0			
Lincoln	3/16/2014	Heavy Snow	\$0			
Cabell	3/16/2014	Heavy Snow	\$0			
Wayne	3/16/2014	Heavy Snow	\$0			
Mason	3/16/2014	Heavy Snow	\$0			
Lincoln	2/16/2015	Heavy Snow	\$0			
Cabell	2/16/2015	Heavy Snow	\$0			
Wayne	2/16/2015	Heavy Snow	\$0			
Logan	2/16/2015	Heavy Snow	\$0			
Mingo	2/16/2015	Heavy Snow	\$0			
Mason	2/16/2015	Heavy Snow	\$0			
Cabell	2/18/2015	Winter Weather	\$0			
Wayne	2/18/2015	Winter Weather	\$0			
Logan	2/18/2015	Winter Weather	\$0			
Lincoln	2/18/2015	Winter Weather	\$0			
Cabell	2/21/2015	Winter Storm	\$50,000			
Wayne	2/21/2015	Winter Storm	\$75,000			
Lincoln	2/21/2015	Winter Storm	\$0			
Mingo	2/21/2015	Winter Storm	\$100,000			
Logan	2/21/2015	Winter Storm	\$75,000			
Mason	2/21/2015	Heavy Snow	\$0			
Mason	3/4/2015	Heavy Snow	\$0			
Cabell	3/4/2015	Heavy Snow	\$0			
Wayne	3/4/2015	Heavy Snow	\$0			
Lincoln	3/4/2015	Heavy Snow	\$0			
Logan	3/5/2015	Heavy Snow	\$0			
Mingo	3/5/2015	Heavy Snow	\$0			
Mason	1/8/2016	Winter Weather	\$0			



TABLE	TABLE 5.1.R SEVERE WINTER WEATHER EVENTS (NCEI)					
County	Date	Event	Property Damage			
Mingo	1/22/2016	Heavy Snow	\$0			
Logan	1/22/2016	Heavy Snow	\$0			
Lincoln	1/22/2016	Heavy Snow	\$25,000			
Wayne	1/22/2016	Heavy Snow	\$0			
Cabell	1/22/2016	Heavy Snow	\$0			
Mason	1/22/2016	Heavy Snow	\$0			
Cabell	2/14/2016	Heavy Snow	\$0			
Wayne	2/14/2016	Heavy Snow	\$0			
Mingo	2/14/2016	Heavy Snow	\$0			
Mason	2/14/2016	Winter Weather	\$0			
Lincoln	2/14/2016	Heavy Snow	\$0			
Logan	2/14/2016	Heavy Snow	\$0			
Wayne	3/3/2016	Winter Weather	\$50,000			
Mingo	3/3/2016	Winter Weather	\$10,000			
Logan	3/3/2016	Winter Weather	\$10,000			
Lincoln	3/3/2016	Winter Weather	\$10,000			
Cabell	1/5/2017	Winter Weather	\$0			
Lincoln	1/5/2017	Winter Weather	\$0			
Wayne	1/5/2017	Winter Weather	\$0			
Logan	1/5/2017	Winter Weather	\$0			
Mason	1/5/2017	Winter Weather	\$0			
Mingo	1/5/2017	Winter Weather	\$0			
			\$5,130,000			

	TABLE 5.1.S SEVERE WINTER WEATHER EVENTS (SHELDUS)					
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities
Cabell	Winter Weather	1960	2	\$751	0	0
Lincoln	Winter Weather	1960	2	\$751	0	0
Logan	Winter Weather	1960	2	\$751	0	0
Mason	Winter Weather	1960	2	\$751	0	0
Mingo	Winter Weather	1960	2	\$751	0	0
Wayne	Winter Weather	1960	2	\$751	0	0
Cabell	Winter Weather	1960	3	\$751	0	0
Lincoln	Winter Weather	1960	3	\$751	0	0
Logan	Winter Weather	1960	3	\$751	0	0
Mason	Winter Weather	1960	3	\$751	0	0



TABLE 5.1.S SEVERE WINTER WEATHER EVENTS (SHELDUS)						
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities
Mingo	Winter Weather	1960	3	\$751	0	0
Wayne	Winter Weather	1960	3	\$751	0	0
Cabell	Winter Weather	1961	1	\$0	0	0.22
Lincoln	Winter Weather	1961	1	\$0	0	0.22
Logan	Winter Weather	1961	1	\$0	0	0.22
Mason	Winter Weather	1961	1	\$0	0	0.22
Mingo	Winter Weather	1961	1	\$0	0	0.22
Wayne	Winter Weather	1961	1	\$0	0	0.22
Cabell	Winter Weather	1961	2	\$0	0	1
Cabell	Winter Weather	1961	10	\$136,217	0	0
Lincoln	Winter Weather	1961	10	\$136,217	0	0
Logan	Winter Weather	1961	10	\$136,217	0	0
Mason	Winter Weather	1961	10	\$136,217	0	0
Mingo	Winter Weather	1961	10	\$136,217	0	0
Wayne	Winter Weather	1961	10	\$136,217	0	0
Cabell	Winter Weather	1966	1	\$137	0	0
Lincoln	Winter Weather	1966	1	\$137	0	0
Logan	Winter Weather	1966	1	\$137	0	0
Mason	Winter Weather	1966	1	\$137	0	0
Mingo	Winter Weather	1966	1	\$137	0	0
Wayne	Winter Weather	1966	1	\$137	0	0
Cabell	Winter Weather	1967	12	\$665	0	0
Lincoln	Winter Weather	1967	12	\$665	0	0
Logan	Winter Weather	1967	12	\$665	0	0
Mason	Winter Weather	1967	12	\$665	0	0
Mingo	Winter Weather	1967	12	\$665	0	0
Wayne	Winter Weather	1967	12	\$665	0	0
Cabell	Winter Weather	1968	1	\$638	0	0
Lincoln	Winter Weather	1968	1	\$638	0	0
Logan	Winter Weather	1968	1	\$638	0	0
Mason	Winter Weather	1968	1	\$638	0	0
Mingo	Winter Weather	1968	1	\$638	0	0
Wayne	Winter Weather	1968	1	\$638	0	0
Cabell	Winter Weather	1974	12	\$0	0	0.01
Lincoln	Winter Weather	1974	12	\$0	0	0.01
Logan	Winter Weather	1974	12	\$0	0	0.01
Mason	Winter Weather	1974	12	\$0	0	0.01
Mingo	Winter Weather	1974	12	\$0	0	0.01
Wayne	Winter Weather	1974	12	\$0	0	0.01
Cabell	Winter Weather	1975	1	\$413	0	0
Lincoln	Winter Weather	1975	1	\$413	0	0
Logan	Winter Weather	1975	1	\$413	0	0
Mason	Winter Weather	1975	1	\$413	0	0
Mingo	Winter Weather	1975	1	\$413	0	0
Wayne	Winter Weather	1975	1	\$413	0	0



TABLE 5.1.S SEVERE WINTER WEATHER EVENTS (SHELDUS)						
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities
Cabell	Winter Weather	1976	1	\$4,569	0.43	0.04
Lincoln	Winter Weather	1976	1	\$4,569	0.43	0.04
Logan	Winter Weather	1976	1	\$4,569	0.43	0.04
Mason	Winter Weather	1976	1	\$4,569	0.43	0.04
Mingo	Winter Weather	1976	1	\$4,569	0.43	0.04
Wayne	Winter Weather	1976	1	\$4,569	0.43	0.04
Cabell	Winter Weather	1977	1	\$3,666	0	0
Lincoln	Winter Weather	1977	1	\$3,666	0	0
Logan	Winter Weather	1977	1	\$3,666	0	0
Mason	Winter Weather	1977	1	\$3,666	0	0
Mingo	Winter Weather	1977	1	\$3,666	0	0
Wayne	Winter Weather	1977	1	\$3,666	0	0
Cabell	Winter Weather	1977	5	\$0	0	0
Lincoln	Winter Weather	1977	5	\$0	0	0
Logan	Winter Weather	1977	5	\$0	0	0
Mason	Winter Weather	1977	5	\$0	0	0
Mingo	Winter Weather	1977	5	\$0	0	0
Wayne	Winter Weather	1977	5	\$0	0	0
Cabell	Winter Weather	1978	1	\$4,462	0	0
Lincoln	Winter Weather	1978	1	\$4,462	0	0
Logan	Winter Weather	1978	1	\$4,462	0	0
Mason	Winter Weather	1978	1	\$4,462	0	0
Mingo	Winter Weather	1978	1	\$4,462	0	0
Wayne	Winter Weather	1978	1	\$4,462	0	0
Cabell	Winter Weather	1980	3	\$27	0	0
Lincoln	Winter Weather	1980	3	\$27	0	0
Logan	Winter Weather	1980	3	\$27	0	0
Mason	Winter Weather	1980	3	\$27	0	0
Mingo	Winter Weather	1980	3	\$27	0	0
Wayne	Winter Weather	1980	3	\$27	0	0
Cabell	Winter Weather	1982	3	\$23	0	0
Lincoln	Winter Weather	1982	3	\$23	0	0
Logan	Winter Weather	1982	3	\$23	0	0
Mason	Winter Weather	1982	3	\$23	0	0
Mingo	Winter Weather	1982	3	\$23	0	0
Wayne	Winter Weather	1982	3	\$23	0	0
Cabell	Winter Weather	1983	12	\$0	0.16	0
Lincoln	Winter Weather	1983	12	\$0	0.16	0
Logan	Winter Weather	1983	12	\$0	0.16	0
Mason	Winter Weather	1983	12	\$0	0.16	0
Mingo	Winter Weather	1983	12	\$0	0.16	0
Wayne	Winter Weather	1983	12	\$0	0.16	0
Mason	Winter Weather	1984	2	\$0	0	1
Cabell	Winter Weather	1987	2	\$1,076	1	0
Cabell	Winter Weather	1987	4	\$1,956	0	0.05



TABLE 5.1.S SEVERE WINTER WEATHER EVENTS (SHELDUS)						
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities
Lincoln	Winter Weather	1987	4	\$1,956	0	0.05
Logan	Winter Weather	1987	4	\$1,956	0	0.05
Mason	Winter Weather	1987	4	\$1,956	0	0.05
Mingo	Winter Weather	1987	4	\$1,956	0	0.05
Wayne	Winter Weather	1987	4	\$1,956	0	0.05
Cabell	Winter Weather	1993	3	\$4,080	0	0
Lincoln	Winter Weather	1993	3	\$4,080	0	0
Logan	Winter Weather	1993	3	\$4,080	0	0
Mason	Winter Weather	1993	3	\$4,080	0	0
Mingo	Winter Weather	1993	3	\$4,080	0	0
Wayne	Winter Weather	1993	3	\$4,080	0	0
Cabell	Winter Weather	1994	1	\$207,177	0.14	0
Lincoln	Winter Weather	1994	1	\$207,177	0.14	0
Logan	Winter Weather	1994	1	\$206,743	0.14	1
Mason	Winter Weather	1994	1	\$207,177	0.14	0
Mingo	Winter Weather	1994	1	\$206,743	0.14	0
Wayne	Winter Weather	1994	1	\$207,177	0.14	0
Cabell	Winter Weather	1994	2	\$2,011	0	0
Lincoln	Winter Weather	1994	2	\$2,011	0	0
Logan	Winter Weather	1994	2	\$2,086	0	0
Mason	Winter Weather	1994	2	\$2,011	0	0
Mingo	Winter Weather	1994	2	\$2,086	0	0
Wayne	Winter Weather	1994	2	\$2,011	0	0
Cabell	Winter Weather	1996	2	\$4,581	0	0
Lincoln	Winter Weather	1996	2	\$4,581	0	0
Logan	Winter Weather	1996	2	\$4,581	0	0
Mason	Winter Weather	1996	2	\$4,581	0	0
Mingo	Winter Weather	1996	2	\$4,581	0	0
Wayne	Winter Weather	1996	2	\$4,581	0	0
Cabell	Winter Weather	1997	1	\$1,120	0	0
Lincoln	Winter Weather	1997	1	\$1,120	0	0
Logan	Winter Weather	1997	1	\$1,120	0	0
Mason	Winter Weather	1997	1	\$1,120	0	0
Mingo	Winter Weather	1997	1	\$1,120	0	0
Wayne	Winter Weather	1997	1	\$1,120	0	0
Cabell	Winter Weather	1998	2	\$549,715	0	0
Lincoln	Winter Weather	1998	2	\$549,715	0	0
Logan	Winter Weather	1998	2	\$549,715	0	0
Mason	Winter Weather	1998	2	\$549,715	0	0
Mingo	Winter Weather	1998	2	\$549,715	0	0
Wayne	Winter Weather	1998	2	\$549,715	0	0
Cabell	Winter Weather	1999	1	\$0	0	1
Lincoln	Winter Weather	2002	12	\$679	0	0
Logan	Winter Weather	2002	12	\$679	0	0
Mingo	Winter Weather	2002	12	\$679	0	0



	TABLE 5.1.S SEVERE WINTER WEATHER EVENTS (SHELDUS)					
County Name	Hazard	Year	Month	Property Damage (ADJ 2016)	Injuries	Fatalities
Wayne	Winter Weather	2002	12	\$679	0	0
Cabell	Winter Weather	2003	2	\$252,342	0	0
Mason	Winter Weather	2003	2	\$1,261,710	0	0
Wayne	Winter Weather	2003	2	\$252,342	0	0
Cabell	Winter Weather	2009	1	\$16,875	0	0
Lincoln	Winter Weather	2009	1	\$16,875	0	0
Mason	Winter Weather	2009	1	\$16,875	0	0
Wayne	Winter Weather	2009	1	\$16,875	0	0
Cabell	Winter Weather	2009	12	\$204,677	0	0
Lincoln	Winter Weather	2009	12	\$204,677	0	0
Logan	Winter Weather	2009	12	\$204,677	0	0
Mingo	Winter Weather	2009	12	\$204,677	0	0
Wayne	Winter Weather	2009	12	\$204,677	0	0
Logan	Winter Weather	2012	2	\$53,219	0	0
Mingo	Winter Weather	2012	2	\$53,219	0	0
Lincoln	Winter Weather	2012	10	\$798,278	0	0
Logan	Winter Weather	2012	10	\$425,748	0	0
Mingo	Winter Weather	2012	10	\$266,093	0	0
Wayne	Winter Weather	2012	10	\$212,874	0	0
Cabell	Winter Weather	2014	1	\$245,162	0	0
Lincoln	Winter Weather	2014	1	\$23,226	0	0
Logan	Winter Weather	2014	1	\$74,839	0	0
Mason	Winter Weather	2014	1	\$116,129	0	0
Mingo	Winter Weather	2014	1	\$23,226	0	0
Wayne	Winter Weather	2014	1	\$23,226	0	0
Cabell	Winter Weather	2015	2	\$77,328	0	0
Logan	Winter Weather	2015	2	\$77,328	0	0
Mingo	Winter Weather	2015	2	\$103,104	0	0
Wayne	Winter Weather	2015	2	\$77,328	0	0
Lincoln	Winter Weather	2016	1	\$0	0	0
Lincoln	Winter Weather	2016	3	\$0	0	0
Logan	Winter Weather	2016	3	\$0	0	0
Mingo	Winter Weather	2016	3	\$0	0	0
Wayne	Winter Weather	2016	3	\$0	0	0
Total				\$11,048,424	5.38	5.92



APPENDIX 2 COMMITTEE INVOLVEMENT





REGION 2 PLANNING AND DEVELOPMENT COUNCIL

BOARD MEETING REGION 2 CONFERENCE ROOM 400 THIRD AVENUE HUNTINGTON, WV 25701 FRIDAY JUNE 2, 2017 12:00 P.M.

AGENDA

TELECONFERENCE PHONE #: (304) 362-8444 (NO PIN REQUIRED) PLEASE WAIT UNTIL 12:20 TO CALL IN, DUE TO LUNCH

- 1. CALL TO ORDER RICK HANDLEY, CHAIRMAN
- 2. INVOCATION
- 3. PLEDGE OF ALLEGIANCE
- 4. ROLL CALL DANNIELLE SLUSHER
- 5. MOTION TO APPROVE MINUTES FROM PREVIOUS MEETING (SEPTEMBER 16, 2016) AS DISTRIBUTED
- 6. PRESENTATION OF FY 2016 AUDIT REPORT BRUCE SULLIVAN, SULLIVANWEBB, PLLC
- 7. PRESENTATION OF FY 2018 U.S. ECONOMIC DEVELOPMENT ADMINISTRATION (EDA) WORK PROGRAM AND BUDGET – CHRIS CHILES, EXECUTIVE DIRECTOR
 - MOTION TO ADOPT FY 2018 EDA WORK PROGRAM AND BUDGET AS PRESENTED OUTLINES REGION 2 BUDGET AND PLANNING ACTIVITIES FOR FY 2018 (JULY 1, 2017 – JUNE 30, 2018)
- 8. EXECUTIVE DIRECTOR'S REPORT CHRIS CHILES, EXECUTIVE DIRECTOR
 - NEW STAFF MEMBERS LISA WELLS AND STEVE FRYE
 - PRESIDENT TRUMP'S PROPOSED BUDGET (SEE ATTACHED)
 - ELIMINATION OF ARC, U.S. EDA, CDBG (SMALL CITIES BLOCK GRANTS), USDA WATER/WASTEWATER PROGRAMS, FEMA PROGRAMS, U.S. DOT TIGER GRANTS, U.S. EPA GRANTS, ETC.
 - MEETINGS WITH WEST VIRGINIA'S CONGRESSIONAL DELEGATION IN WASHINGTON D.C.
 - MICHELE P. CRAIG 2017 RECIPIENT OF JOHN WHISMAN "VISION" AWARD
 - NEW RULES AND REGULATIONS FOR U.S. DEPARTMENT OF HOUSING AND URBAN

DEVELOPMENT (HUD) - SMALL CITIES BLOCK GRANT PROJECTS

- FLOODWAY WAIVERS
- INDIRECT COSTS
- PILOT PROJECT FOR U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) GREEN INFRASTRUCTURE IN HAZARD MITIGATION PLANNING
- APPALACHIAN REGIONAL COMMISSION (ARC) FLEX-E-GRANT PRIVATE WATER CROSSINGS IN LINCOLN COUNTY
- 9. PRESENTATION OF REGION 2 HAZARD MITIGATION PLAN UPDATE JEFF HARVEY, OWNER/MANAGING MEMBER, JH CONSULTING, LLC
- 10. PRESENTATION OF BLUESTONE DAM AND POTENTIAL IMPACTS FROM FLOODING AARON SMITH, SENIOR PROJECT MANAGER, U.S. ARMY CORPS OF ENGINEERS
- 11. PRESENTATION OF U.S. CENSUS BUREAU'S LOCAL UPDATE OF CENSUS ADDRESSES (LUCA) JANET SPRY, PARTNERSHIP SPECIALIST, U.S. CENSUS BUREAU
- 12. OLD BUSINESS
- 13. NEW BUSINESS
 - HUNTINGTON NAMED "AMERICA'S BEST COMMUNITY"
- 14. ADJOURNMENT

REGION 2 MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

Board Meeting ~ June 2, 2017 ~ 12:00 p.m.

GENERAL PROJECT OVERVIEWUpdate of Existing Mitigation Plan Original process (i.e., starting in 2002/2003) organized at county levels First consolidation into regional format in 2012 Univisdictions will need to adopt the updated plan. Adoption is A federal mandate required for eligibility for hazard mitigation funding. By formal resolution Dirble of Date Administrative set-up Review of existing plan Historical hazard research

STEERING COMMITTEE APPROACH

- Steering vs. Full Committee
 - Utilize Region 2 Board as "full committee"
 - Steering Committee

H

- Smaller group and interactions with JHC staff are more frequent
- Meet, on average, every three weeks (in-person and virtual)
- Committee member homework
 Hazard selection/confirmation
 - Asset inventories
 - Regional mitigation goals
 - Jurisdictional project updates (for those they represent)
 - Narrative review

JURISDICTIONAL REPRESENTATION

- All counties, cities, and towns in Region 2 will be represented in the plan.
- Interactions
 - Steering committee members
 - JHC staff (direct contact)
 - Plan integration efforts
 - Public and stakeholder processes

INTEGRATION WITH EXISTING PLANS

- Regional
 - Comprehensive Economic Development Strategy (CEDS)
 - Relevant KYOVA planning projects
 - Green infrastructure / low-impact development working group
- Jurisdiction-Specific
 - Community (i.e., county or municipal) comprehensive plans
 - Community development plans
 - Economic development plans/strategies
 - Specialized Efforts
 - Lincoln County mapping project

PUBLIC OUTREACH

- <u>MUST</u> provide opportunities for public participation
 Goes beyond "comment"
 - Mixed methods approach
 - Town hall style meetings
 - Online surveying
 - Strategic use of social media
 Social services/civic organizations
 - Adding mitigation topics to other public outreach efforts





Multi-Jurisdiction Planning Team

The Multi-jurisdictional Natural Hazard Mitigation Plan for Monmouth County, New Jersey included 53 municipalities that required an organizational structure to facilitate inter- and intra-governmental coordination. The overall Planning Committee was divided into one Core Planning Group and 53 separate Jurisdictional Assessment Teams—one for each participating jurisdiction.

Core Planning Group

The Core Planning Group (CPG) was made up of County Steering Committee members and leaders from each Jurisdictional Assessment Team. CPG members were typically representatives of their local emergency management, engineering, planning, GIS, administration, public works, building, or highway departments. The CPG managed the overall plan activities and directly contributed to the decision making process.

Jurisdictional Assessment Teams

The Jurisdictional Assessment Teams (JAT) were headed by a Team Leader who served and represented their interests on the CPG. JATs included broader representation from within the individual jurisdictions, and many chose to align their JAT with an existing Local Emergency Planning Committee (LEPC). The JATs were responsible for local community involvement and were required to:

- · Coordinate and facilitate local efforts.
- · Attend meetings.
- Provide information and feedback.
- · Involve the public and community stakeholders in the planning process.
- Assess mitigation alternatives.
- · Select a course of action to be followed for their communities.
- · Adopt the plan.
- · Implement the plan and monitor its progress.

This organizational structure was successfully implemented for the County's initial plan development and is maintained for plan updates.

Initial Steps for the Planning Team

The mitigation planning process generally includes a series of meetings or work sessions. For example, the first meeting of the planning team, or the plan kickoff meeting, may focus on introducing team members, describing the overall purpose of the plan, defining the team's responsibilities, validating the project scope and schedule, and brainstorming who else should be involved in the planning process. Some suggested outcomes of a planning team kickoff meeting are the following:

1. Confirm plan purpose

The planning team may start by agreeing on the overall purpose of the planning process and the outcome that the community seeks to accomplish as the plan is implemented. Some communities develop a mission statement that drives the process and describes in a short, simple statement the intended outcome. This helps unite the planning team around a common purpose and provides a foundation for the rest of the planning process. This also helps



Create a disaster resilient Marion County (Marion County, Oregon Natural Hazards Mitigation Plan).

Through partnerships and careful planning, identify and reduce the vulnerability to natural hazards in order to protect the health, safety, quality of life, environment, and economy of the communities within Somerset County (Somerset County, New Jersey All Hazards Mitigation Plan). to communicate the reason for the plan to stakeholders, elected officials, and the public. If you received a mitigation planning grant from FEMA, the grant may include language regarding the overall purpose of the plan that could be incorporated. The plan's scope of work often includes more information on the background and objectives of the planning project, as well.

2. Review the current mitigation plan

If updating your mitigation plan, a general review of your community's previously approved plan can provide a good starting point for identifying ideas for improvement and areas that may require more time and resources. This can impact the plan's scope and schedule.



3. Refine plan scope and schedule

The kickoff meeting is a good time for the planning team to agree upon the overall scope of work and schedule for developing or updating the mitigation plan and review the requirements of a hazard mitigation plan for FEMA approval. If you received a grant to develop the plan, the scope of work and schedule may already be developed, or the grant may serve as the starting point for a more detailed work plan. It is important that everyone walks away from the kickoff meeting with an understanding of the overall project purpose, schedule, and tasks, as well as the agendas and goals for future planning team meetings. The remaining tasks in this Handbook can help you to establish a schedule and agenda items for future meetings. A sample schedule is also available in Appendix A (see Worksheet 2.2).

4. Establish responsibilities

The planning team can establish roles and responsibilities at the beginning of the planning process. The planning team members should have a clear understanding of their roles and responsibilities, as well as how much time they may need to dedicate to the project. This can help you to identify any potential gaps or shortfalls in resources needed to complete the mitigation plan early in the planning process.

5. Develop an outreach strategy

One critical task of the planning team is determining who else needs to be involved in the mitigation planning process and how. An Planning Team Responsibilities

Wilson County, Kansas Hazard Mitigation Planning Committee (2008)

- Provide facilities for meetings
- Attend meetings
- Collect data
- Manage administrative details
- · Make decisions on plan process and content
- Submit mitigation action implementation worksheets
- Review drafts
- Coordinate and assist with public involvement and plan adoptions

outreach strategy identifies the stakeholder groups that are important to involve in the process and how to engage them. The planning team also develops ideas for how to involve the general public in the planning process. Task 3 - Create an Outreach Strategy describes how to develop a comprehensive approach to engaging stakeholders and the public in the mitigation planning process.

1000	~		
	REGION 2	HAZARD MITIGATIO	ON PLAN
	Hazard Mitigation	Plan 2017 Update – Steering Comm	ittee Meeting #1
		August 9, 2017 ~ 10:00 am Sign In Sheet	
	Name	Affiliation	Email
1.	LARRYL, STUTLER	LINCOLN EDA	JARRY @ /iNcolnedA. Com
2.	JACK BARKER	Capell County Commission	ibaekee Ocabell counts, ORa
3.	Roger E. BryAnt	LOGAN G. OEM	rbruant OleASA.org
4.	Ray Perry	Logan County Comission	DETRY @ LEGWV.US
5.	Rick Herrox!	Lincol County Flock lain Manager	nckhelton@lincolucountywv.org
6.	JAMES (0000-	WAYNE POUR DEM	JCOOPER WAYNE 911. Com
7.	Staphen Brown	1 Doughe So Flood alain	Satur Dulin @ Wagner Erimiter will com
8.	Francis Holton	Lincoln County DES	Fwholtone Zoom, Email
9.	GREG FILLER	WV DHSEM-REG 6	gregezy. M. fulle ews.gov
10.	Sherry Wilkins	Huntington Stormwater Utility	Sherry, wilkins@huntingtonswu, com
11.	DEMAIS ZIMMERMHA	MASON CO DES	& ZIWINIERMAN @ MASONCONTYPES. COM
12.	Scott Donley	Mason CO EMA	5 donlevemason countypes, com
13.	Matthew Gregg	Mason Co OES	marega C mason rounty des. COM
14.	Jerry L. Beckett	Cabell County OFS	scriy, buckett @ ccems, or
15.	Gordow Merry	CabellCo. OES	Gondow. Merry Q CCEMS. Org
16.	Chris Chiles	Region 2 PDC	echiles @Kyovaipc.org

N.C.

	REGION Hazard Mitigo	1 2 HAZARD MITIGA <i>ation Plan 2017 Update – Steering C</i> August 9, 2017 ~ 10:00 am Sign In Sheet	TION PLAN Committee Meeting #1
17	Name	Affiliation	Email
17.	Kathy Elliptt	Region 2 PDC	(cilipt Bregion) Date Dia
18.	JEFFERY HARVEY	JTP CONSULTING, LLC	iharvey & hepreparedness.com
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Federal Emergency Management Agency (FEMA):

- oversees the hazard mitigation process at the local, regional, state, and national levels, and
- defines mitigation as, "the effort to reduce loss of life and property by lessening the impact of disasters" (FEMA.gov, 2016).













NCEI EV	ENTS IN REG	6ION 2 (196	52-2017)	
Event	# of Events	Deaths	Injuries	Damage
Extreme Temperatures	265	0	0	\$955,000
Cold	141	0	0	\$955,000
Heat	124	0	0	\$0
Drought	0	0	0	\$0
Flooding (incl. flash flood)	249	13	1	\$109,565,000
Land Subsidence	1	0	0	\$15,000
Winter Weather	193	1	0	\$5,130,000
Severe Summer Weather	537	4	7	\$6,532,000
Tornado	21	0	4	\$3,216,500
Lightning	10	0	3	\$135,000
Hail	355	0	0	\$2,352,500
Heavy rain	71	4	0	\$482,000
Wind	80	0	0	\$346,000
Wildfire	8	1	0	\$13,000
otal	1,253	19	8	\$122,210,000





TASKS

Capabilities Assessment

You will receive an online survey by email. This survey asks you about your jurisdiction's:

- rules and regulations regarding floodplain, zoning, and building codes,
- comprehensive plans.

7

- participation in the NFIP, and
- available capital and public works budget.

FASKS Asset Inventories • Need to update the Asset Inventory included in the plan. • Oritical Facilities • Uuherable Populations (e.g., schools, nursing homes, etc.). • Conomic Assets (i.e., discuss thresholds). • Historical Considerations • Special Considerations • Ote the following for each: • Name of facility • Address (for mapping). • Type of facility





TELL ME A STORY

From the hazards listed below for the hazard mitigation plan update, tell me about a specific problem you've encountered in your jurisdiction relating to at least three of these hazards. Provide the date (year at minimum), location (street name, park name, etc.), and a brief description of what happened and why, and if there was anything that was done about it since it occurred. Use the reverse side of this page if you require more space.

Name: Roger E. Bryant

Jurisdiction: LUGAN CO OEM

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: 2/1971 2. Location: 72	Buffalo Creek
Drought	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Earthquake	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Extreme Temperatures	Not Concerned Somewhat Concerned Concerned Very Concerned Very Concerned	Date: Location:	
Fire	Not Concerned Somewhat Concerned	Date: 7006 Location: 2072 CAJIY 2000	Erequent Fines Wild Altes were so byd in Southern WU we consisted Closing Fue hospital
Flooding	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: 2006 Location: 2012 Los 9.45 County	Fraquent Flooding
Hazmat Incidents	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	

	- 1110	2006	I think	ς 2.		
Land Subsidence	Not Concerned Somewhat Concerned Concerned Very Concerned	d Location: GAIGATHS HOGAT	Frak For Povoty	House and ation and slid	KNOCKed + Dostody.	off ed by
Severe Summer Weather	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: d Location:				
Severe Winter Weather	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: d Location:				
_	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: d Location:				
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: d Location:				
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: d Location:				
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: d Location:				

TELL ME A STORY

From the hazards listed below for the hazard mitigation plan update, tell me about a specific problem you've encountered in your jurisdiction relating to at least three of these hazards. Provide the date (year at minimum), location (street name, park name, etc.), and a brief description of what happened and why, and if there was anything that was done about it since it occurred. Use the reverse side of this page if you require more space.

Name: JACK BARKEN

Jurisdiction: County

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: August 2014. Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Drought	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Earthquake	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: July 2014 PS Location: CAboll Cours Coursebouse Hunding Sach	Park A mild epaklynot accound Rod could be felt in the Countrorse Desti Short Building moved, Some (Capacity an machie
Extreme Temperatures	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Fire	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Flooding	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Hazmat Incidents	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	

Land Subsidence	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	something and
Severe Summer Weather	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: June 2014 Location: TRI Stal Base	Peppar 6:00 Pm Faiday A Deacher Storm Cougast Entited Plas Sterry Winds - Power Outoged,
Severe Winter Weather	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	· · · · · · · · · · · · · · · · · · ·
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	225 S. John S.
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	2
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	

TELL ME A STORY

From the hazards listed below for the hazard mitigation plan update, tell me about a specific problem you've encountered in your jurisdiction relating to at least three of these hazards. Provide the date (year at minimum), location (street name, park name, etc.), and a brief description of what happened and why, and if there was anything that was done about it since it occurred. Use the reverse side of this page if you require more space.

Name: Joiry L. Beckett

Jurisdiction: Cebell County OES

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Drought	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Earthquake	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Extreme Temperatures	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Fire	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Flooding	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: June/July 2011 Location: Enslow Pert Huntington Green Valley	Aast Year & Flash Flood Occurred, in Cabell County result; in one death & Severel homes damaged. Flash Flooding is a trequest occurance.
Hazmat Incidents	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Land Subsidence	 Not Concerned Somewhat Concerned Concerned Very Concern 	ed Date: oncerned Location: ned	
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Severe Summer Weather	 Not Concerne Somewhat Concerned Concerned Very Concern 	ed Date: June 2012 Location: Almest the Enfire State	A Alecheo occured Causing Trees Down Streets blacked Building Verhape and Power Butage This West on for Approx. I Wrek
Severe Winter Weather	 Not Concerned Somewhat Concerned Concerned Very Concern 	ed Date: concerned Location: ned	
	 Not Concerne Somewhat Concerned Concerned Very Concern 	ed Date: concerned Location: ned	
	 Not Concerne Somewhat Concerned Concerned Very Concern 	ed Date: concerned Location:	
	 Not Concerne Somewhat Concerned Concerned Very Concern 	ed Date: concerned Location:	
	Not Concerned Not Concerned Concerned Very Concern	ed Date: concerned Location:	

REY STUTLER 44 Name

Jurisdiction: Lincoln Co.

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	 Not Concerned Somewhat Concerned Concerned Very Concerned 	d Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: ed Location:	
Drought	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: ed Location:	
Earthquake	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: ed Location:	<u> </u>
Extreme Temperatures	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: ad Location:	
Fire	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: ed Location:	
Flooding	Not Concerned Somewhat Concern Concerned Very Concerned	Location: DUVAL Lincoln Co.	DWAL HS FLOODED STUDENTS STRANDED
Hazmat Incidents	Not Concerned Somewhat Concern Concerned Very Concerned	ed Date: VARIOULS Location: Lincoln Co.	Bridges washed out Ships on NARROW ROADWAL

Land Subsidence	□ → □	Not Concerned Somewhat Concerned ' Concerned Very Concerned	Date: Location:	
Severe Summer Weath	ت بلائم ت	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Severe Winter Weathe		Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Epidemie		Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
substance Abuse	د م	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
		Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
		Not Concerned Somewhat Concerned Concerned Very Concerned	Date:	

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ogan Wonte Name Level of Concern Date and Location **Brief Description** Hazard Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. Not Concerned The water reached Ocean Drive and flooded local businesses and swept away cars. After the Date: August 2014 Somewhat Concerned water receded, recovery took several months and many businesses could not recover. Three Location: Coast of South Beach Example: Storm Surge people died and dozens were injured; five are still missing. Since then, low impact mitigation along Ocean Drive between 5th St. X Concerned strategies have been implemented along the beach to avoid widespread distruction. and 14th St. U Very Concerned Not Concerned Date: Somewhat Concerned Dam Failure Location: Concerned Very Concerned Not Concerned Date: Somewhat Concerned Drought Location: Concerned Very Concerned Not Concerned Date: Somewhat Concerned Earthquake Location: Concerned Very Concerned Not Concerned Date Somewhat Concerned M Extreme Temperatures Location: Concerned Very Concerned Not Concerned Date: Somewhat Concerned Fire Location: Concerned U Very Concerned yeart flood event \$00 Appedk Not Concerned Date: June 25 Somewhat Concerned 10. Flooding Location: Vani-US event rogin Concerned Very Concerned Ø Not Concerned Date: Somewhat Concerned Hazmat Incidents Location: Concerned Very Concerned

Land Subsidence	 Not Concerned Somewhat Concerned Concerned Very Concerned Not Concerned Somewhat Concerned Concerned Very Concerned Very Concerned 	Date: Location: Date: Location:	
Severe Winter Weather	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: 2/2013 14 Location: Log on Cr.	"Snow followed by retor powerm power outages and flooding
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	

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Name: KIC

Jurisdiction: Low coln Co Floadphin

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Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	* DBuiley Dem (Hood Control)
Drought	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Earthquake	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Extreme Temperatures	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Fire	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	Especially during Drought Conductions
Flooding	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: 2015 \$ 2016 Location: Line confunty Line overall But	sh Cavity yard
Hazmat Incidents	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	Aich Labs, Oil/Gas Minsmission (Truck / P)

		Not Concerned		
	-	Somewhat Concerned	Date:	
Land Subsidence	-	Concerned	Location:	Laboration in the second se
		Very Concerned		
		very concerned		
		Not Concerned	Date:	
Severe Summer Weather	R	Somewhat Concerned	1	
		Concerned	Location:	
		Very Concerned		
	П	Not Concerned	Salar males	
the second	П	Somewhat Concerned	Date:	
Severe Winter Weather		Concerned	Location:	
	X	Very Concerned		
		very concerned		
		Not Concerned	Date:	
		Somewhat Concerned		
		Concerned	Location:	
		Very Concerned		
		Not Concerned		
		Somewhat Concerned	Date:	
		Concerned	Location:	
		Very Concerned		
	-	Not Concorned		
		Not concerned	Date:	
		Somewhat Concerned	Location:	
		Concerned		
		Very Concerned		
		Not Concerned	Date:	
		Somewhat Concerned	Duis.	
		Concerned	Location:	
		Very Concerned		

herry Wilkins Name

Huntington Stormwater Utility

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
ossible loodwall Dam Failure	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: 2015 Location: Huntington - 11 miles of flood wall/Levee	Always a concern when the phis River is in flood. Problems are outdated equipment, lack of adequate staff + resources.
Drought	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Earthquake	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Extreme Temperatures	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Fire	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Flooding	Not Concerned Somewhat Concerned Concerned Very Concerned Very Concerned	Usually once per Date: year. Location: Various: Locations Across town.	Residents homes get flooded during have Sustained Raintall. Althe lifety gots Syed at least once per year due to houses being flooded or damaged.
Hazmat Incidents	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	

and ;11sj	Land Subsidence Slide on de	Somewhat Concerned Concerned Very Concerned	Date: Ongoing Location: City of Huntington	Utility is currently spending over \$1/mil to stabilize the hillside.
S	Severe Summer Weather	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
:	Severe Winter Weather	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
		Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
		Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
		Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
-		Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	

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Name: DERNIS ZIMMERMAN

Jurisdiction: MASON & OES

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Drought	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Earthquake	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Extreme Temperatures	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Fire	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Flooding	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Hazmat Incidents	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	

Land Subsidence	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Severe Summer Weather	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	97% OF RESIDENCE E BUSINESS UITHOUT DOWER. FOR 7-21 DAYS CIKR INCLUDIED.
Severe Winter Weather	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	ICE STORM 2003 EXTERIDED POWER OUTDOLE ROADS IMPASSABLE COMMERACE CAME TO HALT DURATION - @ (WEIEK.
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	

Name: Matt Gregg

Jurisdiction: Mason OES

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	Not Concerned Somewhat Concerned Concerned Very Concerned Very Concerned	Date: Location:	
Drought	Not Concerned Somewhat Concerned Concerned Very Concerned Very Concerned	Date: Location:	
Earthquake	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Extreme Temperatures	Not Concerned Somewhat Concerned Concerned Very Concerned Very Concerned	Date: Location: June 2012	7-14 days with out food, fuel, water, electric; facebook, cell service, internetion etc. Severel shelters, lack of miss communication due to several days of temps over 100°
Fire	Not Concerned Somewhat Concerned Concerned Very Concerned Very Concerned	Date: Location:	
Flooding	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Hazmat Incidents	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	

Land Subsidence	Somewhat Concerned Concerned Very Concerned Very Concerned	Date:	
Severe Summer Weather	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Severe Winter Weather	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: 2003 Location:	TCL Shim of 2003. Several days wo electron, 0-10 degree day Rempetites Beven Mara mades closed. No stores, Mass comments. Apr another.
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	

Name: Scott Donley

Jurisdiction: Mason (0 0ES

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Drought	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Earthquake	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Extreme Temperatures	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Fire	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Flooding	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Hazmat Incidents	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	

Land Subsidence	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: rned Location:	
Severe Summer Weather	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: June 29th 2012 rned Location:	10-14 days No power, fuel, Clean Water for Jublic, the OES ran by it self for two days with out assistance incal Fire dept. Ems OES CMA worked together alway with patienal gauge to bring in ICe and betteled water
Severe Winter Weather	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: rned Location:	The storm 10-20 days public out of power and heating sorces. Des worked with Porter county asona's to got resources to help the public.
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: rned Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: rned Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: rned Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: rned Location:	

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Name: Francis Holfon

Jurisdiction:

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Drought	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Earthquake	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Extreme Temperatures	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Fire	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Flooding	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Secural times owler past years Location: Whole county	Flash Silvedry Several times over po years, Damage to homes and Public property
Hazmat Incidents	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	

Land Subsidence	 Not C Some Conce Very C 	oncerned what Concerned erned Concerned	Date: Location:	
Severe Summer Weather	Not C Some Conce	ioncerned what Concerned erned Concerned	Date: June アタスロフ Location:	Derichio Event, Paver Oukages For- Mone High a Week, Hot Extermin Temprodures & f 95ef & and High Hundrich obvent was widesproad which eauged More 1550es after with Resourse Acoilability
Severe Winter Weather	Not C Some Conce Very	Concerned ewhat Concerned erned Concerned	Date: Location:	
	 Not C Some Conce Very 0 	concerned what Concerned erned Concerned	Date: Location:	
	Not C Some Conce	Concerned what Concerned erned Concerned	Date: Location:	
	Not C Some Conce	Concerned what Concerned erned Concerned	Date: Location:	
	Not C Some Conce Very C	Concerned what Concerned erned Concerned	Date: Location:	

From the hazards listed below for the hazard mitigation plan update, tell me about a specific problem you've encountered in your jurisdiction relating to at least three of these hazards. Provide the date (year at minimum), location (street name, park name, etc.), and a brief description of what happened and why, and if there was anything that was done about it since it occurred. Use the reverse side of this page if you require more space.

Name:_

Jurisdiction: WATE Cout

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	Possible PAILURE OF EAST LYNN OF THE BEECH FORK Flow Control Projects
Drought	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	Concerent for Effects THAT FRAMER MANY ENCOSED Due to Placedy
Earthquake	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
xtreme Temperatures	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Fire	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location: CERENO	In outeral fire AT America MATTON RU With FUDUSTRAY Rubber + Salverts
Flooding	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: MARCH 16 Location: 12 Poiec Ct WARDA: KA	HODDA OF THE 12 Pole WATENShow WHEN HEAY RANT OCCOL
Hazmat Incidents	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Oct 2004 Location: NEDTmordu Huntfuster.	LARSE SPILL of Petrolan Produ 12 High Populatin Anon OC City of Hurtighe Wage Curt)

Land Subsidence	Not Concerned Somewhat Concerned Concerned Very Concerned Not Concerned Somewhat Concerned	Date: Spring 2015 Location: GRATULU Hutitutu Stringer Date: Spring 2012	have Sube Caus. by Fiftinfed 1 M Abo CLEARING of Lond Effety Habbs + CREEK TORINU 17 Sugtion when Cart
Severe Summer Weather	Concerned Very Concerned	Location: KiAIHASULE MOMe Cro	Non The Tain of Full Gry its Builden The TO Kinst the An infort hirden Carly
Severe Winter Weather	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	

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Brown Contra 0.0 Name: .lurisdiction Level of Concern Date and Location Brief Description Hazard Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. Not Concerned The water reached Ocean Drive and flooded local businesses and swept away cars. After the Date: August 2014 Somewhat Concerned water receded, recovery took several months and many businesses could not recover. Three Location: Coast of South Beach Example: Storm Surge people died and dozens were injured; five are still missing. Since then, low impact mitigation X Concerned along Ocean Drive between 5th St. strategies have been implemented along the beach to avoid widespread distruction. and 14th St. U Very Concerned □ Not Concerned Date: Somewhat Concerned Dam Failure Location: Concerned Very Concerned Not Concerned Date: Somewhat Concerned Drought Location: Concerned Very Concerned Not Concerned Date: Somewhat Concerned Earthquake Location: Concerned Very Concerned Not Concerned Date: Somewhat Concerned Extreme Temperatures Location: Concerned Very Concerned Not Concerned Date: Somewhat Concerned Fire Location: Concerned Very Concerned Not Concerned Date: 9/16 + 3/16 Somewhat Concerned Flooding Location: W G Concerned Very Concerned Ø Not Concerned Date: Somewhat Concerned Hazmat Incidents Location: Concerned Ø U Very Concerned

Land Subsidence	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Severe Summer Weather	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Sprougel Location: Wayne	2 Tornado damage Highesville, WV
Severe Winter Weather	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
and appending and provide		6- 4-173 1-1-120/13 1-1-120/13	Alle + Sile

August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: Jack Backer

Agency/Municipality/Other: Caball County Commission - Flood Fidministenton

RISK		HAZARD PROBABILITY						
AS	MATRIX	Frequent	Probable	Occasional	Remote	Improbable		
	Catastrophic				Eridanic Dan Failure			
SEVERITY	Critical		W: when weather Suman Weather	Land Subsidence Hazmat Flooding Fire	-			
HAZARD §	Marginal			Exstance Tene DROught	Easthquate			
	Negligible							

Description	Specific Hazard Event	Alst me t	1 in nt
Frequent	Likely to occur frequently within a year time span.	· · inder	
Probable	Will likely occur several times over the course of several years	-	
Occasional	Likely to occur once in a several year period.		
Remote	Unlikely to occur once in a several year period, but possible.		
Improbable	So unlikely it can be assumed occurrence will not occur	1.5	

Hazard Severity Classifications

Severity Levels	Severity Description
Catastrophic	Death or major structural loss
Critical	Severe injury, severe illness or marginal structural damage
Marginal	Minor injury, minor illness, or minor structural damage
Negligible	Injuries or structural damage are not expected

BROUGHT EASTORI

August 9, 2017 Steering Committee Meeting **Risk Assessment Matrix Exercise**

OES

Name: Gordon Merry abell

Agency/Municipality/Other:

Instructions: Please fill out the Risk Assessment Matrix below using the appropriate definitions. Write in where you think each hazard discussed falls in the matrix. More than one hazard may be located in one box. Not every box needs to be filled in.

Po

RISK		HAZARD PROBABILITY						
AS	SESSMENT MATRIX	Frequent	Probable	Occasional	Remote	Improbable		
	Catastrophic	Drugs Flooding						
EVERITY	Critical	Fire						
HAZARD SI	Marginal	Heat Temps Sumer Cold		Drought Hazmat Land Sub.	Dams Earthqueke			
	Negligible							

Description	Specific Hazard Event
Frequent	Likely to occur frequently within a year time span.
Probable	Will likely occur several times over the course of several years
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August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: Jerry L. Beckett	
Agency/Municipality/Other:	1 County OES

RISK		HAZARD PROBABILITY				
AS	MATRIX	Frequent	Probable	Occasional	Remote	Improbable
	Catastrophic	Drug Abuse Floods				
EVERITY	Critical	Fire				
HAZARD SI	Marginal	Extreme Temps Extent Har Extreme Cold		Orought Haz Mat Land Subsidence Epidemic	Pen Failure Earthquete	
	Negligible					

Description	Specific Hazard Event
Frequent	Likely to occur frequently within a year time span.
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REGION 2 HAZARI	D MITIGATION PL	AN UPDATE
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August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: LARRY L. STUTLER

Agency/Municipality/Other: Lincoln EDA

RISK				ILITY		
AS	SESSMENT MATRIX	Frequent	Probable	Occasional	Remote	Improbable
	Catastrophic					
EVERITY	Critical	54B, AB45E	FLOODING LANDS UBSIDE	2	EfIDEMIC	
HAZARD SI	Marginal		FIRE Summer Sev. Weather Winter Severe weat	EXTREME TEMP.	EARTHQUAKE HAZMAT	
	Negligible			DROKGHT		DAM FAILURE

Description	Specific Hazard Event
Frequent	Likely to occur frequently within a year time span.
Probable	Will likely occur several times over the course of several years
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Hazard Severity Classifications

Severity Levels	Severity Description			
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Negligible	Injuries or structural damage are not expected			

and the second second

August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: Ruy Perry County Commission Agency/Municipality/Other: Log Run

RISK ASSESSMENT MATRIX		HAZARD PROBABILITY				
		Frequent	Probable	Occasional	Remote	Improbable
	Catastrophic	Flooding windur/summer meather	Flooding		DAM FALLURE	
SEVERITY	Critical	Hojnot Fine Floodword	Flording		Dan Failune	
HAZARD \$	Marginal	Decughet	Hoz mand	Exotreme Temp. Eauth Qualic	Earth Ovaka Drought	
	Negligible					

Description	Specific Hazard Event
Frequent	Likely to occur frequently within a year time span.
Probable	Will likely occur several times over the course of several years
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August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: RICK HELTOKI

Agency/Municipality/Other: HNCOIN COUNTY Commission Flood plain Administrator

RISK ASSESSMENT MATRIX		HAZARD PROBABILITY					
		Frequent	Probable	Occasional	Remote	Improbable	
	Catastrophic	Hoxling		HAZ MAT	Dam Failure EarthQualle Epidomic		
HAZARD SEVERITY	Critical	Fine	DurgAbuse	Extrame Tenys			
	Marginal						
	Negligible			Drought			

Description	Specific Hazard Event
Frequent	Likely to occur frequently within a year time span.
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Negligible	Injuries or structural damage are not expected		

august 9, 2017

August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: Sherry Wilkins

Agency/Municipality/Other: Muntington Stormwater Utility

RISK		HAZARD PROBABILITY					
AS	SESSMENT MATRIX	Frequent	Probable	Occasional	Remote	Improbable	
	Catastrophic			Floodwall failure E during Ohio River flooding.	Floodwall failure leading to flooding downtown Huntington		
HAZARD SEVERITY	Critical	Street flooding that could lead to marginal or minor A Structural damage			Land slides- major damages. Hazmat emergency Larger spill-impacts sewer system or water	supply.	
	Marginal				Hazmat spill, Smaller quality. Land slides - minor damages		
	Negligible						

Description	Specific Hazard Event
Frequent	Likely to occur frequently within a year time span.
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August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: VENNIS EIMMEEMAN OES LOUNTY Agency/Municipality/Other: MASON

RISK ASSESSMENT MATRIX		HAZARD PROBABILITY				
		Frequent	Probable	Occasional	Remote	Improbable
	Catastrophic		Epidemic	FIRE	FLOODIALG	
EVERITY	Critical	FLOODING FIRE SE	SERVENER WINITER WENTHER	HAZMAT		
HAZARD SI	Marginal	BUTREME TROUPS SEVERE WEATHE SUMMER	5 25		DAM FAILURE LAAND SUBSIDANCE	
	Negligible			EADTHQUAKE_	DROUGHT	
Hazard Probability Classifications

Description	Specific Hazard Event
Frequent	Likely to occur frequently within a year time span.
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REGION 2 HAZARD MITIGATION PLAN UPDATE

August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: Matt Gregg

Agency/Municipality/Other: Mason OES

Instructions: Please fill out the Risk Assessment Matrix below using the appropriate definitions. Write in where you think each hazard discussed falls in the matrix. More than one hazard may be located in one box. Not every box needs to be filled in.

RISK ASSESSMENT MATRIX		HAZARD PROBABILITY				
		Frequent	Probable	Occasional	Remote	Improbable
	Catastrophic		Fire			
HAZARD SEVERITY	Critical	Flooding (Slow + Flash)		Haz-MAT		
	Marginal	Extreme Tempetures		Summer Weather Winter Weather	Dom Failure	
	Negligible			Earthqueke	Drought	

Hazard Probability Classifications

Description	Specific Hazard Event
Frequent	Likely to occur frequently within a year time span.
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REGION 2 HAZARD MITIGATION PLAN UPDATE

August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: 300

Agency/Municipality/Other: Mason

Instructions: Please fill out the Risk Assessment Matrix below using the appropriate definitions. Write in where you think each hazard discussed falls in the matrix. More than one hazard may be located in one box. Not every box needs to be filled in.

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RISK ASSESSMENT MATRIX		HAZARD PROBABILITY				
		Frequent	Probable	Occasional	Remote	Improbable
	Catastrophic	£	Fire			
:VERITY	Critical	Flooding Slow i Flash		Hazmat		
HAZARD SE	Marginal	Extreme Temperatures			Dam Kilure	
	Negligible			Earth quake	Drought	

Hazard Probability Classifications

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Frequent	Likely to occur frequently within a year time span.
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REGION 2 HAZARD MITIGATION PLAN UPDATE

August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: Francis Holton

Agency/Municipality/Other: Lincoln OES

Instructions: Please fill out the Risk Assessment Matrix below using the appropriate definitions. Write in where you think each hazard discussed falls in the matrix. More than one hazard may be located in one box. Not every box needs to be filled in.

RISK ASSESSMENT MATRIX		HAZARD PROBABILITY				
		Frequent	Probable	Occasional	Remote	Improbable
	Catastrophic	Flooding Fire	Summer Weather W. Riter Weather Exterence Tempurate	Hazonet Land Subsidence	Dum failure Epidemic Earthquake	
EVERITY	Critical			Drought		
HAZARD S	Marginal					
	Negligible					

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Description	Specific Hazard Event
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.

REGION 2 HAZARD MITIGATION PLAN UPDATE

August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: JAMES boper

Agency/Municipality/Other: WAYNE COUNTY GES

Instructions: Please fill out the Risk Assessment Matrix below using the appropriate definitions. Write in where you think each hazard discussed falls in the matrix. More than one hazard may be located in one box. Not every box needs to be filled in.

RISK ASSESSMENT MATRIX		HAZARD PROBABILITY				
		Frequent	Probable	Occasional	Remote	Improbable
	Catastrophic			TORNADO	DAM FAILURE	
EVERITY	Critical		HASH FLOOJY	Exmeme TEMP <u>IFISH</u> Low		
HAZARD S	Marginal			DROUSHT		
	Negligible					

Hazard Probability Classifications

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REGION 2 HAZARD MITIGATION PLAN UPDATE

August 9, 2017 Steering Committee Meeting Risk Assessment Matrix Exercise

Name: 5 Brown Agency/Municipality/Other: Wayne Couty Floralplain Admin

Instructions: Please fill out the Risk Assessment Matrix below using the appropriate definitions. Write in where you think each hazard discussed falls in the matrix. More than one hazard may be located in one box. Not every box needs to be filled in.

RISK		HAZARD PROBABILITY				
AS	MATRIX	Frequent	Probable	Occasional	Remote	Improbable
	Catastrophic	Flood			Dam Fail	
HAZARD SEVERITY	Critical		band Sub	Extramer Tomyss SVB Wint WX	Harmat	
	Marginal		Fire Severe Summe WX	ur.		
	Negligible			Eanth quake		

Hazard Probability Classifications

Description	Specific Hazard Event
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REGION 2 PDC HAZARD MITIGATION PLAN UPDATE

WHAT IS MITIGATION?

According to FEMA, which oversees the hazard mitigation process, "mitigation is the effort to reduce loss of life and property by lessening the impact of disasters" (FEMA.gov, 2016). Generally, we think of mitigation as any action that can be taken now (or in the near future) to reduce the impact of a future disaster. These actions are developed into projects during the hazard mitigation planning process, where coordinating agencies are identified, potential costs are estimated, and potential funding sources are identified.

WHY IS PARTICIPATION IN MITIGATION PLANNING IMPORTANT?

1	Local governments have a responsibility to provide for the public safety.
2	There is also a specific regulatory driver for participation. Communities that do not adopt an approved hazard mitigation plan will not be eligible for the following federal funding: Flood Mitigation Assistance (FMA), Hazard Mitigation Grant Program (HMGP), or Pre-Disaster Mitigation (PDM).
3	The mitigation plan contains more than just projects that can be funded by FEMA. By participating, you may realize that other community initiatives, such as storm water management, coastal management, and even some infrastructure projects have hazard mitigation components. As such, by including those in the mitigation plan, you may identify alternate or extra sources of funding for your projects.

ASSET INVENTORY

One major role that local governments play in the process is updating asset inventories. Assets fall into one of the five categories, shown below.

- **Critical Facilities**: Governmental facilities, water/wastewater facilities, emergency services facilities, medical facilities (hospitals/clinics), and transportation infrastructure.
- Vulnerable Populations: Schools, nursing homes, and senior centers.
- Economic Assets: Large commercial/industrial facilities or large employers not covered in other categories.
- Special Considerations: Community outreach facilities, post offices, and libraries.
- Historical Considerations: Areas/structures on the National Register of Historic Places.

MITIGATION PROJECTS

For a municipality to be included in the hazard mitigation plan, and thus be eligible for mitigation funding, it must have at least one mitigation project listed in the plan. Projects fall into



one of four categories shown in the table below, from the FEMA *Local Mitigation Planning Handbook*. These projects reduce the risks a community faces from hazards. For example, planning for a response to disaster, while an important aspect of preparedness, is not generally considered a mitigation project.

Category	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies or codes that influence the way land and buildings are developed and built	Comprehensive Plans, Land Use Ordinances, NFIP, Community Rating System, Open Space Preservation, etc.
Structure and Infrastructure Projects	These actions involve modifying existing structures and infrastructure to protect them from a hazard, or remove them from a hazard area. This can also include constructing structures to reduce the impacts of hazards	Acquisitions, elevations, or relocations of structures in flood zones, utility undergrounding, flood walls and retaining walls, culverts, safe rooms, etc.
Natural Systems Protection	These are actions that minimize damage and losses, while also preserving or restoring the functions of natural systems	Sediment and erosion control, stream restoration, forest management, wetland restoration and preservation, etc.
Education and Awareness Programs	These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them.	Radio or television spots, websites with maps and information, presentations to school groups or other organizations, participating in national programs such as StormReady, etc.

The action plan will be generated in two steps. The first is an update, which involves updating the status of the projects listed in the current plan. We will work with your representatives to classify projects according to the following status labels.

- **COMPLETED**: The project, as it is written, has been completed in its entirety. Any reporting and/or paperwork has been closed out
- **DELETED:** The project no longer aligns with local priorities or has been deemed unfeasible/beyond the scope of mitigation. The project is being removed from the plan.
- **DEFERRED**: The project is still a viable project; however, other priorities have forced its consideration to be moved into the future.
- **ON-GOING**: The project has been started; work is currently being completed on the project and it is not anticipated to be done before the date current plan expires.

In addition to this status, we need a brief description of the project. What has been done to date? If it is completed, when was it completed? If the final project was different than written, please explain the difference. If deleting or deferring the project, why? In order to win approval for the hazard mitigation plan, both the WVDHSEM and FEMA expect to see these updates. The second step is the development of new projects. This occurs late in the process, and you may begin thinking about new projects for your jurisdiction.



MITIGATION PROJECT IDEAS

Types of Mitigation Actions

- 1. Local Planning and Regulations
- 2. Structure and Infrastructure Projects
- 3. Natural Systems Protection
- 4. Education and Awareness Programs

General examples are planning and zoning, floodplain protection, property acquisition and relocation, or public outreach projects.

FLOODING

Local Planning & Regulations: Comprehensive planning and floodplain management can mitigate flooding by influencing development.

- Objective: INCORPORATE FLOOD MITIGATION IN LOCAL PLANNING.
 - o Strategy: Pass and enforce an ordinance that regulates dumping in streams and ditches.

Structure & Infrastructure Projects: Rainwater and snowmelt can cause flooding and erosion in developed areas.

- **Objective:** IMPROVE STORM WATER DRAINAGE SYSTEM CAPACITY.
 - Strategy: Require developers to construct on-site retention basins for storm water and as a firefighting water source.

Natural Systems Protection: Natural resources provide floodplain protection, riparian buffers, and other ecosystem services that mitigate flooding.

- Objective: PROTECT & RESTORE NATURAL FLOOD MITIGATION FEATURES.
 - Strategy: Establish and manage riparian buffers along rivers and streams.

Education & Awareness Programs: Support mitigation by educating property owners regarding options for mitigating their own properties.

- Objective: EDUCATE PROPERTY OWNERS ABOUT FLOOD MITIGATION TECHNIQUES.
 - Strategy: Educate the public about securing debris, propane tanks, yard items, or stored objects that might otherwise be swept away, damaged, or pose a hazard if picked up and washed away by floodwaters.

SEVERE WEATHER

Local Planning & Regulations: Adopt regulations governing residential construction to prevent wind and other weather damage.

- Objective: ADOPT & ENFORCE BUILDING CODES.
 - Strategy: Review building codes and structural policies to ensure they are adequate to protect older structures from severe weather damage.

Structure & Infrastructure Projects: Power lines can be protected from the impacts of severe weather.

- Objective: PROTECT POWER LINES.
 - Strategy: Install redundancies and loop feeds.

Education & Awareness Programs: Support mitigation by lessening impacts to a community's vulnerable populations.

- Objective: ASSIST VULNERABLE POPULATIONS.
 - o Strategy: Identify specific at-risk populations that may be exceptionally vulnerable in the event of long-term power outages.

MULTIPLE HAZARDS

Local Planning & Regulations: Understanding community vulnerability and level of risk is important to identify and prioritize mitigation alternatives.

- Objective: ASSESS COMMUNITY RISK.
 - Strategy: Develop and maintain a database to track community vulnerability (i.e., exposure in known hazard areas).

Structure & Infrastructure Projects: Lessening damage to structures supports mitigation.

- **Objective:** PROTECT STRUCTURES.
- Strategy: Retrofit fire and police stations to become hazard resistant.

Education & Awareness Programs: Encouraging private mitigation reduces the potential strain on public sources.

- Objective: PROMOTE PRIVATE MITIGATION EFFORTS.
 - **Strategy:** Use outreach programs to: (a) advise homeowners of risks to life, health, and safety; (b) facilitate technical assistance programs that address measures citizens can take; or (c) facilitate funding for mitigation measures.

EARTHQUAKE

Local Planning & Regulations: Support mitigation by better understanding and assessing local vulnerability to earthquakes.

- Objective: MAP AND ASSESS COMMUNITY VULNERABILITY TO SEISMIC HAZARDS.
 - **Strategy:** Develop an inventory of public and commercial buildings that may be particularly vulnerable to earthquake damage, including pre-1940s homes and homes with cripple wall foundations.

Structure & Infrastructure Projects: Reduce potential damage to critical facilities and infrastructure from future seismic events through structural upgrades.

- **Objective:** PROTECT CRITICAL FACILITIES & INFRASTRUCTURE.
 - Strategy: Require bracing of generators, elevators, and other vital equipment at hospitals.

Education & Awareness Programs: Support mitigation through increasing awareness of the hazard.

- Objective: INCREASE EARTHQUAKE RISK AWARENESS.
 - Strategy: Offer GIS hazard mapping online for residents and design professionals.

LAND SUBSIDENCE

Local Planning & Regulations: Support mitigation by ensuring that development efforts consider the soil conditions of an area.

- Objective: MANAGE DEVELOPMENT IN HIGH-RISK AREAS.
 - o Strategy: Restrict develop in areas with soil that is considered poor or unsuitable for development.

Structure & Infrastructure Projects: To prevent property loss, acquire and demolish or relocate buildings and infrastructure in high-risk areas.

Objective: REMOVE EXISTING STRUCTURES FROM SUBSIDENCE HAZARD AREAS.
 Strategy: Identify and offer buyouts and other incentives for property owners who relocate from subsidence-prone areas.

Education & Awareness Programs: Support mitigation by increasing residents' knowledge of subsidence.

- Objective: EDUCATE RESIDENTS ABOUT SUBSIDENCE.
 - Strategy: Promote community awareness of subsidence risks and impacts.

DROUGHT

Local Planning & Regulations: Monitoring drought conditions can provide early warning for policymakers and planners to make decisions.

- Objective: MONITOR DROUGHT CONDITIONS.
 - **Strategy:** Identify local drought indicators, such as precipitation, temperature, surface water levels, soil moisture, etc. Establish a regular schedule to monitor and report conditions on at least a monthly basis.

Structure & Infrastructure Projects: Improving water supply and delivery systems helps to save water.

- Objective: RETROFIT WATER SUPPLY SYSTEMS.
 - Strategy: Develop new or upgrade existing water delivery systems to eliminate breaks and leaks.

Natural Systems Protection: Certain landscaping and civil design techniques can encourage a drought-tolerant landscape.

- Objective: ENHANCE LANDSCAPING & DESIGN MEASURES.
 - Strategy: Use permeable driveways and surfaces to reduce runoff and promote groundwater discharge.

Education & Awareness Programs: Encourage practices that foster soil health and improve soil quality to help increase resiliency and mitigate the impacts of droughts.

- Objective: EDUCATE FARMERS ON SOIL & WATER CONSERVATION PRACTICES.
 - Strategy: Encourage rotation of crops by growing a series of different types of crops on the same fields every season to reduce soil erosion.

-	DECION 2		NT DI ANI
	Hazard Mitigation	Plan 2017 Update – Steering Comm	oittee Meeting #2
	0	October 6, 2017 ~ 11:00 am Sign In Sheet	
	Name	Affiliation	Email
1.	Gordow Merry	Cabell Co OES/EMS	Gurdow. Merry @CCEMS. OR
2.	Jerry L. Beckett	Cabell Co. OES/Ems	erry, beckett@ccems.org
3.	Roger E. BryAnt	LOGAN CO. OEN/EMS	rbryAntOledsh. org
4.	Sherry Wilkins	Huntington Stormwater Utility	sherry, wilkins@huntingtonswu.com
5.	LARRY STUTCER	LINCOLN EDA	JARRY @ I:NCO IN Eda, COM
5.	RICK HELTON	LINCOLN County Hadplain	rickhelton @lincon county wv. org
	Francis Holton	Lincoln DES	swholton e zoom, email
B.	GREG Fuller	wo dusey RG	gregozy. M. fullere wy.gov
).	DENHIS ZIMMERMAN	MASON COUNTY OES	dzimmierman @MASONCOUNT/DES.COM
0.	Matthew Gregg	MASON County DES / DITSEM	Mgregge mason countyoes, com
1.	Scott Donley	Mason County DES	Soon le y @ Mason Countyves, Com
2.	Ray Perry	Logan County Commission	merry @lccwv. US
3.	Stephen Brown	Warm County Floady an	sabrown @ Wayne county w/ 000
4.	JEFFERY HARVEY	JH CONSULTING, LLC	pharvey e phepreparedness.com
15.	Any Heimberger	JH Consulting	aheimberger@incpreparedness.com
16.	Chris Chiles	Region 2 PDC	cchiles @region2pdc. org

REGION 2 HAZARD MITIGATION PLAN

Hazard Mitigation Plan 2017 Update – Steering Committee Meeting #2

October 6, 2017 ~ 11:00 am Sign In Sheet









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- Severe Summer Weather
- Severe Winter Weather

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REGION 2 HAZARD MITIGATION PLAN Hazard Mitigation Plan 2017 Update – Steering Committee Meeting #3				
	December 12, 2017 ~ 11:00 am Sign In Sheet			
Name	Affiliation	Email		
DENNIS EIMMERMAN	MASON CO DITSEM	SZIMMERMAN & MASON COUMTY OF		
TAMES & POOPER	WATTLE COUNTY E-911 DES	JCOOPEN D WAYE 911. COM		
Francis Ho Hon	Lincoln CES/9/1	fuholton ezcom, email		
GREGON FULLER	WUDHSEM	gregozi, M. filles Quirgov		
ROAL E. BryANT	LOGAN CO. OEM	rprypht@leASA.org		
/ ARRY /, STUTLER	Lincoln EDA	LARRY @ Lincoln eda, con		
Ray Peron	Locan Co. Commission	rserry alcowy, us		
Derry L. Beckett	Cabell County EmsloEs	perry beskett @ ccems. ors		
Jack Baeten	Cabell County Compission	ibactor @ cabellcounty. ORG		
Harby Ellipth	Provide A PDC	Kelliott@region2. Dok. Dr		
RICKHELTON	LINCOLD Co Hoodplain Him Nistret	& rickhelton Clinace Countriev.org		
Done Goolsby	Mineo Co. NSEM	dower, coolsby @ WY, GOV		
Amanda Starr	Minon County Flundoluin	Amanda Starr 00@holmail.com		
· Amy Heinberger	It Consulting	aheimberger @ ncpreparedness.com		
· Char Chiles	Region 2 PDC	Cchiles@hypusiec ore		

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NEW MITIGATION PROJECTS FOR THE HAZARD MITIGATION PLAN UPDATE

This worksheet is designed to assist you in identifying mitigation projects that you are currently working on in your jurisdiction or soon will be. Please fill out the sheet completely and as specifically and accurately as possible.

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EXAMPLES OF PREPAREDNESS ACTIONS ARE INSTALLING DISASTER WARNING PURCHASING RADIO SYSTEMS, COMMUNICATIONS EQUIPMENT, OR CONDUCTING EMERGENCY RESPONSE TRAINING.

- FEMA, 2013

The following hazards have been identified by the steering committee for your planning area. Please use these as a guide to filling out the worksheet.

Drought

- Ex. Temperatures
- Flood

Fire

- Hazmat
- Land Subsidence

- Dam Failure .
- Summer Weather

State of the second second

Opioid Epidemic
 Acts of Violence

Winter Weather

and the second

For project ideas, refer to FEMA's Mitigation Ideas: A resource for reducing risk to natural hazards document available online.

1. What are your hazards of concern? Why do they concern you? What type of impacts or destruction has your county/city/town experienced because of it? Please complete the table below. Use as many spaces as you need.

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Hazard of Concern	Reasons for Concern	Impacts or Destruction from Hazard
a. Ex. Flood	Ex. The storm sewers back up causing flooding throughout the town.	Ex. Main St. floods every time it rains for over two hours and causes the street to be closed to traffic. Businesses are impacted by the loss in revenue from the lack of access.
b. Ex. Heavy Snow	Ex. The buildings in our town are very old and may not handle the increased amount of snow we've seen in the recent years.	Ex. Two residences' roofs have collapsed due to the heavy snow load.
1. flood -*	Check come out of bunks Dridges get blocked/ damaged due to trees and debris	Water Court drain Droperly. Roads get blocked
Burnmere Weather	Storms (wind) Causing Power outerge during High temp.	Power lines Causing outcages throughout the county Leaving families in the dangerous
3 Summer Weather	Storms (wind) Causing trees to fall and block roads and possibly fall on Nulli	Tree falling across Roads
Winter Weater	Cars. Same as summe Weather with trees	
5.	falling on power Tines.	

2

2. Based on the problems identified in question 1, what has been or will be done to fix them? Each number corresponds to the hazard identified on the previous page.

Hazard of Concern	What Has Been Done	What Will Be Done
a. Ex. Flood	Ex. We have identified the problem areas within the storm water system that need maintenance/rebuilding.	Ex. We will build retention basins in several locations to help with the amount of water reaching the drains.
b. Ex. Heavy Snow	Ex. New construction is now required to address the higher snow loads.	Ex. Any reconstruction of old residences will be required to follow current building code standards to reduce the impacts. We will encourage residents to reinforce their homes.
17100d	We have notified different agenuges Doll, conservation, dep	Roo funding for Creek dredging and road repain
2. Durmmer Weather	locate the problem areas.	Cut the tree branches away from the power lines to prevent them falling on the lines.
3. Summer Weather	lucate the Problem areas	Have Duth Cut trees that are close to the roads to prevent them from falling
4. Winter Weather	locate the problem. Areas	Same as T
5.		

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How Dott Cat How that are close How Marson - prevent Harm trans fails my	ل مانندیکی میلود. کاریانیانهای افغانون	restance. Restance is

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> > - FEMA, 2013

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Drought

- Ex. Temperatures
- Flood

Land Subsidence

H

Acts of Violence

- Fire Dam Failure
- Opioid Ep

Hazmat

- Summer Weather
- Winter Weather Public Helth Crisis Opiod Crisis

For project ideas, refer to FEMA's Mitigation Ideas: A resource for reducing risk to natural hazards document available online.

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b. Ex. Heavy Snow	Ex. The buildings in our town are very old and may not handle the increased amount of snow we've seen in the recent years.	Ex. Two residences' roofs have collapsed due to the heavy snow load.
1. Opioid Crisis	This Crisis is is Still growing. It	1) Decth () First Responder Burnout () Crime continues to lise () Fanily Discustion
	Scsoulees	@ Socio/Economic
2. Haz Mat	With the transport Foutes in Cabell	DA significant statease Will tax responders
	County (Pail, River Vehicle) the possibility Of an incident is wer pro	Dury limited resources to include equipment & Personne ent
3.		
4.		
5.		

2. Based on the problems identified in question 1, what has been or will be done to fix them? Each number corresponds to the hazard identified on the previous page.

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Hazard of Concern	What Has Been Done	What Will Be Done
a. Ex. Flood	Ex. We have identified the problem	Ex. We will build retention basins in several
	areas within the storm water system	locations to help with the amount of water
h Ex Heavy Snow	that need maintenance/reputiding.	reaching the drains.
D. LA. HEavy Show	to address the higher snow loads.	be required to follow current building code
		standards to reduce the impacts. We will
		encourage residents to reinforce their homes.
1.	Onesdle cire aver	O Falina to all
Opioid Crisis		Analtanti Fo open
0	Quic E Response Tean	more Reheb Centers
	<i>u</i>	
2.	O-1 A A A	
	Locatified & Equipped	PAPPly for scants for
Haz Mat	Several Shelters	Provide A Fewioment
// ,	& LEPC Sponsors	Framing & Langerten
	atty and FSE	
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- FEMA, 2013

The following hazards have been identified by the steering committee for your planning area. Please use these as a guide to filling out the worksheet.

Drought

Logan

- Ex. Temperatures
- Flood

• Fire

- Hazmat
- Land Subsidence

- Dam Failure
- Summer Weather
- Opioid Epidemic
- Winter Weather
- Acts of Violence

For project ideas, refer to FEMA's *Mitigation Ideas: A resource for reducing risk to natural hazards* document available online.

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b. Ex. Heavy Snow	Ex. The buildings in our town are very old and may not handle the increased amount of snow we've seen in the recent years.	Ex. Two residences' roofs have collapsed due to the heavy snow load.
1. Fload	Historicul counts Toposraphy	miligation projects miligation reconstruct miligation Legislation
2. Winder Weather	Historical Evenst Topography	Snows present trained nayandos rosulting in exchausiling resources
3. Sommer becathr	Humidity chel High Tranges	wheth affects an Edderty and children
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2

2. Based on the problems identified in question 1, what has been or will be done to fix them? Each number corresponds to the hazard identified on the previous page.

Hazard of Concern	What Has Been Done	What Will Be Done
a. Ex. Flood	Ex. We have identified the problem areas within the storm water system	Ex. We will build retention basins in several locations to help with the amount of water
b. Ex. Heavy Snow	Ex. New construction is now required to address the higher snow loads.	Ex. Any reconstruction of old residences will be required to follow current building code standards to reduce the impacts. We will encourage residents to reinforce their homes.
1. Fload	Consinue n'Heath projects and Indrochece legislation	r remove or petovikl r l and sr l properties
2. Winker Werthon	public outreach for driving, power outages etc.	Egani
3. Summer Weather	Some do E tomber worther except divisions	-same
4.		
5.		

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NEW MITIGATION PROJECTS FOR THE HAZARD MITIGATION PLAN UPDATE

Cabell County WV

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- FEMA, 2013

The following hazards have been identified by the steering committee for your planning area. Please use these as a guide to filling out the worksheet.

Drought

Dam Failure

Summer Weather

Ex. Temperatures

• Fire

- Hazmat
 CRisis
 - Opioid Epidemic
 - Winter Weather
- Flood
- Land Subsidence
- Acts of Violence

H

· Pandemic

For project ideas, refer to FEMA's *Mitigation Ideas: A resource for reducing risk to natural hazards* document available online.

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Hazard of Concern	Reasons for Concern	Impacts or Destruction from Hazard
a. Ex. Flood	Ex. The storm sewers back up	Ex. Main St. floods every time it rains for over
	causing flooding throughout the	two hours and causes the street to be closed
	town.	to traffic. Businesses are impacted by the loss
	water and the second	in revenue from the lack of access.
b. Ex. Heavy Snow	Ex. The buildings in our town are	Ex. Two residences' roofs have collapsed due
	very old and may not handle the	to the heavy snow load.
	increased amount of snow we've	
4	seen in the recent years.	
	C. A PRIMA	
	Jour Marten UD AT	
	Repeated thor	
Flooding	Isuse,	Access to help Stendal
2.		
	the second se	D.L.N.
C	Local DRug	Shoolings Rebeny
Adrot	Enideric	+ HORY INVASION,
Violence	- prosent	0 110-110
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2

2. Based on the problems identified in question 1, what has been or will be done to fix them? Each number corresponds to the hazard identified on the previous page.

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Hazard of Concern	What Has Been Done	What Will Be Done
a. Ex. Flood	Ex. We have identified the problem	Ex. We will build retention basins in several
A 2017	areas within the storm water system	locations to help with the amount of water
b Ex Heavy Snow	That need maintenance/rebuilding.	Fx Any reconstruction of old residences will
D. Ex. Heavy Onow	to address the higher snow loads.	be required to follow current building code
		standards to reduce the impacts. We will
		encourage residents to reinforce their homes.
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		Long town plan would
		be to turn entire
T. A.		Area to great
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622	Locusto Precessos	Rahah mandading
Sub- Cl	Neepla Exchange	i an loose Jail
Persons, Chuned		2 or 1003
2 Business		time.
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NEW MITIGATION PROJECTS FOR THE HAZARD MITIGATION PLAN UPDATE

MASON

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- FEMA, 2013

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Drought

- Ex. Temperatures
- Flood

Fire

- Hazmat
- Land Subsidence

- Dam Failure
- Summer Weather
- Opioid Epidemic
- Winter Weather
- Acts of Violence

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b. Ex. Heavy Snow	Ex. The buildings in our town are very old and may not handle the increased amount of snow we've seen in the recent years.	Ex. Two residences' roofs have collapsed due to the heavy snow load.	
1. Draw DZ LEVAE FAILUTE			
2. DAM FAILURE	FRMA IS THREATING TO	CHANCE FROD MAD FROM X TO "D"	
FLOOD WALL	DE CERTIFY PTPL. FLODD WALL/LEVES	FLOOD IN'S RATE J	
3. HARMINT	INCREASE OF	VARIABLE BY	LIFE SAFRE ENVIROMEN
	RAIL/READ/RINA	ADCATION/ OHAD SIZE OF INCIDENT	DERUPTICA
4.		DE HAZMUET RESPONSE CAPIBILITOES INTO	Coonty
5.			

2

2. Based on the problems identified in question 1, what has been or will be done to fix them? Each number corresponds to the hazard identified on the previous page.

Hazard of Concern	What Has Been Done	What Will Be Done
a. Ex. Flood	Ex. We have identified the problem areas within the storm water system that need maintenance/rebuilding.	Ex. We will build retention basins in several locations to help with the amount of water reaching the drains.
b. Ex. Heavy Snow	Ex. New construction is now required to address the higher snow loads.	Ex. Any reconstruction of old residences will be required to follow current building code standards to reduce the impacts. We will encourage residents to reinforce their homes.
1.		
2. DAM/FLOOD LEVERE	IDOTHE ISSUE	WORK WITH ACOFE FEMA, CITY OF P. PLEASANT, TO BRING FLOOD WALL INTO COMPLIANCE
3. IAZMAT	JD'D THE ISSUE Commodities FLOW STUDY (ROHD) SARA TEIR II REPORTS.	FLOW STUDIES RAIL/RIVER. ACCESS TO THER IT REPORTS TRAINING OF 1ST RESPONDERS. MOU'S EST C REGIONAL ASSE
4.		BULLD IN COUNTY EAPRBLUTES
5.		

NEW MITIGATION PROJECTS FOR THE HAZARD MITIGATION PLAN UPDATE

Mingo Country HSEI

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- FEMA, 2013

RESPONSE TRAINING.

The following hazards have been identified by the steering committee for your planning area. Please use these as a guide to filling out the worksheet.

Drought

Dam Failure

Summer Weather

• Ex. Temperatures

• Fire

- Hazmat
 Crisis
- Opioid Epidemic
- Winter Weather

Flood

- Land Subsidence
- Acts of Violence
 Epsidenic
 Public Health

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1. What are your hazards of concern? Why do they concern you? What type of impacts or destruction has your county/city/town experienced because of it? Please complete the table below. Use as many spaces as you need.

Hazard of Concern	Reasons for Concern	Impacts or Destruction from Hazard
a. Ex. Flood	Ex. The storm sewers back up causing flooding throughout the town.	Ex. Main St. floods every time it rains for over two hours and causes the street to be closed to traffic. Businesses are impacted by the loss in revenue from the lack of access.
b. Ex. Heavy Snow	Ex. The buildings in our town are very old and may not handle the increased amount of snow we've seen in the recent years.	Ex. Two residences' roofs have collapsed due to the heavy snow load.
^{1.} Flood	Water shedding problem Crecks breaking banks blocked & debris i sectiment,	High water, not being able to diverin properly. leading to trapped residents due to blocked roads.
2. Acts of Violence	the violent tendacies of the recent events Nationally.	Could be disasterous, due to history, our county residents do not thenk some thing like this could happen
3.		
4.		
5.	0	

2

2. Based on the problems identified in question 1, what has been or will be done to fix them? Each number corresponds to the hazard identified on the previous page.

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Hazard of Concern	What Has Been Done	What Will Be Done
a. Ex. Flood	Ex. We have identified the problem areas within the storm water system that need maintenance/rebuilding	Ex. We will build retention basins in several locations to help with the amount of water reaching the drains
b. Ex. Heavy Snow	Ex. New construction is now required to address the higher snow loads.	Ex. Any reconstruction of old residences will be required to follow current building code standards to reduce the impacts. We will encourage residents to reinforce their homes.
1. Flood	we have identified the issues have reached out to consent	Need funding & permits to allow for creek re- tion constructions
	DEP	
2. Acts at	Migo BOE has each	Think need and reach to
Violence	School prepare crisis Plans to coldress this	to prepare members to protect
		their selves during Church,
3.		Mass Garkerings
4.		
5.		

WAYNE COUNTY

Region 2 PDC Hazard Mitigation Plan

NEW MITIGATION PROJECTS FOR THE HAZARD MITIGATION PLAN UPDATE

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Drought

- Ex. Temperatures
- Flood

Fire

- Hazmat

- Opioid Epidemic
- Acts of Violence

Land Subsidence

Summer Weather

Dam Failure

• Winter Weather

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	causing flooding throughout the	two hours and causes the street to be closed
	town.	to traffic. Businesses are impacted by the loss
h. T., 11	The theildless is see form	In revenue from the lack of access.
D. EX. Heavy Snow	Ex. The buildings in our town are	Ex. I wo residences' roots have collapsed due
	very old and may not nandle the	to the neavy snow load.
	seen in the recent years	
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		pernes prozes
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CHEMIN	Life & Properties	+ Equipmant for CHEM
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Ex. New construction is now required to address the higher snow loads.	Ex. Any reconstruction of old residences will be required to follow current building code standards to reduce the impacts. We will encourage residents to reinforce their homes.
Schictbi Powert Product All use de Flad MIMOS	Improver of Strenger The Permit Process
More TRAININg in the Response TO 1442 AND 1307 CHEM & REALMONGE	ADDITION TRAIL
PLANM + EDUNIN De publi Bolcu The Imphil Dien)	SAE Improvent + operation innovidence of structures + Flood willy
	that need maintenance/rebuilding. Ex. New construction is now required to address the higher snow loads. Startter forwart from a Al use of Flood maps Nore TRAINT in the Performe to Area are Bot Chen & EDaution The Import Foolow The Import foolow The Import foolow

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Lincoln

NEW MITIGATION PROJECTS FOR THE HAZARD MITIGATION PLAN UPDATE

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Examples of <u>Mitigation</u> actions are planning and zoning, floodplain protection, property acquisition and relocation, or public outreach projects. Examples of <u>preparedness</u> actions are installing disaster warning systems, purchasing radio communications equipment, or conducting emergency response training. - FEMA, 2013

The following hazards have been identified by the steering committee for your planning area. Please use these as a guide to filling out the worksheet.

Drought

• Ex. Temperatures

- Fire
- Dam Failure
- Summer Weather
- Hazmat
- Opioid Epidemic
- Winter Weather
- Flood
- Land Subsidence
- Acts of Violence

For project ideas, refer to FEMA's *Mitigation Ideas: A resource for reducing risk to natural hazards* document available online.

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b. Ex. Heavy Snow	Ex. The buildings in our town are very old and may not handle the increased amount of snow we've seen in the recent years.	Ex. Two residences' roofs have collapsed due to the heavy snow load.	
Head	-Hash Flooding -NON Compriant Development	Hash Hading Baseding Maintall, Heading is Auden, loss inverse due down structure effect grows w/debis & volume Now Compliant Development - Institute mandatory, predical appalent, institute mandatory, predical appalent, institute mandatory, predical appalent, institute mandatory, predical appalent, institute all utilities applications, port reque	permit
2. OptoidCrisis	TOLLOW HUMAN, SINANUIAL Public Assets) Public Perception	DRAIN ON COUNTY Fund: SOR LAW ENSPECEMENT, JAEI DILL	NG
3.			
4.			
5.			

2. Based on the problems identified in question 1, what has been or will be done to fix them? Each number corresponds to the hazard identified on the previous page.

Hazard of Concern	What Has Been Done	What Will Be Done	
a. Ex. Flood	Ex. We have identified the problem	Ex. We will build retention basins in several	
	that need maintenance/rebuilding.	reaching the drains.	
b. Ex. Heavy Snow	Ex. New construction is now required	Ex. Any reconstruction of old residences will	
	to address the higher snow loads.	be required to follow current building code	
		standards to reduce the impacts. We will	
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MUNICIPALITY: _____BARBOURSVILLE_____

1	1. FLOODPLAIN IDENTIFICATION AND MAPPING				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes		
b	 Has the municipality adopted the most current DFIRM/FIRM and FIS? 	State the date of adoption, if approved.	Yes		
c.	Does the municipality support request for map updates?	If yes, state how.	Yes		
d	Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	Yes	Electronically	
e.	Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes		
f.	Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes		

2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	Yes	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Yes	Public Works
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Yes	Public Works
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes	Public Works
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Yes	Public Works
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	Public Works

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:				
• Participation in the Community Rating System				
 Prohibition of production or storage of chemicals in SFHA 	If yos specify activities	No		
 Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA 	ii yes, specify activities.	NO		
 Prohibition of certain types of residential housing (manufactured homes) in SFHA 				
 Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA 				

3. FLOOD INSURANCE			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	No	
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	No	
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	NO	

JURISDICTION: CABELL COUNTY

1	1. FLOODPLAIN IDENTIFICATION AND MAPPING				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes	The West Virginia GIS Flood Tool and in The Office of Grants, Planning & Permits	
b	Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes	June 16, 2005	
c.	Does the municipality support request for map updates?	If yes, state how.	Yes	From FEMA and for WV GIS Technical Center (Flood Tool)	
d	Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	Yes	LOMA	
e.	Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	The West Virginia GIS Flood Tool	
f.	Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes	Cabell County Commission Office of Grants, Planning & Permits	

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
 a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following: 	If yes, answer questions (1) through (4) below.	Yes	Available at Cabellcounty.org	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Yes	Cabell County Commission Office of Grants, Planning & Permits	
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Yes	Cabell County Commission Office of Grants, Planning & Permits	
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes	Cabell County Commission Office of Grants, Planning & Permits	
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Yes	Cabell County Commission Office of Grants, Planning & Permits	
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	Permit Process-Stop Work Orders- No Electric service or address if not in compliance	

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
 c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: 				
Participation in the Community Rating System			• Prohibition of production or storage of chemicals in	
Prohibition of production or storage of			SFHA	
chemicals in SFHA	If yes, specify activities.	Yes	 Prohibition of certain types of structures, such as 	
 Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA 			hospitals, nursing homes, and jails in SFHA	
 Prohibition of certain types of residential housing (manufactured homes) in SFHA 			Freeboard minimum of two feet above BFE	
 Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA 				

3.	3. FLOOD INSURANCE				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	Yes	We are available in office or by phone. We attend meetings.	
b.	Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	No		
c.	Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	No		

MUNICIPALITY: ____LINCOLN COUNTY

1	1. FLOODPLAIN IDENTIFICATION AND MAPPING				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes		
b.	Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes, 10/16/13		
c.	Does the municipality support request for map updates?	If yes, state how.	Yes	FEMA Region III recently held Map Update Workshop in Lincoln and Wayne Counties for flood map updates request for Lower Guyandotte Watershed and the Twelve Pole Watershed.	
d.	Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	Yes	LOMA, LOMA-F, LOMA-C and LOMA-R approvals/applications	
e.	Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	Any development requires floodplain determinations(permits) by ordinance	
f.	Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes	Floodplain Management Office	

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	Yes	Responsible Office is the Lincoln County Commission Floodplain Management Office for parts of the ordinance.	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Yes		
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Yes		
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes		
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Yes		
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	Routine site visits (announced and unannounced)	

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
 c. Has the municipality considered adopting activitie that extend beyond the minimum requirements? Examples include: 	s			
Participation in the Community Rating System	n			
 Prohibition of production or storage of chemicals in SFHA 		Yes	Yes generally. Some items are a work in progress but support the examples.	
 Prohibition of certain types of structures, sur as hospitals, nursing homes, and jails in SFHA 	ch			
 Prohibition of certain types of residential housing (manufactured homes) in SFHA 				
 Floodplain ordinances that prohibit any new residential or nonresidential structures in SF 	HA			

3.	3. FLOOD INSURANCE				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	Yes	Community meetings	
b.	Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	Yes	When FIRM maps change or are new maps, requirement is to publish in the local newspaper.	
c.	Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	Yes	General information only	

JURISDICTION: _LOGAN COUNTY_____

1	1. FLOODPLAIN IDENTIFICATION AND MAPPING				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	YES	UPON REQUEST FROM THE PUBLIC THROUGH THE FLOODPLAIN ADMINISTRATORS OFFICE.	
b	Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	YES	02/16/08	
c.	Does the municipality support request for map updates?	If yes, state how.	YES	MAP AMENDMENTS ARE PRIMARILY DONE BY SURVEYORS DURING OBTAINING AN ELEVETION CERTIFICATE.	
d	Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	YES	UPON NOTIFICATION OR THROUGH PARTNERING WITH ENGINEERING AND TECHNICAL GROUPS.	
e.	Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	YES	THROUGH REQUESTED FLOOD DETERRMINATION LETTERS	
f.	Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	YES	LOGAN COUNTY FLOODPLAIN ADMINISTRATORS OFFICE	

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
 a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following: 	If yes, answer questions (1) through (4) below.	YES	THE COUNTY HAS ADOPTED THE WV STATE MODEL ORDINANCE IN ADDITION IN ADDITION TO THE IBC INCLUDING APPENDIX G	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	YES	THROUGH A STANDARD PRMITTING PROCESS THROUGHT THE FLOODPLAIN OFFICE	
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	YES	IF ANY PROJECT WOULD OCCUR IT WOULD BE HELD TO THESE STANDARDS	
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	YES	THROUGH THE REQUIREMENT OF 2 FEET OF FREEBOARD AND THE MANUFACTURED HOMES STANRDS FOR FLOOD SETS IN THE SFHA.	
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	YES	ALL ELEVETION CERTIFICATES ARE RETAINED WITH ALL PERMITS	
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	YES	BY FREQUENT VISITS THROUGHOUT THE COUNTY	

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:				
Participation in the Community Rating System	If yes, specify activities.	YES	IN THE PROCESS OF BECOMING A CRS COUNTY ALL CRITICAL INFRASTRUCTURE IS PROHIBITED FROM BEING CONSTRUCTED IN THE SFHA.	
 Prohibition of production or storage of chemicals in SFHA 				
 Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA 				
 Prohibition of certain types of residential housing (manufactured homes) in SFHA 				
Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA				

3.	3. FLOOD INSURANCE				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	YES		
b.	Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	YES		
c.	Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	YES		

MUNICIPALITY: _____MASON COUNTY_____

1	1. FLOODPLAIN IDENTIFICATION AND MAPPING				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes		
b.	Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes	2013, December	
c.	Does the municipality support request for map updates?	If yes, state how.	Yes	We use the WV Flood Tool which is up dated often by WV GIS.	
d.	Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	Yes	Anytime there is new data , we pass that information to the State of WV and they pass it to FEMA.	
e.	Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	Working with surveyors in the area.	
f.	Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes	Mason County DHSEM	

2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
 a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following: 	If yes, answer questions (1) through (4) below.	Yes	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Yes	
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Yes	
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes	
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Yes	
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	We do outreach and spot inspections on projects.

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:				
Participation in the Community Rating System				
 Prohibition of production or storage of chemicals in SFHA 	If yes, specify activities.	N -		
 Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA 		NO		
 Prohibition of certain types of residential housing (manufactured homes) in SFHA 				
 Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA 				

3.	3. FLOOD INSURANCE				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	No		
b.	Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	yes	Using the wv flood tool and information from FEMA	
c.	Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	no		

MUNICIPALITY: <u>CITY OF HUNTINGTON</u>

1	1. FLOODPLAIN IDENTIFICATION AND MAPPING				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes	A copy of the FIRM is made available to the community through the Department of Planning and Development office.	
b.	Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes	February 19, 2014	
c.	Does the municipality support request for map updates?	If yes, state how.	Yes	We are supportive of Letter of Map Amendments where appropriate.	
d.	Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	Yes	As needed, but work closely with the FEMA Region III and state NFIP office regularly.	
e.	Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	Residents are able to call the Department of Planning and Development with inquiries regarding floodplain determination. We also have a link to the WV Flood Tool on the City's website.	
f.	Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes	Department of Planning and Development.	

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
 a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following: 	If yes, answer questions (1) through (4) below.			
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Yes	Department of Planning and Development.	
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Yes	Department of Planning and Development.	
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes	Department of Planning and Development.	
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Yes	Department of Planning and Development.	
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	Department of Planning and Development ensures all new development is compliant with all applicable floodplain regulations. Violations are remediated by the Planning Staff.	

2. FI	2. FLOODPLAIN MANAGEMENT				
	Requirement	Recommended Action	Yes/No	Comments	
c. Ha th Ex	is the municipality considered adopting activities at extend beyond the minimum requirements? amples include:				
•	Participation in the Community Rating System				
•	Prohibition of production or storage of chemicals in SFHA	If yes, specify activities.	Yes	Article 1349.E.03 Requires new development to be two feet above the Base Flood Elevation (BFE).	
•	Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA				
•	Prohibition of certain types of residential housing (manufactured homes) in SFHA				
•	Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA				

3	3. FLOOD INSURANCE				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	Yes	Handouts are available to the public. The NFIP is discussed with anyone proposing development in the floodplain. Staff has also met with relators to answer questions about the NFIP.	
b.	Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	Yes	A letter would be sent to the owner and tenant of the property indicating a change in the FIRM.	
c.	Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	Yes	The Office of Planning and Development fields all inquiries into floodplain management. For example, our floodplain managers may educate community members in the Letter of Map Amendment (LOMA) process in an effort to reduce insurance costs if the property is safe from the regulatory floodplain.	

MUNICIPALITY: _____CITY OF MILTON_____

1	1. FLOODPLAIN IDENTIFICATION AND MAPPING				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes	Copies at both City Hall and the Public Library	
b.	Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes	Adopted 2007	
c.	Does the municipality support request for map updates?	If yes, state how.	Yes		
d.	Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	Yes	Provide new data to FEMA contacts in the Charleston office for best advice on how to proceed to federal level.	
e.	Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	Advise property owners to get an Elevation Certificate to obtain more precise information and contact FEMA on their behalf if needed.	
f.	Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes	Building Inspector & Floodplain Manager	

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
 a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following: 	If yes, answer questions (1) through (4) below.	Yes		
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Yes	Building Inspector & Floodplain Manager	
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Yes	Floodplain Manager	
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes	Floodplain Manager	
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Yes	Building Inspector & Floodplain Manager	
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	Plan review, site visits and personal contact with property owner	

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
 c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: Participation in the Community Rating System Prohibition of production or storage of chemicals in SFHA Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA Prohibition of certain types of residential housing (manufactured homes) in SFHA Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA 	If yes, specify activities.	Yes	Implemented a two-foot freeboard requirement in the ordinance Prohibit certain critical structures in the SFHA Prohibit certain types of manufactured homes in the SFHA Monitor storage of chemicals in the SFHA Starting in 2018 the City will participate in the Community Rating System	

3	3. FLOOD INSURANCE				
	Requirement	Recommended Action	Yes/No	Comments	
a.	Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	Yes	Articles in our bi-monthly City Newsletter and utility bill inserts	
b.	Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	Yes	Articles in our bi-monthly City Newsletter and City Facebook page	
c.	Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	Yes	FEMA handouts and brochures and person contact with property owners	



Jerry Beckett

The Cabell County Office of Emergency Services is in the process of developing a Regional Pre-Disaster Mitigation Plan. This effort is in conjunction with Wayne, Mason, Lincoln, Logan, and Mingo Counties, JH Associates, and the Region 2 Planning and Development Committee. I ask that as many of you as possible follow this link and complete this very short survey. We need your input to better enable us to develop a plan that takes into consideration the Whole Community rather than just First Responders. Thank you for your help and please share this on your timeline.

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Jerry Beckett 9 hrs • 🕥

The Cabell County Office of Emergency Services is in the process of developing a Regional Pre-Disaster Mitigation Plan. This effort is in conjunction with Wayne, Mason, Lincoln, Logan, and Mingo Counties, JH Associates, and the Region 2 Planning and Development Committee. I ask that as many of you as possible follow this link and complete this very short survey. We need your input to better enable us to develop a plan that takes into consideration the Whole Community rather than just First Responders. Thank you for your help and please share this on your timeline.



	📫 Like 🕅 Follow 🏕 Share 🚥
	Lincoln County WV Emergency Management/911
Lincoln County WV Emergency Management/911 @LincolnCountyWVEMA9	The Lincoln County Office of Emergency Services is in the process of developing a Regional Pre-Disaster Mitigation Plan. This effort is in conjunction with Cabell, Logan, Mason, Mingo and Wayne Counties, JH Associates, and the Region 2 Planning and Development Committee. I ask that as many of you as possible follow this link and complete this very short survey. We need your input to better enable us to develop a plan that takes into consideration the Whole Community rather than just First Responders. The survey takes about 5-10 minutes to do. Thank you for your help and please share this on your timeline.
Home	Region 2 PDC Hazard Mitigation Survey Web survey powered by SurveyMonkey.com. Create your own online survey
Posts	now with SurveyMonkey's expert certified FREE templates. SURVEYMONKEY.COM
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Logan County Code Enforcem... Promote

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Logan County Code Enforcement Division Posted by Ray Perry

Just now · 🕄

We are close to having our Hazard Mitigation Plan completed. We are asking for your input again in letting us know your thoughts on projects that are addressed by the plan. Please take a few minutes to fill out our online survey. Thank you!

https://www.surveymonkey.com/r/Region2-2nd





Logan County Abandoned and Dilapidated Structure Program

Posted by Ray Perry Yesterday at 10:20 PM · 🚱

Please take a moment to complete the following survey pertaining to flooding and hazard mitigation. Thanks in advance for participating.

https://www.surveymonkey.com/r/Region2HMP







Mason County Division of Homeland Security and Emergency Management

Posted by Matt Gregg Work 3 mins • 🕤

Please take a minute and help Mason County out. There is a survey that we are asking Mason County residents to take that can help us out with getting some critical information.

This is for Mason County WV residents only to take but feel free to share!!!... See More







APPENDIX 3 PUBLIC PARTICIPATION



	LOGAN COUNTY HAZARD MITIGATION PLAN									
	Hazard Mitigation Plan 2017 Update – Public Meeting									
	November 28, 2017 ~ 12:00 pm									
	Name	Affiliation	Email							
1.	Roger E. BryAnt	LOGAN County DEM	S bryAnt @leash. org							
2.	DANNY GOODY	LOGAL County Commission	danny godsyd ynhow, com							
3.	Danmy Elis									
4.	Labonna Dlankenship	Legan County OEM	Iblankenship @leasa.org							
5.	Lisa Wells	Region 2 Planning & Dev. Council	Iwellse region 2 pdc. org							
6.	JP Whitesel	WVDHSEM								
7.	Ray Permy	Logen County Commissions	rperry@/ccwv.vs							
8.	topyceliott	Beion SPDC.	Kelliott @verion27de.org							
9.	Anna Heinperger	JE Consulting	aheimberger@ hepreparedness.com							
10.		0	5 5 1							
11.			×							
12.										
13.										
14.										
15.										
16.										

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Lincoln County WV Emergency Management/911

@LincolnCountyWVEMA9 11

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Lincoln County WV Emergency Management/911 Published by Francis Holton [?] - 1 min - 🚱

NOTICE OF PUBLIC MEETING

The Region 2 Planning & Development Council is updating the hazard mitigation plan for Lincoln County. The Lincoln County Local Emergency Planning Committee, will hold a public meeting on November 28, 2017, on the plan as part of its regularly-scheduled meeting in the Lincoln County OES/911 Center located at 911 Marconi Drive, West Hamlin at 7:00 p.m.

The purpose of the meeting is to review updates to the county's hazard mitigation plan. Members of the public will be given the opportunity to comment on the natural and man-made hazards most affecting them.

The Region 2 Hazard Mitigation Plan was last updated in 2012 per federal requirements in Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000.

Boost Post

-1	INCOIN COIN		CATTON DI ANT							
		NII HAZAKU MIII Kara Diana 2017 Uradata – Duklia Ma	GATION PLAN							
	Huzuru Miligulion Plun 2017 Opuale – Public Meeting - LEFC									
		Sign In Sheet								
	Name	Affiliation	Email							
1.	Amy Heimberger	JH Consulting	a heimberger@ hcpreparedyrss.com							
2.	talk, Elliott	Projon 2 PhC	Kelliott@region220de.org							
3.	Ton Edwards	National Weather Service	tony. pdwards Cnoaa. gov							
4.	William Frazier Jr	Guxan River V.F.D	wbily2 Jr@ad.com							
5.	William Frazien sn	GRUFP								
6.	Francis Holfon	Lincoln OES .	Fucholfone 2 comin ternet. net							
7.	Rick Helton	Lincoln Courdy floor plain	(Via phone)							
8.	Keith Evans	Lincoln Nursing & Rehald	Kevansa am FM War							
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Mingo County LEPC

NOTICE OF PUBLIC MEETING

The Region 2 Planning & Development Council is updating the hazard mitigation plan for Mingo County. The Mingo County Local Emergency Planning Committee, will hold a public meeting on November 30, 2017, on the plan as part of its regularly-scheduled meeting at the Williamson Fire Department at 12:00 p.m.

The purpose of the meeting is to review updates to the county's hazard mitigation plan. Members of the public will be given the opportunity to comment on the natural and man-made hazards most affecting them.

The Region 2 Hazard Mitigation Plan was last updated in 2012 per federal requirements in Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as

Write a comment...

GIF

....

Mingo County Local Emergency Planning Committee

Address

Williamson, WV 25661

Phone (304) XXX-XXXX

AGENDA

Williamson Fire Department November 30, 2017 12:00 Noon

- I. Call to order
- II. Roll call
- III. Approval of minutes
- IV. Committee Reports
 - a) Drill Committee
 - b) Planning Committee
 - c) By Laws Committee
- V. Old Business
- VI. New Business
- VII. Hazard Mitigation Public Meeting
- VIII. Jeff Harvey EOP Workshop
- IX. Adjournment

	MINGO COUNTY HAZARD MITIGATION PLAN								
	Hazard Mitigation Plan 2017 Update – Public Meeting - LEPC								
	November 30, 2017 ~ 12:00 pm Sign In Sheet								
	Name	Affiliation	Email						
1.	Tarry Cottle	Beech Creek Wolfin Duck	F. reman 1086c Clahos, Com						
2.	Joe Rumore	Chattaroy Voc. Fire Dept.							
3.	John Hall, JR	East Fork U.F.D.	Shalljæri @ yahoo. com						
4.	Joey Carey	Williamson F.D. Mingo LEPC	It carey 102 Qyahoo, Com						
5.	Doug Gooksby	Mingo County NSEM	doug, goolsby @ WU.gov						
6.	BRYAL C. CASTO	WV5FMO	Beyan. C. Casto CWV. GOV						
7.	Marcella Charles-Casto	Mingo County Schools - MCHS	meharles@ KIa. wv. us						
8.	HELEN STANLEY	GUYAN CONSERVATION SUPERVISOR - MINGO	helenwheels 75@yahoo.com						
9.	Amanda Stall, CFM	Mingo Co. Floodplain Hanager	Amanda Starr DO@hotmail.com						
10.	Asthony & Blaskenship	Musgo Co Health Dept	astrony. K. blaskenship Que. gov						
11.	Amanda Davis	Williamson Memorial Hospital	Amanda. davis 3@ chs 14. net						
12.	Stacy Markus	Williamson Memoria (Hospital	stacey, martus & hma. com						
13.	Lisa wells	Region 2 Planny , Dev. Council	Iwells e region 2 pdc. org						
14.	Hathy Elliott	Region 2 PDC	Kelliott@region2pdc.org						
15.	Brook e Riffe	JU Conselling	briffe @ ; hc prepared ness com						
16.	JEFF HAEVEY	JH CONSVUTING, LLC	iharvey C ihepreparedness.com						

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Jurisdiction: Williamson 20 1500 OUN Name Brief Description Level of Concern Date and Location Hazard Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. Not Concerned The water reached Ocean Drive and flooded local businesses and swept away cars. After the Date: August 2014 Somewhat Concerned water receded, recovery took several months and many businesses could not recover. Three Location: Coast of South Beach Example: Storm Surge people died and dozens were injured; five are still missing. Since then, low impact mitigation along Ocean Drive between 5th St. X Concerned strategies have been implemented along the beach to avoid widespread distruction. and 14th St. U Very Concerned Not Concerned Date: Somewhat Concerned Dam Failure Location: Concerned U Very Concerned Drevekt othe Not Concerned col wav a concer Date: Somewhat Concerned econ clima Chevi Drought Location: Concerned U Very Concerned Not Concerned 11 0 Mingo on Date: n Somewhat Concerned 0 cause concern 0 Earthquake CI Location: K Concerned UA all CRI 0 U Very Concerned Not Concerned temps 2 mi turche aLEVA Date Somewhat Concerned derech Extreme Temperatures 2 Location: Concerned Very Concerned Not Concerned 0055161 100 Date: Somewhat Concerned Areas Fire Location: 1.100 Concerned U Very Concerned Not Concerned Ins Nonec Date: Somewhat Concerned MAR anec Mexit Flooding Location: AL Concerned Very Concerned Not Concerned Rai Nac П Haun Date: Somewhat Concerned Hazmat Incidents vans ports Jaz ma 0 15 Location: Concerned Very Concerned

		Not Concerned	Date:	
		Somewhat Concerned	Date.	
Land Subsidence	X	Concerned	Location:	
D.G.	×	-Very Concerned		
		Not Concerned		1. Lind Strang Course Expossible.
		Somewhat Concerned		
Severe Summer Weather		Concerned	Location:	power ownages.
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Opioid		Somewhat Concerned	Date.	Jang concerned (~ 5 clas /1/2 /1/2
Epidemi		Concerned	Location:	area.
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nennenne en astronomente		Not Concerned	Deter	
		Somewhat Concerned		
		Concerned	Location:	
		Very Concerned		

Name: Marcella Charles-Casto / Bryan Casto

TOWN of Matewan Jurisdiction:

Hazard	1	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	□ Not □ Som X Con □ Ven	Concerned newhat Concerned cerned y Concerned	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	X Not Sor Con Ven	Concerned newhat Concerned cerned y Concerned	Date: Location:	Slim possibility of floodwall folilure-
Drought	Not Som Con Ven	Concerned newhat Concerned cerned y Concerned	Date: Location:	
Earthquake	Not	Concerned newhat Concerned ncerned y Concerned	Date: Location:	Nut suffered in recent history - potential is there,
Extreme Temperatures	Not	Concerned newhat Concerned ncerned y Concerned	Date: Location:	Significant variations in temps throughout the year.
Fire	□ Not □ Son ☑ Cor □ Ver	Concerned newhat Concerned ncerned y Concerned	Date: Location:	Downtown buildings - no fire protection Features - Wild Hand - Urban interface Jimited buffer.
Flooding	□ Not □ Sor ★ Cor □ Ver	Concerned newhat Concerned ncerned y Concerned	Date: Location:	Although we have a flood plant areas upstream are exposed. Swift water rescues are an area we need resources
Hazmat Incidents	Not	: Concerned newhat Concerned ncerned y Concerned	Date: Location:	Hazardow Materials travel through our area all the time. Incidents occur minimally - the possibility exists

Land Subsidence	Not Concerned Somewhat Concerned Concerned Very Concerned	Date:	Due to the number of coal mines nour area active and unactive, we have instances of disaster
Severe Summer Weather	Not Concerned Somewhat Concerned Concerned Very Concerned	Date:	our local area experiences Extreme variation int temperature throughout
Severe Winter Weather	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	Power outages - phone outages road conditions are of huge concern - Fines - inadequaries
Opioid Epidemic	Not Concerned Somewhat Concerned Concerned Very Concerned	Date:	We are at epidemie levels in our communities- overdoses daily - Emersency responders- at Risk -
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date:	
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date:	
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date:	

Name: Tommy Cottle

Jurisdiction: Beach Creak Lat. En Oupf

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Drought	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Earthquake	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
xtreme Temperatures	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: 2011 Location: Beach creek	around 2011 power was out for around g day
Fire	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
Flooding	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: 2009 Location: Beeck Creek	Lost 17 Brages To Family NO way in or out for a day to open Isome parts of reads
Hazmat Incidents	Not Concerned	Date: 2017 Location: Devun	Work with Materia UPD Came precede we sent shit down spind for about 1 Hr.

Land Subsidence	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: 2017 Location: Healotck Beach cruek	Land curver had a big wish alf on land owner Last Building as ofther, stuff Min Owner hight burch hard to help make thank right. But the Creek's are so full that water Can How Right.
Severe Summer Weather	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: 2017 Location: Becch Creak	Most all Crock and day the do to the Crocks Need Clean art.
Severe Winter Weather	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Opioid Epidemic	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: 2015 Location: Bach Crowk	And Servel prophe Oh deed On PITTS.
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	

· ·

From the hazards listed below for the hazard mitigation plan update, tell me about a specific problem you've encountered in your jurisdiction relating to at least three of these hazards. Provide the date (year at minimum), location (street name, park name, etc.), and a brief description of what happened and why, and if there was anything that was done about it since it occurred. Use the reverse side of this page if you require more space. unincorperated

. 1 0 1.2 Name:_

			(Delbarton area
Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surg The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	Mine properties have slurry dams that have the potential to break
Drought	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: - み Location:	
Earthquake	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Extreme Temperatures	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: 2012 Location: different Areas of county	In 2012 a decrache moved through and Caused a wide-spread power owtage - lasting for days.
Fire	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	
Flooding	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: 2002 - 2016 Location: different Cireas of the County.	- Flooding occurs throughout the county Homes and property wire destroyed. I 2004 if flooded every weekend in May.
Hazmat Incidents	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: 2006 or 2007 Location:	Tanker to truck wrecked on 119 And had a chemical that everypre exposed to needed decon.

	X	Not Concerned	Data	
Lond Cubaidan		Somewhat Concerned	Daip.	
Land Subsidence		Concerned	Location:	
		Very Concerned		
La del contrata de la contra de la desta de		Not Concerned		Salar lange lange in a the direction
		Somewhat Concerned	Udle.	both hat I cold - a lot of people do
Severe Summer weather	ø	Concerned	Location:	themse lies from the conditions - no
		Very Concerned		heat or no air conditioning or fans
		Not Concerned		
0		Somewhat Concerned		see above
Severe winter weather	减	Concerned	Location:	
		Very Concerned		
Aciaid		Not Concerned		
opioia		Somewhat Concerned	Date.	of people that it concerns - the users
Epidemic	M	Concerned	Location:	of poloids both legal & illegal. the
	Ö	Very Concerned	*	Issues; families of overdose - who that have
		Not Concerned		children - et
		Somewhat Concerned	Date:	
		Concerned	Location:	
		Very Concerned		
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		Very Concerned		
		Not Concerned		
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		Concerned	Location:	
		Very Concerned		

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From the hazards listed below for the hazard mitigation plan update, tell me about a specific problem you've encountered in your jurisdiction relating to at least three of these hazards. Provide the date (year at minimum), location (street name, park name, etc.), and a brief description of what happened and why, and if there was anything that was done about it since it occurred. Use the reverse side of this page if you require more space.

Name: John Hall

Jurisdiction: Outside Corp Limit.

Hazard	Level of Concern	Date and Location	Brief Description
Example: Storm Surge	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: August 2014 Location: Coast of South Beach along Ocean Drive between 5th St. and 14th St.	Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. The water reached Ocean Drive and flooded local businesses and swept away cars. After the water receded, recovery took several months and many businesses could not recover. Three people died and dozens were injured; five are still missing. Since then, low impact mitigation strategies have been implemented along the beach to avoid widespread distruction.
Dam Failure	Not Concerned Somewhat Concerned Concerned Very Concerned Very Concerned	Date: 1980'S Location: Laurel Lale	up clated several years app
Drought	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	NA
Earthquake	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	NA
Extreme Temperatures	 Not Concerned Somewhat Concerned Concerned Very Concerned 	Date: Location:	during power autage during Summer
Fire	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	as fire chief el am very concern afint
Flooding	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	Same
Hazmat Incidents	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	Some

Land Subsidence	Not Concerned Somewhat Concerned Concerned Very Concerned Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location: Date: Location:	Same Same
Severe Winter Weather	Not Concerned Somewhat Concerned Concerned -Very Concerned	Date: Location:	Same
Opioid Epidemic	Not Concerned Somewhat Concerned Concerned Very Concerned	Date:	See Attactor
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	

Cabell/Wayne LEPC

Cabell/Wayne Local Planning Committee 750 5th Ave. Suite 300 Huntington, WV 25701 Phone (304) 526-9704 Fax (304) 526-8648 E-mail jbarker@cabellcounty.org

AGENDA

December 5, 2017 Tri-State Fire Academy 4200 Ohio River Rd. Huntington, WV 25702

- 1. Call to Order Jerry Beckett
- 2. Approval of the October 2017 Minutes
- 3. Financial Report Jack Barker, Sec/Treas.
- 4. Review of all Grants Jerry Beckett
- 5. Reports of Standing Sub-Committees:
 - A. Drill Planning Chairman Pat Simmons
 - B. Sheltering Karen Hall-Dundas
- 6. Review of Cabell County Emergency Operations Plan.
- 7. Jeff Harvey- Post Disaster Mitigation Planning.
- 8. New Business/Announcements/Requests for Membership
- 9. Adjournment

December 5, 2017

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BALANCE \$29,686.58

C/W LEPC FUND	Amount	Check #
Interest for August 2017	+1.26	
Interest for September 2017	+1.28	
William Willis	-1045.27	677
Emergency Prep. Conference		

Total Balance

-1042.73

Grand Total

\$28,643.85

Commitments:

C/WLEPC

Cabell/Wayne Local Emergency Planning Committee 750 5th Avenue – Suite 300 Huntington, WV 25701 Telephone (304) 526-9704 Fax (304) 526-8648 E-mail – jbarker@cabellcounty.org

MINUTES

October 3, 2017 @ 12:25pm The Tri-State Fire Academy Huntington, WV

Members Present:

William Willis, Director Wayne County Linda Murray, CHHD Tracey Sebastian, Wayne County Health Department Shirley Lawson, Past Chair Chris Steel, Fire Chief Marathon Tim Watson, Hospice of Huntington Jodi Johnson, OA II CHHD Beth Thompson, County Administrator CCC Mickey Plymale, Vice Chair Mike Tatum, Cabell County 911 Jack Vital, SMMC Gordon Merry, Director Cabell Co OEM Margy Blankenship, Secretary CCEMS Larry Lake, Tech Mgr. John Davis, DHESM **Chuck Bennett, WVAHEM** William H. (Skip) Edwards, II, Mgr. HIMG Dialysis Jeff Hovis, NWS Mike Davis, CCERC911 Brian M. Noble, Captain CC911 Martin Shelton, Huntington Water Quality Board Jack Barker, Sec. LEPC

Others Present:

Ryan Vaughn, Community Response Christ Temple Church

The Regular meeting of the C/WLEPC was called to order at 12:25 pm, by Mickey Plymale, Vice Chair.

<u>Approval of Minutes</u>: Mickey Plymale entertained a motion to accept the minutes of the August 2nd 2017 meeting. Shirley Lawson made the motion to accept and Jodi Johnson seconded the motion. The vote was unanimous.

Financial Report: Report was given by Jack Barker, Secretary/Treasurer. Jack Vital moved to accept the report and Bill Willis seconded the motion. The vote was unanimous.

<u>Review of Current Grants</u>: Jerry applied for a SERT grand for \$2,000.00. He submitted the application the third week of July 2017 a week prior to the deadline for submission. This is the only grant that we have pending at this time. All other grants are up to date.

REPORTS OF STANDING SUB-COMMITTEES:

<u>Exercise Planning Committee:</u> Pat Simmons and Todd Childers are not present to give a report on the drill. Chuck Bennett said the AAR is in progress and should be completed soon.

Area Shelter Planning Committee: Karen Hall Dundas is not present. No changes.

New Business: New members.

<u>New Members</u>: William H. (Skip) Edwards II from Cabell Huntington Hospital Dialysis Division and Brian Noble of CCERC would like to become members. Shirley Lawson made the motion to accept. We had several seconds. All in favor. The vote was unanimous. It will go before the Cabell County Commission by resolution for approval.

<u>Motion to adjourn</u>: There being no further business at this time, Micky Plymale made a motion to Adjourn. The motion was seconded by Gordon Merry. The motion carried. The meeting was adjourned at 12:20pm.

MEETING SIGN-IN SHEET FOR MEMBERS

C/WLEPC MEETING

Meeting Date:

December 5, 2017

Name	Title	Company	Phone	Fax	E-Mail
Tim WAtson	FAC. H.Y. MANT. Cur	d. Hesper CIF Huntal	leg		
HENRY OSBOR	LAR MAINT Mech	Hospice & H	unet		
Jack Vite	P Director of Sat	H Smmc			
Hatthy El	fiot Deputy Div	- Region 2 PDC	C 304 529 335	304 529	Kelliotorgiou
JEFFERY HARVEY	Peer. Div. Mar.	JH CONSULTING L	LC 304-175 1009	3=44721099	iharvey Eihepreparedatss.
John Blak	eman Project Coordon	ohio VALley Environment	304 840 Walitan 4877		robin @ohver.org
BELON NOBLE	E Coptan	Casell Ell			
MICHOEL TA-	Tun Dep. Diaccon	Caso 11 9/1			
Hery Zimm	eemas LT.	Hurrington P.L	D. 504-416-594	1	Isimmermanahpduv.con
Greg Gibs	on marathan Sal	h marathan			
Chr.s Stee	el Fire Chief	marathan			
Ryan Naughn	Community Response	Christ Temple	304-412-0645		rynzmailbax@ yahoa com
Gordan M	eng				
Jerry Bec	Koty CCEMS/OFS	LEPC Chair			

Page 1 of 2

Kame	Title	Company	Phone	Fax	E-Mail
Trace & Sost	t RN	WCHD	272-6761	277-6763	Fracey, USescori
mickey Plu	Inde	with	212-6761	272743	
FREd Herk		A.R.E.S.			
THUES Coon	L	Why 911			
B.H W. Hs		WAY 911			
JACK BARKIN	- Poanias	Cabell Co Com			
		1			

MEETING SIGN-IN SHEET FOR NON-MEMBERS C/WLEPC MEETING Meeting Date: December 5, 2017

Name	Title	Company	Phone	Fax	E-Mail
GREGG HENDRY	ÉMENGHEY C	CABELL COLDTY ARE	s/mes 304412-0	0438	WODUQ CARAL, MET
MagyBlankens	hip	CLEMS			
Albert T.SSS		ccems	740-646 97	34	HBart Tibbs @ Gmail.
	846 Hud:	St Aur.			
	-			-	
				-	
				-	

Save the Date!

Project Status Update Meeting: Incorporation of Green Infrastructure into Hazard Mitigation Planning for the City of Huntington, West Virginia

December 5th, 2017 9:00am-12:30pm- government officials, 5:00pm-7:30pm- public Location: Cabell County Library 455 9th St, Huntington, WV 25701



These meetings will target stakeholders, local leaders, floodplain managers, and other folks that may have a professional interest in this effort.

These meetings will:

- Provide some brief background on the project
- Briefly discuss the Huntington Case Study
- Discuss the current state of the Region II Hazard Mitigation Plan
- Review the Green Infrastructure GIS Model
- Discuss next steps with those attending





Incorporating of Green Infrastructure in Local Hazard Mitigation Planning Planning for the City of Huntington, West Virginia

December 5th, 2017

9:00am-12:30pm- Government officials / 5:00pm-7:30pm- General public Cabell County Public Library- 455 9th Street, Huntington, WV 25701

Agenda

Government Officials - Morning Session

09:00 - 09:20	Welcome and Introductions (Chris Chiles)
09:20 - 09:40	Overview of Green Infrastructure (Sherry Wilkins)
09:40 - 10:00	Background of this effort & Silver Jackets (Ken Hendrickson & Steve O'Leary)
10:00 - 10:15	Update on the current Region II Hazard Mitigation Plan (Chris Chiles)
10:15 - 10:20	Local Watershed Activity (Tomi Bergstrom)
10:20 - 10:50	GIS Model Presentation (Ken Hendrickson & Steve O'Leary)
10:50 - 11:00	Break
11:00 - 11:30	Next Steps
11:30 - 12:30	Open Discussion / Questions & Answers
	General Public - Evening Session
05:00 - 05:10	Welcome and Introductions (Sherry Wilkins)
05:10 - 05:25	Overview of Green Infrastructure (Sherry Wilkins)
05:25 - 05:40	Background of this effort & Silver Jackets (Ken Hendrickson & Steve O'Leary)
05:40 - 05:50	Update on the current Region II Hazard Mitigation Plan
05:50 - 06:00	Local Watershed Activity (Tomi Bergstrom)
06:00 - 06:30	GIS Model Presentation (Ken Hendrickson & Steve O'Leary)
06:30 - 07:30	Open Discussion / Questions & Answers



Incorporating of Green Infrastructure in Local Razard Mitigation Planning Planning for the City of Huntington, West Virginia						
	December	5th, 2017				
Name:	Agency:	Email: Phone:				
Ken Hendrekson	EPA Keyron 3	hendricksar. Keunith Bepagnu				
Kebecca Albert	USACE	Rebecca. M. Alber HE usace.army.m.1				
Jonathon (JD) Whitese WV DHSEM Jonathon . O. Wnitesel @ WV. gov						
Keith Lee	CHHO	Kerrin hokee @ www. Gov				
Mike Browning	#S-Son.Marchia	michael - beauning & monchin Suppty and				
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Citizen groups locally, 19Keman Name: state wide Level of Concern Date and Location Brief Description Hazard Tropical Storm Enrique caused erosion on South Beach in Miami because of a 10' storm surge. Not Concerned The water reached Ocean Drive and flooded local businesses and swept away cars. After the Date: August 2014 Somewhat Concerned water receded, recovery took several months and many businesses could not recover. Three Location: Coast of South Beach Example: Storm Surge people died and dozens were injured; five are still missing. Since then, low impact mitigation along Ocean Drive between 5th St. X Concerned strategies have been implemented along the beach to avoid widespread distruction. and 14th St. U Very Concerned Not Concerned Disaster 1.1971 (?) seek Date: Somewhat Concerned Dam Failure concern berguse there are hundreds Location: on Concerned earthen dams - similar to in this stat Southern counties U Very Concerned Not Concerned issnes Date: Ford Somewhat Concerned Drought Location: Concerned Very Concerned Underground this region bracking waste mitchen Not Concerned Date: Somewhat Concerned themselves Incresin V and regimely Earthquake activity nationally Location: 2013 Concerned Altron notably Veringstewn. near approx ago YCKIS U Very Concerned Not Concerned extremely having more Date: We all more limate Somewhat Concerned thanks PURA ear Extreme Temperatures 14he Location: hange when Concerned 6/1 evere o ac N TPI due to Common Very Concerned 7051.10 adua 25.004 1Pv1 X KENSIUC Not Concerned fail uns) Date: Somewhat Concerned Fire SM-80 Location: exa Concerned X approx. 10 years ag i Sissim Very Concerned Farkasburg in Industrial TWC Not Concerned Date: arra most likel (reels Somewhat Concerned Flooding m TUB OCUNTIN tlor Concern Location: Sr. Concerned aira Very Concerned an W.th -Set Not Concerned Date: Oi intrastructure neo Somewhat Concerned 6 d allo concerned Hazmat Incidents Location: water d and increasing DAN Concerned Very Concerned

One suggestion for mitigation plan: Check into getting solar powered generators d/or solar back-up systems for shelters and critical infrastructure (hospitals, etc.)

Land Subsidence		Not Concerned	Date:	
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From the hazards listed below for the hazard mitigation plan update, tell me about a specific problem you've encountered in your jurisdiction relating to at least three of these hazards. Provide the date (year at minimum), location (street name, park name, etc.), and a brief description of what happened and why, and if there was anything that was done about it since it occurred. Use the reverse side of this page if you require more space.

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ame: HENRY	E. HENRY OSBORNE		Jurisdiction:	
Hazard	Level of Concern	Date and Location	Brief Description	
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Dam Failure	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:		
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Extreme Temperatures	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:		
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Extreme Temperatures	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location: Cobell County 1	
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Hazard	-	Level of Concern	Date and Location	Brief Description
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Land Subsidence	Not Concerned Somewhat Concerned Concerned Very Concerned Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location: Date: 2017 year Location: WAGNE C	Loss of power tex fore periods of Time. MANY Medical proble 45 as hesult
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Name:			Jurisdiction: CuDen Observe
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Flooding	Not Concerned Somewhat Concerned Concerned Very Concerned	Date: Location:	
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County Commission of Wayne County

P.O. Box 248 Wayne, WV 25570 Phone 304-272-6350 + Fax 304-272-6348 Phone 304-272-6350 + Fax 304-272-6348 Robert E. Paaley, Pennington, Communicationer

NOTICE OF PUBLIC MEETING

The Region 2 Planning & Development Council is updating the hazard mitigation plan for Wayne County. Wayne County will hold a public meeting on Wednesday, December 13, 2017, on the plan in Room 103 of the Wayne County Courthouse, 700 Hendricks Street, Wayne, West Virginia 25570 at 12:00 P.M. (lpt).

The purpose of the meeting is to discuss the county's portion of the hazard mitigation plan. Members of the public will be given the opportunity to comment on the natural and man-made hazards most affecting them.

The Region 2 Hazard Mitigation Plan was last updated in 2012 per federal requirements in Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000.



County Commission of Wayne County

P.O. Box 248 Wayne, WV 25570 Phone 304-272-6350 • Fax 304-272-6348 Robert E. Pasley, President • Kenneth R. Adkins, Commissioner • David H. Pennington, Commissioner

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Wayne County Hazard Mitigation Plan Wednesday, December 13, 2017 @ 12:00 PM

	Hazard Mitt	gation Plan 2017 Update – Publ	ic Meeting
		December 13, 2017 ~ 12:00 pm Sign In Sheet	
N	lame	Affiliation	Email
. Any Heimbe	nger	JH Consulting	aheimberger@ nconsulting con
Hothy E	sl'iptt	Region 2 Pibe	Kelliottoresion20dc.or
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JOIN US as we discuss winter storms and other weather-related Hazards in Mason County and what we can do to reduce our risk.

This meeting is part of the Region 2 PDC Hazard Mitigation Plan update of 2017.



Hazard	Mitigation Plan 2017 Update – Public	Meeting
	December 13, 2017 ~ 5:30 pm Sign In Sheet	
Name	Affiliation	Email
1. DEMNIS ZIMMERMAN	MASONI COUNTY DHSENI	LZIMMERMAN PMASON COUNTYOES, COM
2. Eric STarr	GIV Senste	CriceEsic STARRENSENATI. CO.M
3. JR SPENCER	Point Pleasant Vol Fire Dept	jrspencer 149 @ gmail. com
4. Rick Handley	Maron County Commission	rhandley 35 ayahoo.com
5. Amy Heimberger	JH Consulting.	aheimberger@incprepavedness
6. Hothy Elliph	Region 2 PDC	Kelliottergion de.org
7. (*)	20	
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Q1 Please indicate how concerned you are about the following hazards, specifically where you live.



	NOT AT ALL CONCERNED	SOMEWHAT CONCERNED	CONCERNED	VERY CONCERNED	TOTAL	WEIGHTED AVERAGE
Dam Failure	53.73% 216	30.10% 121	10.70% 43	5.47% 22	402	1.68
Drought	40.65% 163	42.14% 169	13.47% 54	3.74% 15	401	1.80
Earthquake	65.59% 263	25.94% 104	5.49% 22	2.99% 12	401	1.46
Extreme Temperatures (hot & cold)	22.94% 92	43.39% 174	23.44% 94	10.22% 41	401	2.21
Fire (major fire, explosion, wildfire)	13.97% 56	35.66% 143	31.67% 127	18.70% 75	401	2.55
Flooding	15.14% 61	27.05% 109	30.52% 123	27.30% 110	403	2.70
Hazardous Materials (on roads, rails or at facilities)	14.18% 57	30.85% 124	32.59% 131	22.39% 90	402	2.63

Region 2 PDC Hazard Mitigation Survey

Land Subsidence (cave-ins, mud slides, land slides)	24.88% 100	36.32% 146	22.89% 92	15.92% 64	402	2.30
Severe Summer Weather (tornadoes, lightning, hurricane, thunderstorm, hail, wind)	8.48% 34	40.40% 162	32.67% 131	18.45% 74	401	2.61
Severe Winter Weather (blizzards, ice storms, heavy snow)	7.00% 28	35.75% 143	31.75% 127	25.50% 102	400	2.76

Q2 In the past 10 years, which hazards do you recall having occurred in your community? (Check all that apply)



ANSWER CHOICES	RESPONSES	
Dam Failure	1.24%	5
Drought	18.07%	73
Earthquake	6.19%	25
Extreme Temperatures	46.29%	187
Fire	26.73%	108
Flooding	72.52%	293
Hazardous Materials	24.50%	99
Land Subsidence	20.54%	83
Severe Summer Weather	58.17%	235

Region 2 PDC Hazard Mitigation Survey

Severe Winter Weather	62.62%	253
Other (please specify)	5.45%	22
Total Respondents: 404		

Q3 Think back to a recent hazard occurrence (any from questions 1 or 2.) How would you rate your community's ability to handle the hazard event?



ANSWER CHOICES	RESPONSES	
Excellent	7.35%	28
Good	30.45%	116
Average	41.99%	160
Poor	16.01%	61
Horrible	4.20%	16
TOTAL		381

Q4 During this event did you receive information or warnings from local media (TV, Radio, Text) or social media (Facebook/Twitter) that was either from or forwarded from your local public officials / emergency management officials?



ANSWER CHOICES	RESPONSES	
Yes	71.65%	273
No	28.35%	108
TOTAL		381



Q5 How did you receive this information?

ANSWER CHOICES	RESPONSES	
Television	55.13%	145
Newspaper	9.89%	26
Radio	34.22%	90
Media website (TV, print or radio)	36.88%	97
Social Media	64.26%	169
Email	9.13%	24
Text message	32.32%	85
Other (please specify)	5.32%	14
Total Respondents: 263		

Q6 Was this information timely, accurate and helpful? (choose as many as apply)



ANSWER CHOICES	RESPONSES	
Timely	60.84%	160
Accurate	53.23%	140
Helpful	69.96%	184
None of the above	1.90%	5
Total Respondents: 263		

Q7 Do you / does your household have a 72-hour emergency kit? (http://www.ready.gov/build-a-kit)



ANSWER CHOICES	RESPONSES	
Yes	21.14%	78
Yes, but not complete	19.51%	72
Yes, but out of date	4.61%	17
No	54.74%	202
TOTAL		369

Q8 Do you have homeowners/renters insurance?



ANSWER CHOICES	RESPONSES	
Yes	82.11%	303
No	17.89%	66
TOTAL		369

Q9 Does your homeowner/renters insurance include flood insurance?



ANSWER CHOICES	RESPONSES	
Yes	22.41%	67
No	63.21%	189
Don't Know	14.38%	43
TOTAL	:	299

Q10 Does your policy include sewer back up insurance (or have a sewer back up policy rider)?



ANSWER CHOICES	RESPONSES	
Yes	9.36%	28
No	39.46% 1	18
Don't know	51.17% 15	53
TOTAL	29	99

Q11 If you live in a Special Flood Hazard Area (SFHA), do you have floodplain insurance?



ANSWER CHOICES	RESPONSES	
Yes	8.54%	31
No	42.70%	155
Don't know if I live in an SFHA	42.70%	155
Don't know if I have floodplain insurance	6.06%	22
TOTAL		363

Q12 Are you willing to spend your money on mitigation activities for your home?



ANSWER CHOICES	RESPONSES	
Yes	61.90%	221
No	38.10%	136
TOTAL		357

Q13 Have you performed any improvements to your home to reduce your risk from a hazard?



ANSWER CHOICES	RESPONSES	
Yes	55.46%	198
No	44.54%	159
TOTAL		357



Q14 Please indicate what improvements you have made:

ANSWER CHOICES	RESPONSES
Elevating the structure	7.73% 15
Tree maintenance/removal	72.68% 141
Roof repair/replacement	58.25% 113
Clearing underbrush	43.30% 84
Other (please specify)	23.71% 46
Total Respondents: 194	

Q15 Do you, or someone who resides in your residence, have a special need that emergency service providers should be aware of in an emergency? (Please pick all the apply)



ANSWER CHOICES	RESPON	SES
Hard of hearing/Deaf	7.17%	22
Visually Impaired/Blind	1.30%	4
Mobility Issues (non-ambulatory, confined to a wheelchair, requires the use of a cane or walker)	8.79%	27
Cognitive disorders (includes autism, depression, etc.)	11.73%	36
Geriatric (elderly)	11.07%	34
Requires a special medical device (such as a Ventilator, CPAP machine, or drugs that require refrigeration [I.E. insulin])	18.89%	58
None/Not Applicable	63.52%	195
Other (please specify)	4.23%	13
Total Respondents: 307		

Q16 Please provide your age

Answered: 325 Skipped: 79





Region 2 PDC Hazard Mitigation Survey



Region 2 PDC Hazard Mitigation Survey
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98					



ANSWER CHOICES	RESPONSES
18	0.31% 1
19	0.00% 0
20	0.31% 1
21	0.31% 1
22	0.92% 3
23	0.00% 0
24	0.31% 1
25	0.62% 2
26	0.62% 2
27	3.69% 12
28	1.23% 4

29	2.15%	7
30	0.62%	2
31	2.46%	8
32	1.54%	5
33	1.85%	6
34	2.77%	9
35	4.31%	14
36	2.15%	7
37	1.23%	4
38	3.38%	11
39	1.54%	5
40	1.54%	5
41	2.77%	9
42	1.85%	6
43	0.92%	3
44	1.85%	6
45	2.46%	8
46	1.23%	4
47	2.15%	7
48	4.00%	13
49	1.85%	6
50	3.38%	11
51	0.62%	2
52	2.15%	7
53	0.92%	3
54	4.62%	15
55	1.85%	6
56	1.85%	6
57	3.38%	11
58	2.77%	9
59	2.77%	9
60	2.77%	9
61	2.77%	9
62	1.85%	6
63	1.85%	6

64	2.15%	7
65	1.54%	5
66	2.15%	7
67	2.77%	9
68	0.31%	1
69	0.62%	2
70	0.31%	1
71	0.31%	1
72	0.00%	0
73	0.62%	2
74	0.00%	0
75	0.62%	2
76	0.31%	1
77	0.00%	0
78	0.31%	1
79	0.62%	2
80	0.00%	0
81	0.00%	0
82	0.00%	0
83	0.00%	0
84	0.00%	0
85	0.31%	1
86	0.00%	0
87	0.31%	1
88	0.00%	0
89	0.00%	0
90	0.00%	0
91	0.00%	0
92	0.00%	0
93	0.00%	0
94	0.00%	0
95	0.00%	0
96	0.00%	0
97	0.00%	0
98	0.00%	0

99	0.00%	0
100	0.00%	0
101	0.00%	0
102	0.00%	0
103	0.00%	0
104	0.00%	0
105	0.00%	0
106	0.00%	0
107	0.00%	0
108	0.00%	0
109	0.00%	0
110	0.31%	1
TOTAL		325



ANSWER CHOICES	RESPONSES	
Male	37.85%	123
Female	62.15%	202
TOTAL		325





Q18 Please indicate your household income:

ANSWER CHOICES	RESPONSES	
<\$20,000	13.23%	43
\$20,001 - \$40,000	19.69%	64
\$40,001 - \$60,000	22.77%	74
\$60,001 - \$80,000	16.00%	52
\$80,001 - \$100,000	15.08%	49
>\$100,000	13.23%	43
TOTAL	3	325



Q19 Please indicate your level of education

ANSWER CHOICES	RESPONSES	
Less than a high school diploma	1.54%	5
High school diploma/GED	20.62%	67
Some college/trade school	25.85%	84
Associates degree	15.38%	50
Bachelor's degree	20.92%	68
Graduate degree	13.54%	44
PhD	2.15%	7
TOTAL		325



Q20 In which municipality do you reside?



ANSWER CHOICES	RESPONSES	
Cabell County (unincorporated area)	7.38%	24
Lincoln County (unincorporated area)	11.08%	36
Logan County (unincorporated area)	5.85%	19
Mason County (unincorporated area)	36.31%	118
Mingo County (unincorporated area)	8.31%	27
Wayne County (unincorporated area)	3.08%	10
City of Huntington	7.69%	25
City of Kenova	0.92%	3
City of Logan	0.31%	1
City of Milton	1.23%	4
City of Point Pleasant	5.85%	19

City of Williamson	1.23%	4
Town of Ceredo	0.00%	0
Town of Chapmanville	0.00%	0
Town of Delbarton	0.00%	0
Town of Fort Gay	0.00%	0
Town of Gilbert	0.31%	1
Town of Hamlin	0.31%	1
Town of Hartford	0.00%	0
Town of Henderson	0.62%	2
Town of Kermit	0.62%	2
Town of Leon	1.23%	4
Town of Man	0.00%	0
Town of Mason	2.77%	9
Town of Matewan	0.31%	1
Town of Mitchell Heights	0.00%	0
Town of New Haven	2.46%	8
Town of Wayne	0.00%	0
Town of West Hamlin	0.62%	2
Town of West Logan	0.00%	0
Village of Barboursville	1.54%	5
TOTAL		325



Q21 How long have you resided in your community?

ANSWER CHOICES	RESPONSES	
Less than a year	3.08%	10
1-5 years	10.46%	34
6-10 years	13.54%	44
11-20 years	17.54%	57
More than 20 years	55.38%	180
TOTAL		325

Q22 If you would like to take part in additional surveys regarding potential hazard mitigation projects please provide a valid email address.

Answered: 45 Skipped: 359

Q23 Please share any other comments you have

Answered: 13 Skipped: 391

Q1 Did you respond to the previous survey about risks and vulnerabilities?



ANSWER CHOICES	RESPONSES	
Yes	34.02%	66
No (Please continue with this survey even if you did not respond to the previous survey!)	65.98%	128
TOTAL		194

Q2 Our mitigation plan seeks to outline projects to lessen our exposure to these types of hazards. What do you feel our priorities should be?

Answered: 117 Skipped: 77

Q3 Would you be supportive of additional regulatory efforts to encourage or require mitigation actions?



ANSWER CHOICES	RESPONSES	\$
No. I do not feel it is the role of local government to encourage or require hazard mitigation.	10.17%	12
Maybe. I would only support encouragement of mitigation actions.	23.73%	28
Yes. I feel local government has a role in protecting publicly-owned assets and infrastructure.	35.59%	42
Yes. I would be very supportive of such efforts and feel that hazard mitigation should be mandatory.	30.51%	36
TOTAL		118

Q4 Would you be supportive of the use of tax dollars for grant programs, construction of mitigating infrastructure, etc.?



ANSWER CHOICES	RESPON	ISES
No. I do not feel it is the role of government to encourage or require hazard mitigation.	13.68%	16
Hazard mitigation efforts should be funded entirely by property owners, whether those owners are public or private entities or individuals.	11.11%	13
Yes. I feel hazard mitigation could be a beneficial use of tax dollars.	75.21%	88
TOTAL		117

Q5 Upgrading water systems to eliminate breaks and leaks.



ANSWER CHOICES	RESPONSES	
Strongly Oppose	1.77%	2
Would Not Support	5.31%	6
Would Support	53.98%	31
Very Supportive	38.94%	14
TOTAL	11	13

Q6 Grant programs or regulatory efforts to address stormwater problems.



ANSWER CHOICES	RESPONSES	
Strongly Oppose	2.65%	3
Would Not Support	7.96%	9
Would Support	54.87%	62
Very Supportive	34.51%	39
TOTAL		113

Q7 Regulatory-driven water conservation during drought conditions.



ANSWER CHOICES	RESPONSES	
Strongly Oppose	6.19%	7
Would Not Support	12.39%	14
Would Support	58.41%	66
Very Supportive	23.01%	26
TOTAL		113

Q8 Educate residents on personal mitigation opportunities.



ANSWER CHOICES	RESPONSES	
Strongly Oppose	1.75%	2
Would Not Support	2.63%	3
Would Support	55.26%	63
Very Supportive	40.35%	46
TOTAL		114

Q9 Provide grants or other incentive programs to encourage the installation of generators at public facilities, businesses, etc.



ANSWER CHOICES	RESPONSES	
Strongly Oppose	2.65%	3
Would Not Support	7.96%	9
Would Support	54.87%	62
Very Supportive	34.51%	39
TOTAL		113

Q10 Regulate the types of development permitted in areas highly vulnerable to various hazards.



ANSWER CHOICES	RESPONSES	
Strongly Oppose	4.46%	5
Would Not Support	13.39%	15
Would Support	41.07%	46
Very Supportive	41.07%	46
TOTAL		112

Q11 Provide grants or incentives to encourage tree planting in or along parking areas, streets, etc.



ANSWER CHOICES	RESPONSES	
Strongly Oppose	2.73%	3
Would Not Support	10.91%	12
Would Support	50.00%	55
Very Supportive	36.36%	40
TOTAL		110

Q12 Provide grants or incentives to residents to encourage elevation of flood-prone homes.



ANSWER CHOICES	RESPONSES	
Strongly Oppose	1.79%	2
Would Not Support	12.50%	14
Would Support	55.36%	62
Very Supportive	30.36%	34
TOTAL		112

Q13 What other mitigation actions not mentioned above (if any) would you support?

Answered: 26 Skipped: 168



ANSWER CHOICES	RESPONSES	
17 or younger	0.00%	0
18-20	0.88%	1
21-29	7.96%	9
30-39	14.16%	16
40-49	16.81%	19
50-59	26.55%	30
60 or older	33.63%	38
TOTAL		113

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Q15 Are you male or female?

ANSWER CHOICES	RESPONSES	
Male	47.79%	54
Female	52.21%	59
TOTAL	1	13

Q16 How much total combined money did all members of your HOUSEHOLD earn last year?



ANSWER CHOICES	RESPONSES	
\$0 to \$9,999	3.57%	4
\$10,000 to \$24,999	6.25%	7
\$25,000 to \$49,999	21.43%	24
\$50,000 to \$74,999	22.32%	25
\$75,000 to \$99,999	20.54%	23
\$100,000 to \$124,999	8.04%	9
\$125,000 to \$149,999	3.57%	4
\$150,000 to \$174,999	3.57%	4
\$175,000 to \$199,999	0.00%	0

Region 2 PDC Hazard Mitigation Survey #2 (Mitigation Actions)

\$200,000 and up	2.68%	3
Prefer not to answer	8.04%	9
TOTAL		112

Q17 What is the highest level of school you have completed or the highest degree you have received?



ANSWER CHOICES	RESPONSES	
Less than high school degree	0.00%	0
High school degree or equivalent (e.g., GED)	15.04%	17
Some college but no degree	22.12%	25
Associate degree	13.27%	15
Bachelor degree	24.78%	28
Graduate degree	24.78%	28
TOTAL		113



Q18 In what community do you live?

Skipped: 90

Answered: 104



Region 2 PDC Hazard Mitigation Survey #2 (Mitigation Actions)

ANSWER CHOICES	RESPONSES	
Cabell County (unincorporated areas)	16.35%	17
Lincoln County (unincorporated areas)	9.62%	10
Logan County (unincorporated areas)	4.81%	5
Mason County (unincorporated areas)	20.19%	21
Mingo County (unincorporated areas)	12.50%	13
Wayne County (unincorporated areas)	2.88%	3
City of Huntington	13.46%	14
City of Kenova	1.92%	2
City of Logan	0.00%	0
City of Milton	0.00%	0
City of Point Pleasant	3.85%	4

City of Williamson	1.92%	2
Town of Ceredo	0.00%	0
Town of Chapmanville	0.00%	0
Town of Delbarton	1.92%	2
Town of Fort Gay	0.00%	0
Town of Gilbert	0.96%	1
Town of Hamlin	0.00%	0
Town of Hartford	0.00%	0
Town of Henderson	0.00%	0
Town of Kermit	0.00%	0
Town of Leon	0.96%	1
Town of Man	0.00%	0
Town of Mason	1.92%	2
Town of Matewan	0.96%	1
Town of Mitchell Heights	0.00%	0
Town of New Haven	4.81%	5
Town of Wayne	0.00%	0
Town of West Hamlin	0.00%	0
Town of West Logan	0.00%	0
Village of Barboursville	0.96%	1
TOTAL		104

Region 2 PDC Hazard Mitigation Survey #2 (Mitigation Actions)



Q19 How long have you resided in your community?

ANSWER CHOICES	RESPONSES	
Less than a year.	1.82%	2
1 to 5 years.	9.09%	10
6 to 10 years.	13.64%	15
11 to 20 years.	10.91%	12
More than 20 years.	64.55%	71
TOTAL		110
Q20 Please share any other comments you have.

Answered: 18 Skipped: 176

APPENDIX 4

INACTIVE PROJECTS

TABLE 5.4.A INACTIVE PROJECTS						
Jurisdiction	County	Hazard of Concern	Project	Status	2017 Status Active/Inactive	
Cabell County	Cabell County	All Hazards	Explore mitigation and civil issues for opportunities or promote hazard mitigation in the public and private sector. (2012 Project - No ID).	Complete. Continue to send out mailers. Moved to Regional project	Inactive	
Lincoln County	Lincoln County	Flood	Continue to coordinate with the WVDOH to conduct culvert inspections throughout the county (2012 Project 1.2.1).	Delete. Inspections are reported when the culverts are flooded.	Inactive	
Lincoln County	Lincoln County	Flood	Enforce municipal building codes, which will regulate the number of buildings and the materials used in buildings that are constructed in a floodplain (2012 Project 1.3.2).	Delete. Lincoln County does not have building codes.	Inactive	
Lincoln County	Lincoln County	Flood	Continue to apply for funding for projects that will increase the county's CRS (2012 Project 1.3.4).	Delete. No activity.	Inactive	
Lincoln County	Lincoln County	Flood	Update the countywide permitting process which requires residents and/or developers to file a permit with the county before beginning any new construction as a means of regulating floodplain development (2012 Project 1.4.1).	Delete. Same as project 1.3.1.	Inactive	
Lincoln County	Lincoln County	Flood	Continue to update database of structures and apply for funding to remove remaining structures (2012 Project 1.5.1).	Delete. No activity.	Inactive	
Lincoln County	Lincoln County	Flood	Continue to seek funding to raise roadways located within the 100 year floodplain (2012 Project 1.6.1).	Delete. State Responsibility.	Inactive	
Lincoln County	Lincoln County	Severe Winter Weather	Continue to coordinate with the West Virginia DOH to create more contracts for emergency snow removal (2012 Project 2.1.1).	Delete. No activity.	Inactive	



			TABLE 5.4.A INACTIVE PROJECTS		
Jurisdiction	County	Hazard of Concern	Project	Status	2017 Status Active/Inactive
Lincoln County	Lincoln County	Severe Summer Weather	Update and re-distribute an informational brochure describing the proper safety procedures to carry out during a severe thunderstorm (2012 Project 3.1.1).	Delete. Under regional projects. Nothing yet as far ass paper use of social media.	Inactive
Lincoln County	Lincoln County	Severe Summer Weather	Utilize the county WARN capabilities to provide earlier warning to county residents of impending hailstorms (2012 Project 4.1.1).	Delete. No activity.	Inactive
Lincoln County	Lincoln County	Severe Summer Weather	Coordinate with the National Weather Service in Charleston, WV and utilize the county WARN to alert residents of impending severe wind or tornado conditions (2012 Project 5.1.1).	Complete. Doing this via social media.	Inactive
Lincoln County	Lincoln County	All Hazards	Provide information in public locations such as libraries (2012 Project 5.2.1).	Complete. Doing this via social media.	Inactive
Lincoln County	Lincoln County	Flood	Promote DEP storm water management permitting, at the municipal level, that regulates any land disturbance and development over one acre to provide for land stabilization through storm water management techniques (2012 Project 6.1.1).	Delete. No activity.	Inactive
Lincoln County	Lincoln County	Land Subsidence	Continue to work with the Department of Forestry to coordinate efforts to promote re-seeding after lumber extraction projects (2012 Project 6.1.2).	Delete. No activity.	Inactive
Lincoln County	Lincoln County	Land Subsidence	Develop a GIS based database that will help identify the areas of potential land subsidence. Have this mapping product available for the Lincoln County All Hazard Map. This can be utilized to protect against improper development (2012 Project 6.2.1).	Delete. No activity.	Inactive
Lincoln County	Lincoln County	All Hazards	Coordinate with local public service districts to complete an interconnect between PSD's (2012 Project 7.1.1).	Delete. No activity.	Inactive
Lincoln County	Lincoln County	Wildfire	Continue distributing information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires (2012 Project 8.1.1).	Complete. Doing this via social media. Under Regional projects.	Inactive



TABLE 5.4.A INACTIVE PROJECTS					
Jurisdiction	County	Hazard of Concern	Project	Status	2017 Status Active/Inactive
Lincoln County	Lincoln County	All Hazards	Develop a database of at risk citizens with health problems (ex: oxygen requirements) that need electricity. Coordinate with American Electric Power Company to service these at risk citizens first after a power outage (2012 Project 9.1.1).	Delete. No activity.	Inactive
Lincoln County	Lincoln County	All Hazards	Develop a network of emergency shelters throughout the county that are strategically located to reach the majority of citizens and are adequately stocked with supplies and encourage these shelter locations to obtain generator power for all hazards. Midway Elementary, Hamlin School, Guyan Valley School, and West Hamlin Volunteer Fire Department should have generators and supplies (2012 Project 9.2.1).	Complete. Some shelters have been established. Generator power is not available at most shelters.	Inactive
Lincoln County	Lincoln County	All Hazards	Seek funding to coordinate with qualified Ham operators to assist in disasters. Make certain that wireless communication is operational for hazard events. Continue to monitor telephone companies for backup generators (2012 Project 10.1.1).	Delete. Not a county responsibility.	Inactive
Lincoln County	Lincoln County	Acts of Violence	Continue to make the public aware of how to prepare for a bomb threat and who to contact if there is a threat by developing and distributing an informational brochure to all governmental, state, and critical facilities describing the proper policies and procedures to be conducted in the event of a bomb threat (2012 Project 11.1.1).	Delete. Under Regional projects.	Inactive
Lincoln County	Lincoln County	Hazmat	Perform commodity flow studies to further assess when, where, and what hazardous materials can pass through and into the county (2012 Project 12.1.1).	Complete. CFS done in 2016.	Inactive
Lincoln County	Lincoln County	Hazmat	Continue to coordinate with local officials and representatives from organizations holding tier II permits to produce a more detailed plan on how to handle spills and evacuation procedures (2012 Project 12.1.2).	Delete. No activity.	Inactive



TABLE 5.4.A INACTIVE PROJECTS					
Jurisdiction	County	Hazard of Concern	Project	Status	2017 Status Active/Inactive
Chapmanville	Logan County	Flood	Identify storm water backup areas and determine costs to correct those problems (2012 Project 4.1.1).	Complete	Inactive
Logan	Logan County	Dam Failure	Maintain a small library of dam safety plans submitted by private sector owners of dams (2012 Project 1.1.2)	Delete	Inactive
Logan	Logan County	Flood	Identify storm water backup areas and determine costs to correct those problems (2012 Project 4.1.1).	Complete	Inactive
Logan County	Logan County	Flood	Continue to offer training and public information to residents and businesses to explain the benefits of floodplain development regulations, flood insurance, etc. through insurance providers, lenders, etc. (Revised 2012 Project 4.3.1).	Delete. Under regional projects.	Inactive
Logan County	Logan County	All Hazards	Build partnerships with media providers to ensure the dissemination of early warning information and support municipalities in becoming storm ready through the NWS (Revised 2012 Project 5.1.1).	Delete. Under regional projects.	Inactive
Logan County	Logan County	Acts of Violence	Undertake public awareness campaigns (specifically targeting schools and other critical facilities) to detail how to properly report bomb and other threats of violence (2012 Project 8.1.1).	Delete. Under regional projects. Protocols have been established in all county schools for violent intruder scenarios.	Inactive
Logan County	Logan County	Severe Summer Weather Severe Winter Weather	Coordinate with the National Weather Service (NWS) in Charleston, West Virginia to warn residents of impending severe thunderstorm conditions (2012 Project 9.1.1).	Delete. Under regional projects. There are radios in all critical buildings.	Inactive
Logan County	Logan County	Severe Summer Weather	Provide information on what to do if severe winds or a tornado occur in Logan County. Consider placing this information in public libraries to ensure on-going distribution to the general public (2012 Project 12.1.1).	Delete. Under regional projects.	Inactive



TABLE 5.4.A INACTIVE PROJECTS					
Jurisdiction	County	Hazard of Concern	Project	Status	2017 Status Active/Inactive
Logan County	Logan County	Earthquake	Develop an informational brochure explaining the potential for earthquakes as well as the potential damages from those earthquakes. The brochure should include information on measures to take to safe-proof homes and other structures from the potential effects of earthquakes (2012 Project 3.1.1).	Delete. Under regional projects	Inactive
Logan County	Logan County	Severe Winter Weather	Maintain, update, and increase contacts for snow removal in the county (2012 Project 13.1.1).	Delete. Under regional projects.	Inactive
Logan County	Logan County	Dam Failure	Maintain a small library of dam safety plans submitted by private sector owners of dams (2012 Project 1.1.2)	Delete	Inactive
Logan County	Logan County	Land Subsidence	Work with WV Division of Forestry to promote reseeding after lumber extraction projects (2012 Project 7.1.2).	Delete	Inactive
Man	Logan County	Dam Failure	Maintain a small library of dam safety plans submitted by private sector owners of dams (2012 Project 1.1.2)	Delete	Inactive
West Logan	Logan County	Dam Failure	Maintain a small library of dam safety plans submitted by private sector owners of dams (2012 Project 1.1.2)	Delete	Inactive
West Logan	Logan County	All Hazards	Promote any new construction and/or roof remodeling projects to withstand 90 mile per hour wind loads (per building permitting processes) (2012 Project 12.2.1).	Delete	Inactive
Henderson	Mason County	Flood	Support the Town of Henderson's identified Storm water management needs (2012 Project 4.2.1).	Delete. Project unclear.	Inactive
Mason County	Mason County	Flood	Cooperate with state and federal efforts to update flood mapping (otherwise known as the DFIRM project) (2012 Project 4.3.3).	Completed. Map modernization project.	Inactive
Mason County	Mason County	Earthquake	Include earthquake hazard information in periodic public information campaigns (2012 Project 3.1.1).	Delete. Under regional projects	Inactive
Mason County	Mason County	Flood	Continue to train public officials as to the benefit of flood mitigation (2012 Project 4.3.2).	Delete. Under regional projects	Inactive
Mason County	Mason County	Severe Summer Weather	Include hailstorm hazard information in periodic public information campaigns (2012 Project 5.1.1).	Delete. Under regional projects	Inactive



			TABLE 5.4.A INACTIVE PROJECTS		
Jurisdiction	County	Hazard of Concern	Project	Status	2017 Status Active/Inactive
Mason County	Mason County	Severe Summer Weather	Include thunderstorm hazard information in periodic public information campaigns (2012 Project 9.1.1).	Delete. Under regional projects	Inactive
Mason County	Mason County	Wildfire	Include wildfire hazard information in periodic public information campaigns. Further, consider participating in Smokey the Bear and other public information efforts (2012 Project 11.1.1).	Delete. Under regional projects	Inactive
Mason County	Mason County	Severe Summer Weather	Include wind hazard information in periodic public information campaigns (2012 Project 12.1.1).	Delete. Under regional projects	Inactive
Delbarton	Mingo County	Flood	Continue to provide training, technical assistance, education, and outreach opportunities for Mingo County, its municipalities and its citizenry in support of the National Flood Insurance Program and their local floodplain ordinances and floodplain management responsibilities (2012 Project 1.3.1).	Delete. Under regional projects.	Inactive
Matewan	Mingo County	Severe Summer Weather	Update and distribute an informational brochure describing the proper safety procedures to carry out during a severe thunderstorm (2012 Project 3.1.1).	Delete. Under regional projects.	Inactive
Mingo County	Mingo County	All Hazards	Provide information to the leaders in Mingo County about federal and state agency's pro-active programs in order to promote a safer Mingo County (2012 Project 1.4.1).	Delete. Under regional projects.	Inactive
Mingo County	Mingo County	All Hazards	Maximize use of WARN system (2012 Project 6.1.1).	Delete. Similar to Project 4.1.1	Inactive
Mingo County	Mingo County	Wildfire	Continue distributing information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires (2012 Project 8.1.1).	Delete. Under regional projects.	Inactive
Mingo County	Mingo County	All Hazards	Provide information to the citizens of Mingo County identifying where shelter is provided during extended utility outages (Project 10.1.1).	Delete. Under regional projects.	Inactive



TABLE 5.4.A INACTIVE PROJECTS					
Jurisdiction	County	Hazard of Concern	Project	Status	2017 Status Active/Inactive
Mingo County	Mingo County	Acts of Violence	Make the public aware of how to prepare for a bomb threat and who to contact if there is a threat (2012 Project 12.1.1)	Delete. Under regional projects.	Inactive
Mingo County	Mingo County	Hazmat	Make the public aware of hazardous materials and what they can do if they spill, and evacuation plans for citizens of Mingo County. Continue to support training for First Responders (2012 Project 13.1.1).	Delete. Under regional projects.	Inactive
Mingo County	Mingo County	All Hazards	Continue to maintain mutual aid agreements with Logan and Boone Counties (2012 Project 13.1.2).	Delete. Under regional projects.	Inactive
Mingo County	Mingo County	Severe Winter Weather	Maintain agreements with surrounding counties for help with snow removal (2012 Project 2.1.1).	Delete. Under regional projects.	Inactive
Mingo County	Mingo County	Flood	Promote the purchasing of flood insurance through public education of where flood prone areas are located (2012 Project 1.3.3).	Delete. Under regional projects.	Inactive
Ceredo	Wayne County	Flood	Continue to provide training, technical assistance, education, and outreach opportunities for Wayne County, its municipalities and its citizenry in support of the National Flood Insurance Program and their local floodplain ordinances and floodplain management responsibilities (2012 Project 1.3.1).	Delete. Under regional projects	Inactive
Wayne	Wayne County	Severe Summer Weather	Update and distribute an informational brochure describing the proper safety procedures to carry out during a severe thunderstorm (2012 Project 3.1.1).	Delete. Under regional projects	Inactive
Wayne County	Wayne County	Severe Winter Weather	Maintain agreements with surrounding counties for help with snow removal (2012 Project 2.1.1).	Delete. Under regional projects	Inactive
Wayne County	Wayne County	Flood	Promote the purchasing of flood insurance through public education of where flood prone areas are located (2012 Project 1.3.3).	Delete. Under regional projects	Inactive
Wayne County	Wayne County	All Hazards	Provide information to the leaders in Wayne County about federal and state agency's pro-active programs in order to promote a safer Wayne County (2012 Project 1.4.1).	Delete. Under regional projects	Inactive
Wayne County	Wayne County	All Hazards	Maximize use of WARN system (2012 Project 6.1.1).	Delete. Similar to project	Inactive



TABLE 5.4.A INACTIVE PROJECTS					
Jurisdiction	County	Hazard of Concern	Project	Status	2017 Status Active/Inactive
				4.1.1	
Wayne County	Wayne County	Wildfire	Continue distributing information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires (2012 Project 8.1.1).	Delete. Under regional projects.	Inactive
Wayne County	Wayne County	All Hazards	Provide information to the citizens of Wayne County identifying where shelter is provided during extended utility outages (2012 Project 10.1.1).	Delete. Under regional projects	Inactive
Wayne County	Wayne County	Acts of Violence	Make the public aware of how to prepare for a bomb threat and who to contact if there is a threat (2012 Project 12.1.1).	Delete. Under regional projects	Inactive
Wayne County	Wayne County	Hazmat	Make the public aware of hazardous materials and what they can do if they spill, and evacuation plans for citizens of Wayne County. Continue to support training for First Responders (2012 Project 13.1.1).	Delete. Under regional projects	Inactive
Wayne County	Wayne County	All Hazards	Continue to maintain mutual aid agreements with Logan and Boone Counties (2012 Project 13.1.2).	Delete. Under regional projects	Inactive



APPENDIX 5 CITATIONS

- Board, G. (2016, December 19). Three new developments to watch along the Ohio River. Retrieved from http://wesa.fm/post/three-new-developments-watch-along-ohioriver#stream/0
- BroadbandNow. (2017, November 30). Internet access in West Virginia: stats & figures. Retrieved December 15, 2017, from https://broadbandnow.com/West-Virginia
- BroadbandNow. (2017, November 30). Internet access in West Virginia: stats & figures. Retrieved December 15, 2017, from https://broadbandnow.com/West-Virginia
- Carrico, T. (2014, December 7). Several crews battle forest fire in Wayne County, WV. Retrieved from http://www.wowktv.com/archives/several-crews-battle-forest-fire-inwayne-county-wv/865520323
- Castro, J. E. (n.d.). Floodwall History. *Huntington Quarterly*. Retrieved from http://www.huntingtonquarterly.com/articles/issue76/floodwall_history.php
- CDC Injury Center. (2017, August 30). Prescribing data. Retrieved from https://www.cdc.gov/drugoverdose/data/prescribing.html
- CDC Injury Center. (2017, June 9). Drug overdose death data. Retrieved from https://www.cdc.gov/drugoverdose/data/statedeaths.html
- Clements, B., & Casani, J. A. (2009). *Disasters and public health: Planning and response*. Burlington, MA: Butterworth-Heinemann/Elsevier.
- Clements, B., & Casani, J. A. (2009). *Disasters and public health: Planning and response*. Burlington, MA: Butterworth-Heinemann/Elsevier.
- Colegrove, A. (2014, September 5). Flash Flooding Hits Lincoln County. Retrieved from http://www.wsaz.com/home/headlines/Flash-Flooding-Hits-Parts-of-Region-274052761.html
- Colegrove, A. (2016, June 13). Parts of Wayne County, W.Va. hit hard by flash flooding. Retrieved from http://www.wsaz.com/content/news/Parts-of-Wayne-County-WVa-hithard-by-flash-flooding-382862311.html
- Coppola, D. P. (2015). *Introduction to international disaster management* (3rd ed.). Waltham, MA: Butterworth-Heinemann.
- Coppola, D. P. (2015). *Introduction to international disaster management* (3rd ed.). Waltham, MA: Butterworth-Heinemann.



- Department of Health and Human Services. (2017, May). *The opioid epidemic in the U.S.* Retrieved from https://www.hhs.gov/opioids
- Division of Forestry. (n.d.). Wildfire prevention and control. Retrieved from http://www.wvforestry.com/fire_prev.cfm?menucall=fire
- HADCO. (n.d.). What we do. Retrieved from http://www.hadco.org/what-we-do/
- History.com. (2009). Dam collapses in West Virginia. Retrieved from

http://www.history.com/this-day-in-history/dam-collapses-in-west-virginia

- Jacobs, H. (2016, May 1). Here's why the opioid epidemic is so bad in West Virginia the state with the highest overdose rate in the US. Retrieved from http://www.businessinsider.com/why-the-opioid-epidemic-is-so-bad-in-west-virginia-2016-4
- K. (2015, September 1). Here are the 10 most dangerous towns in West Virginia to live in. Retrieved from http://www.onlyinyourstate.com/west-virginia/dangerous-cities-wv/
- KYOVA Metropolitan Planning Organization. (n.d.). Freight transportation facilities. Retrieved December 17, 2017, from http://kyovaipc.org/freight.htm
- LaMagna, M. (2017, November 26). The opioid epidemic is costing the U.S. more than \$500 billion per year. Retrieved from https://www.marketwatch.com/story/how-much-the-opioid-epidemic-costs-the-us-2017-10-27
- Lopez, G. (2017, August 3). The opioid epidemic, explained. Retrieved from https://www.vox.com/science-and-health/2017/8/3/16079772/opioid-epidemic-drugoverdoses
- Mason County Development Authority. (n.d.). Industrial sites. Retrieved from http://masoncounty.org/industrial-sites-wv.htm
- Matrix Global Advisors, LLC. (2015, April). *Healthcare costs from opioid abuse: a state-bystate analysis*. Retrieved from https://drugfree.org/wpcontent/uploads/2015/04/Matrix_OpioidAbuse_040415.pdf
- McCollister, K. E., French, M. T., & Fang, H. (2010, April 1). The cost of crime to society: new crime-specific estimates for policy and programevaluation. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2835847/
- McGill, T. M., Self-Brown, S. R., Lai, B. S., Cowart-Osborne, M., Tiwari, A., LeBlanc, M., & Kelley, M. L. (2014, February 14). Effects of exposure to community violence and family violence on school functioning problems among urban youth: the potential mediating role of posttraumatic stress symptoms. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3916821/



- Mendez, J. (2017, September 11). Cabell County \$2.8M behind in jail bill. Retrieved from http://www.herald-dispatch.com/news/cabell-county-m-behind-in-jailbill/article 0ad885a4-4b97-5ba1-a94a-8de1c9e69d37.html
- Narconon. (n.d.). West Virginia drug addiction. Retrieved December 17, 2017, from http://www.narconon.org/drug-information/west-virginia-drug-addiction.html
- Nash, B. (2017, July 30). Deluge of rain brings flooding in Cabell County. Retrieved from http://www.herald-dispatch.com/news/deluge-of-rain-brings-flooding-in-cabellcounty/article_4ca9eaf7-5226-506d-840f-acc0bc685fb0.html
- Nash, B. (2017, July 30). Deluge of rain brings flooding in Cabell County. Retrieved from http://www.herald-dispatch.com/news/deluge-of-rain-brings-flooding-in-cabellcounty/article_4ca9eaf7-5226-506d-840f-acc0bc685fb0.html
- NFIC. (n.d.). Federal firefighting costs (suppression only). Retrieved from https://www.nifc.gov/fireInfo/fireInfo_documents/SuppCosts.pdf
- NOAA. (n.d.). Summary of the March 2nd 2012 Tornadic Supercells. Retrieved from https://www.weather.gov/rlx/TOR030212
- O'Donoghue, S. (n.d.). Lincoln County hopes broadband, data capabilities attract new businesses. Retrieved from http://www.lincolneda.com/news.html
- Pierson, L., & Zuckerman, J. (2017, December 14). Justice orders WV National Guard support to Huntington. Retrieved from https://www.wvgazettemail.com/news/justice-orders-wvnational-guard-support-to-huntington/article_e9d8af3a-8052-5b43-a46d-9c41677de25d.html
- Pierson, L., & Zuckerman, J. (2017, December 14). Justice orders WV National Guard support to Huntington. Retrieved from https://www.wvgazettemail.com/news/justice-orders-wvnational-guard-support-to-huntington/article_e9d8af3a-8052-5b43-a46d-9c41677de25d.html

Samenow, J. (2016, June 27). West Virginia flood was 'one in a thousand year event,' Weather Service says; more heavy rain forecast. Retrieved from https://www.washingtonpost.com/news/capital-weather-gang/wp/2016/06/27/w-vaflood-was-one-in-a-1000-year-event-weather-service-says-more-heavy-rainforecast/?utm_term=.04c1fa2a14e5

- Thomas, D., & Phillips, B. D. (2013). Social vulnerability to disasters (2nd ed.). Boca Raton, FL: CRC.
- Thomas, D., & Phillips, B. D. (2013). *Social vulnerability to disasters* (2nd ed.). Boca Raton, FL: CRC.



- US Army Corps of Engineers. (n.d.). Huntington District Robert C. Byrd Locks and Dam. Retrieved from http://www.lrh.usace.army.mil/Missions/Civil-Works/Locks-and-Dams/Robert-C-Byrd-Locks-and-Dam/
- US Department of Interior. (2009). *Economic consequences methodology for dam failure scenarios* (EC-2009-01). Retrieved from Bureau of Reclamation Technical Service Center website: https://www.usbr.gov/tsc/techreferences/economics/TMEC200901.pdf
- USDHS. (2005). Technical manual for dam owners: impacts of plants on earthen dams (534). Retrieved from FEMA website: https://www.fema.gov/media-library-data/20130726-1446-20490-2338/fema-534.pdf
- USDHS. (2007). Selecting appropriate mitigation measures for floodprone structures (551). Retrieved from FEMA website: https://www.fema.gov/media-library-data/20130726-1609-20490-5083/fema_551.pdf
- Wayne County Economic Development Authority. (n.d.). Resources. Retrieved from http://www.wceda.org/resources
- West Virginia Division of Culture and History. (n.d.). Buffalo Creek disaster. Retrieved from http://www.wvculture.org/history/buffcreek/bctitle.html
- West Virginia Office of Miners' Health and Safety Training. (2017, November 30). West Virginia fatal mining accident report summaries. Retrieved from http://www.wvminesafety.org/fatal97.htm
- West Virginia State Treasurer's Office. (n.d.). Coal severance tax. Retrieved December 15, 2017, from http://www.wvtreasury.com/Banking-Services/Revenue-Distributions/Coal-Severance-Tax



APPENDIX 6 RESOLUTIONS

