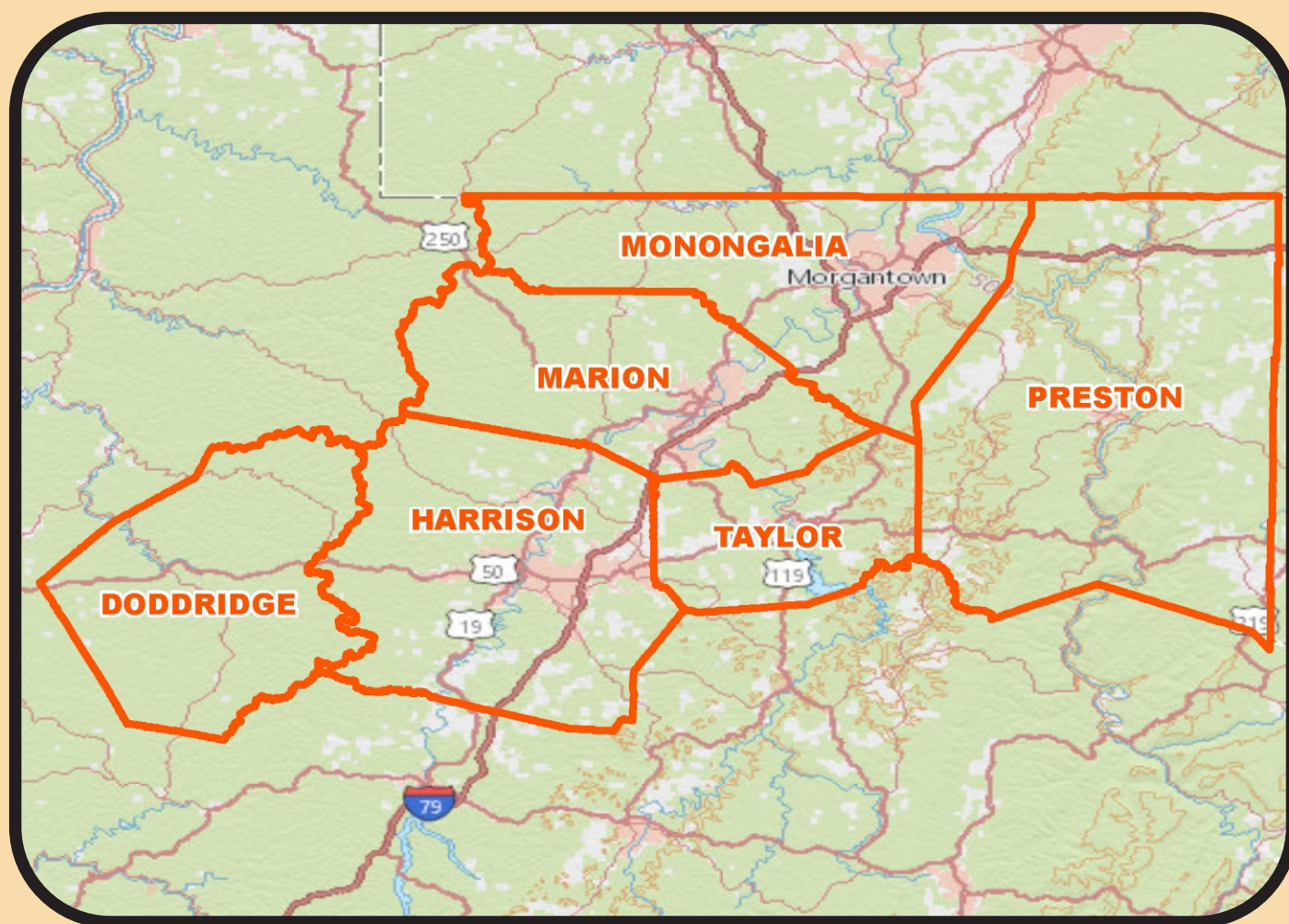


# REGION VI PLANNING AND DEVELOPMENT COUNCIL

## MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE



MARCH 2018

**REGION VI  
PLANNING AND DEVELOPMENT COUNCIL**

**MULTI-JURISDICTIONAL  
HAZARD MITIGATION PLAN UPDATE**

**PREPARED FOR**

**REGION VI PLANNING AND DEVELOPMENT COUNCIL  
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**MARCH 30, 2018**



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## LIST OF ACRONYMS

AML	Abandoned Mine Lands
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GIS	Geographic Information System
mph	miles per hour
NCDC	National Climatic Data Center
NFIP	National Flood Insurance Program
NID	National Inventory of Dams
NOAA	National Oceanic and Atmospheric Administration
PDC	Planning and Development Council
PDSI	Palmer Drought Severity Index
PGA	Peak Ground Acceleration
POC	Point of Contact
RL	Repetitive Loss
SFHA	Special Flood Hazard Area
TEIF	Total Exposure in Floodplain
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VA	Veterans Administration
WCS	Worst-Case Scenario
WFAS	Wildland Fire Assessment System
WVDEP	West Virginia Department of Environmental Protection
WVDNR	West Virginia Division of Natural Resources



## **I. INTRODUCTION**

## I. INTRODUCTION

Section I provides introductory material for the regional 2018 Hazard Mitigation Plan Update. This section presents an overall purpose statement, documents the process used to update the plan, and describes the planning area in detail.

### A. PURPOSE STATEMENT

This multi-jurisdictional hazard mitigation plan update 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 (CFR) under Title 44: Emergency Services, Part 201.6. The West Virginia Division of Homeland Security and Emergency Management (WVDHSEM) further monitored the planning process. Funding for the project was distributed by the WVDHSEM under the Hazard Mitigation Grant Program (HMGP).

The Region VI Planning and Development Council (PDC) acted as the lead agency for the completion of this plan. Originally, the individual counties completed multi-jurisdictional hazard mitigation plans that included the municipalities within those counties. These original county plans were completed in 2003 and 2004 and were updated between 2007 and 2009. In 2010, the WVDHSEM requested that the individual county plans be consolidated into a regional document to ensure a level of consistency between each of the jurisdictions. That consolidation effort was completed by the PDC in March 2012. This 2018 document is to serve as the mandatory five-year update of the 2012 regional consolidation plan.

The *Region VI Multi-Jurisdictional Hazard Mitigation Plan Update* is considered “multi-jurisdictional” for several reasons. In addition to the 6 county governing bodies, all 39 municipal member governments participated in the data compilation and action plan development. All municipalities are represented by at least one project in the action plan. Further, all government entities in Region VI will be requested to formally adopt this 2018 plan update by way of resolution. Copies of the 2018 Hazard Mitigation Plan Update adoption resolutions will be incorporated into Appendix A.

It is significant to note that this document mimics the all-hazards approach that the local emergency management community takes as part of its regular operation. Such a decision was considered prudent because, by and large, county-level emergency management offices throughout Region VI are the ones charged with the maintenance and implementation (at a

coordinating level) of many of the strategies listed in this plan. As such, this document assumes that the responsibility for mitigation activities rests with the lowest affected jurisdictional level, which is also consistent with the National Incident Management System (NIMS).

A number of documents were utilized as resources throughout the development of the Plan. References to these documents are, at times, direct and cited; other references are indirect and implied. This paragraph serves to formally recognize these documents.

- City of Bridgeport Planning and Zoning Code
- City of Clarksburg Building Code
- City of Clarksburg Planning and Zoning Code
- City of Fairmont Planning and Zoning Code
- City of Morgantown Comprehensive Plan
- City of Morgantown Zoning Ordinance
- Clarksburg Comprehensive Plan
- Doddridge County Multi-Jurisdictional Hazard Mitigation Plan
- Harrison County Hazard Mitigation Plan
- Marion County Emergency Operations Plan
- Marion County Floodplain Ordinance
- Marion County Multi-Jurisdictional Hazard Mitigation Plan
- Monongalia County Emergency Operations Plan
- Monongalia County Multi-Jurisdictional Hazard Mitigation Plan
- Preston County Multi-Jurisdictional Hazard Mitigation Plan
- Taylor County Multi-Jurisdictional Hazard Mitigation Plan
- Region VI PDC Regional Development Plan and Comprehensive Economic Development Strategy Plan
- Soil Survey of Doddridge County, West Virginia
- Soil Survey of Marion and Monongalia Counties, West Virginia
- Soil Survey of Preston County, West Virginia
- United Hospital Center Emergency Response Plan
- 2013 West Virginia Statewide Standard Hazard Mitigation Plan Update

## 1. Organization of the Plan

This plan has been organized in a way that both follows the federal criteria for hazard mitigation plans and is user-friendly.

- **Section I – Introduction:** Describes the process used to develop the plan as well as profiles the planning area.
- **Section II – Hazard Identification and Risk Assessment:** Identifies and profiles the hazard risks most probable throughout the region. This section

also analyzes the regional implications of the risks (i.e., how does an occurrence of a hazard in one county affect the neighboring county).

- **Section III – Mitigation Strategy:** Identifies mitigation projects to be undertaken by the member governments in the region. Again, the regional implications of implementing these projects are examined.
- **Section IV – Plan Maintenance Process:** Identifies the process by which the member governments plan to update their own mitigation efforts as well as how this document is to be maintained.
- **Technical Appendices:** Provide supporting information important to the development and overall compliance of the plan.

## B. DOCUMENTATION OF THE PLANNING PROCESS

§201.6(b) and  
201.6(c)(1)

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:

- (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.

As mentioned in Section I.A above, this document represents the fourth step in the evolution of the hazard mitigation plan. It is intended to serve as the mandatory five-year update to the regional consolidation plan that was completed in 2012. The planning process that was used to complete this updated hazard mitigation plan is documented below.



## 1. Planning Process – Development of the 2018 Hazard Mitigation Plan Update

To guide the completion of this 2018 Hazard Mitigation Plan Update, a multi-jurisdictional Mitigation Planning Committee was established. The Mitigation Planning Committee was developed based on the Federal Emergency Management Agency's (FEMA) hazard mitigation planning guidance and consisted of numerous local, regional, and state representatives from both the public and private sectors. Table I-1 lists the participant members of the 2018 Mitigation Planning Committee. Appendix B contains the complete mailing list for participation in the Mitigation Planning Committee.

**TABLE I-1  
PARTICIPANT MEMBERS OF THE 2018 MITIGATION PLANNING COMMITTEE**

NAME	AFFILIATION
Bob Ashcraft	Monongalia County Board of Education
Terry Austin	Taylor County Sheriff Department
Paul Baker	Alternative Testing Labs, Inc.
Fran Baker	Alternative Testing Labs, Inc.
William Blake	Town of Flemington
Gary Boyles	City of Pleasant Valley
Donna Boyles	City of Pleasant Valley
Paul Brake	City of Morgantown
Paul Bump	Harrison County Department of Emergency Services and Public Safety
Fred Conley	Preston Memorial Hospital
Ron Cutlip	United Hospital Center
Ronald Davis	City of Salem
Tim Denicola	Civil and Environmental Consultants, Bridgeport
Shawn Dunbrack	WVDHSEM
Kurt Donaldson	West Virginia University GIS Technical Center
Rusty Efaw	Taylor County Commission
George Eidel	Doddridge County Office of Emergency Management
David Gibson	Region VI PDC
Patricia Henderson	Taylor County Commission
Eric Hopkins	West Virginia University GIS Technical Center

**TABLE I-1  
(CONTINUED)**

<b>NAME</b>	<b>AFFILIATION</b>
Sheena Hunt	Region VI PDC
Bill Kawecki	City of Morgantown
Mike Lemley	Bridgeport City Police Department
George Levitsky	Fairmont-Marion County Transit Authority
Chris McIntire	Marion County Department of Homeland Security and Emergency Management
Barbara Metcalfe	City of Pleasant Valley
Jamie Moore	Marion County Health Department
Laura Pysz	City of Bridgeport
Rosemary Raschella	Region VI PDC
Charles Rosic	Town of Grant Town/Greater Paw Paw Sanitary District
Michelle Rukavina	Taylor County Public Service District
Jenny Selin	City of Morgantown
Charlotte Shaffer	Harrison County Planning Department
Marti Shamberger	City of Morgantown
Lee Smith	Monongalia County Health Department
Judy Stewart	Town of Flemington
Brad Straight	Marion County Board of Education
David Summers	Marion County Senior Center
Shawn Thorn	Taylor County Health Department
Greg Vandetta	Town of Monongah
James Wagner	Town of Reedsville
JD Whitesel	WVDHSEM
Richard Wood	City of Morgantown

For the purposes of the 2018 Hazard Mitigation Plan Update, two Mitigation Planning Committee meetings and one public meeting were held. The first Mitigation Planning Committee meeting was held on the evening of June 7, 2017, at the PDC office in White Hall. There were 43 Mitigation Planning Committee members present at this meeting. The planning consultant provided an overview of FEMA's hazard mitigation planning process and presented updated hazard identification and risk assessment information. Those members who represented a county

or municipality were given a copy of the applicable hazard mitigation action plan and were requested to provide any known updates. Municipal and county hazard mitigation action plans were e-mailed several days later to all those who were not in attendance at the meeting. All 45 Region VI PDC counties and municipalities were provided with their respective action plan and asked to incorporate any changes or updates prior to July 15. The action plans were sent out again via e-mail in late August with a September 7 comment deadline. Subsequent to the September 7 deadline, all of the updated action plans were finalized and incorporated into the appendices of this document. Documentation of this first Mitigation Planning Committee meeting is included in the appendices for reference purposes.

A public meeting, to solicit public comments and feedback, was held on the evening of September 7, 2017, at the City of Pleasant Valley Municipal Building, which is centrally located within the Region VI PDC area. The public meeting was advertised in all of the major newspapers covering the Region VI PDC area and by way of e-mail to all of the Mitigation Planning Committee members, including all 45 Region IV PDC member governments. Unfortunately, no individuals from the general public attended the meeting. The only people in attendance at the public meeting were representatives of the Mitigation Planning Committee. Consequently, the meeting was used as an opportunity to update the Mitigation Planning Committee on the status of the draft plan development and to answer any questions. Documentation of this public meeting is included in the appendices for reference purposes.

The second Mitigation Planning Committee meeting was held on the evening of November 1, 2017, at the PDC office in White Hall. There were ten Mitigation Planning Committee members present at this meeting. The planning consultant provided an overview of the hazard mitigation planning process completed to date as well as a summary of the plan consolidation efforts and comments received on the draft plan. A strategy for moving forward to plan completion was also discussed. Documentation of this second Mitigation Planning Committee meeting is included in the appendices for reference purposes.

In addition to the Mitigation Planning Committee meetings and public meeting, a presentation on the 2018 Hazard Mitigation Plan Update was given at the Region VI PDC Full Council meeting held on September 21, 2016. PDC Full Council meetings are open to all 45 member governments of Region VI as well as numerous private sector entities located within the Region. The purpose of this presentation was to inform the regional council on the federal requirements associated with hazard mitigation planning and the planning process that will be used to update the Region VI Hazard Mitigation Plan. The presentation was also used to inform all of the member governments that they would be requested to formally adopt (via resolution) the

Hazard Mitigation Plan Update when it is completed. Documentation of this Full Council meeting is included in the Public Involvement Appendix (Appendix C) for reference purposes.

A total of 45 local governments in the northcentral region of West Virginia participated in the development of this Hazard Mitigation Plan (HMP) update (see Table 1-2). At the municipal level, cities and towns reviewed their respective mitigation action plans and provided current updates on the hazard mitigation activities completed to date as well as recommendations for new or additional hazard mitigation activities. Additionally, the cities and towns revisited their hazard mitigation priorities as part of this plan update and provided comments accordingly. Each of the six counties also reviewed their respective action plans/priorities and provided updates as appropriate.

**TABLE I-2  
MULTI-JURISDICTIONAL PLANNING PARTICIPATION**

<b>NAME</b>	<b>TYPE</b>	<b>MEETING ATTENDANCE</b>	<b>ACTION PLAN REVIEW</b>	<b>DRAFT PLAN REVIEW</b>	<b>COMPLETED NFIP SURVEY</b>
Albright	Town	X	X		
Anmoore	Town		X		
Barrackville	Town	X	X		
Blacksville	Town		X		
Brandonville	Town		X		
Bridgeport	City	X	X		
Bruceton Mills	Town		X		
Clarksburg	City		X		
Doddridge	County	X	X	X	
Fairmont	City	X	X		
Fairview	Town		X		
Farmington	Town		X		
Flemington	Town	X	X		
Grafton	City	X	X		
Grant Town	Town	X	X		
Granville	Town		X		
Harrison	County	X	X		
Kingwood	City		X		

**TABLE I-2  
(CONTINUED)**

<b>NAME</b>	<b>TYPE</b>	<b>MEETING ATTENDANCE</b>	<b>ACTION PLAN REVIEW</b>	<b>DRAFT PLAN REVIEW</b>	<b>COMPLETED NFIP SURVEY</b>
Lost Creek	Town		X		
Lumberport	Town		X		
Mannington	City		X		
Marion	County	X	X		
Masontown	Town		X		
Monongah	Town	X	X		
Monongalia	County	X	X	X	X
Morgantown	City	X	X		X
Newburg	Town		X		
Nutter Fort	Town		X		
Pleasant Valley	City	X	X		
Preston	County	X	X		
Reedsville	Town	X	X		
Rivesville	Town		X		
Rowlesburg	Town		X		
Salem	City	X	X		
Shinnston	City		X		
Star City	Town		X		
Stonewood	City		X		
Taylor	County	X	X		
Terra Alta	Town		X		
Tunnelton	Town		X		
West Milford	Town		X		
West Union	Town		X		
Westover	City		X		
White Hall	Town	X	X		
Worthington	Town		X		

## **2. Planning Process – Creation of the 2012 Regional Consolidation Plan**

To guide the completion of the 2012 regional consolidation plan, a multi-jurisdictional core planning team was established. This team was comprised of the “regional council” (whose composition includes local government and private sector members) and the county emergency managers. All of these members were involved in the data collection and steering of the regional plan composition. Further, the offices of emergency management in Doddridge, Marion, Monongalia, Preston, and Taylor Counties, as well as the planning commission in Harrison County, served as the primary “Hazard Mitigation Planning Committee” members. These offices serve as the coordinating agencies for hazard mitigation in their counties and provided significant input into the consolidation of the original county plans.

To assist with the completion of the 2012 regional consolidation plan, the PDC hired a contractor to work with both the Council and its member governments to create a document that was truly regional yet represented the individual interests of the PDC’s member governments. As a part of that effort, the contractor coordinated with each county to update any projects and/or risks necessary since the 2007/2009 updates. As a result, the 2012 regional consolidation plan represented a new direction for mitigation planning throughout Region VI.

Between 2010 and 2012, the PDC frequently updated its member governments on the status of the regional plan development at regularly scheduled Council meetings. Two public meetings were held at the PDC office to encourage public participation in the development of the document (May 26, 2011, and October 17, 2011). Upon completion of the draft plan, the PDC published an advertisement in each of the local newspapers serving the region inviting the public to visit the PDC office, review the plan, and list any comments on a PDC-provided form. Further, the PDC posted the draft plan and the comment form on its website.

## **3. Planning Process – Original Plan Development (By County)**

Historical information related to the development and administration of the original hazard mitigation plans prepared independently by each of Region VI PDC’s six counties (between 2003 and 2010) has been moved to the appendices for reference purposes.

## C. REGION PROFILE

Region VI PDC is comprised of a total of 45 member governments, 6 of which are counties and 39 of which are municipalities. Table I-3 lists the member governments.

**TABLE I-3  
MEMBER GOVERNMENTS**

NAME	TYPE	COUNTY
Albright	Town	Preston
Anmoore	Town	Harrison
Barrackville	Town	Marion
Blacksville	Town	Monongalia
Brandonville	Town	Preston
Bridgeport	City	Harrison
Bruceton Mills	Town	Preston
Clarksburg	City	Harrison
Doddridge	County	N/A
Fairmont	City	Marion
Fairview	Town	Marion
Farmington	Town	Marion
Flemington	Town	Taylor
Grafton	City	Taylor
Grant Town	Town	Marion
Granville	Town	Monongalia
Harrison	County	N/A
Kingwood	City	Preston
Lost Creek	Town	Harrison
Lumberport	Town	Harrison
Mannington	City	Marion
Marion	County	N/A
Masontown	Town	Preston

NAME	TYPE	COUNTY
Monongah	Town	Marion
Monongalia	County	N/A
Morgantown	City	Monongalia
Newburg	Town	Preston
Nutter Fort	Town	Harrison
Pleasant Valley	City	Marion
Preston	County	N/A
Reedsville	Town	Preston
Rivesville	Town	Marion
Rowlesburg	Town	Preston
Salem	City	Harrison
Shinnston	City	Harrison
Star City	Town	Monongalia
Stonewood	City	Harrison
Taylor	County	N/A
Terra Alta	Town	Preston
Tunnelton	Town	Preston
West Milford	Town	Harrison
West Union	Town	Doddridge
Westover	City	Monongalia
White Hall	Town	Marion
Worthington	Town	Marion

Throughout the Region Profile section, Census 2010 data are used where available.

## **1. Transportation**

The transportation network of the Region VI area includes four-lane, divided highways; two-lane roadways; and single-lane roadways. This network passes through a largely rural and mountainous area, though the I-79 corridor has seen rapid commercial, industrial, and residential development in recent years. The primary transportation routes through Region VI are as follows:

- Interstate 68
- Interstate 79
- U.S. Route 50

Secondary routes are as follows:

- U.S. Route 19
- U.S. Route 119
- U.S. Route 250
- State Route 7
- State Route 18
- State Route 20
- State Route 23
- State Route 26
- State Route 92

Interstates 68 and 79, as well as U.S. Route 50 from Interstate 79 west, are four-lane divided highways. These routes see the highest density of traffic in the region and serve as major arterial routes for commerce throughout the region (and between Charleston, West Virginia, and Pittsburgh, Pennsylvania). As a result, these routes are well-maintained. It is significant to note that a number of segments of I-79 in the region are undergoing construction to meet the needs of a growing region.

## **2. Economy**

In all six counties, the economy (i.e., local work force) is driven by government; the trade, transportation, and utilities industries; and the education and health services industries. Other industries with significant work forces vary considerably from county to county. For example, Monongalia County's education and health services work force is high on account of West Virginia



University and an extensive health and medical infrastructure. In other areas, such as Taylor County, the leisure and hospitality workforce is higher on account of such resources as Tygart Lake State Park. Table I-4 shows the top four industries in each county with the number of individuals employed by each.

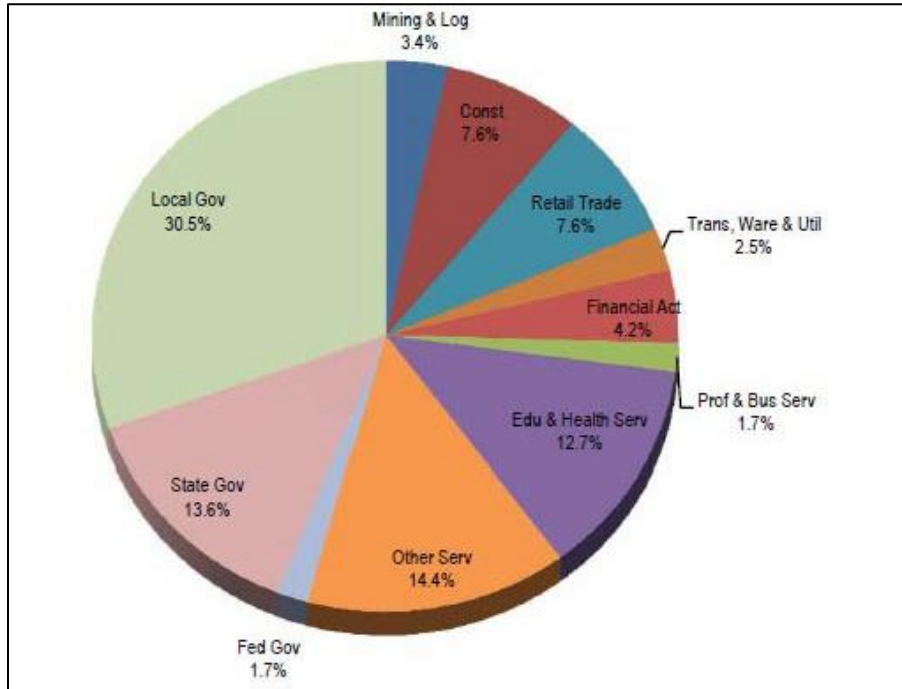
**TABLE I-4  
TOP INDUSTRIES BY JURISDICTION**

<b>COUNTY</b>	<b>TOP FOUR INDUSTRIES IN COUNTY</b>			
	<b>INDUSTRY 1 NAME (#)</b>	<b>INDUSTRY 2 NAME (#)</b>	<b>INDUSTRY 3 NAME (#)</b>	<b>INDUSTRY 4 NAME (#)</b>
Doddridge	Government (506)	Education and Health Services (152)	Trade, Transportation, Utilities (151)	Construction (87)
Harrison	Government (8,241)	Trade, Transportation, Utilities (7,590)	Education and Health Services (5,352)	Leisure and Hospitality (3,078)
Marion	Government (4,184)	Trade, Transportation, Utilities (3,644)	Professional and Business Services (2,708)	Education and Health Services (2,055)
Monongalia	Education and Health Services (11,446)	Government (11,217)	Trade, Transportation, Utilities (7,446)	Leisure and Hospitality (5,992)
Preston	Government (2,294)	Trade, Transportation, Utilities (1,270)	Education and Health Services (745)	Construction (638)
Taylor	Government (1,135)	Trade, Transportation, Utilities (519)	Education and Health Services (300)	Leisure and Hospitality (277)

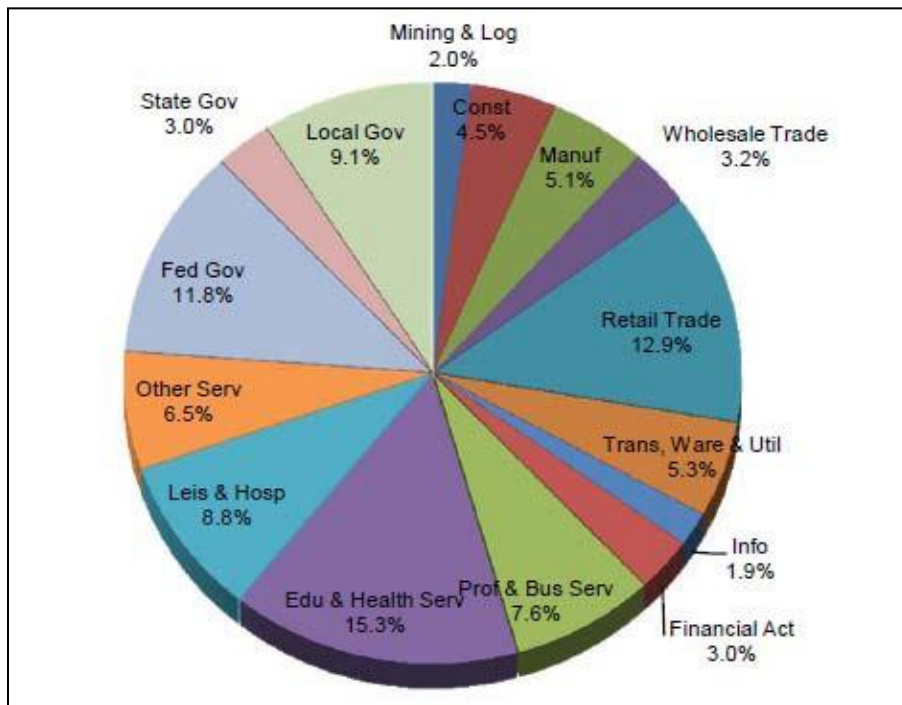
Source: WVBEF

Figures I-1 through I-6 depict the non-farm employment in each county.

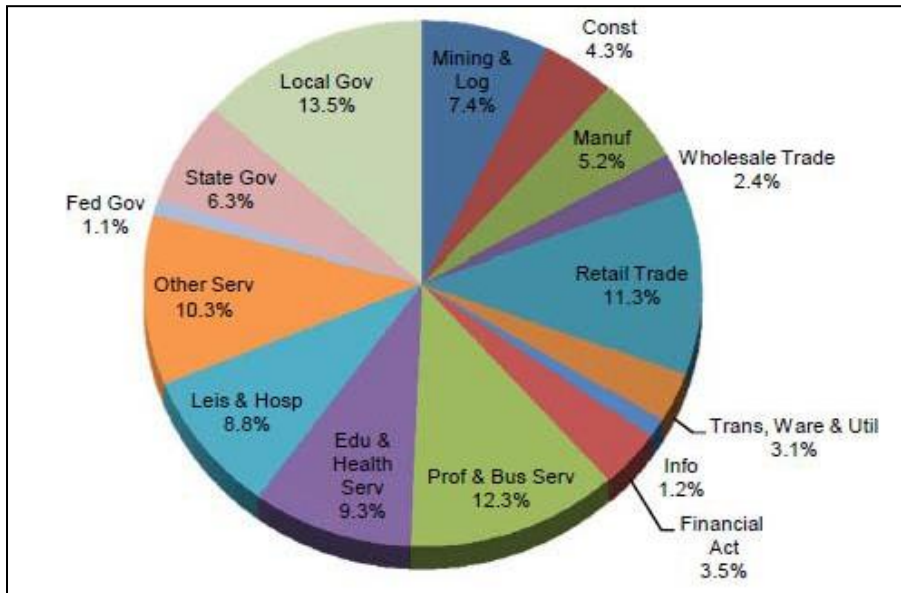
**FIGURE I-1  
DODDRIDGE COUNTY NON-FARM EMPLOYMENT**



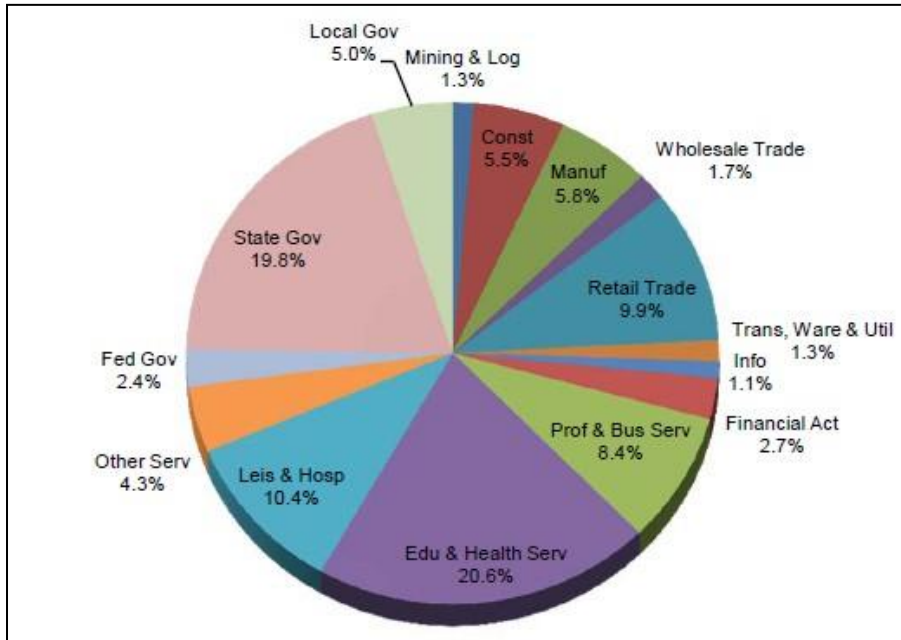
**FIGURE I-2  
HARRISON COUNTY NON-FARM EMPLOYMENT**



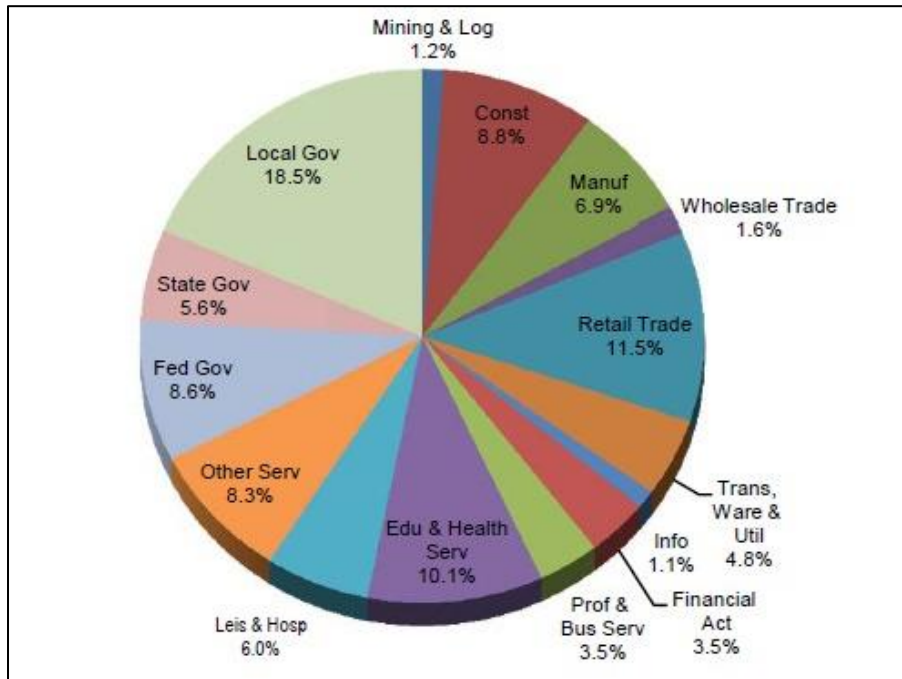
**FIGURE I-3  
MARION COUNTY NON-FARM EMPLOYMENT**



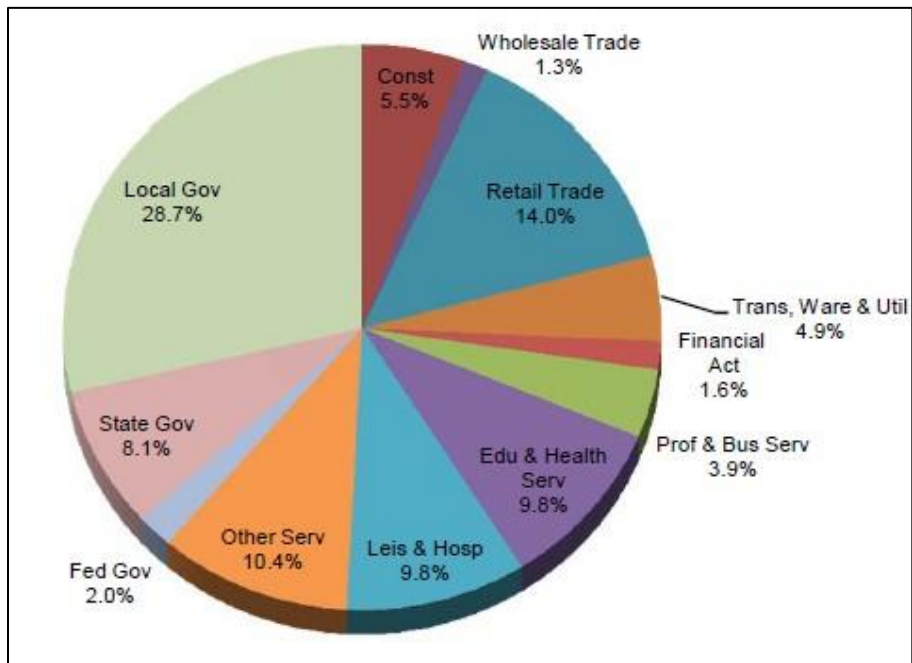
**FIGURE I-4  
MONONGALIA COUNTY NON-FARM EMPLOYMENT**



**FIGURE I-5  
PRESTON COUNTY NON-FARM EMPLOYMENT**



**FIGURE I-6  
TAYLOR COUNTY NON-FARM EMPLOYMENT**



All six counties have available space for development (primarily commercial/business) but also some space for industrial development. All six counties employ Economic Development Authorities (EDAs) that work to bring development and jobs to the counties. The top employers, by jurisdiction, are as follows (*Source: WV Bureau of Employment Programs*).

- **Doddridge County**

- Doddridge County Board of Education
- West Virginia Regional Jail and Correctional Facility Authority
- Doddridge County Senior Citizens, Inc.
- Doddridge County Commission
- Glaspell Lumber Company

- **Harrison County**

- U.S. Department of Justice (Federal Bureau of Investigation [FBI])
- Harrison County Board of Education
- United Hospital Center, Inc.
- Veterans Administration Hospital
- Wal-Mart Stores, Inc.

- **Marion County**

- Marion County Board of Education
- Consolidation Coal Company
- Fairmont State College
- Fairmont General Hospital, Inc.
- Allegheny Power Service Corporation

- **Monongalia County**

- West Virginia University
- West Virginia University Hospitals
- Mylan Pharmaceuticals, Inc.
- Monongalia County Board of Education
- Monongalia General Hospital

- **Preston County**

- Preston County Board of Education
- Department of Justice Federal Prison System (Hazelton)
- Preston Memorial Hospital
- CW Wright Construction Company, Inc.
- Wal-Mart Associates, Inc.

- **Taylor County**

- Taylor County Board of Education
- Grafton City Hospital
- Wal-Mart Associates, Inc.
- West Virginia Department of Corrections (Pruntytown)
- Rex-Hide Industries, Inc.

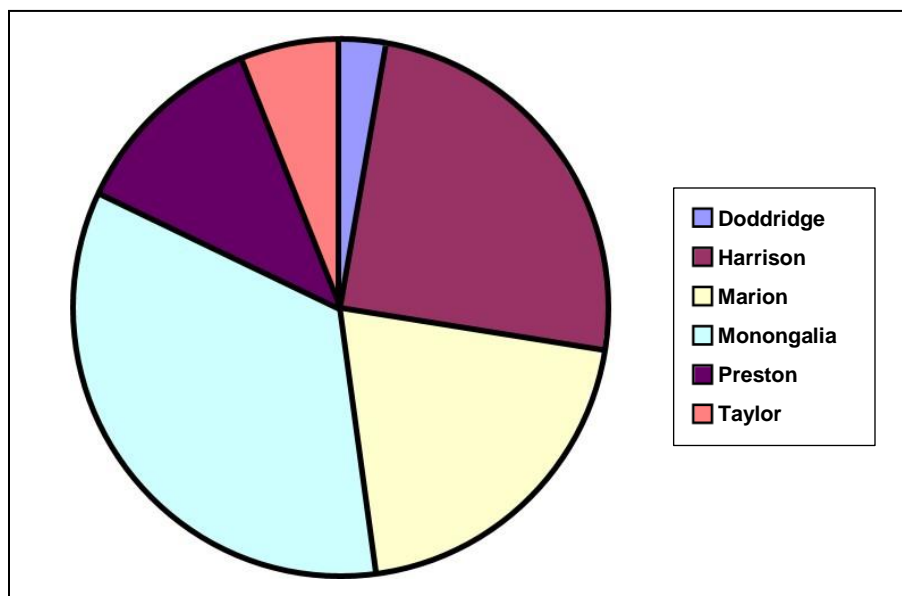
### 3. Demographics

Demographic data have been consolidated based on Census data from each of the counties unless otherwise noted.

#### a. Population

The population of the area represented by the Region VI PDC is 280,323, according to 2010 Census data. A breakdown by county is shown in Figure I-7 (*Source: U.S. Census Bureau*). Generally speaking, the majority of the population is located in the central portion of the region. Such a figure could be expected, given the presence of Interstate 79 and the “micropolitan” area of Clarksburg/Bridgeport, Fairmont, and Morgantown. Additionally, the eastern portions of the region (i.e., Preston County) are slightly more mountainous than the remaining areas. The population of the region is somewhat clustered. Nearly 41% of the population in the region lives

**FIGURE I-7  
2010 POPULATION BY COUNTY**



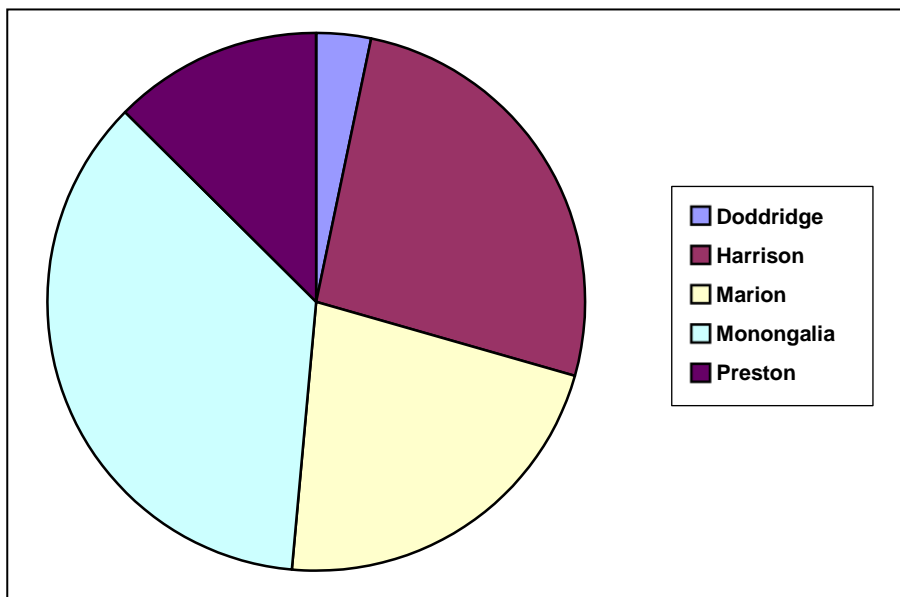
within a municipality (approximately 114,051 residents). Of the residents who live in municipalities, 77% live in Anmoore, Bridgeport, Clarksburg, Fairmont, Granville, Morgantown, Nutter Fort, Pleasant Valley, Star City, Stonewood, Westover, or White Hall along I-79.

**b. Housing**

As with population, it is not surprising to see that counties with a more robust transportation infrastructure have a higher number of housing units. What is also interesting to note is that the majority of these housing units are along the major transportation routes throughout the region. There are over 127,700 housing units in the region. On average, 75.1% of residents in the region own their own homes. The average median value of housing is \$94,833.

Figure I-8 shows the distribution of housing across the region. Table I-5 provides a more detailed overview of the housing characteristics in each of the counties (*Source: U.S. Census Bureau, 2010*).

**FIGURE I-8  
DISTRIBUTION OF HOUSING ACROSS THE REGION**



**TABLE I-5  
HOUSING CHARACTERISTICS IN REGION VI COUNTIES**

DEMOGRAPHIC	REGION VI COUNTIES					
	DODDRIDGE	HARRISON	MARION	MONONGALIA	PRESTON	TAYLOR
Housing Units	3,946	31,431	26,463	43,238	15,097	7,541
Owner Occupied	3,232	23,039	19,874	25,597	12,485	5,920
Renter Occupied	714	8,392	6,589	17,641	2,612	1,621
Ownership Rate	81.9%	73.3%	75.1%	59.2%	82.7%	78.5%
Median Value	\$75,900	\$95,500	\$87,500	\$145,400	\$87,700	\$77,000

**D. ANALYZING DEVELOPMENT TRENDS: CURRENT AND FUTURE LAND USE**

§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.

The majority of the region could be considered rural even though the Interstate 79 corridor is rapidly developing. All of the counties are located in what is generally considered a mountainous region. The topography often drives development to flatter areas, which are often in or near floodplains. Local floodplain development regulations carefully balance the needs for economic development and growth in the employment sector with a basic responsibility to buffer potential and existing businesses from the effects of hazards. All of the counties indicated that the majority of the commercial and industrial development in their respective counties is located in or near the municipalities.

Generally, commercial and industrial development is expected to continue to occur along major transportation routes. Not only are these areas the most accessible, construction of major roadways has led to a “leveling” of the topography in these areas. Additionally, many of these areas are serviced by public water and sewer systems. (Those that are not are likely considered for service extensions – see below.) Such an assumption is supported by an overview analysis of the corridors in the region. The White Oaks and Charles Pointe area in Bridgeport at Exit 124 of Interstate 79 is continuing to grow rapidly now that the new United Hospital Center is complete. Marion County recently completed the “Gateway Connector” project linking downtown Fairmont with Interstate 79; local officials expect this project to lead to development along the connector



and in downtown Fairmont. Also, in Marion County, despite the decline nation-wide in mall facilities, the areas in and around the Middletown Mall site just off I-79, Exit 132 continues to develop, as does the technology park that is home to the National Aeronautics and Space Administration (NASA) and the Mollohan Center. Areas along both I-69 and I-79 in Monongalia County are developing, such as Glenmark Center and University Town Centre. Much of this development is retail- and service-based, though the Marion County technology park and the Charles Pointe/White Oaks developments are attracting professional and business services opportunities. Other, smaller areas are also seeing significant development. Projects such as the U.S. Route 19/Monongahela River redevelopment in Star City and the “big dig” project along S.R. 0705 in Morgantown are two examples. Other areas are seeing residential growth. These include the Cheat Lake area of Monongalia County and the Charles Pointe area of Bridgeport.

Still other development projects in the region are centered on revitalizing once-thriving areas or industries. Examples include Taylor County’s industrial and commercial areas, including the Jerry Run Industrial Park along U.S. Route 50 near Flemington and the Knotts Industrial Site near Grafton. Both of these sites exceed 300 acres of developable space. Another preservation project in Grafton is the restoration of the CSX building.

A number of these projects are built in areas where the topography has forced extensive cutting and filling (e.g., Charles Pointe, White Oaks, and University Town Centre). Local officials have worked with developers and contractors to ensure that these areas do not become susceptible to land subsidence (to the extent possible). Many projects are also potentially susceptible to transportation-based hazardous material incidents (e.g., Charles Pointe, White Oaks, University Town Centre, Glenmark Center, and the Marion County technology park on I-79); however, avoiding this type of hazard could be detrimental to the development effort as close proximity to major transportation corridors make the sites more attractive to potential businesses. It is significant to note, though, that local officials have been careful to keep development away from areas such as floodplains.

Most of the jurisdictions are planning various types of projects, ranging from water/sewer to demolition to job creation efforts. The Region VI PDC maintains a list of these projects in its Comprehensive Economic Development Strategy (CEDS). Currently, these projects are not funded, but they are on the priority list in the CEDS. None of these projects would adversely affect mitigation efforts; the water projects, in particular, could help mitigate some of the effects of hazards such as drought. Summaries of these projects are listed in Table I-6.

**TABLE I-6  
PROJECT SUMMARIES**

<b>PROJECT NAME</b>	<b>APPLICANT NAME</b>
Snowbird Route 18 Waterline Extension Phase II	Doddridge County PSD
Route 24 Sanitary Sewer Collection System	Enlarged Hepzibah PSD
Mannington Sanitary Board NMHS Upgrade	Mannington Sanitary Sewer Board
Salem Phase III Water System Improvements	Town of Salem
Anmoore Water Systems Improvements	Town of Anmoore
Greater Harrison PSD Water Line Extension	Greater Harrison PSD
Independence and Annon Road Water Project	Town of Newburg
Albright Sanitary Sewer System Improvement and Extension	Town of Albright
Sanitary Sewer Project in Pruntytown Area	Taylor County Commission
Terra Alta Sanitary Sewer System Improvement Project	Town of Terra Alta
Terra Alta Municipal Water Department	Town of Terra Alta
Route 23/Big Flint Run Waterline Extension	Doddridge County PSD
Sanitary Sewer Project in Pruntytown Pike CR 50/4	Taylor County Commission
Pullman-Oxford Waterline Extension	Doddridge County PSD
Water System Replacements, Four States Area	Town of Worthington
Wastewater Treatment Plant Upgrades and Sewer	Town of Farmington
Water Line Replacement Project	Town of Farmington
Salem Stormwater Elimination Project	Town of Salem
Monumental PSD Water System Improvements	Monumental PSD
Monongah Sewer System Improvements	Town of Monongah
Greater Paw Paw Sanitary Sewer District Phase III	Greater Paw Paw
Nutter Fort Long-Term Control Plan Phase II	Nutter Fort
Newburg Water Works Marquess Water Project	Town of Newburg
Taylor County Health Department New Facilities	Taylor County Health Department
Grant Town Water System Improvement Project	Town of Grant Town
Mannington PSD Water System Improvement Project	Mannington PSD
Rivesville Main Water Line Replacement	Town of Rivesville
Rivesville Smith Hollow Water Tank	Town of Rivesville
Town of Nutter Fort Sewer Project	Town of Nutter Fort
Denver Water System Improvement Project	Denver Water Association

Many rural areas in the region see mining and natural gas operations. In general, mining is declining. The oil and natural gas industry is expanding across West Virginia; its development in the Region VI area has been more rapid than in any other area of the state (with the possible exception of the Northern Panhandle). Significant changes in land use are not expected. As such, local officials and emergency managers should concentrate mitigation efforts on the existing high-density population areas and those along arterial transportation routes.

## **II. HAZARD IDENTIFICATION AND RISK ASSESSMENT**

## II. HAZARD IDENTIFICATION AND RISK ASSESSMENT

Section II is a multi-hazard risk assessment, analyzing the natural hazards affecting the entire region. In addition to a simple identification of applicable hazards, this section profiles those hazards (i.e., describes them in the regional context) and discusses the regional implications of the hazard risks. It is significant to note that the individual counties in the region may also maintain similar data on a number of other (technological and man-made) hazards.

It is important to understand that the risk assessment portion of this planning process was cyclical. For example, hazards were identified and analyzed on an “area-wide” basis. Upon completion of the initial assessment, factors such as targeted development areas, the locations of critical facilities, etc. were compared to the initial data. Where warranted, additional risk analysis was done in those areas to determine the primary hazards affecting, for example, a potential development. Further, determining probability and severity could be affected by the presence of a number of critical facilities or developable areas in a “hazard zone.”

### A. HAZARD IDENTIFICATION

§201.6(c)(2)(i)	The risk assessment shall include a description of the type...of all natural hazards that can affect the jurisdiction.
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The hazard identification serves as a guide to all communities in the Region VI Planning and Development Council (PDC) planning district when assessing their vulnerabilities to hazards. The purpose of the hazard identification is to 1) identify all the natural hazards that could affect the planning area, 2) assess the extent to which the area is vulnerable to the effects of these hazards, and 3) prioritize the potential risks to the community.

The first step in identifying potential hazards in the region is to determine past hazard events. The disaster history of a region is a good indication of the types and frequency of events that could occur in the future. Disaster history data were compiled from the Federal Emergency Management Agency’s (FEMA) website of Major Disaster Declarations and Emergency Declarations (Table II-1).

**TABLE II-1  
DISASTER HISTORY BY COUNTY FROM THE 1960s TO 2017**

COUNTY	DATE	HAZARD EVENT	ACTION
Doddridge County	April 2015	Severe Storms, Flooding, Landslides, Mudslides	Major Disaster Declaration
	March 2015	Severe Winter Storm, Flooding, Landslides, Mudslides	Major Disaster Declaration
	June 2012	Severe Storms, Straight-Line Winds	Major Disaster Declaration
		Severe Storms	Emergency Declaration
	March 2012	Severe Storms, Tornadoes, Flooding, Mudslides, Landslides	Major Disaster Declaration
	November 2012	Hurricane Sandy	Major Disaster Declaration
	February 2010	Severe Winter Storms and Snowstorms	Major Disaster Declaration
	June 2008	Severe Storms, Tornadoes, Flooding, Mudslides, Landslides	Major Disaster Declaration
	August 2005	Hurricane Katrina	Emergency Declaration
	June 2003	Severe Storms, Flooding, Landslides	Major Disaster Declaration
	May 2001	Severe Storms, Flooding	Major Disaster Declaration
	February 2000	Winter Storm	Major Disaster Declaration
	June 1998	Severe Storms, Flooding, Tornadoes	Major Disaster Declaration
	January 1996	Blizzard	Major Disaster Declaration
	March 1993	Severe Snowfall, Winter Storm	Emergency Declaration
	November 1985	Severe Storms, Flooding	Major Disaster Declaration
	March 1967	Flooding	Major Disaster Declaration

**TABLE II-1  
(CONTINUED)**

COUNTY	DATE	HAZARD EVENT	ACTION
Harrison County	March 2015	Severe Winter Storm, Flooding, Landslides, Mudslides	Major Disaster Declaration
	June 2012	Severe Storms, Straight-Line Winds	Major Disaster Declaration
		Severe Storms	Emergency Declaration
	March 2012	Severe Storms, Tornadoes, Flooding, Mudslides, Landslides	Major Disaster Declaration
	November 2012	Hurricane Sandy	Major Disaster Declaration
	June 2008	Severe Storms, Tornadoes, Flooding, Mudslides, Landslides	Major Disaster Declaration
	August 2005	Hurricane Katrina	Emergency Declaration
	November 2003	Severe Storms, Flooding, Landslides	Major Disaster Declaration
	June 2003	Severe Storms, Flooding, Landslides	Major Disaster Declaration
	February 2003	Severe Winter Storms	Major Disaster Declaration
	February 2000	Winter Storm	Major Disaster Declaration
	June 1998	Severe Storms, Flooding, Tornadoes	Major Disaster Declaration
	May 1996	Flooding	Major Disaster Declaration
	January 1996	Blizzard	Major Disaster Declaration
	March 1993	Severe Snowfall, Winter Storm	Emergency Declaration
	November 1985	Severe Storms, Flooding	Major Disaster Declaration
	August 1980	Severe Storms, Flooding	Major Disaster Declaration
	March 1967	Flooding	Major Disaster Declaration

**TABLE II-1  
(CONTINUED)**

<b>COUNTY</b>	<b>DATE</b>	<b>HAZARD EVENT</b>	<b>ACTION</b>
Marion County	March 2012	Severe Storms, Tornadoes, Flooding, Mudslides, Landslides	Major Disaster Declaration
	November 2012	Hurricane Sandy	Major Disaster Declaration
	June 2012	Severe Storms	Emergency Declaration
	February 2010	Severe Winter Storms, Snowstorms	Major Disaster Declaration
	June 2008	Severe Storms, Tornadoes, Flooding, Mudslides, Landslides	Major Disaster Declaration
	August 2005	Hurricane Katrina	Emergency Declaration
	November 2003	Severe Storms, Flooding, Landslides	Major Disaster Declaration
	June 2003	Severe Storms, Flooding, Landslides	Major Disaster Declaration
	May 2001	Severe Storms, Flooding	Major Disaster Declaration
	February 2000	Winter Storm	Major Disaster Declaration
	June 1998	Severe Storms, Flooding, Tornadoes	Major Disaster Declaration
	January 1996	Blizzard	Major Disaster Declaration
	March 1993	Severe Snowfall and Winter Storm	Emergency Declaration
	November 1985	Severe Storms, Flooding	Major Disaster Declaration
	August 1980	Severe Storms, Flooding	Major Disaster Declaration
	March 1967	Flooding	Major Disaster Declaration



**TABLE II-1  
(CONTINUED)**

COUNTY	DATE	HAZARD EVENT	ACTION
Monongalia County	March 2015	Severe Winter Storm, Flooding, Landslides, Mudslides	Major Disaster Declaration
	March 2012	Severe Storms, Tornadoes, Flooding, Mudslides, Landslides	Major Disaster Declaration
	June 2012	Severe Storms	Emergency Declaration
	November 2012	Hurricane Sandy	Major Disaster Declaration
	August 2005	Hurricane Katrina	Emergency Declaration
	November 2003	Severe Storms, Flooding, Landslides	Major Disaster Declaration
	June 2003	Severe Storms, Flooding, Landslides	Major Disaster Declaration
	February 2000	Winter Storm	Major Disaster Declaration
	July 1996	Flooding	Major Disaster Declaration
	January 1996	Blizzard	Major Disaster Declaration
	March 1993	Severe Snowfall and Winter Storm	Emergency Declaration
	November 1985	Severe Storms, Flooding	Major Disaster Declaration
	August 1980	Severe Storms, Flooding	Major Disaster Declaration
	July 1972	Tropical Storm Agnes	Major Disaster Declaration
Preston County	November 2012	Hurricane Sandy	Major Disaster Declaration
	June 2012	Severe Storms, Straight-Line Winds	Major Disaster Declaration
		Severe Storms	Emergency Declaration
	March 2012	Severe Storms, Tornadoes, Flooding, Mudslides, Landslides	Major Disaster Declaration
	August 2005	Hurricane Katrina	Emergency Declaration
	June 2003	Severe Storms, Flooding, Landslides	Major Disaster Declaration
	May 2001	Severe Storms, Flooding	Major Disaster Declaration
	February 2000	Winter Storm	Major Disaster Declaration
	January 1996	Flooding	Major Disaster Declaration
	January 1996	Blizzard	Major Disaster Declaration
	March 1993	Severe Snowfall and Winter Storm	Emergency Declaration
	November 1985	Severe Storms, Flooding	Major Disaster Declaration
	August 1980	Severe Storms, Flooding	Major Disaster Declaration
	July 1972	Tropical Storm Agnes	Major Disaster Declaration

**TABLE II-1  
(CONTINUED)**

COUNTY	DATE	HAZARD EVENT	ACTION
Taylor County	November 2012	Hurricane Sandy	Major Disaster Declaration
	June 2012	Severe Storms, Straight-Line Winds	Major Disaster Declaration
		Severe Storms	Emergency Declaration
	March 2012	Severe Storms, Tornadoes, Flooding, Mudslides, Landslides	Major Disaster Declaration
	June 2008	Severe Storms, Tornadoes, Flooding, Mudslides, Landslides	Major Disaster Declaration
	August 2005	Hurricane Katrina	Emergency Declaration
	November 2003	Severe Storms, Flooding, Landslides	Major Disaster Declaration
	May 2001	Severe Storms, Flooding	Major Disaster Declaration
	February 2000	Winter Storm	Major Disaster Declaration
	January 1996	Blizzard	Major Disaster Declaration
	March 1993	Severe Snowfall and Winter Storm	Emergency Declaration
	November 1985	Severe Storms, Flooding	Major Disaster Declaration
	August 1980	Severe Storms, Flooding	Major Disaster Declaration

In addition, county Geographic Information System (GIS) databases were used as important resources in identifying and mapping infrastructure, critical facilities, and land uses. Data from these sources and GIS data made available from other project participants (i.e., FEMA) were used to determine those hazards that present the greatest risk to the region. Table II-2 summarizes the identification of these hazards. Hazards with justification for inclusion in the hazard profiling section are highlighted in yellow.

**TABLE II-2  
IDENTIFIED HAZARDS**

HAZARD	HOW IDENTIFIED	WHY IDENTIFIED
Avalanche	<ul style="list-style-type: none"> <li>Research indicates that these jurisdictions are not susceptible to this hazard</li> </ul>	<ul style="list-style-type: none"> <li>The general contour of the land in the region is mountainous, but they are not high enough in elevation to cause avalanche activity.</li> <li>The amount of snowfall the region receives is insufficient for any kind of avalanche.</li> </ul>

**TABLE II-2  
(CONTINUED)**

HAZARD	HOW IDENTIFIED	WHY IDENTIFIED
Coastal Erosion	<ul style="list-style-type: none"> <li>Google Maps</li> </ul>	<ul style="list-style-type: none"> <li>Coastal erosion is not a significant risk as the region is more than 450 miles from the Atlantic Ocean.</li> </ul>
Coastal Storm	<ul style="list-style-type: none"> <li>See "Thunderstorm"</li> </ul>	<ul style="list-style-type: none"> <li>Coastal storms are not a threat to the region as it is more than 450 miles from the Atlantic Ocean.</li> </ul>
Dam Failure	<ul style="list-style-type: none"> <li>West Virginia Department of Environmental Protection (WVDEP) Dam Safety</li> <li>Interviews with Local Officials</li> <li>National Inventory of Dams (NID)</li> </ul>	<ul style="list-style-type: none"> <li>There are 65 dams listed by the WVDEP and West Virginia Division of Natural Resources (WVDNR) in the region.</li> <li>There are reports of dams in the region that do not meet WVDEP safety requirements.</li> </ul>
Debris Flow	<ul style="list-style-type: none"> <li>See "Land Subsidence"</li> </ul>	<ul style="list-style-type: none"> <li>See "Land Subsidence"</li> </ul>
Drought	<ul style="list-style-type: none"> <li>National Climatic Data Center (NCDC) Event Records</li> </ul>	<ul style="list-style-type: none"> <li>NCDC reports the following droughts: <ul style="list-style-type: none"> <li>— Doddridge: 8 since 1999</li> <li>— Harrison: 7 since 1999</li> <li>— Marion: 2 since 1999</li> <li>— Monongalia: 2 since 1999</li> <li>— Preston: 2 since 1999</li> <li>— Taylor: 8 since 1999</li> </ul> </li> </ul>
Earthquake	<ul style="list-style-type: none"> <li>U.S. Geological Survey (USGS)</li> <li>Internet Research <a href="http://www.earthquake.gov">http://www.earthquake.gov</a></li> </ul>	<ul style="list-style-type: none"> <li>According to the USGS, the counties in the region range from a 2 to a 3 in Peak Ground Acceleration (PGA) with a 10% chance of exceedance in 50 years.</li> <li>Earthquakes were felt throughout the region in June 2010 and August 2011.</li> </ul>
Expansive Soils	<ul style="list-style-type: none"> <li>See "Land Subsidence"</li> </ul>	<ul style="list-style-type: none"> <li>See "Land Subsidence"</li> </ul>
Extreme Heat	<ul style="list-style-type: none"> <li>NCDC Event Records</li> </ul>	<ul style="list-style-type: none"> <li>Temperatures in the region seldom exceed 100 degrees.</li> <li>If the temperature meets or exceeds 100 degrees, it has not been hot enough for the amount of time appropriate to denote "extreme heat."</li> </ul>
Flooding	<ul style="list-style-type: none"> <li>NCDC Event Records</li> <li>Interviews with Local Officials</li> </ul>	<ul style="list-style-type: none"> <li>NCDC reports the following floods: <ul style="list-style-type: none"> <li>— Doddridge: 27 since 1994</li> <li>— Harrison: 57 since 1994</li> <li>— Marion: 64 since 1994</li> <li>— Monongalia: 66 since 1994</li> <li>— Preston: 77 since 1994</li> <li>— Taylor: 27 since 1994</li> </ul> </li> <li>Local officials unanimously indicated that flooding was the most probable hazard in all jurisdictions.</li> </ul>

**TABLE II-2  
(CONTINUED)**

HAZARD	HOW IDENTIFIED	WHY IDENTIFIED
Hailstorm	<ul style="list-style-type: none"> <li>• NCDC Event Records</li> </ul>	<ul style="list-style-type: none"> <li>• NCDC reports the following hail events: <ul style="list-style-type: none"> <li>– Doddridge: 21 since 1985</li> <li>– Harrison: 65 since 1985</li> <li>– Marion: 27 since 1985</li> <li>– Monongalia: 48 since 1985</li> <li>– Preston: 54 since 1985</li> <li>– Taylor: 31 since 1985</li> </ul> </li> </ul>
Hurricane	<ul style="list-style-type: none"> <li>• See “Thunderstorm”</li> </ul>	<ul style="list-style-type: none"> <li>• The region does not experience the hurricane conditions of extremely high winds, rains, and hail.</li> <li>• In some instances, the region may be affected by rainfall brought about by the remnants of a hurricane, which are addressed elsewhere.</li> </ul>
Land Subsidence	<ul style="list-style-type: none"> <li>• Interviews with Local Officials</li> <li>• USGS Landslide Overview Map</li> <li>• Internet Research <a href="http://www.nationalatlas.gov">http://www.nationalatlas.gov</a></li> </ul>	<ul style="list-style-type: none"> <li>• According to the USGS map, areas throughout the region are classified as “high susceptibility/moderate incidence.”</li> <li>• Soil surveys for the counties in the region indicate the presence of types of soils susceptible to land subsidence.</li> </ul>
Landslide	<ul style="list-style-type: none"> <li>• See “Land Subsidence”</li> </ul>	<ul style="list-style-type: none"> <li>• See “Land Subsidence”</li> </ul>
Thunderstorm	<ul style="list-style-type: none"> <li>• NCDC Event Records</li> </ul>	<ul style="list-style-type: none"> <li>• NCDC reports the following thunderstorm events: <ul style="list-style-type: none"> <li>– Doddridge: 47 since 1975</li> <li>– Harrison: 137 since 1975</li> <li>– Marion: 113 since 1975</li> <li>– Monongalia: 130 since 1975</li> <li>– Preston: 159 since 1975</li> <li>– Taylor: 67 since 1975</li> </ul> </li> </ul>
Tsunami	<ul style="list-style-type: none"> <li>• Google Maps</li> </ul>	<ul style="list-style-type: none"> <li>• The Atlantic Ocean is approximately 450 miles from the region.</li> </ul>
Volcano	<ul style="list-style-type: none"> <li>• USGS</li> </ul>	<ul style="list-style-type: none"> <li>• No volcanoes exist on the east coast.</li> </ul>
Wildfire	<ul style="list-style-type: none"> <li>• NCDC Event Records</li> </ul>	<ul style="list-style-type: none"> <li>• Several areas of the region are rural with a number of heavily wooded areas.</li> </ul>

**TABLE II-2  
(CONTINUED)**

HAZARD	HOW IDENTIFIED	WHY IDENTIFIED
Wind	<ul style="list-style-type: none"> <li>• NCDC Event Records</li> </ul>	<ul style="list-style-type: none"> <li>• NCDC reports the following high wind events:               <ul style="list-style-type: none"> <li>– Doddridge: 2 since 1986</li> <li>– Harrison: 6 since 1998</li> <li>– Marion: 13 since 1954</li> <li>– Monongalia: 10 since 1980</li> <li>– Preston: 27 since 1964</li> <li>– Taylor: 3 since 1967</li> </ul> </li> <li>• NCDC reports the following tornados:               <ul style="list-style-type: none"> <li>– Doddridge: 2 tornados since 1986</li> <li>– Harrison: 5 tornados since 1998</li> <li>– Marion: 5 tornados since 1954</li> <li>– Monongalia: 6 tornados since 1980</li> <li>– Preston: 10 tornados since 1964</li> <li>– Taylor: 3 tornados since 1967</li> </ul> </li> </ul>
Winter Storm	<ul style="list-style-type: none"> <li>• NCDC Event Records</li> </ul>	<ul style="list-style-type: none"> <li>• NCDC reports the following snow and ice events:               <ul style="list-style-type: none"> <li>– Doddridge: 38 events since 1994</li> <li>– Harrison: 45 since 1994</li> <li>– Marion: 28 since 1994</li> <li>– Monongalia: 33 since 1994</li> <li>– Preston: 140 since 1994</li> <li>– Taylor: 53 since 1994</li> </ul> </li> </ul>

Over an area as large as that covered by the Region VI PDC, it seems intuitively obvious that the hazards listed in Table II-2 would not affect the entire region in the same manner. For instance, Preston County's winter storm vulnerability is quite different than Doddridge County's risk because of topographical differences. Even though all counties are vulnerable to winter weather, Preston County's risk is different – possibly higher – because it more frequently sees snow events in sufficient quantities so as to disrupt such operations as schools, the local economy, etc.

To capture this concept, Table II-3 depicts the region's county jurisdictions in comparison. The baseline hazard risk is a generalized average in each county. If a county appears to be more or less affected by a particular hazard, evidence was sought through research. The variances in risk are discussed in Section II.B.

**TABLE II-3  
HAZARD RISKS BY COUNTY**

JURISDICTION	HAZARDS									
	DAM FAILURE	DROUGHT	EARTHQUAKE	FLOODING	HAILSTORM	LAND SUBSIDENCE	THUNDERSTORM	WILDFIRE	WIND	WINTER STORM
Doddridge County	<	=	=	=	=	=	=	=	=	=
Harrison County	>	=	=	=	=	=	=	=	=	=
Marion County	=	=	=	>	=	=	=	=	=	=
Monongalia County	=	=	=	>	=	=	=	>	=	=
Preston County	>	=	=	>	=	=	=	>	=	>
Taylor County	<	=	=	=	=	=	=	>	=	=
<b>KEY:</b> = Equal risk < Lower risk > Higher risk										

### 1. Probability vs. Severity Explanation

The historical data collected includes accounts of all the hazard types listed above. Some hazards, however, have occurred much more frequently than others with a wide range of impacts. By analyzing the historical frequency of each hazard along with the associated impacts, the hazards that pose the most significant risks to the Region VI PDC planning district can be identified. Such an analysis allows participating communities to focus mitigation strategies on those hazards that are most likely to cause significant losses.

Prioritizing the potential hazards that can threaten the planning district is based on two separate factors:

- The probability that a potential hazard will affect the community and
- The potential impacts to the community in the event that such a hazard occurs (i.e., severity).

The probability of a hazard event occurring is largely based on the historical recurrence interval of the hazard. Sources such as the NCDC's "Event Record Database," local media archives, and interviews with local officials were used to determine the number of occurrences. If repeated coverage was given to a particular hazard event, that event was considered highly probable to occur. Also, local officials were able to verify or identify those hazards occurring frequently. For instance, if flood damage occurs every five years versus a tornado causing damage every 50 years, the flood probability would score much higher than the tornado.

Probability for each county jurisdiction in the region was calculated in comparison to one another. For instance, the total number of hazard events reported in each county was averaged to determine the number of occurrences of each hazard on a regional basis. Figure II-1 explains this calculation with an example.

**FIGURE II-1  
CALCULATING AVERAGE HAZARD OCCURRENCES**

Doddridge County's plan reported 21 floods, Harrison's listed 44 floods, Marion had 63 floods, Monongalia reported 61 floods, Preston had 77 floods, and Taylor County listed 20 floods.

$$(21+44+63+61+77+20)/6 = 48 \text{ Floods (average)}$$

With these figures, another computation determined the average number of total hazard events. The average number of total hazards (23) was used as the median to determine probability. Table II-4 depicts this calculation. The distance above or below the median was determined by a percentage.

**TABLE II-4  
CALCULATING MEDIAN HAZARD OCCURRENCES**

DAM	DROUGHT	QUAKE	FLOOD	HAIL	SUB.	THUNDER	FIRE	WIND	WINTER
0.0	1.3	0.3	47.7	35.0	0.2	80.8	0.2	13.8	47.5
<b>AVERAGE (Sum of Averages / 10):</b>									<b>23</b>

**NOTE:** Averages for each hazard were calculated according to Figure II-1 above.

Table II-5 lists the classifications considered for hazard probability. The percentages were used to determine the appropriate “hazard probability classification.” For instance, 0-20% was listed as improbable, 21-40% was listed as remote, 41-60% was listed as occasional, 61-80% was listed as probable, and 81-100% was listed as frequent.

**TABLE II-5  
HAZARD PROBABILITY CLASSIFICATIONS**

<b>LABEL</b>	<b>SPECIFIC HAZARD EVENT</b>	<b>FREQUENCY</b>
Frequent	Likely to occur frequently	Continuously experienced
Probable	Will occur several times in the life of an item	Experienced several times
Occasional	Likely to occur sometime in the life of an item	Experienced
Remote	Unlikely but possible to occur in the life of an item	Unlikely that it has been experienced
Improbable	So unlikely that it can be assumed occurrence may not be experienced	Not experienced

The hazard’s severity is made up of three separate factors: the extent of the potentially affected geographic area, the primary impacts of the hazard event, and any cascading (or secondary) effects. While primary impacts are a direct result of the hazard, secondary impacts can only arise subsequent to a primary impact. For example, a primary impact of a flood may be road closures due to submerged pavement. A possible secondary impact in such an incident would be restricted access of emergency vehicles due to a road closure.

Severity calculations, on the whole, were less exact. The median and various averages were calculated as outlined above for probability. The figures used for the severity calculations, however, were estimates with no mathematical basis. Loss figures presented with NCDCE Event Records, local official recollections, and the loss estimates for each hazard presented in previous versions of each individual county’s hazard mitigation plans were used to compare severity. Percentages were again used.

As with probability, severity classifications were made. Table II-6 lists the severity classifications that were considered. Percentage assignments were as follows:

- 0-25%: Negligible
- 26-50%: Marginal
- 51-75%: Critical
- 76-100%: Catastrophic



**TABLE II-6  
HAZARD SEVERITY CLASSIFICATIONS**

DESCRIPTION	MISHAP 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

Figure II-2 combines the probability and severity information into a “risk assessment matrix” that generalizes the potential impact of each hazard included in the plan. This is the figure that was re-formatted into a bar graph as described below.

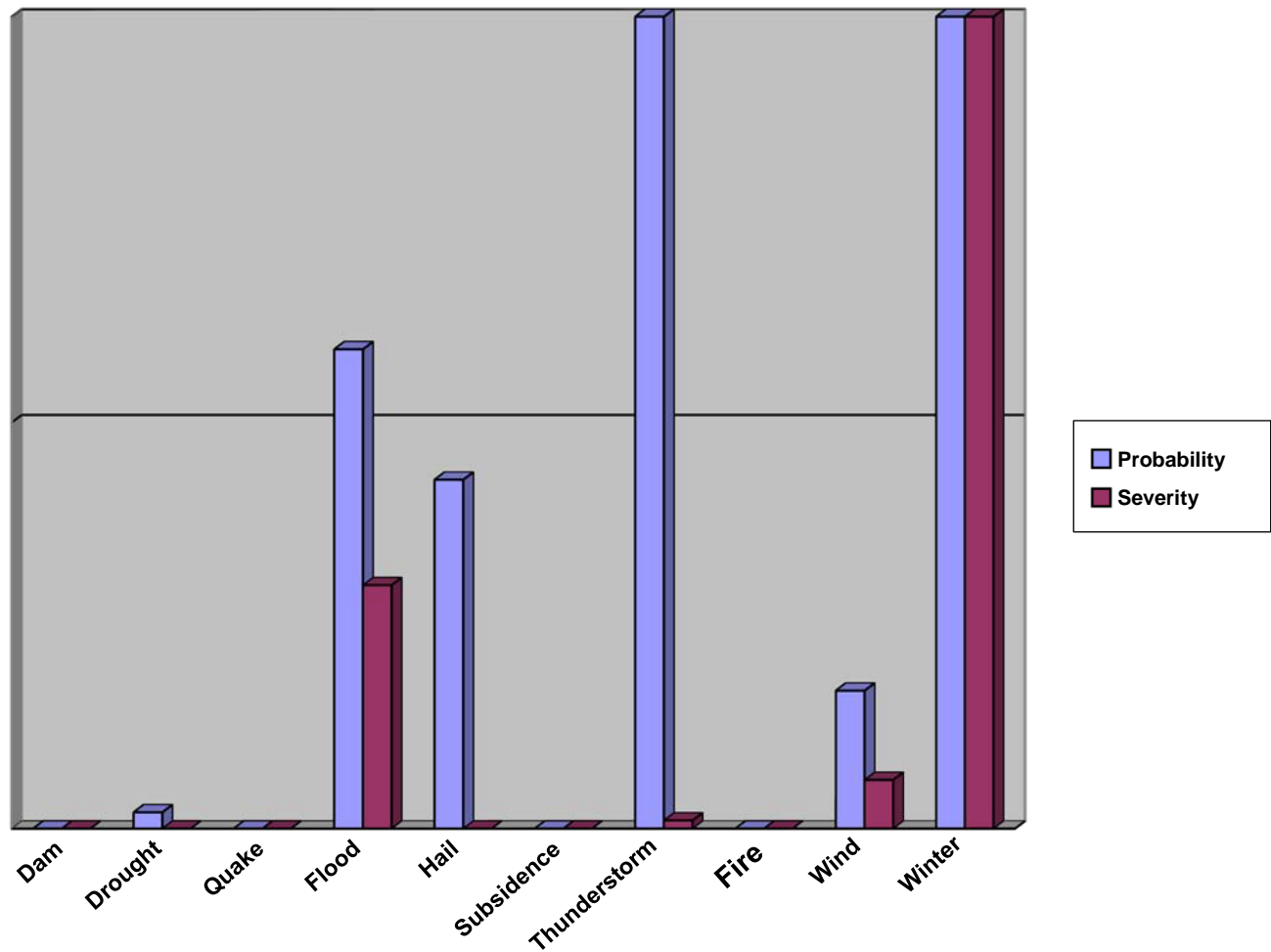
**FIGURE II-2  
RISK ASSESSMENT MATRIX**

HAZARD SEVERITY	HAZARD PROBABILITY				
	FREQUENT	PROBABLE	OCCASIONAL	REMOTE	IMPROBABLE
Catastrophic	Winter Storm				
Critical			Flooding		
Marginal				Wind	
Negligible	Thunderstorm		Hailstorm		Dam Failure, Drought, Earthquake, Land Subsidence, Wildfire

Figure II-3 (p. 14) was created to enhance the usability of the plan. It provides a more holistic snapshot of risk in terms of probability and severity in a format that is more familiar to most readers of this plan. To create the bar graph, the following approximations were used.

- Probability
  - Frequent = 4
  - Probable = 3
  - Occasional = 2
  - Remote = 1
  - Improbable = 0
- Severity
  - Catastrophic = 4
  - Critical = 3
  - Marginal = 2
  - Negligible = 1

**FIGURE II-3  
PROBABILITY/SEVERITY CHART**



## 2. Inventorying Assets

This risk assessment identifies “at-risk” community assets such as critical facilities, critical infrastructure, historical properties, commercial/industrial facilities, etc. “Assets” contribute directly to the quality of life throughout the region 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 core planning committee maintains a specific list of community assets as part of this plan. (NOTE: Individual jurisdictions may also maintain these types of lists for their own areas.) Assets were grouped into the following categories.

- **Critical Facilities:** Governmental facilities, water/wastewater facilities, dams, emergency services facilities, medical facilities (hospitals/clinics), military facilities, 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

While compiling the inventory, much information can be gathered that could assist in estimating the impact that the loss of each asset could have on the community. Each specific asset is listed with its size, replacement value (structure only), contents value, function use or value (annual operating budget), displacement cost (\$ per day), and occupancy. Following is a brief description of how the above numbers are derived.

- **Size:** County assessor data or by directly contacting the facility
- **Replacement Value:** County assessor data or by directly contacting the facility
- **Contents Value:** Directly contacting the facility

- **Function Use or Value:** Directly contacting the facility
- **Displacement Cost:** Function Use or Value divided by 365
- **Occupancy:** Directly contacting the facility

Appendix E lists the assets identified throughout Region VI. This matrix is loosely derived from Worksheet #3b in the FEMA 386-2, *State and Local Mitigation Planning How-To Guide: Understanding Your Risks* document.

## B. 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.

The section above identifies which hazards affect the jurisdictions in Region VI, but it does not explain *how* these hazards affect them. To do so, “profiles” have been developed for each hazard identified in Section II.A. The profile describes how each hazard manifests itself in each of the Region VI counties.

Each of the ten profiles below contains estimated losses as a result of the hazard being profiled. All loss estimates were calculated in the same manner, which is as follows. Calculations followed the guidance provided by Worksheet #4 from FEMA 386-2, *State and Local Mitigation Planning How-To Guide: Understanding Your Risks*. The data from which loss estimates are derived are taken from the specific asset inventory listing. For instance, structural loss is a function of the total replacement value, contents loss a function of the total contents value, and so on. Loss estimates are calculated on an asset-by-asset basis and totaled for each hazard identified in Section II.A, Hazard Identification.

Structural loss is determined by multiplying the structural replacement value of each community asset by an estimated percent damage. The damage estimate is based on historical hazard events (e.g., damage actually sustained by a facility or damage sustained by nearby facilities). The summation of the resulting loss to each structure represents the “worst-case scenario” (WCS) total structural loss potential for that hazard on an area-wide basis.

Contents loss is determined in much the same way as structural loss (i.e., the contents value figure for each asset is multiplied by an estimated damage percentage). Again, the resulting losses are totaled for an area-wide loss estimate.

Structure use and function loss is the most detailed calculation completed during the loss estimate phase. The average daily operating costs are multiplied by the estimated number of days the facility could be inoperable and added to any costs incurred for relocation, etc. Again, loss figures for each of the community assets are totaled for an area-wide, “worst-case” scenario structure use and function loss for each hazard.

The total hazard-related loss for each individual hazard is calculated by simply adding the structural, contents, and structure use/function losses. Reference copies of FEMA 386-2 Worksheets #3a and #4 in Appendix F provide total hazard-related loss estimates for each county.

## 1. Dam Failure

A dam failure is when downstream flooding occurs as the result of the complete or partial inundation of an impoundment.

<b>Period of Occurrence:</b>	At any time
<b>Number of Events to Date (2000-2017):</b>	0
<b>Probability of Event:</b>	Infrequent – Dams that fail typically have some deficiency that causes the failure that should be detected by regular inspections and subsequently repaired. Heavy rains or moderate earthquakes may trigger a dam failure.
<b>Warning Time:</b>	Minimal – Depends on frequency of inspection
<b>Potential Impacts:</b>	Potential loss of human life, economic loss, environmental damage, disruption of lifeline facilities
<b>Cause Injury or Death:</b>	Injury and risk of multiple deaths
<b>Potential Facility Shutdown:</b>	30 days or more
<b>RESEARCH SOURCES</b> <ul style="list-style-type: none"> <li>• WVDEP Dam Safety</li> <li>• Interviews with Local Officials</li> </ul>	

## a. Hazard Effects

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:** Hydraulic failures result from the uncontrolled flow of water over, 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:** 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.

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.

The WVDEP classifies dams into the following four categories.

- **Class 1 (High Hazard):** Dams located 1) where failure may cause loss of human life or major damage to dwellings, commercial or industrial buildings, main railroads, or important public utilities or 2) where a high-risk highway may be affected or damaged.
- **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.

**b. Hazard Profile**

There are numerous dam facilities throughout the region, some of which are more high profile than others. Table II-7 lists all of the dams in the region on which the WVDEP maintains information.

**TABLE II-7  
DAMS IN THE REGION VI AREA**

<b>DAM</b>	<b>COUNTY</b>	<b>STREAM</b>	<b>NEAREST TOWN OR COMMUNITY</b>
Crystal Lake	Doddridge	Middle Island Creek	Josephs Mills
Upper Salem Dam	Harrison	Dog's Run	Salem
Hinkle Lake	Harrison	Davisson Run	Bridgeport
Palmer Lake	Harrison	Simpson Creek	Meadowbrook
Consolidated Gas Co. Lake	Harrison	Upper Bingamon Creek	Wyatt
Lake Floyd Dam	Harrison	West Fork River	Salem
Lower Salem WS	Harrison	Salem Fork	Salem
Salem Fork #9	Harrison	Salem Fork	Salem
Clarksburg WS Dam	Harrison	Buffalo Creek	Clarksburg
Maple Lake	Harrison	Peddlers Run	Bridgeport
Neely Hollow Impoundment	Harrison	N/A	N/A
Lowe Impoundment	Harrison	N/A	Shinnston
Margaret Freshwater	Harrison	N/A	Joetown
Robinson Run Freshwater	Harrison	N/A	Shinnston
Upper Buffalo #33a	Marion	Flat Run	Mannington
Upper Buffalo #39	Marion	Llewellyn Run	Mannington

**TABLE II-7  
(CONTINUED)**

<b>DAM</b>	<b>COUNTY</b>	<b>STREAM</b>	<b>NEAREST TOWN OR COMMUNITY</b>
Upper Buffalo #16	Marion	Dent's Run	Mannington
Upper Buffalo #4	Marion	Owen Davy Run	Curtisville
Mannington Water Supply Dam	Marion	Dent's Run	Mannington
Laurel Run Lake	Marion	Laurel Run	Smithtown
Upper Buffalo #2	Marion	Buffalo Creek	Deep Valley
Rock Lake	Marion	Glady Creek	Hammond
O'Donne	Marion	N/A	Mannington
Llewellyn Impoundment	Marion	N/A	Mannington
Paradise Lake	Monongalia	Boyd Run	Three Fork Bridge
Wildwood Lake	Monongalia	Boyd Run	Three Fork Bridge
Cobun Creek Dam	Monongalia	Cobun Creek	Morgantown
Lynch Lake	Monongalia	Lil' Indian Creek	Osgood
Lake Lynn	Monongalia	Cheat River	Point Marion (PA)
Dogwood Lake	Monongalia	N/A	Crown
Bowley Mills	Monongalia	N/A	Mt. Morris (PA)
Lemley	Monongalia	N/A	Core
Pursglove Bailey	Monongalia	N/A	Morgantown
Blacksville #2	Monongalia	N/A	Wana
Morgantown Lock and Dam	Monongalia	Monongahela River	Morgantown
Hildebrand Lock and Dam	Monongalia	Monongahela River	Morgantown
Opekiska Lock and Dam	Monongalia	Monongahela River	Morgantown
Upper Deckers #3	Preston	Upper Deckers	Masontown
Preston Co.Light/Power Lake #2	Preston	Falls Run	Greer
Preston Co.Light/Power Lake #1	Preston	Falls Run	Greer
B & O Dam	Preston	Lil' Raccoon Creek	Newburg
Glady Run of Deckers # 2	Preston	Glade Run	Cascade
Glady Run of Deckers #1	Preston	Glade Run	Cascade
Upper Deckers #7	Preston	Deckers Creek	Masontown
Upper Deckers #6	Preston	Deckers Creek	Reedsville



**TABLE II-7  
(CONTINUED)**

<b>DAM</b>	<b>COUNTY</b>	<b>STREAM</b>	<b>NEAREST TOWN OR COMMUNITY</b>
Upper Deckers #4	Preston	Billan Run	Bretz
Upper Deckers #2	Preston	Laurel Run	Bretz
Upper Deckers #1	Preston	Deckers Creek	Arthurdale
Masontown Water Supply Dam	Preston	Back Run	Masontown
Ashpole Dam	Preston	Ashpole Run	Albright
Lake O'Woods Dam	Preston	Patterson Run	Laurel Run
Alpine Lake	Preston	Wardwell Run	Corinth
Upper Deckers #5	Preston	Canes Creek	Reedsville
Big Bear Lake	Preston	Beaver Creek	Bruceton Mills
Camp Roy Weler Lake	Preston	Big Sandy Creek	Bruceton Mills
Elmer Grimm Lake	Preston	N/A	Turner Douglas
Chippewa Lake	Preston	Laurel Run	Kingwood
Key Run Lake	Preston	Left Fork	Rowlesburg
Keyer Run Dam	Preston	Right Fork	Rowlesburg
Albright Bridge Dam	Preston	Cheat River	Albright
Fairfax Pond	Preston	Kanes Creek	Arthurdale
Terra Alta Lake	Preston	Snowy Creek	Terra Alta
Bruceton Mills Dam	Preston	Big Sandy Creek	Bruceton Mills
Tygart Dam	Taylor	Tygart River	Grafton

The perception of the dam failure risk varies from county to county; this perception is rooted in reality since the actual risk varies quite considerably. In Harrison County, the severity is considered “catastrophic” but the actual probability is considered low. In Harrison County, there are five dams that do not satisfy the requirements of the West Virginia Dam Safety Act. (NOTE: only the quantity was provided, not the actual names of the dams.) In Taylor County, the dam failure risk is perhaps the most “visible” with the presence of the Tygart Dam just outside of Grafton. Some of Preston County’s dams could cause minor damage if breached; in many cases, those dams are less than five miles away from the nearest community. For example, in the event

that the Masontown Water Supply Dam failed, it could result in minor damage to dwellings, public utilities, and roadways; however, loss of human life would be unlikely.

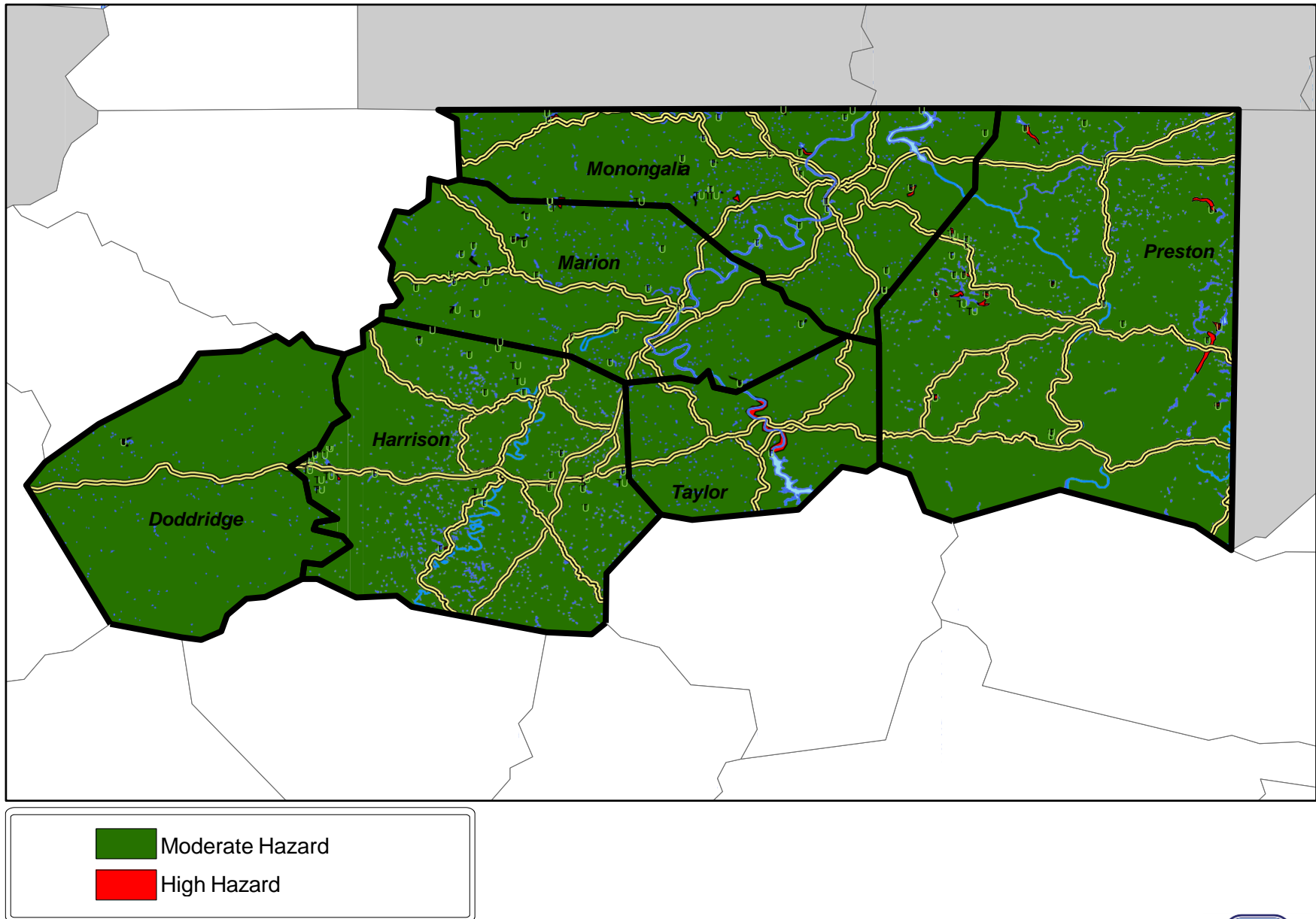
**TABLE II-8  
VULNERABLE STRUCTURES – DAM FAILURE**

COUNTY	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	AGRICULTURAL	RELIGIOUS	GOVERNMENT	EDUCATION	UTILITIES
Doddridge	25	0	0	2	1	0	0	0
Harrison	1,194	63	5	29	5	0	0	1
Marion	2,166	46	15	11	20	0	1	1
Monongalia	4,925	779	0	0	9	1	5	67
Preston	2,319	78	10	161	18	0	0	5
Taylor	91	3	0	6	1	0	0	3
<b>TOTALS</b>	<b>10,720</b>	<b>969</b>	<b>30</b>	<b>211</b>	<b>54</b>	<b>1</b>	<b>6</b>	<b>77</b>

**c. Loss Estimates**

In an effort to assist jurisdictional understanding of risks and implementation of strategies, loss estimates were done for each county (see Appendix E). By averaging those estimates, this plan assumes a total, regional loss estimate *per dam failure incident* to be as much as \$101,346,577. If all counties in the region were affected to the WCS level, as much as \$608,079,466 could be lost.

**FIGURE II-4  
VULNERABILITY TO DAM FAILURE**



## 2. Drought

Drought is an extended period of deficient rainfall relative to the statistical mean for a region.

<b>Period of Occurrence:</b>	Summer months or extended periods with no precipitation
<b>Number of Events to Date (1999-2017):</b>	15
<b>Probability of Event:</b>	Infrequent – Small-scale droughts occur frequently, but events causing major disruption and economic loss are infrequent
<b>Warning Time:</b>	Weeks
<b>Potential Impacts:</b>	Activities that rely heavily on high water usage (including agriculture, tourism, wildlife protection, municipal water usage, commerce, recreation, electric power generation, and water quality deterioration) may be impacted significantly. Droughts can lead to economic losses such as unemployment, decreased land values, and agribusiness losses. There is minimal risk of damage or cracking to structural foundations, due to soils.
<b>Cause Injury or Death:</b>	None
<b>Potential Facility Shutdown:</b>	None
<b>RESEARCH SOURCES</b>	
<ul style="list-style-type: none"><li>• NCDC Event Records</li></ul>	

### a. Hazard Effects

Droughts are defined according to meteorological, hydrological, and agricultural criteria. Any significant deficit of precipitation is categorized as meteorological. Hydrological drought is apparent in noticeably reduced river and stream flow and critically low groundwater tables. Agricultural drought indicates an extended dry period that results in crop stress and harvest reduction.

The Palmer Drought Severity Index (PDSI) is widely used throughout the United States as a measure of drought and to track moisture conditions. The PDSI is defined as:

“an interval of time, generally in months or years in duration, during which the actual moisture supply at a given place rather consistently falls short of the climatically expected or climatically appropriate moisture supply”.

The range of the PDSI is from -4.0 (extremely dry) to +4.0 (excessively wet) with the central half (-2.0 to +2.0) representing normal or near-normal conditions.

**b. Hazard Profile**

A drought could have a significant impact to the economy of Region VI, as all counties are home to agricultural activity. Further, a number of historical droughts have been recorded. For example, Doddridge, Harrison, and Taylor Counties were among the 41 West Virginia counties to be designated an “agricultural disaster area” by the U.S. Department of Agriculture (USDA) between January 1 and November 19, 2002.

**TABLE II-9  
AGRICULTURE IN REGION VI COUNTIES**

<b>COUNTY</b>	<b>NUMBER OF FARMS</b>	<b>MARKET VALUE OF PRODUCTS SOLD</b>	<b>PERCENT CHANGE IN VALUE FROM 2007</b>
Doddridge	352	\$2,271,000	+31
Harrison	778	\$9,541,000	+39
Marion	557	\$2,434,000	-9
Monongalia	458	\$4,023,000	+31
Preston	1,084	\$18,156,000	+33
Taylor	404	\$3,728,000	-40
<b>TOTALS</b>	<b>3,633</b>	<b>\$40,153,000</b>	

USDA Census of Agriculture, 2012

As with many hazards, determining specific risk and vulnerability areas for drought is difficult. Drought is an “overall” hydrologic condition; that is, if one small area was without precipitation but a nearby area was not, it would be difficult to classify the entire area as “in a drought” due to the eventual seepage of said precipitation to the overall groundwater supply. Consequently, drought is said to affect the entire region evenly.

Drought could also significantly affect the drinking water supply throughout the Region VI area. A number of households rely on wells for drinking water. The following estimates represent the percent of households per county that rely on wells.

- Doddridge (82%)
- Harrison (12%)
- Marion (7%)
- Monongalia (7%)
- Preston (55%)
- Taylor (20%)

**c. Loss Estimates**

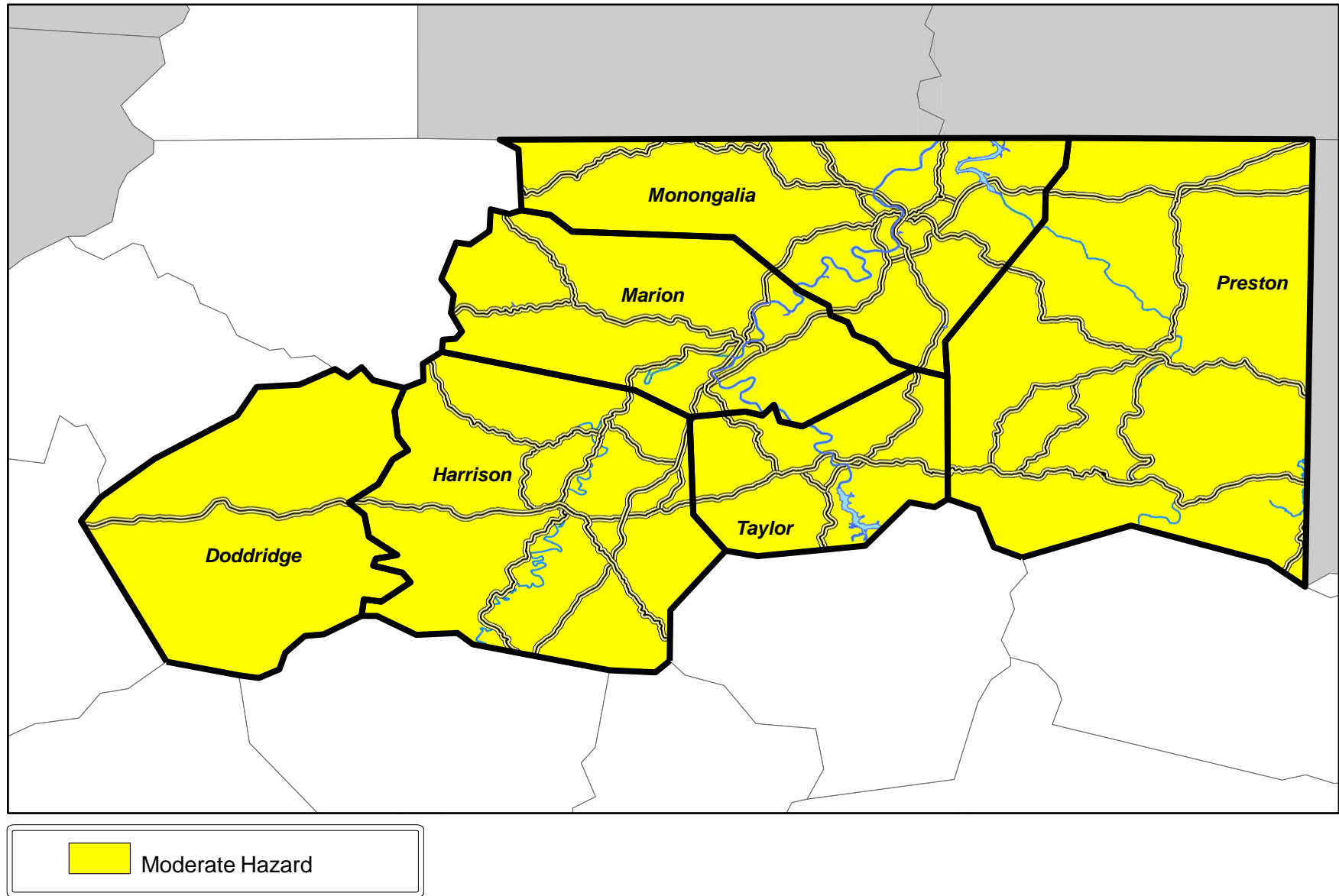
To show drought's impact on the region, though, Table II-10 depicts historical drought losses (*Source: NCDC Event Records*) as well as each county's estimate of WCS drought losses for the period 1999 to 2017.

**TABLE II-10  
HISTORICAL DROUGHT OCCURRENCES AND LOSSES**

COUNTY	NUMBER OF DROUGHTS	ESTIMATED LOSSES
Doddridge	8	\$0
Harrison	7	\$0
Marion	2	\$0
Monongalia	2	\$0
Preston	2	\$0
Taylor	8	\$0
<b>TOTALS</b>	<b>29*</b>	<b>\$0*</b>
Average per Incident: \$0 (actual); \$0 (estimated WCS)		

NOTE: These are likely the same instances.

**FIGURE II-5  
VULNERABILITY TO DROUGHT**



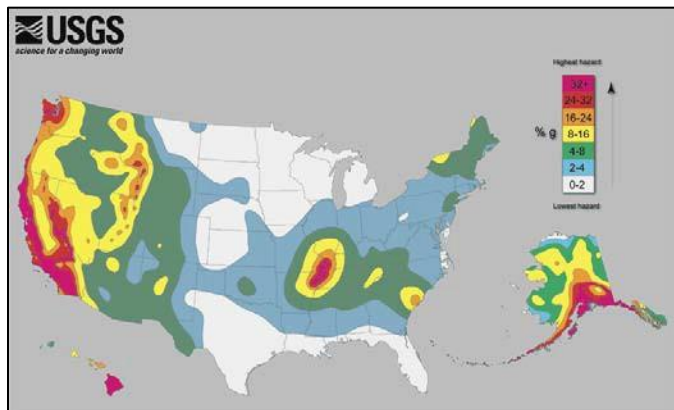
### 3. Earthquake

An earthquake is a sudden motion or trembling that is caused by a release of strain accumulation within or along the edge of the Earth's tectonic plates.

<b>Period of Occurrence:</b>	At any time
<b>Number of Events to Date (1950-2017):</b>	0 Epicenters; 2 Events
<b>Probability of Event:</b>	Infrequent
<b>Warning Time:</b>	None
<b>Potential Impacts:</b>	According to FEMA, areas with a PGA of 2 to 4 (0.02 to 0.04) will incur little to no damage with no function loss
<b>Cause Injury or Death:</b>	Minor risk of injury
<b>Potential Facility Shutdown:</b>	None
<b>RESEARCH SOURCES</b> <ul style="list-style-type: none"> <li>• USGS</li> <li>• Internet Research (<a href="http://www.earthquake.gov">http://www.earthquake.gov</a>)</li> </ul>	

#### a. Hazard Effects

An earthquake's sudden release of stored energy may manifest itself by shaking or displacing the ground. The severity of these effects is dependent on the amount of energy released from the fault (or epicenter) of the quake. The effects of an earthquake can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and, after just a

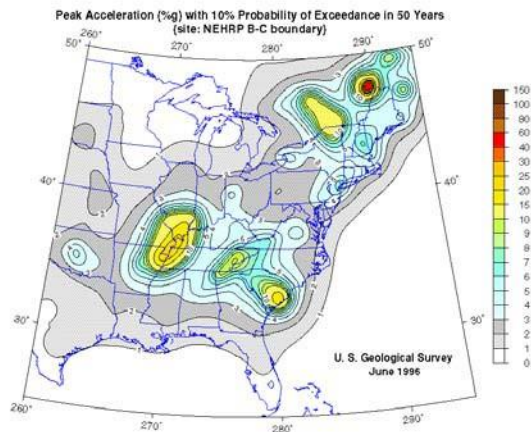


few seconds, can cause massive damage and extensive casualties. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure. PGA is a measure of strength of ground movements. The PGA measures the rate in change of motion relative to the established rate of acceleration due to gravity.



## b. Hazard Profile

The map provided by the USGS (shown below) depicts the PGA values for areas with a 10% chance of being exceeded over the next 50 years. West Virginia does have an earthquake



risk as it is located in the 2 and 3%g area. All of the counties in Region VI are located in the lower risk areas of eastern West Virginia. PGA values for each of Region VI's counties are listed as between 2 (0.02) and 3 (0.03). These approximate values were determined by estimating the PGA values shown by the figure on the left. FEMA states that areas with these PGAs are considered to have a low to moderate earthquake risk. As such, earthquake vulnerability is rated "low."

The Central and Southeast United States region covers a large area of relatively diffuse, low-rate seismicity. Principal areas of activity include the New Madrid Seismic Zone of the central Mississippi Valley and the Southern Appalachian Seismic Zone, extending from Virginia to Alabama. These areas of continued seismic activity increase the likelihood of Region VI's counties experiencing or being affected by an earthquake at some point in time. This assumption proved true, as a small earthquake (magnitude 2.9) occurred in April 2010 near the Town of Man in Logan County (south of Region VI). A second small earthquake (magnitude 2.8) also occurred in April near Sutton in Braxton County, again to the south of the region. It is also significant to note that a 5.0-magnitude earthquake on the Ontario-Quebec border in Canada in June 2010 caused noticeable shaking in areas as far south as Morgantown.

The most high-profile earthquake event to occur near northcentral West Virginia occurred in August 2011. A magnitude 5.8 earthquake centered in Louisa, Virginia, shook structures throughout West Virginia, Pennsylvania, Virginia, Maryland, and New York. Damage to structures such as the National Cathedral and the Washington Monument were noted in Washington, D.C. Evacuations occurred in Washington, D.C. as well as in New York City because the general population was not accustomed to experiencing an earthquake of that magnitude.

Since 2012, there have been no earthquake epicenters within Region VI. Some small-magnitude quakes have occurred in southern West Virginia; however, there are no records that these events were felt in the northcentral region of the state. In January 2016, a 3.0 magnitude earthquake hit near the borders of Virginia, West Virginia, and Maryland. This quake was felt up

to 28 miles away in Martinsburg, West Virginia, but again was most likely not felt by residents in Region VI.

### c. **Loss Estimates**

The somewhat random historical occurrences of earthquakes would indicate that all structures throughout Region VI's counties are equally at risk from earthquakes. The severity of those earthquakes, though, is expected to be very low (according to FEMA's 386-2 document). Given this low severity, the per-incident loss estimate is calculated at \$24,637,700 *for the entire region*.

The 2017 HAZUS analysis for earthquakes in Region VI indicates a low risk for the entire region. (NOTE: the full HAZUS reports are included in Appendix G.) The analysis also shows that communities towards the western portion of the region are at greater risk, which essentially emulates the propagation of ground waves from the higher incidence of faults to the southwest (New Madrid Seismic Zone). HAZUS methodology includes eight probabilistic hazard levels ranging from ground shaking with a 39% probability of being exceeded in 50 years (100-year return period) to the ground shaking with a 2% probability of being exceeded in 50 years (2,500-year return period). The Probabilistic Hazard assumes a magnitude earthquake of 7.0 and includes multiple frequency event analyses of 100-, 250-, 500-, 750-, 1,000-, 1,500-, 2,000-, and 2,500-year events. The HAZUS Quick Assessment Report indicates less than 20 casualties at all the times analyzed (2:00 A.M., 2:00 P.M., and 5:00 P.M.) in all four casualty categories (Severity Level 1 to Level 4) where severity levels are defined as:

- **Level 1** – Injuries will require medical attention, but hospitalization is not needed
- **Level 2** – Injuries will require hospitalization but are not considered life-threatening
- **Level 3** – Injuries will require hospitalization and can become life-threatening if not promptly treated
- **Level 4** – Victims are killed by the earthquake

Table II-11 shows annualized loss estimates by municipality (HAZUS does not include tables of losses for each of the individual frequency events and only reports the annualized estimate of economic loss). As is expected, the spatial pattern of loss is found in and around major regional

population centers; namely the Region's cities: City of Bridgeport, City of Clarksburg, City of Fairmont, City of Morgantown, City of Grafton, and City of Kingwood.

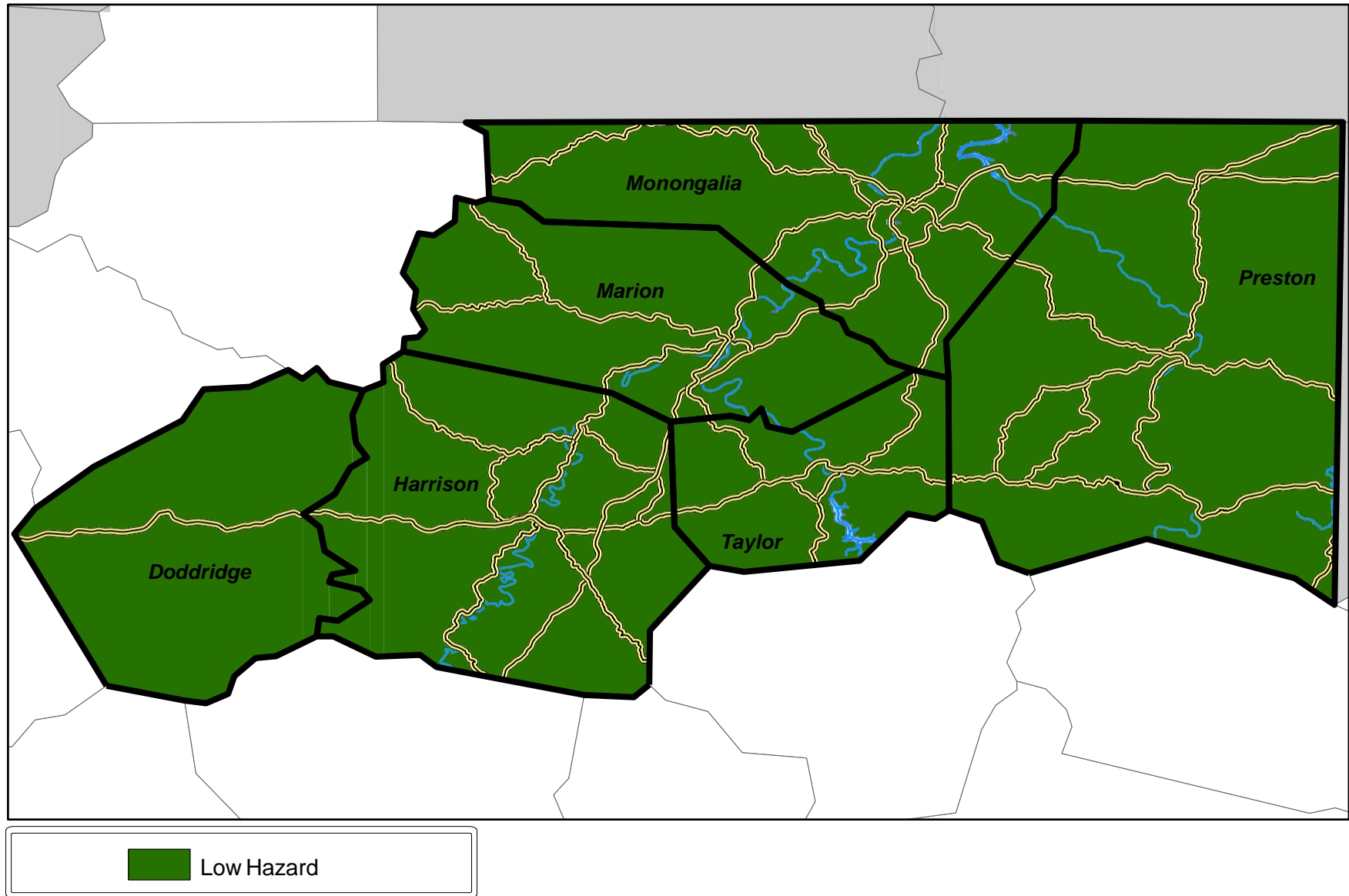
**TABLE II-11  
EARTHQUAKE TOTAL ANNUALIZED LOSSES BY COMMUNITY  
(SORTED AND RANKED BY DOLLAR LOSS)**

CID	COMMUNITY NAME	COUNTY	ANNUALIZED TOTAL LOSSES FOR EARTHQUAKE HAZARD			
			TOTAL INVENTORY		ANNUALIZED (\$/YR)	
			ESTIMATED VALUE	% OF TOTAL	DOLLAR LOSSES	LOSS RATIO
540139	Monongalia County, Unincorp.	Monongalia	\$10,592,719,998	22%	\$43,796	0.00041%
540053	Harrison County, Unincorp.	Harrison	\$7,639,696,880	16%	\$39,665	0.00052%
540097	Marion County, Unincorp.	Marion	\$6,354,152,911	13%	\$28,338	0.00045%
540141	City of Morgantown	Monongalia	\$5,644,829,160	12%	\$23,816	0.00042%
540160	Preston County, Unincorp.	Preston	\$4,992,027,181	11%	\$21,637	0.00043%
540099	City of Fairmont	Marion	\$2,910,794,937	6%	\$13,698	0.00047%
540056	City of Clarksburg	Harrison	\$2,035,249,075	4%	\$11,125	0.00055%
540188	Taylor County, Unincorp.	Taylor	\$2,402,428,212	5%	\$11,120	0.00046%
540055	City of Bridgeport	Harrison	\$1,782,662,872	4%	\$8,540	0.00048%
540024	Doddridge County, Unincorp.	Doddridge	\$1,077,986,176	2%	\$6,323	0.00059%
540292	City of Pleasant Valley	Marion	\$418,673,249	<1%	\$1,984	0.00047%
540060	City of Shinnston	Harrison	\$280,351,201	<1%	\$1,366	0.00049%
540272	Town of Granville	Monongalia	\$254,675,525	<1%	\$1,036	0.00041%
540274	City of Westover	Monongalia	\$212,509,715	<1%	\$912	0.00043%
540273	Town of Star City	Monongalia	\$189,368,077	<1%	\$792	0.00042%
540061	Town of Stonewood	Harrison	\$124,825,899	<1%	\$659	0.00053%
540254	City of Kingwood	Preston	\$115,430,271	<1%	\$527	0.00046%
540059	Town of Nutter Fort	Harrison	\$94,259,345	<1%	\$489	0.00052%
540190	City of Grafton	Taylor	\$63,357,354	<1%	\$303	0.00048%
540242	City of Salem	Harrison	\$49,298,978	<1%	\$270	0.00055%
540054	Town of Anmoore	Harrison	\$39,190,335	<1%	\$227	0.00058%
545556	Town of White Hall	Marion	\$44,494,380	<1%	\$195	0.00044%
540103	City of Mannington	Marion	\$27,847,809	<1%	\$123	0.00044%
540098	Town of Barrackville	Marion	\$23,008,653	<1%	\$95	0.00041%
540104	Town of Monongah	Marion	\$19,702,070	<1%	\$87	0.00044%
540057	Town of Lost Creek	Harrison	\$16,238,335	<1%	\$85	0.00052%
540106	Town of Worthington	Marion	\$18,156,996	<1%	\$81	0.00045%

**TABLE II-11  
(CONTINUED)**

CID	COMMUNITY NAME	COUNTY	ANNUALIZED TOTAL LOSSES FOR EARTHQUAKE HAZARD			
			TOTAL INVENTORY		ANNUALIZED (\$/YR)	
			ESTIMATED VALUE	% OF TOTAL	DOLLAR LOSSES	LOSS RATIO
540105	Town of Rivesville	Marion	\$10,227,195	<1%	\$42	0.00041%
540102	Town of Grant Town	Marion	\$9,476,459	<1%	\$39	0.00041%
540269	Town of Reedsville	Preston	\$8,370,059	<1%	\$36	0.00043%
540101	Town of Farmington	Marion	\$7,640,817	<1%	\$34	0.00044%
540257	Town of Terra Alta	Preston	\$6,532,883	<1%	\$27	0.00042%
540058	Town of Lumberport	Harrison	\$4,697,724	<1%	\$24	0.00051%
540163	Town of Rowlesburg	Preston	\$5,039,553	<1%	\$23	0.00047%
540268	Town of Newburg	Preston	\$4,367,210	<1%	\$20	0.00045%
540062	Town of West Milford	Harrison	\$3,242,629	<1%	\$18	0.00056%
540189	Town of Flemington	Taylor	\$3,550,044	<1%	\$17	0.00048%
540100	Town of Fairview	Marion	\$3,065,415	<1%	\$13	0.00043%
540270	Town of Masontown	Preston	\$2,935,591	<1%	\$12	0.00042%
540025	Town of West Union	Doddridge	\$1,865,116	<1%	\$11	0.00060%
540284	Town of Brandonville	Preston	\$2,446,966	<1%	\$10	0.00041%
540161	Town of Albright	Preston	\$2,418,746	<1%	\$10	0.00040%
540137	Town of Tunnelton	Preston	\$1,894,538	<1%	\$9	0.00046%
540140	City of Blacksville	Monongalia	\$1,588,443	<1%	\$7	0.00042%
540162	Town of Bruceton Mills	Preston	\$345,065	<1%	\$1	0.00041%
<b>WVPCD6 Total</b>			<b>\$47,503,640,050</b>	<b>N/A</b>	<b>\$217,643</b>	<b>0.00046%</b>

**FIGURE II-6  
VULNERABILITY TO EARTHQUAKE**



#### 4. Flooding

Flooding is defined as a general temporary condition of partial or complete inundation of normally dry land areas from overflow of inland or tidal waters, unusual and rapid accumulation of runoff of surface water from any source, mudflows, or the sudden collapse of shoreline land. A flash flood is a rapid flooding of low-lying areas, rivers, and streams that is caused by intense rainfall and is often associated with thunderstorms.

<b>Period of Occurrence:</b>	<b>Monongahela River</b> – Primarily January through May (history shows incidents occurring year-round) <b>Flash Flood</b> – At any time depending on recent weather conditions <b>Result of Dam Failure</b> – At any time
<b>Number of Events to Date (1993-2017):</b>	317
<b>Probability of Event:</b>	Frequent
<b>Warning Time:</b>	<b>River Flood</b> – 3 to 5 days <b>Flash Flood</b> – Minutes to hours <b>Dam Failure</b> – None
<b>Potential Impacts:</b>	<ul style="list-style-type: none"> <li>• Impacts to human life, health, and public safety</li> <li>• Utility damage and outages, infrastructure damage (transportation and communication systems), structural damage, fire, damaged or destroyed critical facilities, and hazardous material releases</li> <li>• Can lead to economic losses such as unemployment, decreased land values and agribusiness losses</li> <li>• Floodwaters are a public safety issue due to contaminants and pollutants</li> </ul>
<b>Cause Injury or Death:</b>	Injury and moderate risk of death
<b>Potential Facility Shutdown:</b>	Days to Weeks
<b>RESEARCH SOURCES</b> <ul style="list-style-type: none"> <li>• NCDC Event Records</li> <li>• Interviews with Local Officials</li> </ul>	

##### a. Hazard Effects

Flooding is arguably the highest priority hazard in all six counties throughout the region (as is the case in most of West Virginia). The counties are susceptible to flooding largely due to physical geography, which includes several rivers and creeks as well as varied topography. The worst floods usually occur when a river overflows its banks. Periodic floods occur naturally on

most rivers, forming an area known as a “floodplain.” With enough rainfall, the rivers and creeks will rise up to and over the floodplain, thus causing a flood.

Flash flooding is also a common concern throughout the region. Historical occurrences can indicate where flash flooding will strike, but it is somewhat more unpredictable than riverine flooding. Flash flooding can be a result of an overloaded stormwater management system, a washed-out creek bed, water rushing off of a hill or mountain, etc. In some cases, flash floods result in great damage because areas that are not in identified floodplains (and are thus not prepared for potential flooding) are affected.

#### **b. Description of Existing Flood Hazard and Identification of Flood Risk**

All of the Region VI counties have an extensive history of flooding. See the following county-specific discussions.

- **Doddridge County:** Communities located along the banks of Middle Island Creek are in particularly low-lying areas. The Town of West Union is an example of such an area.

One of the worst flash flood events in West Virginia’s history was determined to occur during June 24 to 26, 1950. A six-county region was impacted, including Doddridge County. According to the *Charleston Gazette*, torrential rains produced seven to eight inches of rain in just five hours. The total rainfall recorded was greater than 13 inches. A total of 33 fatalities were recorded in the region, and 1,000 families were left homeless. This flood was determined to be the fifth deadliest flood in the State of West Virginia and caused \$10,000,000 (approximately \$102,000,000 today) in damage.

According to a NOAA Event Record dated June 19, 1998, two rounds of early morning thunderstorms caused one to four inches of rain. There were three maximum rain areas, one of which included West Union. Middle Island Creek overflowed its banks, resulting in some private property damage in West Union and Big Isaac. The flash flooding prompted county emergency management officials to attempt evacuations in some areas of the county.

According to a National Oceanic and Atmospheric Administration (NOAA) Event Record dated May 23, 2003, rains of approximately two inches fell in less than two hours near the community of Nina, causing Greenbrier Fork to overflow its banks and resulting in wide-spread basement flooding. *The Herald Record*, Doddridge County's local newspaper, reported major flooding events in 1985 and 2000. According to the West Virginia State Police, the final death toll in 1985 was 47 and the property damage exceeded \$500 million across West Virginia.



According to a NOAA Event Record dated February 29, 2012, a warm front brought 2.5 to 3 inches of rain within 24 hours to parts of Doddridge County as well as other counties in Region VI, causing \$200,000 in property damage. This event (combined with an event on March 2, 2012) prompted a federal disaster declaration.

- **Harrison County:** The Harrison County Planning Commission indicates that there are entire communities in Harrison County located within the floodplain. A 100-year storm event may affect several critical facilities, including the Wallace Volunteer Fire Department, Bridgeport Fire Department (Station 1), Clarksburg Wastewater Treatment Plant, and access to the Veterans Administration (VA) hospital in Clarksburg.

There have been 57 flood events reported to the NCDRC in Harrison County since 1996. The flash flood event on February 29, 2012 (mentioned above) resulted in \$475,000 in damage in Harrison County.

- **Marion County:** Marion County has a long history of flooding. A total of 64 floods have been reported to the NCDRC since 1996. Collectively, these floods have caused one death. Flooding has accounted for in excess of \$1,316,000 in damage over the past decade. Major floods occurred in 2007, 2008, 2009 and 2012. Smaller, but significant, floods causing significant damage occurred earlier in 2007.

Several areas in Marion County have repeated flooding problems. The City of Mannington receives frequent flooding due to its proximity to where Flat Run River and Buffalo Creek intersect. The entire central business district of the town is listed within the 100-year floodplain. The southeastern portions of the corporate limits are not in the flood zone.

- **Monongalia County:** Several areas in Monongalia County have repeated flooding problems. The Pennsylvania Avenue area of Westover experiences flooding on a regular basis, as does the Sabraton area of Morgantown. Several communities (including Sabraton) along Decker's Creek (such as Dellslow) routinely experience flooding. Other communities in the western portions of the county (such as Osage, Madsville, Blacksville, and Wadestown) could be susceptible to the hazard.
- **Preston County:** There have been 77 flood events recorded in Preston County between 1996 and 2017. Flooding continues to be a frequent and damaging natural disaster as a result of the Cheat River, Big Sandy Creek, and their many tributaries. Flooding is the second most costly natural hazard in Preston County and has resulted in approximately \$1,416,000 in property damage over the past 30 years.

According to a NOAA Event Record dated January 19, 1996, the Cheat River (in the northern mountains of West Virginia and one of the flashiest rivers in the country) was the first river to reach flood stage in a wide-spread flood event. The Cheat River began a rapid rise on the night of the January 18 due to snow melt, as up to 25 inches of snow was in place before rain fueled the rise, culminating in near-record flooding in Rowlesburg as the river crested at 24.2 feet, 8.2 feet above its 16-foot flood stage.



According to a NOAA Event Record dated July 29, 2001, heavy thunderstorm rains forced several creeks in Preston County out of their banks at several different locations (including Rowlesburg and Terra Alta). In Etam, Buffalo Creek overflowed its banks, producing roadway and basement flooding. In the far southern portion of the county, 13 campers had to be rescued from the Cheat River by a U.S. Army UH60 helicopter. The campers had set up on a small, one-acre island (known as Seven Islands) which is accessible only by a low-water bridge which was flooded out as the Cheat River started rising quickly.

Preston County was also impacted by the February 29, 2012, flooding. Many roads were made impassable by fast-moving floodwaters and mudslides. Property damage of \$40,000 was reported for Preston County as a result of this event.

- **Taylor County:** The *Times West Virginian* (a newspaper serving Taylor County) reported major flooding events in 1985, 1996, and 2000. Additionally, several minor flooding events have occurred between those dates and are listed below. According to records from the NOAA Event Record Database, the months when the most flooding occurs in Taylor County are June (with eight reported floods from 1996 to present) and September (with four reported floods). There have been 27 reported flood events in Taylor County since 1996.

Taylor County also experienced major flooding from the February 29, 2012, event. A total of \$400,000 in property damage was reported according to the NCDC Event Records.

Table II-12 lists the number of flooding events faced in the counties since 1993 as well as the reported damage and any injury/death information.

**TABLE II-12  
HISTORICAL FLOOD EVENTS IN REGION VI**

COUNTY	NUMBER OF EVENTS	REPORTED DAMAGE	INJURIES	DEATHS
Doddridge	27	\$2,309,000	0	0
Harrison	57	\$5,058,000	0	0
Marion	64	\$7,108,000	0	1
Monongalia	66	\$2,990,000	0	0
Preston	77	\$1,416,000	0	0
Taylor	27	\$2,110,000	0	0
<b>TOTALS</b>	<b>318</b>	<b>\$20,991,000</b>	<b>0</b>	<b>1</b>

**c. NFIP Compliance**

Table II-13 identifies the jurisdictions in Region VI that participate in the National Flood Insurance Program (NFIP).

**TABLE II-13  
NFIP PARTICIPATION STATUS**

JURISDICTION	COMMUNITY ID #	DATE OF ENTRY	CURRENT EFFECTIVE MAP	POLICIES IN FORCE*	INSURANCE IN FORCE (\$)*	WRITTEN PREMIUMS IN FORCE (\$)*
<b>Doddridge County</b>	540024	03/18/91	10/04/11	53**	6,425,600**	37,325**
West Union, Town of	540025	03/18/91	10/04/11	7	710,600	4,148
<b>Harrison County</b>	540053	07/04/88	10/02/12	135**	20,049,700**	108,880**
Anmoore, Town of	540054	09/03/80	10/02/12	1	395,000	3,665
Bridgeport, City of	540055	03/04/88	10/02/12	66	13,295,700	115,269
Clarksburg, City of	540056	02/15/78	10/02/12	97	14,257,600	131,637
Lost Creek, Town of	540057	03/04/88	10/02/12	21	2,508,100	21,920
Lumberport, Town of	540058	03/04/88	10/02/12	6	518,400	9,947
Nutter Fort, Town of	540059	09/17/80	10/02/12	14	1,239,100	7,609
Salem, City of	540242	12/04/85	10/02/12	17	3,581,500	11,709
Shinnston, City of	540060	03/16/88	10/02/12	5	327,700	2,730
Stonewood, City of	540061	09/05/79	10/02/12	2	769,300	4,355
West Milford, Town of	540062	04/01/88	10/02/12	0	0	0
<b>Marion County</b>	540097	07/04/88	06/19/12	195**	30,080,100**	154,995**
Barrackville, Town of	540098	03/16/88	06/19/12	7	625,500	2,116
Fairmont, City of	540099	07/02/87	06/19/12	15	2,875,600	17,870
Fairview, Town of	540100	03/16/88	06/19/12	6	386,000	3,011
Farmington, Town of	540101	03/16/88	06/19/12	16	3,234,300	18,301
Grant Town, Town of	540102	03/04/88	06/19/12	1	36,700	759
Mannington, City of	540103	11/19/86	06/19/12	46	4,708,500	54,762
Monongah, Town of	540104	03/16/88	06/19/12	4	561,600	3,694
Pleasant Valley, City of	540292	03/29/04	06/19/12	7	1,120,500	8,806
Rivesville, Town of	540105	03/16/88	06/19/12	1	250,000	3,156
White Hall, Town of	N/A	N/A	N/A	N/A	N/A	N/A
Worthington, Town of	540106	03/16/88	06/19/12	12	1,327,700	13,516
<b>Monongalia County</b>	540139	05/01/84	01/20/10	147**	27,843,400**	136,421**
Blacksville, Town of	540140	12/26/78	01/20/10	2	58,000	691

**TABLE II-13  
(CONTINUED)**

JURISDICTION	COMMUNITY ID #	DATE OF ENTRY	CURRENT EFFECTIVE MAP	POLICIES IN FORCE*	INSURANCE IN FORCE (\$)*	WRITTEN PREMIUMS IN FORCE (\$)*
Granville, Town of	540272	12/15/83	01/20/10	4	1,196,900	4,520
Morgantown, City of	540141	08/01/79	01/20/10	75	18,993,500	141,275
Star City, Town of	540273	08/01/78	01/20/10	8	2,713,500	32,673
Westover, City of	540274	08/01/78	01/20/10	10	3,154,800	6,483
<b>Preston County</b>	540160	03/01/87	06/05/12	60**	12,704,200**	107,885**
Albright, Town of	540161	08/01/87	06/05/12	10	1,229,500	16,053
Brandonville, Town of	N/A	N/A	N/A	N/A	N/A	N/A
Bruceton Mills, Town of	540162	08/01/87	06/05/12	3	811,800	5,050
Kingwood, City of	540254	11/12/86	06/05/12	0	0	0
Masontown, Town of	540270	09/26/12	06/05/12	0	0	0
Newburg, Town of	540268	08/01/87	06/05/12	1	35,000	729
Reedsville, Town of	540269	08/01/87	06/05/12	2	200,000	2,076
Rowlesburg, Town of	540163	08/01/79	06/05/12	19	1,948,200	12,588
Terra Alta, Town of	540257	08/25/87	06/05/12	2	157,200	1,853
Tunnelton, Town of	540137	06/05/12	(NSFHA)	1	210,000	351
<b>Taylor County</b>	540188	07/01/87	08/02/11	20**	2,713,200**	15,530**
Flemington, Town of	540189	12/26/78	08/02/11	5	634,000	3,568
Grafton, City of	540190	08/01/87	09/25/09	27	3,353,200	27,429

\* As of January 31, 2017

\*\* Unincorporated areas of county only

Each jurisdiction has designated an “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 (and, consequently, the NFIP). The operations of the floodplain offices in Region VI are similar from jurisdiction to jurisdiction (*Sources*: Interviews with floodplain managers; existing mitigation plans). Generally, all provide three basic services: floodplain identification, floodplain management, and outreach.

FEMA recently developed an NFIP Survey to document the status of a jurisdiction’s NFIP compliance efforts. This survey can be used to track the overall program participation and level of NFIP involvement at the local level. For the purpose of this Hazard Mitigation Plan Update, two jurisdictions (i.e., Monongalia County and Morgantown City) were selected to complete the

NFIP Survey. These surveys are included in the appendices for reference purposes. Given the level of information that is captured in the NFIP Survey, it is recommended that one be completed for all the municipalities and counties in the Region VI area that participate in the NFIP Program.

#### **d. Floodplain Identification**

Throughout the region, the floodplain managers are the primary local contact for floodplain mapping. In many cases, they are responsible for using these maps to determine whether structures or proposed structures/developments are either in or out of the floodplain. Floodplain managers can provide information as to the “zone” (e.g., A, AE, etc.) a proposed development is located. Zone designations can affect insurance policies and rates.

Floodplain managers work with surveyors and engineers to assist the public with elevation certificates. This assistance includes putting those in need in contact with appropriate surveyors, providing access to certain forms (e.g., letter of map amendment, etc.), etc. Floodplain managers may also serve as a liaison with FEMA by collecting and submitting completed certificates.

Finally, on an as-needed basis, floodplain managers review updates to the flood maps themselves. This type of service is done to varying degrees throughout the region. As a follow-up to map review, floodplain managers work with their governing body to update the floodplain ordinance appropriately. In some jurisdictions, such maintenance is a joint approach.

It is significant to note that all counties in Region VI have adopted the most recent versions of the Flood Insurance Rate Map (FIRM) mapping for their jurisdictions. The West Virginia Flood Tool (found at <http://mapwv.gov/flood/>) provides important floodplain management and mapping information for residents and floodplain managers to use in making informed land use/development decisions with respect to known flood hazard areas. Additional information on the West Virginia Flood Tool is located in Appendix J.

#### **e. Floodplain Management**

In many ways, “floodplain management” is difficult to define. All floodplain managers work closely with their governing bodies to ensure that the floodplain ordinance is current and viable. Floodplain managers are responsible for enforcing the floodplain ordinance (usually through the floodplain identification tasks discussed above). Floodplain managers also keep records of all maps and certificates for their jurisdictions.

The coordinators for the six counties in the region also provide support to municipal floodplain coordinators. County and other municipal floodplain coordinators support these

municipalities with advice, technical assistance, quality control (i.e., a “second opinion”), etc. Further, many of the municipal jurisdictions throughout the region are small with part-time or volunteer government staff. County coordinators can support these efforts as well. Municipalities themselves, though, are responsible for providing the “ultimate say” for cases within their jurisdiction.

Municipal floodplain management is also closely related to the building permitting process. Many municipal coordinators indicated that determining whether a proposed project was in the floodplain was a part of their approval process.

**f. Outreach**

Finally, the floodplain coordinators serve as the points of contact for their jurisdiction’s residents regarding floodplain regulations. All coordinators indicated that they maintain the appropriate forms, contact lists for local surveyors and engineers, the most recent version of FIRM or D-FIRM information, etc. Educating the community about the value of flood insurance also falls under this category.

**TABLE II-14  
VULNERABLE STRUCTURES – FLOODING**

<b>COUNTY</b>	<b>RESIDENTIAL</b>	<b>COMMERCIAL</b>	<b>INDUSTRIAL</b>	<b>AGRICULTURAL</b>	<b>RELIGIOUS</b>	<b>GOVERNMENT</b>	<b>EDUCATION</b>	<b>UTILITIES</b>
Doddridge	1,184	22	0	147	15	0	0	0
Harrison	4,400	233	18	108	17	0	1	0
Marion	3,250	157	38	13	17	6	1	2
Monongalia	4,167	102	1	27	14	0	1	2
Preston	3,019	102	13	210	24	0	0	0
Taylor	1,885	57	0	118	13	0	1	0
<b>TOTALS</b>	<b>17,905</b>	<b>673</b>	<b>70</b>	<b>623</b>	<b>100</b>	<b>6</b>	<b>4</b>	<b>4</b>

NOTE: An estimated number of vulnerable structures was loosely derived using the 100-year floodplain.

**g. Loss Estimates**

Loosely based on a 100-year flood, the counties in Region VI could experience the following aggregate losses.

- **Doddridge:** \$7,114,180
- **Harrison:** \$189,296,490
- **Marion:** \$97,068,536
- **Monongalia:** \$224,707,403
- **Preston:** \$43,209,000
- **Taylor:** \$128,530,500

NOTE: Detailed flood mapping for each county is maintained by each jurisdiction in Region VI. Identification of floodplain areas on those maps is based on digital FIRM (D-FIRM) data produced by the NFIP. Additional resources, such as the West Virginia Flood Hazard Determination Tool (<http://www.mapwv.gov/flood/>), can also be used.

To better profile the type of impact flooding events could have on the region, 2017 Total Exposure in Floodplain (TEIF) reports were generated for 100-year flood events in the region. (NOTE: the full TEIF reports are included in Appendix G.) The 100-year (or 1%) Annual Chance Flood Frequency is a flood event with a 1% chance of being equaled or exceeded in any single year.

As is expected, the spatial pattern of affected structures is found along watercourses, and the greatest dollar losses are associated with buildings having the greatest estimated value. Greatest loss values are found in and around the major population centers. The analysis indicates that the greatest risk, in terms of sheer dollar losses, can be attributed to the unincorporated portions of Monongalia County. Furthermore, five of the six counties are in the top ten rankings, which is no surprise given the relatively large area as compared to various towns and cities. However, if the same data/information are normalized by the total inventory of building value in relation to the estimated total exposure within the FEMA Special Flood Hazard Area (SFHA), it can be seen that the Town of Farmington is at the greatest relative risk.

**TABLE II-15  
TEIF – RANK BY LOSS RATIO**

<b>CID NFIP</b>	<b>COUNTY</b>	<b>COMMUNITY</b>	<b>TOTAL BUILDING VALUE</b>	<b>TEIF 2.0 DOLLAR LOSS</b>	<b>RANK BY DOLLAR LOSS</b>	<b>LOSS RATIO (%)</b>	<b>RANK BY LOSS RATIO</b>
540101	Marion	Farmington town	\$55,712,000	\$23,269,238	10	41.77%	1
540161	Preston	Albright town	\$17,836,000	\$6,410,044	21	35.94%	2
540162	Preston	Bruceton Mills town	\$18,270,000	\$6,239,250	22	34.15%	3
540163	Preston	Rowlesburg town	\$71,317,000	\$20,414,168	11	28.62%	4
540057	Harrison	Lost Creek town	\$49,250,000	\$12,124,875	16	24.62%	5
540103	Marion	Mannington city	\$206,006,000	\$36,959,788	9	17.94%	6
540106	Marion	Worthington town	\$13,990,000	\$2,495,628	30	17.84%	7
540102	Marion	Grant Town town	\$57,086,000	\$9,370,308	19	16.41%	8
540024	Doddridge	Doddridge County (Unincorporated)	\$544,230,000	\$80,553,122	4	14.80%	9
540100	Marion	Fairview town	\$42,147,000	\$3,651,400	26	8.66%	10
540242	Harrison	Salem city	\$185,202,000	\$12,670,380	13	6.84%	11
540058	Harrison	Lumberport town	\$66,680,000	\$4,320,200	24	6.48%	12
540189	Taylor	Flemington town	\$20,855,000	\$1,240,500	34	5.95%	13
540059	Harrison	Nutter Fort town	\$213,052,000	\$12,498,596	14	5.87%	14
540060	Harrison	Shinnston city	\$237,660,000	\$12,172,686	15	5.12%	15
540097	Marion	Marion County (Unincorporated)	\$2,453,578,000	\$118,154,858	1	4.82%	16
540268	Preston	Newburg town	\$30,889,000	\$1,324,553	33	4.29%	17
540056	Harrison	Clarksburg city	\$1,951,636,000	\$79,111,065	5	4.05%	18
540053	Harrison	Harrison County (Unincorporated)	\$2,816,754,000	\$108,390,106	2	3.85%	19
540055	Harrison	Bridgeport city	\$1,511,038,000	\$54,956,214	6	3.64%	20
540257	Preston	Terra Alta town	\$130,844,000	\$4,303,373	25	3.29%	21
540104	Marion	Monongah town	\$89,421,000	\$2,905,896	29	3.25%	22
540061	Harrison	Stonewood city	\$174,051,000	\$5,006,241	23	2.88%	23
540105	Marion	Rivesville town	\$87,090,000	\$2,491,790	31	2.86%	24
540098	Marion	Barrackville town	\$128,254,000	\$3,581,214	27	2.79%	25
540292	Marion	Pleasant Valley city	\$416,215,000	\$10,701,281	18	2.57%	26
540054	Harrison	Anmoore town	\$154,599,000	\$3,572,954	28	2.31%	27
540025	Doddridge	West Union town	\$122,339,000	\$2,448,193	32	2.00%	28
540160	Preston	Preston County (Unincorporated)	\$2,290,937,000	\$44,200,663	7	1.93%	29
540139	Monongalia	Monongalia County (Unincorporated)	\$6,049,914,000	\$107,894,375	3	1.78%	30
540188	Taylor	Taylor County (Unincorporated)	\$961,702,000	\$16,970,832	12	1.76%	31
540190	Taylor	Grafton city	\$564,679,000	\$9,311,336	20	1.65%	32
540141	Monongalia	Morgantown city	\$3,445,487,000	\$40,454,234	8	1.17%	33
540099	Marion	Fairmont city	\$2,345,237,000	\$11,115,045	17	0.47%	34
545556	Marion	White Hall town	\$130,570,000	\$88,400	36	0.07%	35

**TABLE II-15  
(CONTINUED)**

<b>CID NFIP</b>	<b>COUNTY</b>	<b>COMMUNITY</b>	<b>TOTAL BUILDING VALUE</b>	<b>TEIF 2.0 DOLLAR LOSS</b>	<b>RANK BY DOLLAR LOSS</b>	<b>LOSS RATIO (%)</b>	<b>RANK BY LOSS RATIO</b>
540274	Monongalia	Westover city	\$452,619,000	\$198,000	35	0.04%	36
540062	Harrison	West Milford town	\$48,709,000	\$0	37	0.00%	37
540140	Monongalia	Blacksville town	\$14,933,000	\$0	37	0.00%	37
540272	Monongalia	Granville town	\$56,972,000	\$0	37	0.00%	37
540273	Monongalia	Star City town	\$195,052,000	\$0	37	0.00%	37
540284	Preston	Brandonville town	\$50,990,000	\$0	37	0.00%	37
540254	Preston	Kingwood city	\$454,846,000	\$0	37	0.00%	37
540270	Preston	Masontown town	\$41,551,000	\$0	37	0.00%	37
540269	Preston	Reedsville town	\$50,809,000	\$0	37	0.00%	37
540137	Preston	Tunnelton town	\$17,552,000	\$0	37	0.00%	37

**h. Repetitive Loss Properties**

Several communities see repeated flooding problems. Some even contain a number of properties that have been flooded and repaired multiple times. These properties are referred to as “Repetitive Loss” (RL) properties. Actual RL listings are protected by privacy laws because of the presence of names, addresses, losses, etc. Table II-16 lists the number of RL properties in each municipality as well as the number of flood loss claims and total claims payments since 1978.

**TABLE II-16  
NUMBER OF REPETITIVE LOSS PROPERTIES AND FLOOD LOSS CLAIMS  
BY JURISDICTION**

<b>JURISDICTION</b>	<b>FLOOD LOSS CLAIMS</b>	<b>TOTAL CLAIMS PAYMENTS (\$) 1978-PRESENT</b>	<b>RL* PROPERTIES</b>
<b>Doddridge County</b>	42	281,210.00	6
West Union, Town of	16	110,421.62	5
<b>Harrison County</b>	160	1,153,294.25	46
Anmoore, Town of	4	61,886.26	0
Bridgeport, City of	30	60,983.64	2
Clarksburg, City of	370	2,743,246.91	125



**TABLE II-16  
(CONTINUED)**

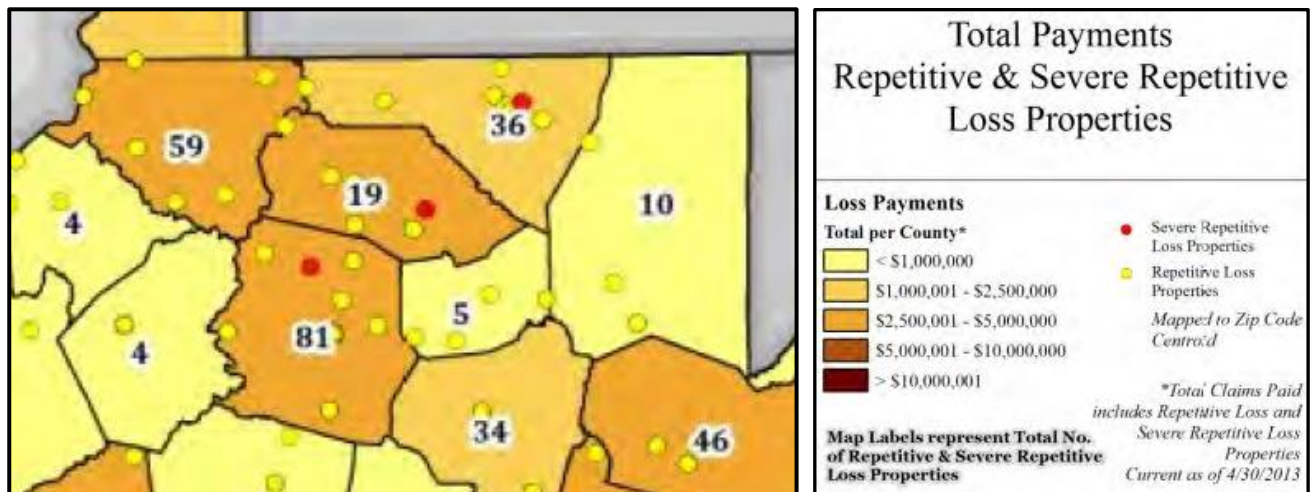
<b>JURISDICTION</b>	<b>FLOOD LOSS CLAIMS</b>	<b>TOTAL CLAIMS PAYMENTS (\$) 1978-PRESENT</b>	<b>RL* PROPERTIES</b>
Lost Creek, Town of	89	695,262.99	15
Lumberport, Town of	24	173,020.26	15
Nutter Fort, Town of	23	132,412.53	0
Salem, City of	22	202,524.77	11
Shinnston, City of	40	172,348.63	17
Stonewood, City of	4	11,677.07	2
West Milford, Town of	3	22,775.63	0
<b>Marion County</b>	170	3,334,340.95	27
Barrackville, Town of	N/A	N/A	N/A
Fairmont, City of	56	398,627.69	20
Fairview, Town of	8	89,777.72	0
Farmington, Town of	13	55,682.50	3
Grant Town, Town of	4	16,117.37	0
Mannington, City of	44	162,368.06	3
Monongah, Town of	1	2,144.04	0
Pleasant Valley, City of	1	0	N/A
Rivesville, Town of	1	5,965.60	0
White Hall, Town of	N/A	N/A	N/A
Worthington, Town of	24	121,320.83	5
<b>Monongalia County</b>	145	782,023.89	31
Blacksville, Town of	7	54,004.48	2
Granville, Town of	14	54,649.80	5
Morgantown, City of	162	1,410,614.59	49
Osage, Town of	13	87,098.66	2
Star City, Town of	2	15,479.47	0
Westover, City of	23	285,631.42	7
<b>Preston County</b>	56	656,722.24	9
Albright, Town of	11	90,311.30	0
Brandonville, Town of	N/A	N/A	N/A

**TABLE II-16  
(CONTINUED)**

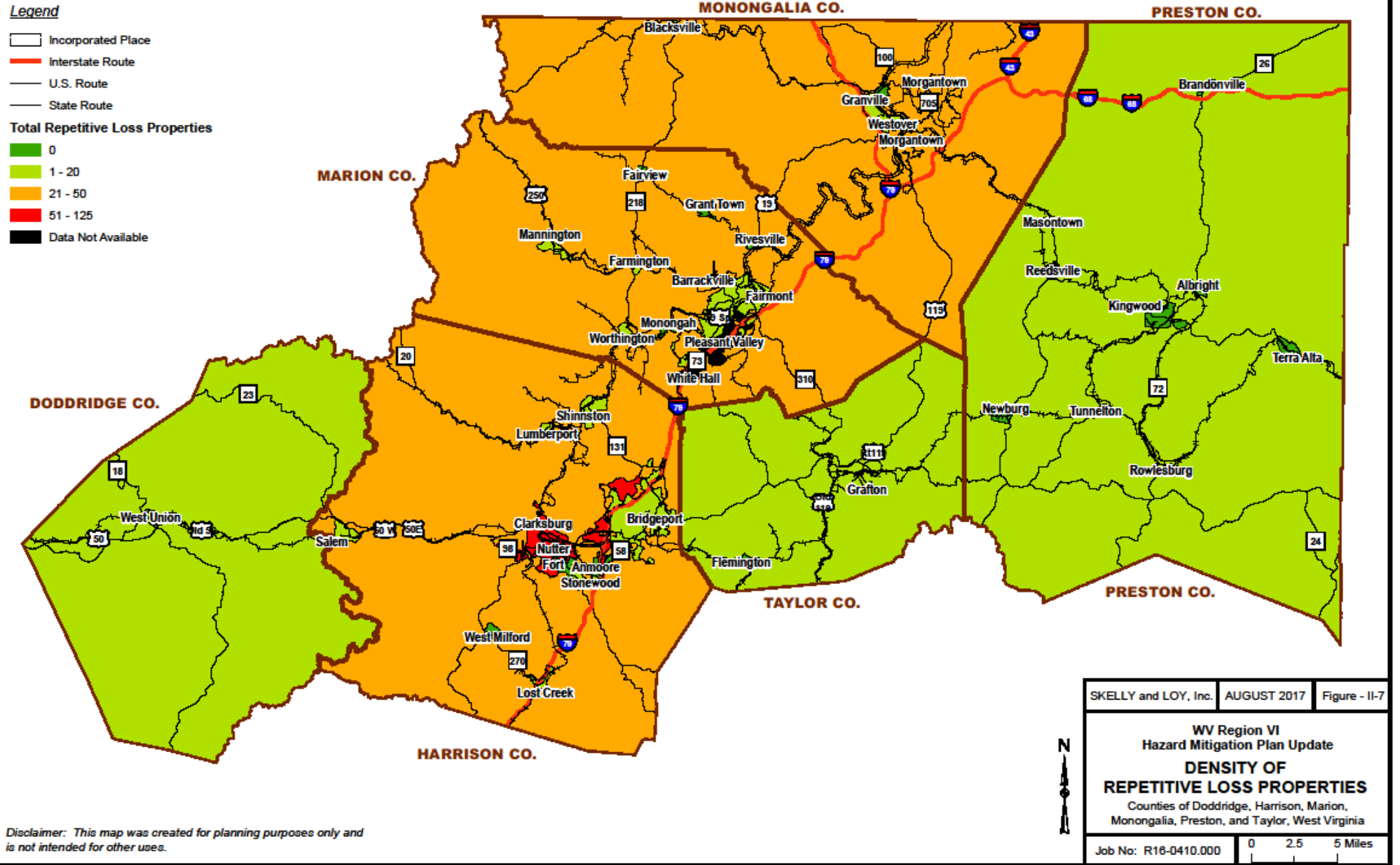
<b>JURISDICTION</b>	<b>FLOOD LOSS CLAIMS</b>	<b>TOTAL CLAIMS PAYMENTS (\$) 1978-PRESENT</b>	<b>RL* PROPERTIES</b>
Bruceton Mills, Town of	4	23,740.55	0
Kingwood, City of	1	0	0
Masontown, Town of	N/A	N/A	N/A
Newburg, Town of	2	3,776.00	0
Reedsville, Town of	N/A	N/A	N/A
Rowlesburg, Town of	32	383,632.96	13
Terra Alta, Town of	1	0	0
Tunnelton, Town of	N/A	N/A	N/A
<b>Taylor County</b>	30	271,800.50	10
Flemington, Town of	1	0	0
Grafton, City of	18	67,163.32	2

\* 2017 RL data provided by the WV Division of Homeland Security and Emergency Management.

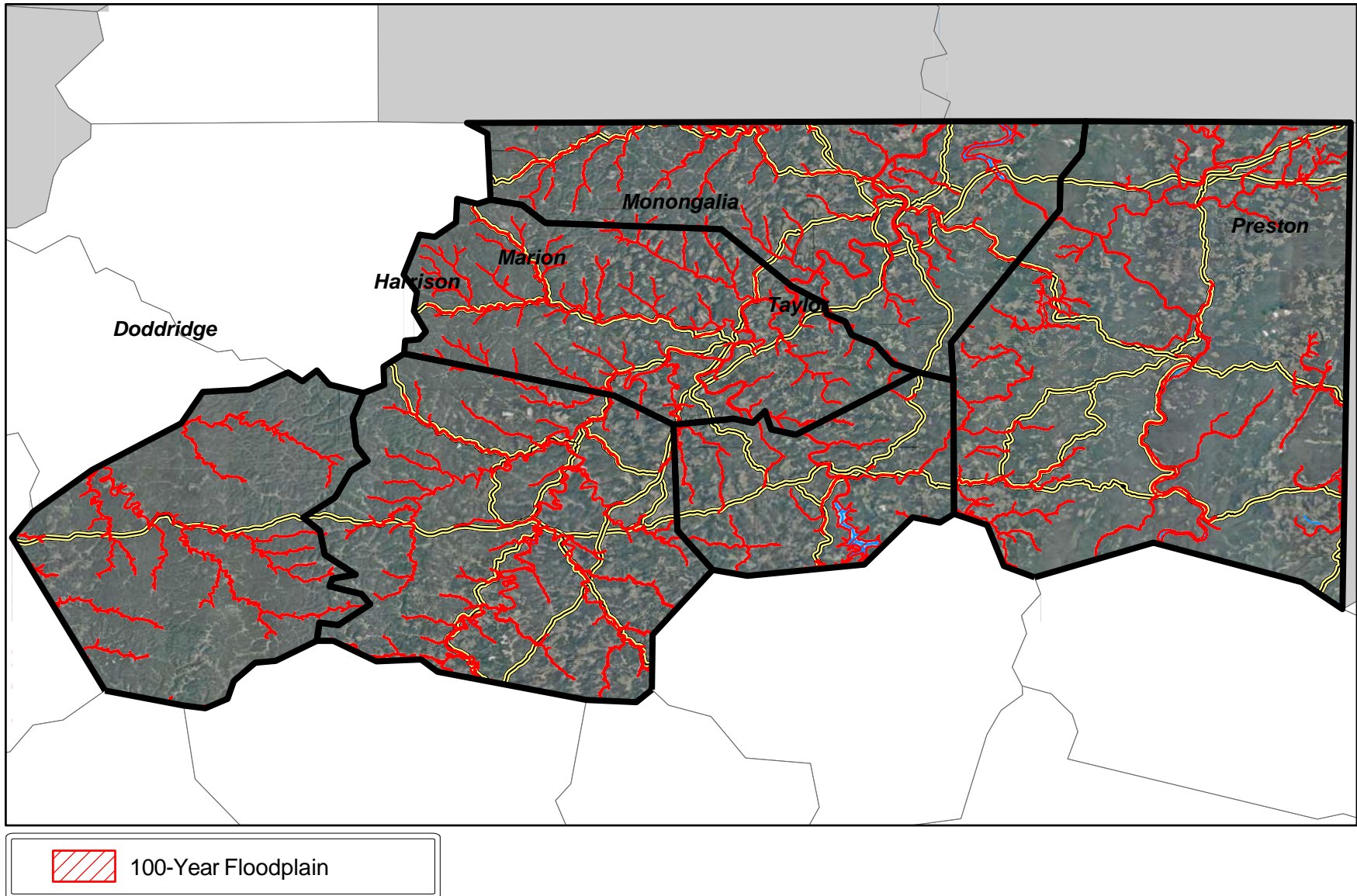
The following image, taken from the *West Virginia State Standard Hazard Mitigation Plan*, depicts the total payments (per county) for RL and Severe RL properties.



The following map shows the 2017 density of RL properties by jurisdiction.



**FIGURE II-8  
VULNERABILITY TO FLOODING**



## 5. Hailstorm

Hail is a form of precipitation which occurs when freezing water in thunderstorm-type clouds accumulates in layers around an icy core. When this event takes place, balls or irregular lumps of ice are created. On average, hail can be from 5 millimeters (mm) to 50 mm in diameter.

<b>Period of Occurrence:</b>	At any time
<b>Number of Events to Date (1963-2017):</b>	232
<b>Probability of Event:</b>	Likely – Usually associated with severe thunderstorms
<b>Warning Time:</b>	Minutes to hours
<b>Potential Impacts:</b>	Large hail can minimally damage property (facilities) as well as crops
<b>Cause Injury or Death:</b>	Injury
<b>Potential Facility Shutdown:</b>	Minimal
<b>RESEARCH SOURCES</b> <ul style="list-style-type: none"><li>• NCDC Event Records</li></ul>	

### a. Hazard Effects

When hail occurs, it can cause damage by battering crops, structures, automobiles, and transportation systems. When hailstorms are large, especially when combined with high winds, damage can be somewhat extensive. Hailstorms are more common in elevated areas (such as the mountains) than tropical areas since locations such as mountains are closer to the bottom of thunderstorms. In mountainous areas, falling hail has less time to melt before touching the ground. The eastern-most counties in Region VI are slightly more susceptible to damaging hailstorms due to their mountainous topography.

Hail is a relatively minor natural hazard in all parts of the region. It has been included in this plan by virtue of frequency. Even with these frequent occurrences, losses are small, especially to critical facilities and other infrastructure. Much like minor thunderstorms, hailstorms rarely slow down the daily lives of the residents in the region. If their vehicles or homes are damaged, they usually claim those damages on their insurance policies or repair the damage themselves.



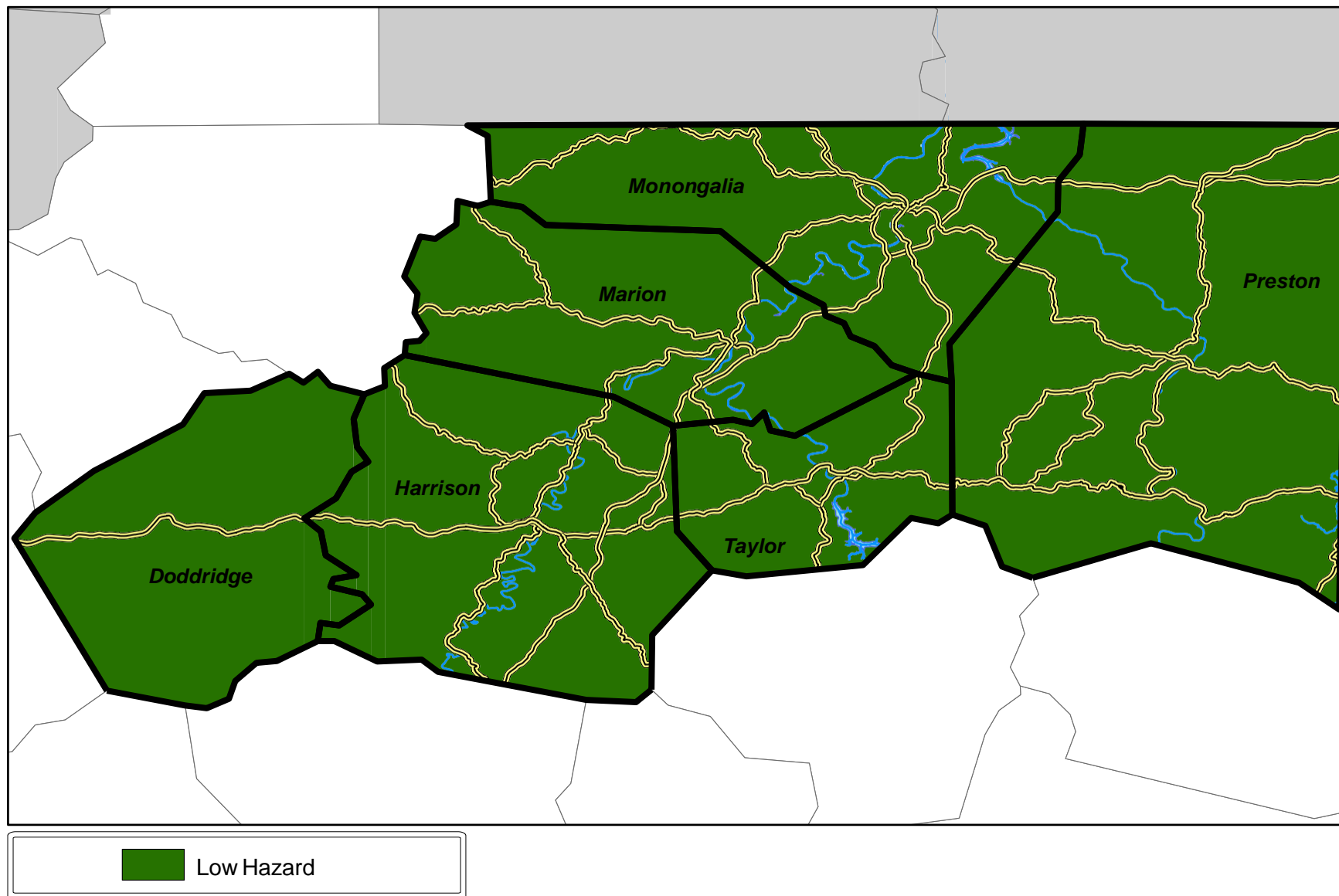
Historical occurrences include the following. As indicated by a NOAA Event Record dated June 16, 1998, golf-ball-size hail fell along State Route 18 between Leopold and Market. According to a NOAA Event Record dated April 9, 2001, a strong cold front passing across the area produced the first severe weather outbreak of the spring season, as numerous hail reports were received from across northern West Virginia, with reports of golf-ball-size hail approximately seven miles west of Kingwood.

According to the NCDC Event Records, isolated severe thunderstorms on April 28, 2016, produced hail in parts of Preston County and golf-ball- to tennis-ball-sized hail in some areas of Taylor County. A total of \$4.15 million in property damage was recorded in Preston and Taylor Counties combined.

**b. Loss Estimates**

As a minor hazard, potential losses as a result of hail are small, even though all structures in the region can be said to be at risk of hail damage. The average losses per WCS hail event could total \$6,399,301. If all counties were damaged to the WCS level, losses could be as much as \$38,395,806. (NOTE: Loss estimates are listed at these levels because of confusion that usually results in damage from hailstorms [as directly from hail or as part of the thunderstorm producing hail].)

**FIGURE II-9  
VULNERABILITY TO HAIL STORM**



## 6. Land Subsidence/Landslides

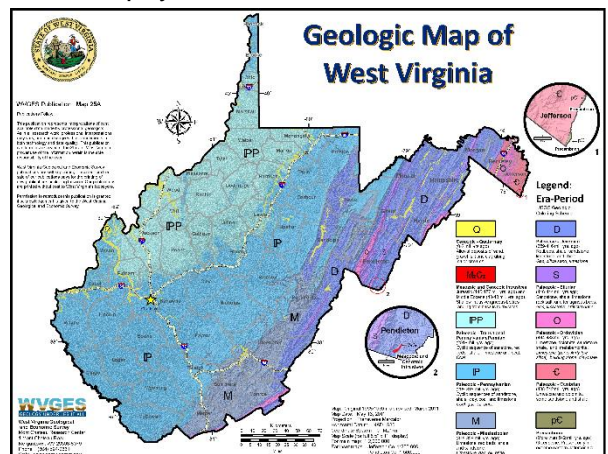
Land subsidence refers to any failures in the ground that cause collapses in the earth's surface.

<b>Period of Occurrence:</b>	At any time – Chance of occurrence increases following long periods of heavy rain, snowmelt, or near construction activity
<b>Number of Events to Date (2000-2017):</b>	1
<b>Probability of Event:</b>	Infrequent
<b>Warning Time:</b>	Weeks to months – Some instances of land subsidence can occur quickly, without warning, but often in the context of other storm events
<b>Potential Impacts:</b>	Economic losses such as decreased land values, agribusiness losses, disruption of utility and transportation systems, and costs for any litigation; may cause geological movement, resulting in infrastructure damages ranging from minimal to severe
<b>Cause Injury or Death:</b>	Injury
<b>Potential Facility Shutdown:</b>	Days to weeks
<b>RESEARCH SOURCES</b> <ul style="list-style-type: none"> <li>West Virginia Geological and Economic Survey</li> <li>West Virginia State Standard All-Hazard Mitigation Plan</li> <li>USGS Landslide Susceptibility Map</li> </ul>	

### a. Hazard Effects

Subsidence is defined as the downward movement of surface material with little or no horizontal movement. Subsidence can occur naturally due to the physical and chemical weathering of certain types of bedrock or can be human-induced due to underground mining or excessive pumping of groundwater. Regardless of the reason for occurrence, the overall effect of a subsidence event is the same; that is the development and eventual failure of a sinkhole, which can cause significant structural damage of buildings and/or infrastructure are present.

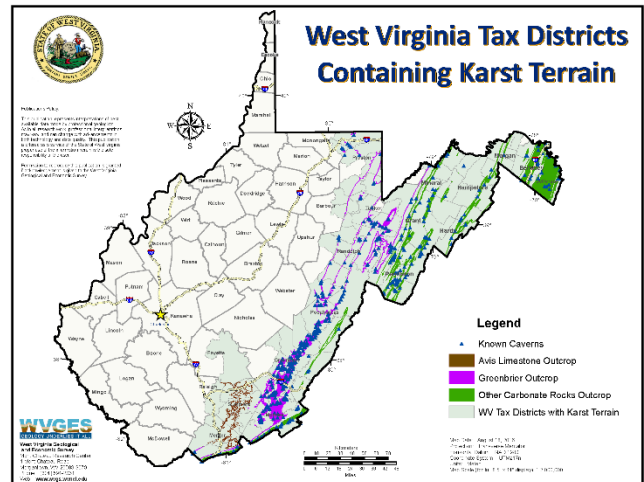
According to the geologic map of West Virginia, most of Region VI is underlain by cyclic sequences of





sandstone, shale, red beds, limestone, and coal. Eastern portions of Preston County also contain red beds, shale, sandstone, limestone, and chert.

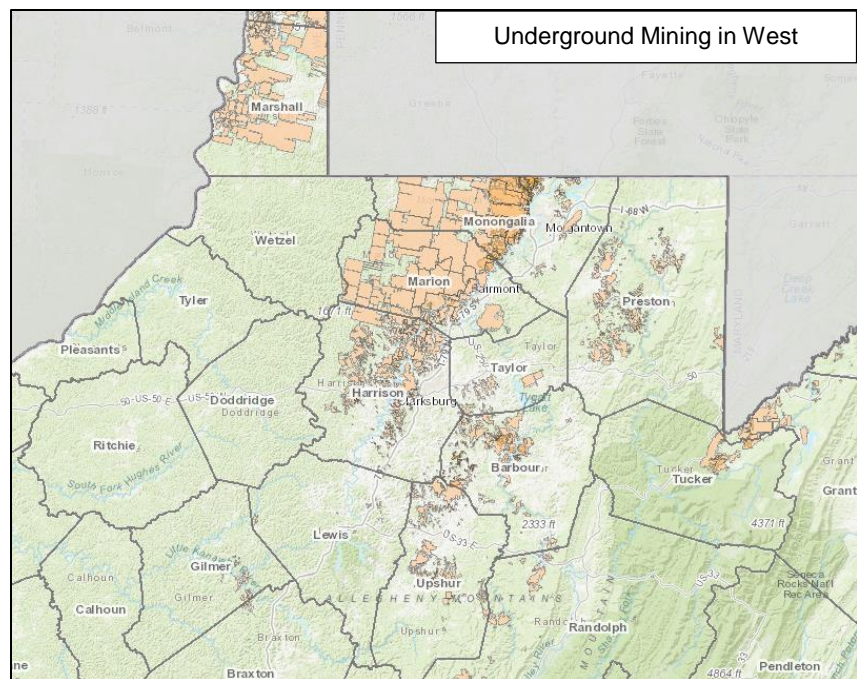
Eastern portions of Region VI, specifically Preston County and northeastern Monongalia County contain karst terrain as well as some known caves (see West Virginia karst map to the right). According to the West Virginia Geological and Economic Survey,



Karst terrain is defined as terrain, generally underlain by limestone or dolomite, in which the topography is formed chiefly by the dissolving of rock and which may be characterized by sinkholes, sinking streams, closed depressions, subterranean drainage, and caves. Although karst terrain is not prominent in the majority of Region VI, it is still a primary cause of land subsidence.

Other areas throughout West Virginia see subsidence as it relates to mining operations. In Region VI, all counties contain areas typically considered parts of the state's coal fields. The overwhelming majority of the region contains areas with medium and high-volatile bituminous coal that is potentially minable. The graphic below shows underground mines in West Virginia (West Virginia Geological and Economic Survey). Fortunately, most counties in the region have not reported significant numbers of historical land subsidence occurrences.

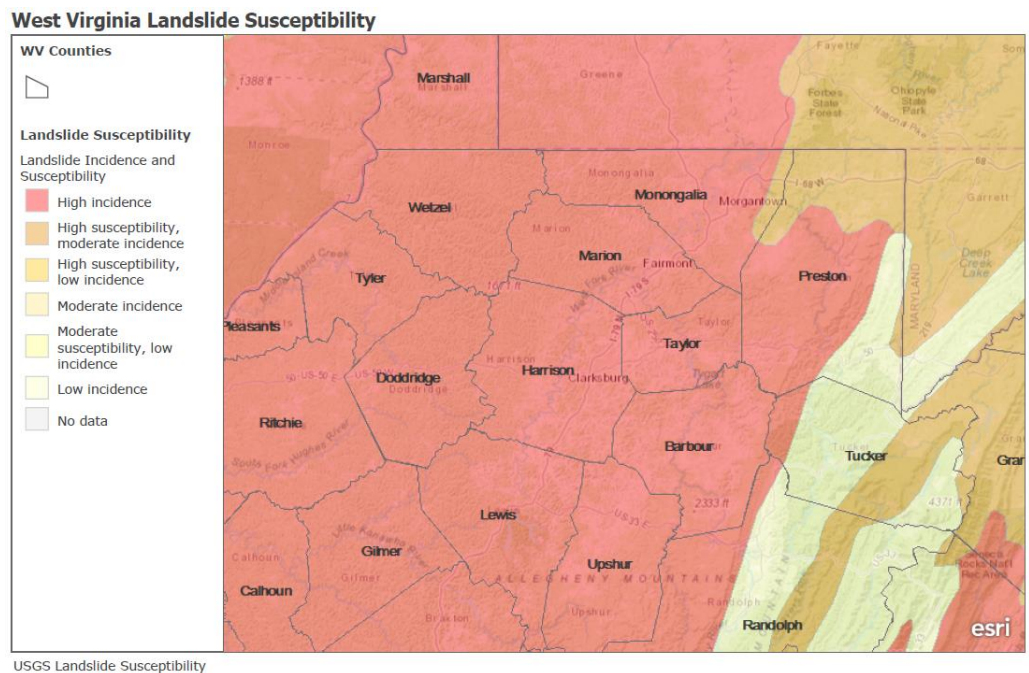
As defined by FEMA, a landslide is the downward and outward movement of earth materials reacting under the force of gravity. As such, "landslide" can be used to describe a number of different types of events displaying different movement characteristics and involving different materials.



Rockslides, rock falls, mudflows, mudslides, debris flows, and debris avalanches are all types of landslide events that involve different materials moving in a different manner. Landslides typically occur when some factor (e.g., increased water content or change in load) causes the force of gravity to outweigh the forces working to hold material in place, resulting in the downslope movement of the subject material. Several natural and human factors may contribute to or influence landslides. These factors include topography, geology, precipitation, steepness of cut and fill slopes, and cut-slope stability.

All six counties in the region are listed as being “highly susceptible” to landslides. The West Virginia State Standard All-Hazard Mitigation Plan supports these determinations. With the exception of northern Preston County and a small tip of north-eastern Monongalia County, the entire region has a high incidence of landslides (see image below). Landslide susceptibility is determined based on a number of factors such as past incidents, rock or soil strength, and steepness of slope.

Of state agencies owning structures, two of the top ten largest building risks with regard to landslides are located in the Region VI area: West Virginia University and Fairmont State University. According to the state mitigation plan, Fairmont State University has a total of



34 buildings at risk with a potential loss of \$270,263,060 while West Virginia University has a total of 393 buildings at risk with a potential loss of \$1,142,209,311.

**b. Vulnerable Structures**

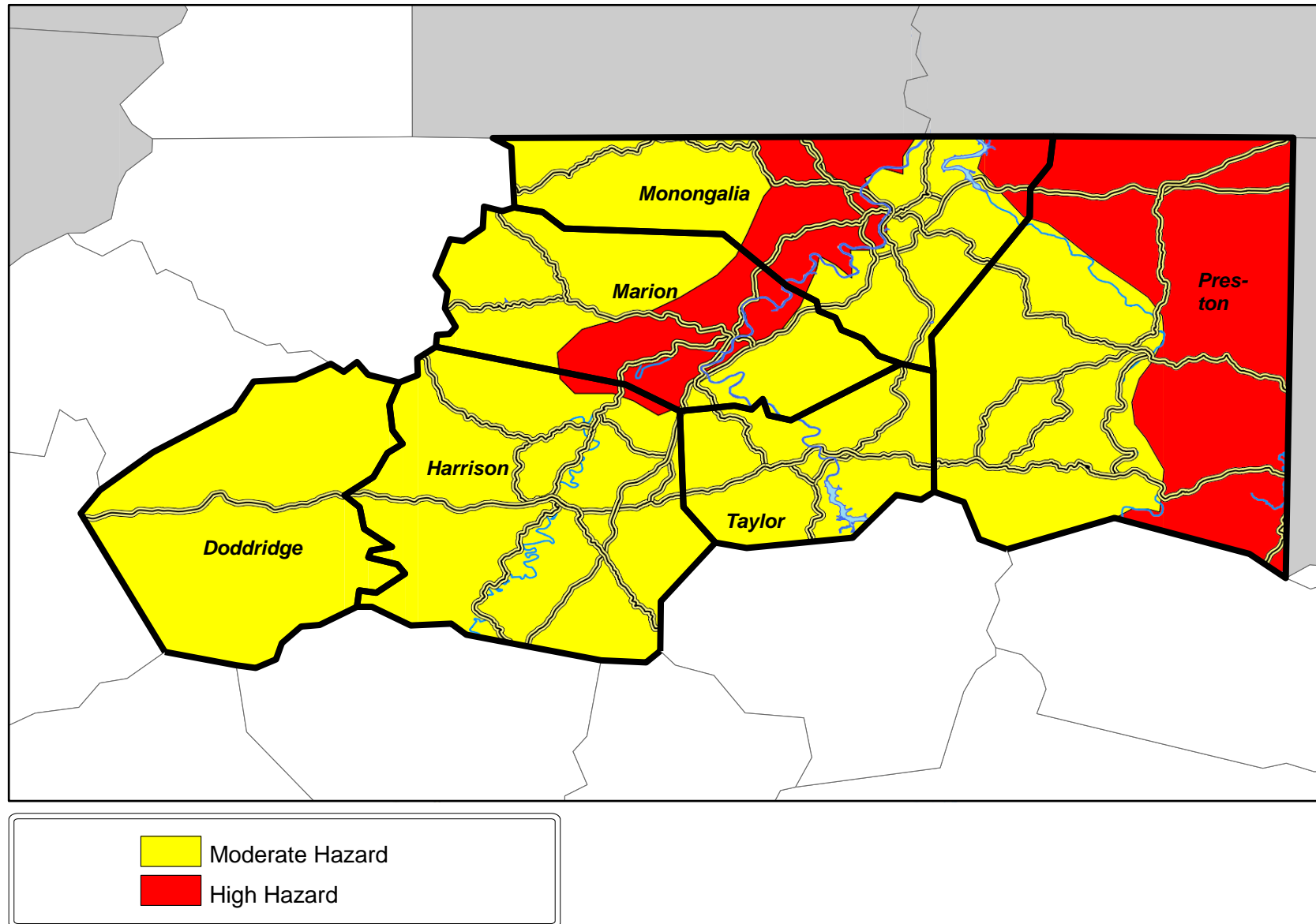
**TABLE II-17  
VULNERABLE STRUCTURES – LAND SUBSIDENCE**

COUNTY	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	AGRICULTURAL	RELIGIOUS	GOVERNMENT	EDUCATION	UTILITIES
Doddridge	100	10	0	15	2	1	0	6
Harrison	100	200	12	70	12	0	0	33
Marion	13,270	185	56	14	62	1	1	21
Monongalia	10,608	246	3	194	6	1	3	41
Preston	2,500	150	20	220	20	0	0	30
Taylor	100	20	0	10	5	0	0	9
<b>TOTALS</b>	<b>26,678</b>	<b>811</b>	<b>97</b>	<b>523</b>	<b>107</b>	<b>3</b>	<b>4</b>	<b>140</b>

**c. Loss Estimates**

Land subsidence can be a gradually occurring hazard or it can occur rapidly. In either case, repairing subsidence damages can be costly. Structural foundations, transportation infrastructure, and other infrastructure can be damaged. Consequently, subsidence-based loss estimates are somewhat high. The WCS average on a per-county basis is \$45,208,715. (NOTE: A region-wide estimate was not compiled since land subsidence is often considered a site-specific hazard.)

**FIGURE II-10  
VULNERABILITY TO LAND SUBSIDENCE**



## 7. Thunderstorm

A thunderstorm is considered severe when that storm produces a tornado, winds of at least 58 miles per hour (mph)/50 knots, and/or hail at least  $\frac{3}{4}$  inch in diameter. Structural wind damage may imply the occurrence of a severe thunderstorm. A thunderstorm wind equal to or greater than 40 mph/35 knots and/or hail of at least  $\frac{1}{2}$  inch is defined as “approaching severe.”

<b>Period of Occurrence:</b>	Spring, Summer
<b>Number of Events to Date (1955-2017):</b>	662
<b>Probability of Event:</b>	Frequent
<b>Warning Time:</b>	Minutes to hours
<b>Potential Impacts:</b>	Utility damage and outages, infrastructure damage (transportation and communication systems); impacts human life, health, and public safety
<b>Cause Injury or Death:</b>	Injury
<b>Potential Facility Shutdown:</b>	Days
<b>RESEARCH SOURCES</b> <ul style="list-style-type: none"><li>• NCDC Event Records</li></ul>	

### a. Hazard Effects

The wind gusts associated with thunderstorms pose a threat to life and/or property. Severe thunderstorms also have the potential of producing a tornado with little or no advanced tornado warning. These storms may contain frequent cloud-to-ground lightning and heavy downpours which can lead to localized flooding. Generally, a weak thunderstorm which produces a wind gust of the required strength would be defined as “severe” whereas a very violent thunderstorm with continuous lightning and very heavy rain (but without the required wind gusts, hail, or tornado/funnel cloud) would not. For the purposes of this plan, though, these violent thunderstorms are also considered severe because they are more frequent and cause a significant amount of damage annually.



**b. Hazard Profile**

Thunderstorms are the most frequently occurring hazard throughout the region. The following table illustrates the number of thunderstorm events in each of the region's counties as well as the damage caused by those storms (*Source: NCDC Event Records*).

**TABLE II-18  
THUNDERSTORMS THROUGHOUT REGION VI**

<b>COUNTY</b>	<b>NUMBER OF STORMS</b>	<b>REPORTED DAMAGE</b>
Doddridge	48	\$1,405,000
Harrison	140	\$4,287,000
Marion	114	\$1,239,000
Monongalia	134	\$2,037,000
Preston	159	\$1,287,000
Taylor	67	\$807,000
<b>TOTALS</b>	<b>662</b>	<b>\$11,062,000</b>

Fourteen injuries and three deaths directly related to these storms have been reported. NCDC records reflect the most severe of thunderstorms. Storms, however, are common throughout the spring and summer months (although a thunderstorm can occur in any season) and cause downed trees and power lines. Residents and businesses are likely to incur more damage as a result of these "smaller" storms because individual houses and vehicles are damaged by fallen limbs and businesses are forced to close due to a lack of electricity.

According to an April 15, 1994, NOAA Event Record, a squall line moved at 40 mph across the western lowlands of West Virginia, and the worst damage occurred in the Crystal Lake region of Doddridge County, approximately four miles from West Union. The downburst was about a half-mile long and a quarter-mile wide. A post-storm survey indicated that a sudden peak wind gust near 100 mph occurred at Crystal Lake.

A NOAA Event Record dated August 15, 1996, indicated that lightning struck electronic equipment at a radio transmitter tower on top of Cooper's Rocks, resulting in \$21,000 of damage. There have been four other occurrences of lightning striking houses in Preston County, all of which burnt to the ground.

According to a NOAA Event Record dated May 21, 2004, several “microbursts” occurred in Preston County, resulting in the closure of several roads as numerous large trees were blown down. In Masontown, the swath of the microburst was approximately 2.5 miles in length and fluctuated from 20 to 200 yards in width. In Reedsville, the microburst produced scattered damage as many trees toppled onto houses and one mobile home was overturned, causing minor injuries to two people. The maximum wind speed was estimated at 70 mph.

A NOAA Event Record dated June 29, 2012, indicated that a severe storm complex moved into the region on the second day of a developing heat wave. The strongest measured gust was 77 mph. The strong winds caused numerous trees and large branches to fall in scattered locations throughout most counties. There were no direct deaths as a result of the storm complex; however, there were three indirect deaths and one injury that followed the storms. Abundant structural damage, fallen trees, and downed power lines caused road closures. Prolonged power outages occurred as the heat wave continued into the first week of July.

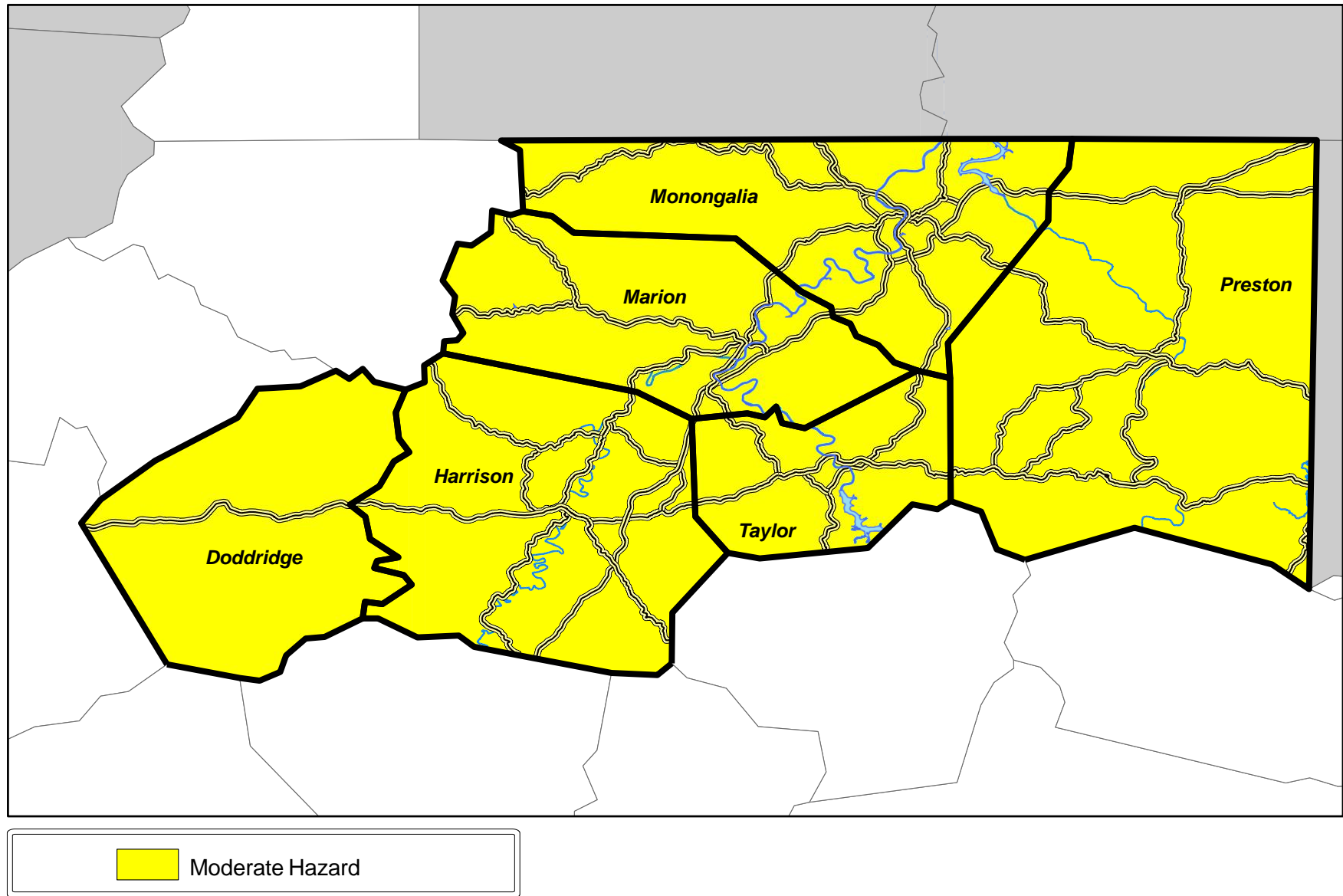
According to a NCDC Event Record dated June 16, 2016, thunderstorms developed in east-central Ohio near the I-70 corridor after 2:00 P.M. and moved south and east over the Ohio Valley and into West Virginia. There were several reports of large hail and wind damage across the state associated with these thunderstorms.

### **c. Loss Estimates**

Thunderstorms are another hazard that can be said to affect the entire region equally (i.e., all structures in the region are at risk). As part of the loss estimates completed by all of the region’s counties, the average county-level WCS event could total \$16,157,831 in losses. A region-wide WCS event could total as much as \$96,946,986.

In many ways, the cascading effects of thunderstorms are more damaging than the storm itself. For example, lightning strikes may cause power surges that result in damage. Thunderstorm winds may down trees that fall onto personal property. Tracking these types of damages is difficult because many people may not turn such claims into their insurance.

**FIGURE II-11  
VULNERABILITY TO THUNDERSTORM**





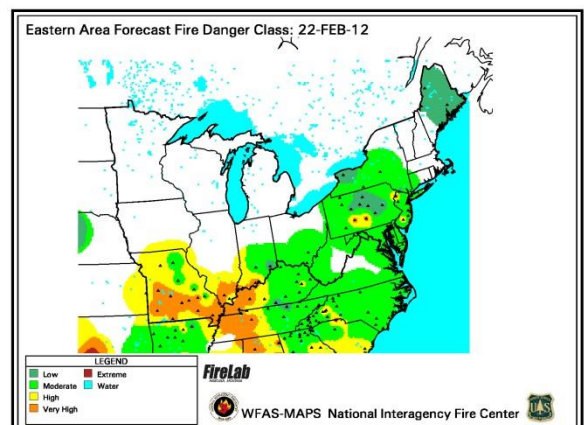
## 8. Wildfire

A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.

<b>Period of Occurrence:</b>	At any time – Primarily summer
<b>Number of Events to Date (2000-2017):</b>	1
<b>Probability of Event:</b>	Infrequent
<b>Warning Time:</b>	Minimal
<b>Potential Impacts:</b>	<ul style="list-style-type: none"> <li>• Impacts human life, health, and public safety</li> <li>• Loss of wildlife habitat, increased soil erosion, and degraded water quality</li> <li>• Utility damage and outages, infrastructure damage (transportation and communication systems), and damaged or destroyed critical facilities</li> </ul>
<b>Cause Injury or Death:</b>	Injury and risk death
<b>Potential Facility Shutdown:</b>	Days to weeks or more
<b>RESEARCH SOURCES</b> <ul style="list-style-type: none"> <li>• NCDC Event Records</li> </ul>	

### a. Hazard Effects

Wildfires often begin unnoticed and spread quickly. They are usually signaled by dense smoke that fills the area for miles around. Grasses, bushes, trees, and other vegetation supply fuel for the wildfire. The size of a wildfire is contingent on the amount of fuel available, weather conditions, and wind speed and direction. In a map from Wildland Fire Assessment System Maps, Fire Behavior Research (see image on the right), the majority of West Virginia was labeled as being at moderate risk for wildfires.



## **b. Hazard Profile**

One should not assume that vegetation fires do not occur frequently. Representatives from local fire departments throughout the region confirm that brush fires, ranging in size from a single acre to hundreds of acres, occur each year. Many of these fires are extinguished before becoming a major problem. Additionally, most of these events occur in rural areas rather than in areas of urban-wildland interface. The frequency of these vegetation fires is the reason that one “wildfire” was listed for purposes of calculating probability.

Regulatory agencies have also noted the potential for large-scale wildfires in portions of the region. The following paragraphs are taken from correspondence from the West Virginia Division of Forestry (2002).

“Monongalia County consists of approximately 200,000 acres of forestland, open, or undeveloped land. The majority of this undeveloped land is in the sparsely populated western part of the county, where there are small to medium size farms and large sections of land owned by various natural resource companies. As you move eastward, the central part of the county still has small to medium size farms, but there is an increase in residential housing. The potential for a large wildfire is possible in the central and western parts of the county, but very few structures would be threatened due to larger green space around homes.

“Finally, looking at the eastern part of the county and more specifically at the area along and east of the Interstate 79 corridor, there is considerable more development and the majority of the county’s population. Although this area is more developed than the rest of the county, there are still large expanses of forestland. These undeveloped tracts of land range from state-controlled areas such as Coopers Rock State Forest, Snake Hill Wildlife Management Area, and West Virginia University’s Research Forest to provide land in the Kingwood Pike area, the “Bid Survey” and the Halleck Road area. Development is growing to the south and east of Morgantown and may soon begin to move west, once the Star City Bridge replacement is completed. Around these large undeveloped areas there is an increasing trend of building houses with minimal removal of trees. The potential exists for a very large wildfire in this part of the county with the risk of threatening many structures of considerable value.”

Several of the trends acknowledged by this correspondence (most notably the expansion of development to the eastern portions of Monongalia County toward Preston County) have proven to be true, thus increasing the wildfire risk. (NOTE: Development to the west includes the Mylan Park area and the University Town Centre shopping area.)

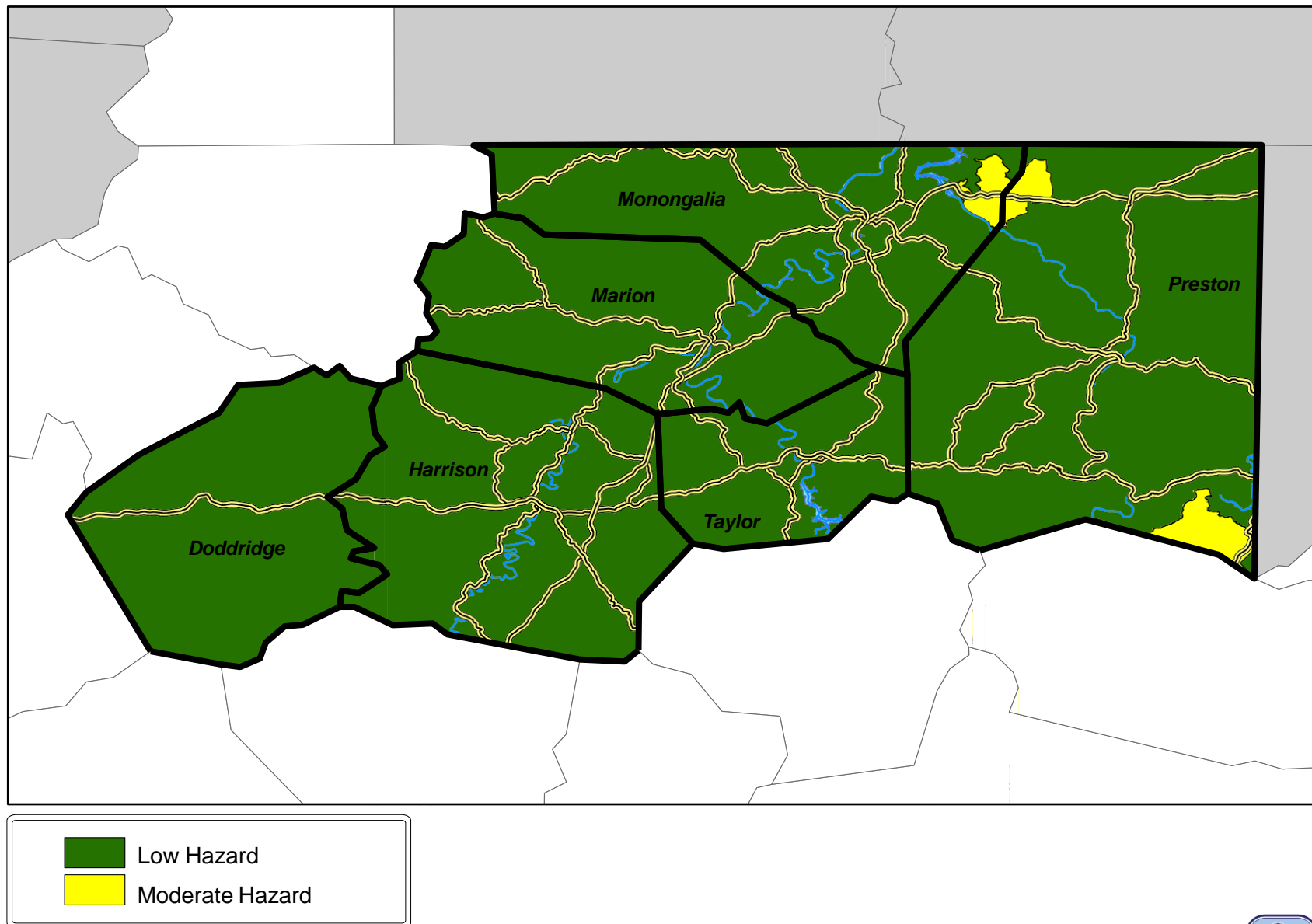
**TABLE II-19  
VULNERABLE STRUCTURES – WILDFIRE**

<b>COUNTY</b>	<b>RESIDENTIAL</b>	<b>COMMERCIAL</b>	<b>INDUSTRIAL</b>	<b>AGRICULTURAL</b>	<b>RELIGIOUS</b>	<b>GOVERNMENT</b>	<b>EDUCATION</b>	<b>UTILITIES</b>
Doddridge	3,494	20	0	490	40	0	0	3
Harrison	14,911	250	10	774	57	0	7	16
Marion	4,062	92	34	107	52	8	6	11
Monongalia	25,672	676	80	396	60	3	16	3
Preston	10,750	100	20	1,048	95	0	3	15
Taylor	4,890	50	0	471	32	0	1	5
<b>TOTALS</b>	<b>63,779</b>	<b>1,188</b>	<b>144</b>	<b>3,286</b>	<b>336</b>	<b>11</b>	<b>33</b>	<b>53</b>

**c. Loss Estimates**

Individual county loss estimates were calculated on the assumption that a wildfire could occur in an area of urban-wildland interface; consequently, the estimates could be considered high when compared to historical occurrences. This document, however, estimates losses based on WCS events. The estimated WCS event for a single-county incident would be \$3,970,077,164, while the WCS estimate for a region-wide incident would be \$23,820,462,988.

**FIGURE II-12  
VULNERABILITY TO WILDFIRE**



## 9. Wind

Wind storms are destructive wind events that occur with or without the presence of other storm events, such as tornados or severe thunderstorms.

A tornado is a violently rotating column of air extending from a thunderstorm to the ground.

<b>Period of Occurrence:</b>	At any time – Primarily during March through August
<b>Number of Events to Date (1954-2017):</b>	91 (30 of which were tornados)
<b>Probability of Event:</b>	Infrequent
<b>Warning Time:</b>	Minutes to hours
<b>Potential Impacts:</b>	<ul style="list-style-type: none"><li>• Utility damage and outages, infrastructure damage (transportation and communication systems), structural damage, damaged or destroyed critical facilities</li><li>• Impacts human life, health, and public safety.</li></ul>
<b>Cause Injury or Death:</b>	Injury and risk of multiple deaths
<b>Potential Facility Shutdown:</b>	Days to weeks or more
<b>RESEARCH SOURCES</b> <ul style="list-style-type: none"><li>• NCDC Event Records</li></ul>	

### a. Hazard Effects – Wind

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. Since 1954, counties in Region VI have experienced 91 high wind events. (This number may appear low since a single event was likely to affect all or most counties; as such, simply totaling the number of events per county would not provide an accurate picture of wind storm frequency.)

### b. Hazard Profile – Wind

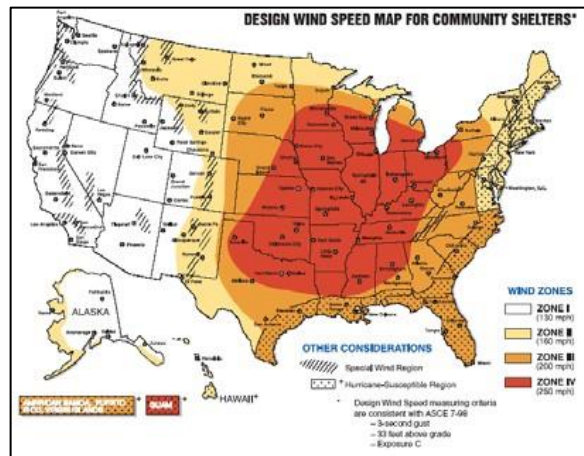
The following table illustrates the high wind events, damages reported, and injuries known for each county.

**TABLE II-20  
HIGH WIND EVENTS IN REGION VI**

COUNTY	NUMBER OF EVENTS	DAMAGES REPORTED	KNOWN INJURIES	KNOWN DEATHS
Doddridge	4	\$575,000	1	0
Harrison	11	\$3,620,000	1	0
Marion	18	\$775,000	0	0
Monongalia	15	\$3,472,000	0	1
Preston	37	\$8,650,000	21	0
Taylor	6	\$155,000	0	0
<b>TOTALS</b>	<b>91</b>	<b>\$17,267,500</b>	<b>23</b>	<b>1</b>

The “Design Wind Speed Map for Community Shelters” is one way of graphically analyzing wind risks. As can be seen, all of the counties in the region are in a “Zone II” with respect to design wind speeds, which means that shelters constructed for protective purposes should be designed to withstand up to 160 mph winds.

Severe wind events can cause a variety of secondary, or cascading, hazard events. For instance, wind may blow limbs from trees down knocking out electric power or blocking roadways. Wind often results in damages to roofs and other home finishings (such as siding, etc.).



### c. Hazard Effects – Tornado

The most violent tornadoes are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be in excess of 1 mile wide and 50 miles long. Tornadoes are among the most unpredictable of weather phenomena. Tornadoes can occur in any state in the United States but are more frequent in the Midwest, Southeast, and Southwest.

The nature of tornadoes is that they strike at random. While it is known that some areas of the country experience tornadoes more than others, predicting exactly what parts of the region have a greater chance of being struck by a tornado is difficult. The best predictor of future tornadoes is the occurrence of previous tornadoes.



**d. Hazard Profile – Tornado**

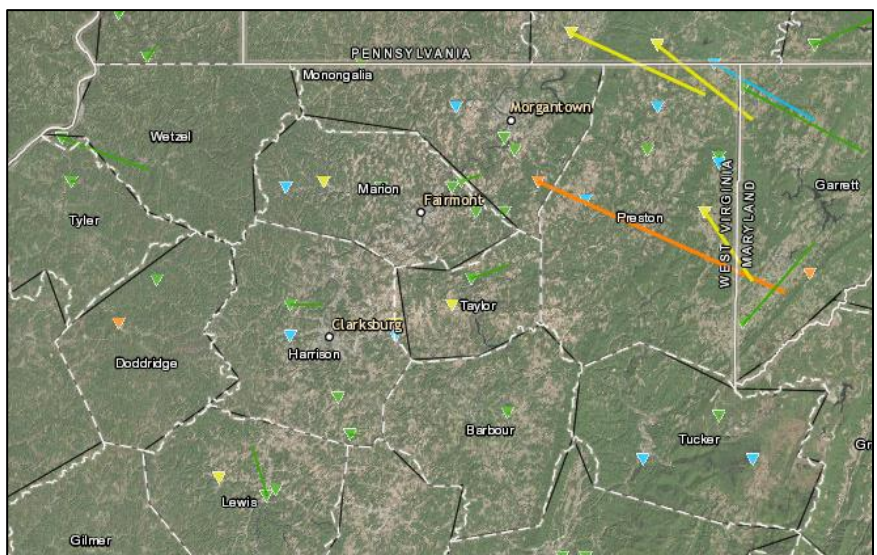
According to NCDC records, every county in the region has experienced a tornado. Most of these tornadoes have been small and caused relatively little property damage. In October 1986, two tornadoes in Doddridge County caused \$500,000 in property damage and one injury. Harrison County was home to the most well-known of the tornadoes in the region – the Shinnston tornado of 1944. Harrison County has experienced five other tornadoes, though. Five tornadoes in Marion County have led to \$328,000 in property damage and \$3,000 in crop damage. Six tornadoes have been reported in Monongalia County; one in 1982 led to one death. The most recent tornado to touch down in Monongalia County was an EF1 in June 2017 spurred from the remnants of Tropical Depression Cindy. An EF2 event in Taylor County in 1967 caused approximately \$25,000 in damage. There have been two tornadoes recorded in Taylor County.

FUJITA SCALE	
F RATING	WIND SPEEDS
0	<73
1	73-112
2	113-157
3	158-206
4	207-260
5	261-318

ENHANCED FUJITA SCALE (USED BEGINNING IN 2007)	
EF RATING	WIND SPEEDS
0	65-85
1	86-110
2	111-135
3	136-165
4	166-200
5	Over 200

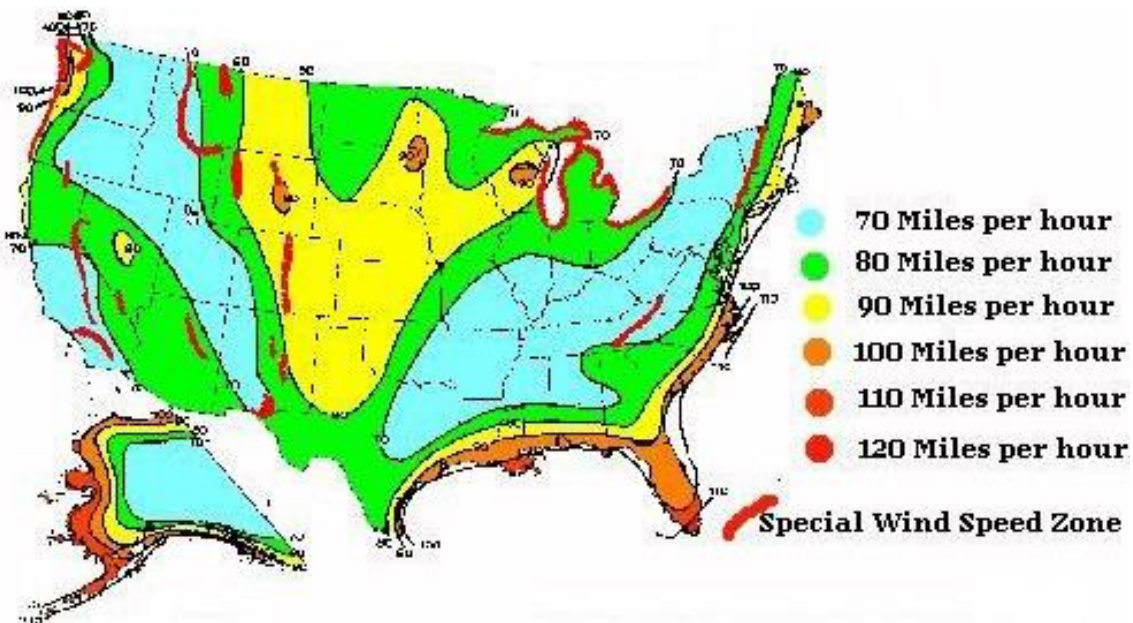
The notable exception is Preston County, where ten tornadoes have been recorded. These have ranged in size from EF0 to EF3. The EF3 tornado occurred in 1980 and caused 15 injuries along with \$2,500,000 in property damage. The remaining events (combined) caused six injuries, nearly \$5,500,000 in property damage, and \$2,000,000 in crop damage.

The image to the right (taken from the *West Virginia State Standard Hazard Mitigation Plan*) shows the historic tornado tracks between 1950 and 2016.



This image also supports the above claim that Preston County has seen the most destructive tornado activity.

For planning purposes, it is less important to map the tornado risk than it is to identify it. This is because it is so difficult to predict the path of future tornadoes. The Enhanced Fujita scale provides us with an idea of the strength and extent of damages from tornadoes that can occur in the region. An additional resource to help understand the extent of tornado risks in the county is the “Design Wind Speed Map for Community Shelters” developed by the Disaster Center. The Disaster Center has also developed a map (shown below) that is similar to the “Design Wind



Speed Map for Community Shelters” that suggests building standards with respect to wind speed. As can be seen, all of West Virginia is shown with the lowest wind speed (or the equivalent to a “gale tornado”).

High wind, in general, is another hazard that can be said to affect the entire region. Tornadoes can also be said to affect the entire region due to their unpredictable nature.

#### **e. Loss Estimates**

Wind-related loss estimates are quite high due to both high wind and tornado loss estimates are combined and because of the amount of damage that can be done by a single incident. As an example, consider the extremely high damage estimates from the tornado events versus just high wind events. The average WCS wind event in a single county could result in as much as \$96,061,117 in losses; a region-wide WCS event could tally \$576,366,704 in losses.



The 2017 HAZUS analysis for hurricane-force wind concluded that Region VI has a low risk of experiencing hurricane-force winds. (NOTE: the full HAZUS reports are included in Appendix G.) The region is more likely to be affected by rainfall brought about by remnants of a hurricane. Areas anticipated to experience greater loss as a result of hurricane-force wind are found in and around major regional population centers in Harrison County, Taylor County and Monongalia County. In addition, there is a tract in the northeastern portion of Preston County as well as an eastern tract in Monongalia County with relatively higher losses; these tracts are likely higher due to the rotational pattern of hurricane-force winds in the northern hemisphere.

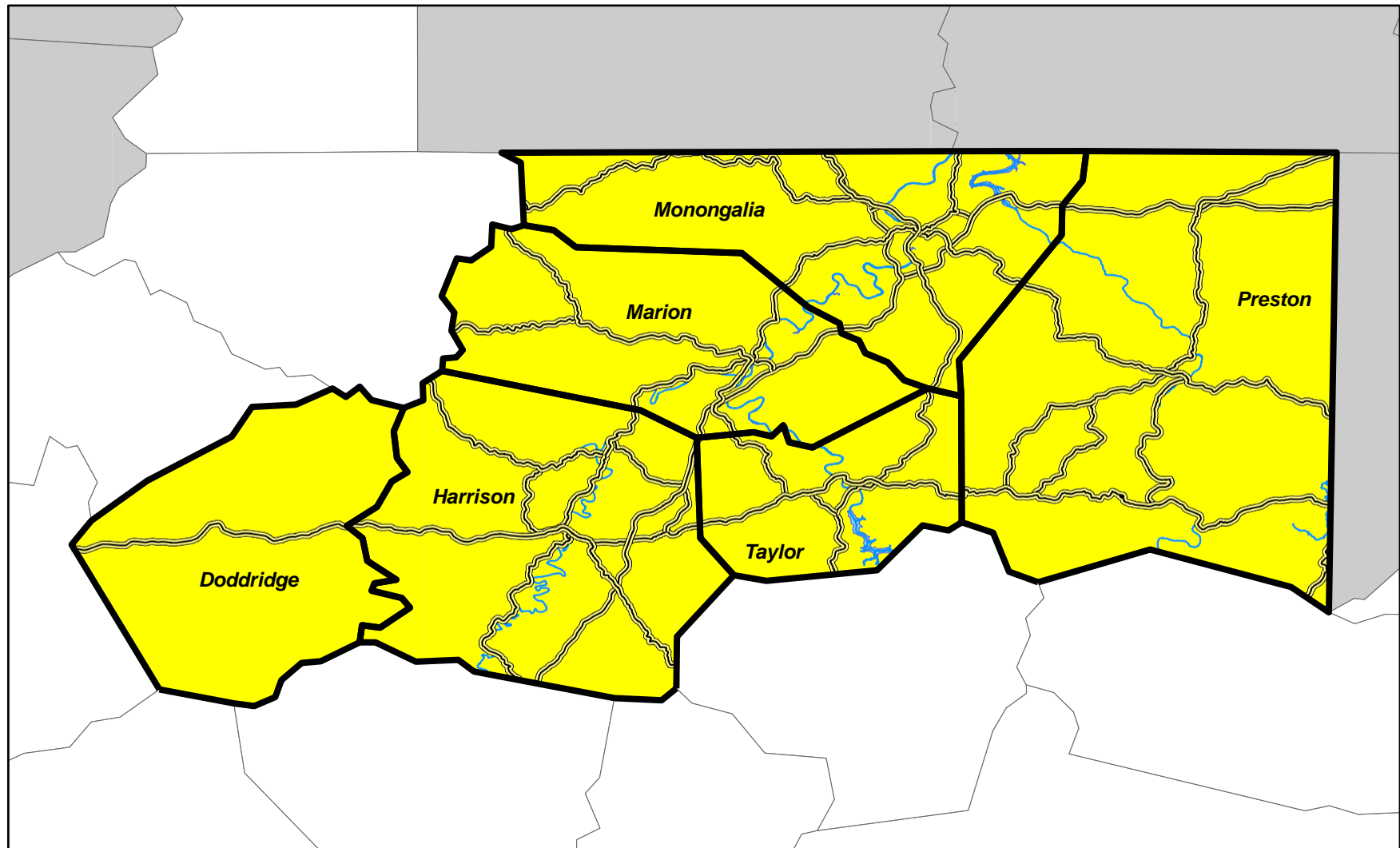
**TABLE II-21  
HURRICANE WIND TOTAL ANNUALIZED LOSSES BY COMMUNITY  
(SORTED AND RANKED BY DOLLAR LOSS)**

CID	COMMUNITY NAME	COUNTY	ANNUALIZED TOTAL LOSSES FOR HURRICANE/WIND HAZARD			
			TOTAL INVENTORY		ANNUALIZED (\$/YR)	
			ESTIMATED VALUE	% OF TOTAL	DOLLAR LOSSES	LOSS RATIO
540053	Harrison County, Unincorp.	Harrison	\$7,639,696,880	16%	\$17,362	0.00023%
540139	Monongalia County, Unincorp.	Monongalia	\$10,592,719,998	22%	\$15,201	0.00014%
540097	Marion County, Unincorp.	Marion	\$6,354,152,911	13%	\$10,682	0.00017%
540160	Preston County, Unincorp.	Preston	\$4,992,027,181	11%	\$8,447	0.00017%
540141	City of Morgantown	Monongalia	\$5,644,829,160	12%	\$7,009	0.00012%
540188	Taylor County, Unincorp.	Taylor	\$2,402,428,212	5%	\$4,873	0.00020%
540099	City of Fairmont	Marion	\$2,910,794,937	6%	\$4,377	0.00015%
540055	City of Bridgeport	Harrison	\$1,782,662,872	4%	\$4,331	0.00024%
540056	City of Clarksburg	Harrison	\$2,035,249,075	4%	\$4,280	0.00021%
540024	Doddridge County, Unincorp.	Doddridge	\$1,077,986,176	2%	\$2,054	0.00019%
540292	City of Pleasant Valley	Marion	\$418,673,249	<1%	\$714	0.00017%
540060	City of Shinnston	Harrison	\$280,351,201	<1%	\$528	0.00019%
540272	Town of Granville	Monongalia	\$254,675,525	<1%	\$509	0.00020%
540274	City of Westover	Monongalia	\$212,509,715	<1%	\$372	0.00018%
540273	Town of Star City	Monongalia	\$189,368,077	<1%	\$319	0.00017%
540061	Town of Stonewood	Harrison	\$124,825,899	<1%	\$283	0.00023%
540059	Town of Nutter Fort	Harrison	\$94,259,345	<1%	\$251	0.00027%
540254	City of Kingwood	Preston	\$115,430,271	<1%	\$139	0.00012%
540190	City of Grafton	Taylor	\$63,357,354	<1%	\$107	0.00017%
540242	City of Salem	Harrison	\$49,298,978	<1%	\$91	0.00019%

**TABLE II-21  
(CONTINUED)**

CID	COMMUNITY NAME	COUNTY	ANNUALIZED TOTAL LOSSES FOR HURRICANE/WIND HAZARD			
			TOTAL INVENTORY		ANNUALIZED (\$/YR)	
			ESTIMATED VALUE	% OF TOTAL	DOLLAR LOSSES	LOSS RATIO
545556	Town of White Hall	Marion	\$44,494,380	<1%	\$80	0.00018%
540054	Town of Anmoore	Harrison	\$39,190,335	<1%	\$57	0.00014%
540057	Town of Lost Creek	Harrison	\$16,238,335	<1%	\$49	0.00030%
540103	City of Mannington	Marion	\$27,847,809	<1%	\$44	0.00016%
540098	Town of Barrackville	Marion	\$23,008,653	<1%	\$43	0.00019%
540104	Town of Monongah	Marion	\$19,702,070	<1%	\$35	0.00018%
540106	Town of Worthington	Marion	\$18,156,996	<1%	\$32	0.00018%
540105	Town of Rivesville	Marion	\$10,227,195	<1%	\$17	0.00017%
540102	Town of Grant Town	Marion	\$9,476,459	<1%	\$16	0.00017%
540269	Town of Reedsville	Preston	\$8,370,059	<1%	\$15	0.00018%
540101	Town of Farmington	Marion	\$7,640,817	<1%	\$13	0.00018%
540257	Town of Terra Alta	Preston	\$6,532,883	<1%	\$13	0.00019%
540058	Town of Lumberport	Harrison	\$4,697,724	<1%	\$12	0.00025%
540062	Town of West Milford	Harrison	\$3,242,629	<1%	\$10	0.00031%
540163	Town of Rowlesburg	Preston	\$5,039,553	<1%	\$10	0.00019%
540268	Town of Newburg	Preston	\$4,367,210	<1%	\$9	0.00020%
540189	Town of Flemington	Taylor	\$3,550,044	<1%	\$8	0.00021%
540100	Town of Fairview	Marion	\$3,065,415	<1%	\$5	0.00018%
540270	Town of Masontown	Preston	\$2,935,591	<1%	\$5	0.00017%
540161	Town of Albright	Preston	\$2,418,746	<1%	\$5	0.00020%
540284	Town of Brandonville	Preston	\$2,446,966	<1%	\$4	0.00015%
540137	Town of Tunnelton	Preston	\$1,894,538	<1%	\$4	0.00019%
540025	Town of West Union	Dodderidge	\$1,865,116	<1%	\$3	0.00018%
540140	City of Blacksville	Monongalia	\$1,588,443	<1%	\$2	0.00015%
540162	Town of Bruceton Mills	Preston	\$345,065	<1%	\$1	0.00015%
WVPCD6 Total			\$47,503,640,050		\$82,419	0.00017%

**FIGURE II-13  
VULNERABILITY TO SEVERE WIND**



 Moderate Hazard

## 10. Winter Storm

A winter storm is a type of storm in which the dominant varieties of precipitation (such as snow or sleet, or a rainstorm) are forms that occur only at cold temperatures where ground temperatures are cold enough to allow ice to form.

<b>Period of Occurrence:</b>	Winter
<b>Number of Events to Date (1983-2017):</b>	337
<b>Probability of Event:</b>	Likely
<b>Warning Time:</b>	Snow – Days; Ice – Minutes to Hours
<b>Potential Impacts:</b>	<ul style="list-style-type: none"> <li>• Utility damage and outages, infrastructure damage (transportation and communication systems), structural damage, damaged critical facilities</li> <li>• Can cause severe transportation problems and make travel extremely dangerous</li> <li>• Power outages, which result in loss of electrical power and potentially loss of heat</li> <li>• Extreme cold temperatures may lead to frozen water mains and pipes, damaged car engines, and prolonged exposure to cold (resulting in frostbite)</li> </ul>
<b>Cause Injury or Death:</b>	Injury
<b>Potential Facility Shutdown:</b>	Days
<b>RESEARCH SOURCES</b> <ul style="list-style-type: none"> <li>• NCDC Event Records</li> </ul>	

### a. Hazard Effects

Winter storms vary in size and strength and can be accompanied by strong winds that create blizzard conditions and dangerous wind chill. There are three categories of winter storms.

- **Blizzard:** A blizzard is the most dangerous of all winter storms. It combines low temperatures, heavy snowfall, and winds of at least 35 mph, reducing visibility to only a few yards.
- **Heavy Snowstorms:** A heavy snowstorm is one that drops four or more inches of snow in a 12-hour period.
- **Ice Storm:** An ice storm occurs when moisture falls and freezes immediately upon impact.

Winter storms tend to encompass the entire county whereas flooding generally occurs within predictable boundaries along the regulatory SFHA and its main branches and tributaries. Risks associated and identified with severe winter storms include but are not limited to the following:

- Emergency medical evacuation of the sick, elderly, and infirm to shelters
- Power outages to those on life-support systems
- Communications interruptions and/or outages
- Loss of the ability to heat homes
- Interruption of the delivery of home supplies and food

These above-described events fall within two general categories 1) road closures due to snow drifts and 2) utility failures (such as damaged supply lines). Additionally, data indicate that structural damage has occurred in several instances in the past as a result of extremely heavy snowfall. Damaged structures were usually buildings (such as barns, garages, carports, etc.). Additionally, because of the county's mountainous terrain, severe winter storms frequently result in dangerous driving conditions.

#### **b. Hazard Profile**

Table II-22 illustrates the number of winter storm (i.e., snow, ice, and blizzard) events in each of the region's counties as well as the damage caused by those storms (*Source: NCDC Event Records*).

At least ten injuries resulting from winter storms have been reported throughout Region VI. Additionally, each county reported three deaths; these were likely to be from the same regional event.

**TABLE II-22  
WINTER STORMS THROUGHOUT REGION VI**

COUNTY	NUMBER OF STORMS	REPORTED DAMAGE
Doddridge	38	\$51,765,000
Harrison	45	\$51,280,000
Marion	28	\$51,238,000
Monongalia	33	\$51,273,000
Preston	140	\$51,438,000
Taylor	53	\$51,315,000
<b>TOTALS</b>	<b>337</b>	<b>\$308,309,000</b>

A winter storm is another hazard that can be said to affect the entire region equally (i.e., all structures in the region are at risk). One must realize, though, that the cascading hazards resulting from winter storms (e.g., slick roadways, drifts covering roadways, communities being isolated as a result of snow, etc.) can vary within the region – even within a single county – due to factors such as topography. Further, winter storms are often considered “just a way of life”; many residents do not report the losses from these storms. For instance, in Preston County (which is one of the most mountainous counties in the region), local officials and residents alike recognize winter storms as a hazard but do not feel that most winter storms significantly interrupt their daily activities. Such an attitude is likely shaped by the frequency with which residents face these events. According to a *West Virginia Snowfall and Snow Depth Extremes Table* from the NCDC webpage, the greatest annual snowfall total was 223.8 inches in Terra Alta, West Virginia. (See the photograph on the right of snow in Terra Alta.)



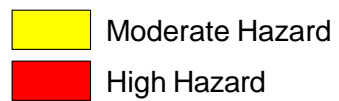
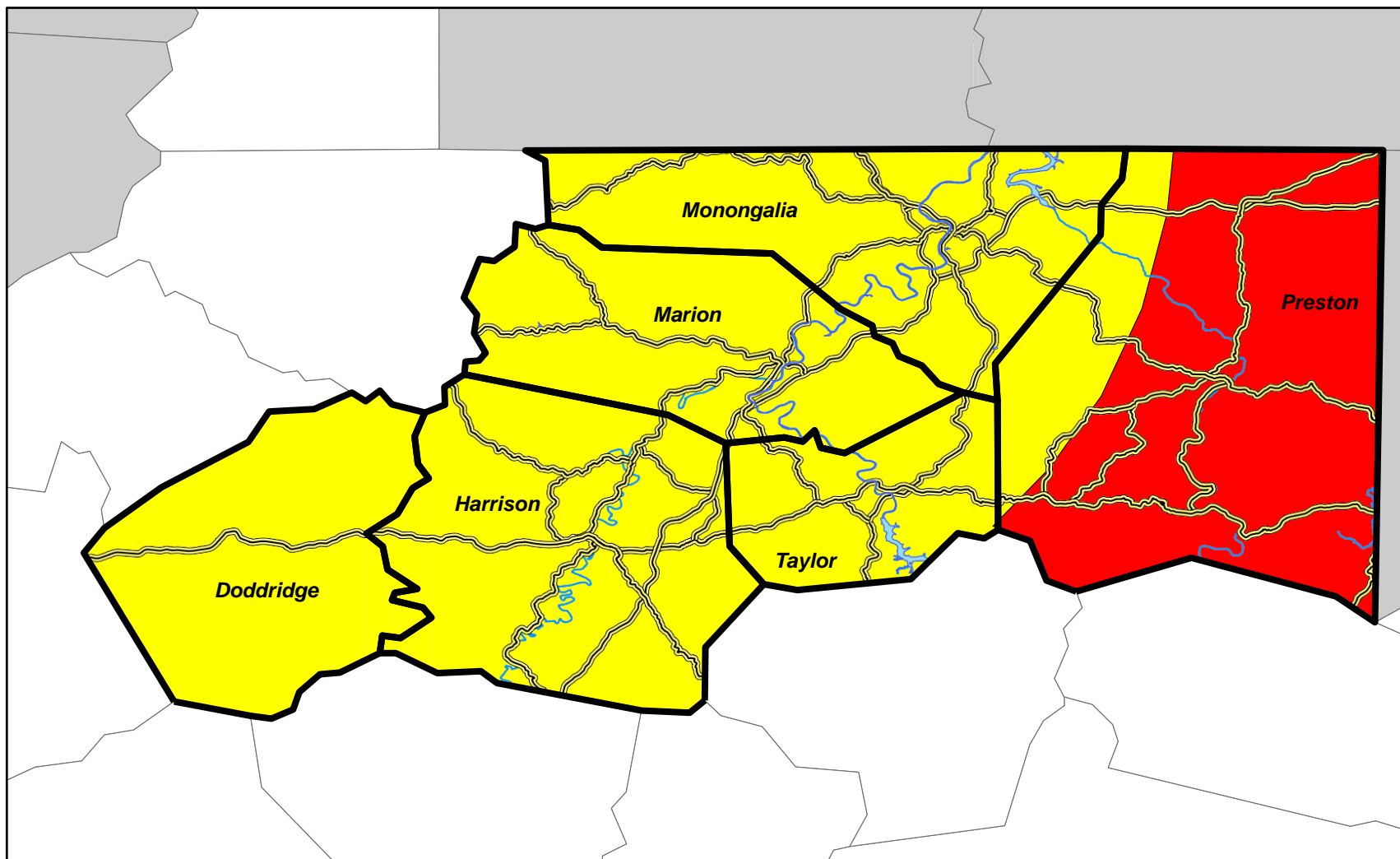
Area-specific data provide insight into the actual perception of the hazard. According to *The Herald Record* newspaper (West Union), a state of emergency was declared on January 8, 1996, as a result of a severe winter storm that dropped in excess of 1 to 1.5 feet of snow. This storm warranted several days' worth of newspaper coverage for Doddridge County. The March 17, 1999, edition of *The Preston County News* (Preston County's local newspaper) stated that a winter storm blanketed Preston County in up to 16 inches of new snow. It was the fifth storm Preston County had weathered in 14 days. It was also reported that 176 total inches had accumulated in the month of March alone. Local officials indicate that Preston County experiences winter storms when other neighboring counties are experiencing thunderstorm or other events. This fact is attributed to the general high elevation of the county.

In March 2015, a federal disaster was declared for many counties in West Virginia due to a winter storm event. An arctic deep freeze brought snow, sleet, and freezing rain to the area, with some counties receiving up to 20 inches of snow.

### **c. Loss Estimates**

As part of the loss estimates completed by all of the region's counties, the average county-level WCS event could total \$73,215,085 in losses. A region-wide WCS event could total as much as \$439,290,514.

**FIGURE II-14  
VULNERABILITY TO WINTER STORM**





## **C. REGIONAL IMPLICATIONS**

The hazard profiles above present, in a general sense, a regional hazard risk. This risk, though, is based off of individual county assessments. This section discusses how region-wide risks are realized.

Flooding, as one of the primary hazards addressed by this plan, does pose a risk regionally. Even flash flooding, which is widely considered to be a site-specific hazard, can contribute to a regional flooding impact. For example, flash flooding throughout the region would likely feed rivers such as the West Fork and Cheat, which either form or are tributaries of the Monongahela River. As these tributaries fill, so too will the Monongahela, potentially leading to a high-water risk in another area in the region that did not receive significant rainfall.

The river network itself may also lead to somewhat of a regional risk in terms of flooding. As mentioned, the West Fork River, together with the Tygart River, forms the Monongahela. Local officials in Harrison and Taylor Counties who are witnessing rising waters on either the West Fork or Tygart may choose to notify officials in Marion and Monongalia Counties about the potential for heightened water levels on the Monongahela River. Additionally, emergency managers and floodplain coordinators in counties such as Harrison and Taylor may choose to coordinate with their counterparts in Lewis County (regarding the West Fork River) and Barbour County (regarding the Tygart River). Flooding in those areas may be of interest to local officials in the Region VI area.

Dam failure is another hazard that could have a regional impact. Portions of Tygart Lake, formed by the Tygart Dam in Grafton (Taylor County) are located in Barbour County. While not downstream of the potentially failed dam structure, depleting lake levels could impact Barbour County from an economic perspective. Additionally, the chart of dam facilities in the Region VI area notes a number of communities in Pennsylvania (such as Point Marion and Mt. Morris) that could be affected by a dam failure. Local officials in Monongalia County should be prepared to notify Greene County, Pennsylvania, officials should those structures fail.

Other hazard occurrences (such as thunderstorms and wind storms – but primarily winter storms) could have regional implications, but not in terms of potential early warning. For example, if a front passes through the northern portion of the region, the local economy could be impacted due to commuter traveling – especially if it is not storming in the southern portions of the region. Additionally, the Interstate 79 corridor serves as a major arterial route for the northern part of West Virginia and southwestern portion of Pennsylvania. Hazards such as winter weather could significantly impact traffic flow along that route.

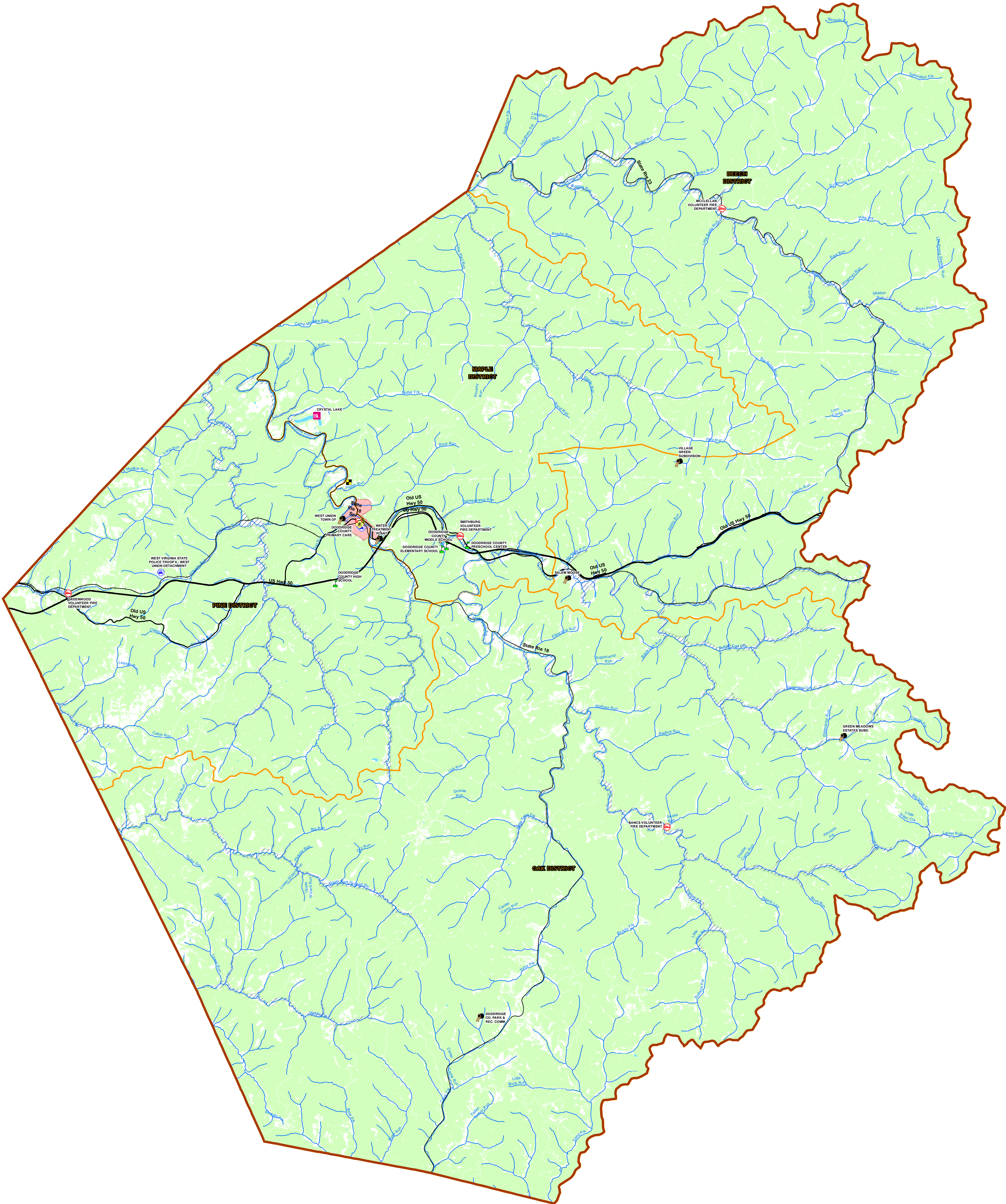


#### **D. MULTI-JURISDICTIONAL RISK ASSESSMENT**

As previously mentioned, natural hazards such as drought, hurricanes/tropical storms, severe storms, and tornadoes are not specific to certain parts of the region but rather impact all counties. Conversely, natural hazards such as dam failures, flooding, land subsidence, earthquakes, landslides, and wildfires are specific to certain locations and jurisdictions within the region as shown on the regional hazard event profile mapping and described in the preceding text.



# DODDRIDGE COUNTY, WV



Doddridge County Boundary

Minor Civil Division

Incorporated Place

Forested

Open Water

Electricity Substation

Sewer Treatment Facility

Community Health Provider

Fire Department

Law Enforcement

Medical Services

Operations Center

Public School

U.S. Route

State Route

Railroad

Dam

100-Year Floodplain

Waterway

N

W

E

S

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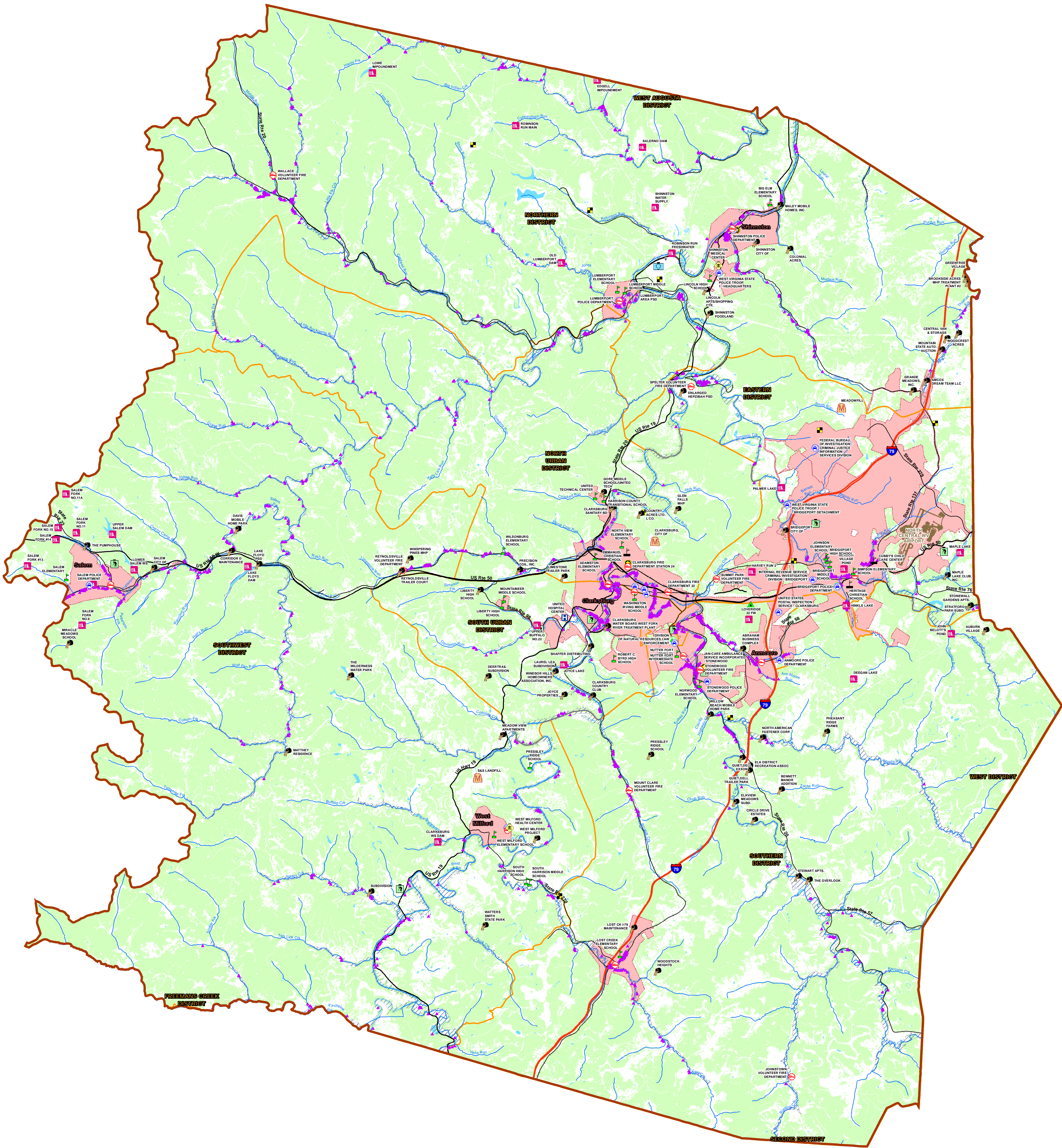
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4







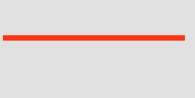



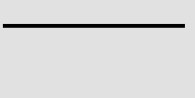




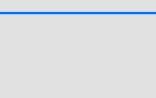












Miles

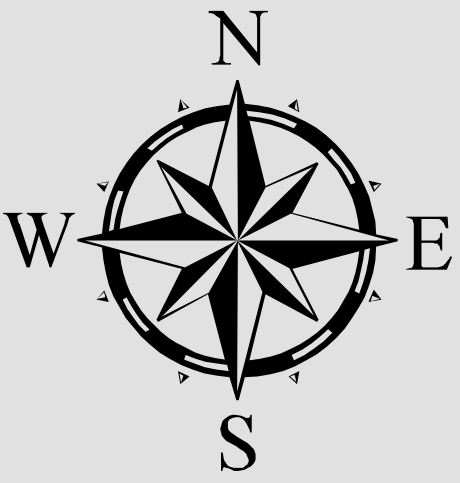


# HARRISON COUNTY, WV



## Legend

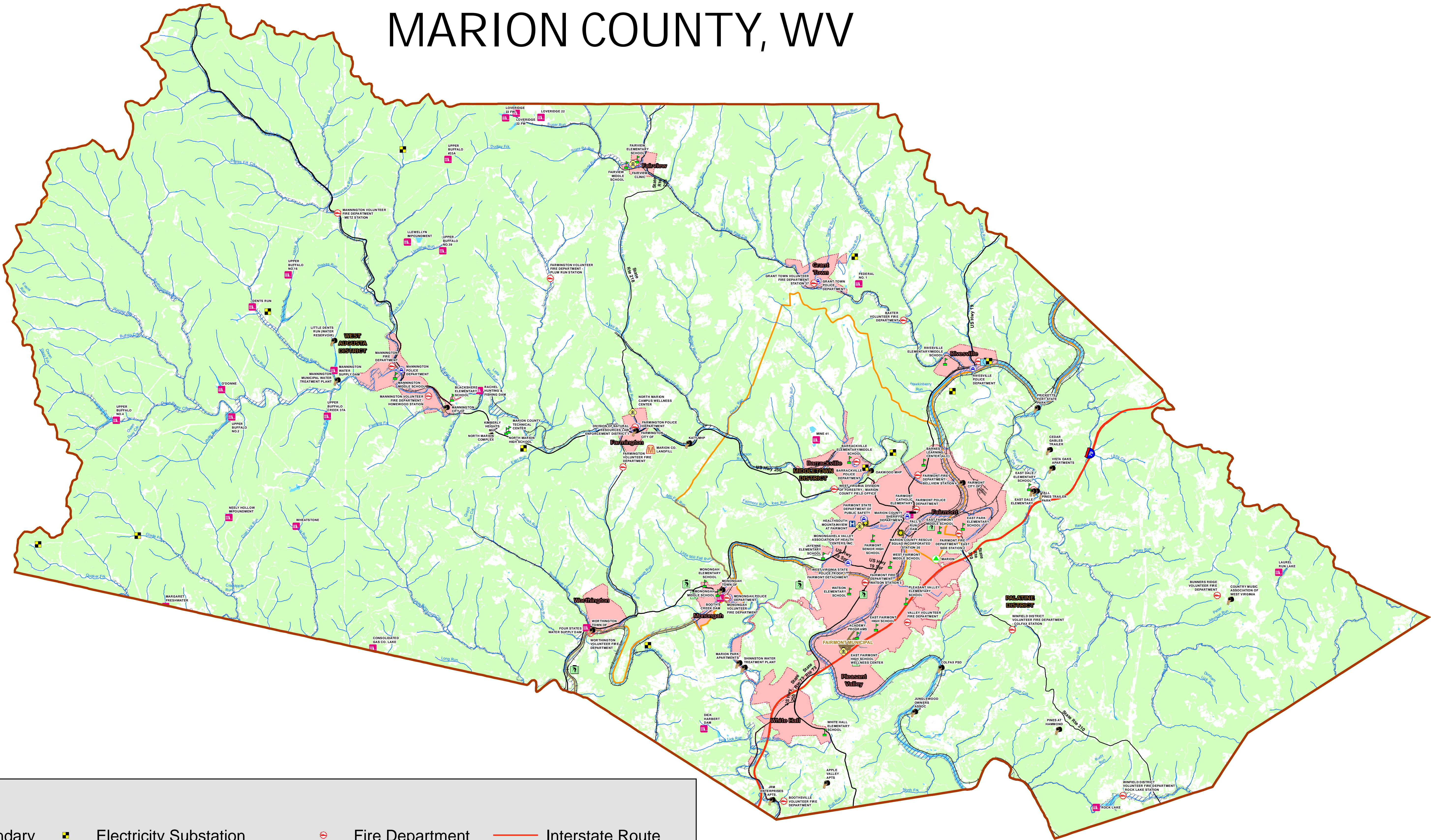
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|---|---------------------------|---|---------------------------|---|------------------|---|-------------------------------|
|  | Harrison County Boundary  |  | Community Health Provider |  | Airport          |  | Floodplain Structures at Risk |
|  | Minor Civil Division      |  | Elder Care                |  | Interstate Route |  | Dam                           |
|  | Incorporated Place        |  | Fire Department           |  | U.S. Route       |  | 100-Year Floodplain           |
|  | Forested                  |  | Hospital                  |  | State Route      |  | Waterway                      |
|  | Open Water                |  | Law Enforcement           |  | Railroad         |   |                               |
|  | Electricity Substation    |  | Medical Services          |   |                  |   |                               |
|  | Landfill                  |  | Operations Center         |   |                  |   |                               |
|  | Power Plant               |  | Private School            |   |                  |   |                               |
|  | Public Broadcasting Tower |  | Public School             |   |                  |   |                               |
|  | Sewer Treatment Facility  |   |                           |   |                  |   |                               |



0 2 4 Miles



# MARION COUNTY, WV



Legend

Marion County Boundary

Minor Civil Division

Incorporated Place

Forested

Open Water

Electricity Substation

Landfill

Power Plant

Sewer Treatment Facility

Community Health Provider

Elder Care

Fire Department

Hospital

Law Enforcement

Medical Services

Operations Center

Private School

Public School

Airport

Interstate Route

U.S. Route

State Route

Railroad

Dam

100-Year Floodplain

Waterway

N

W

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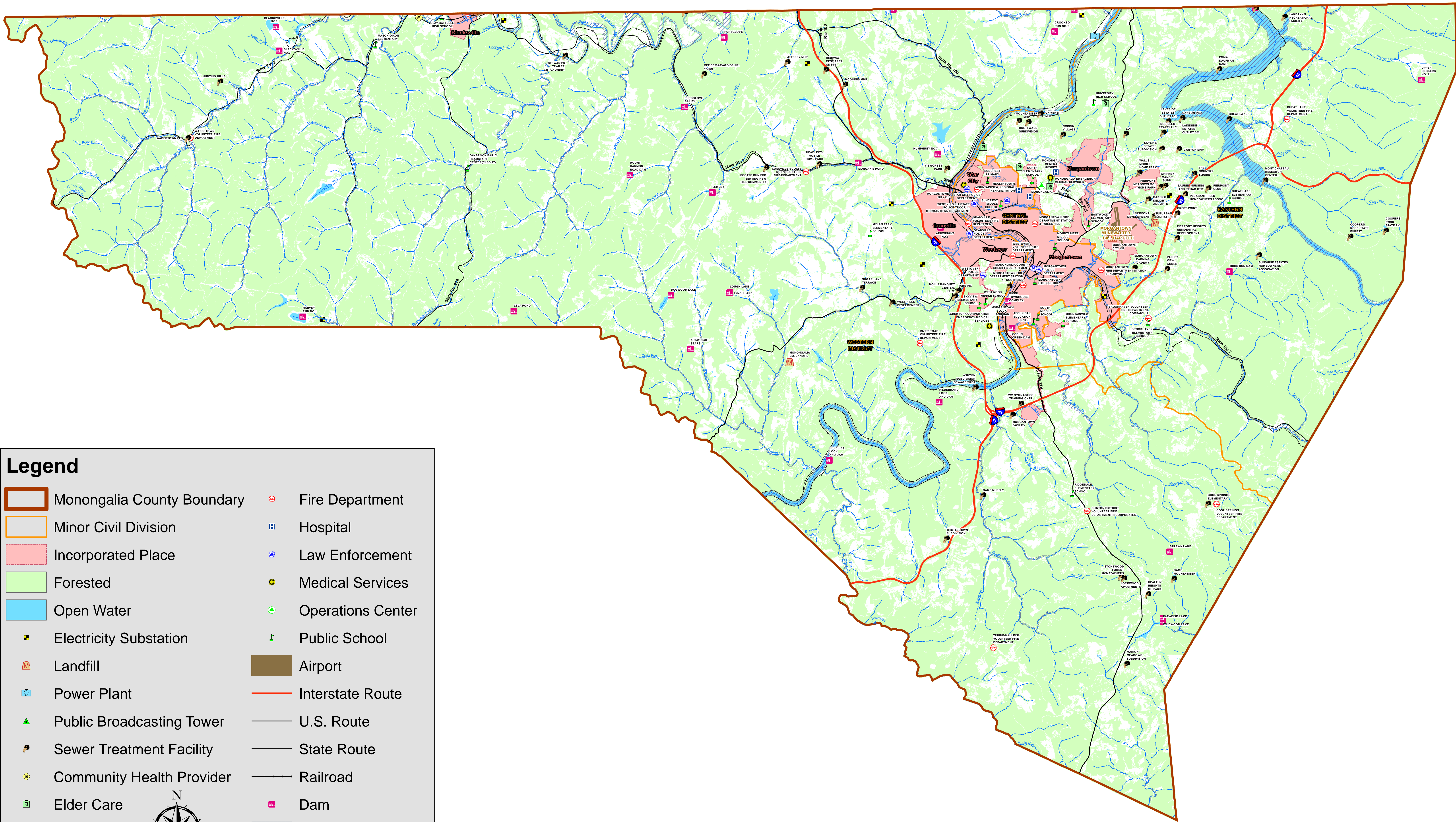
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2







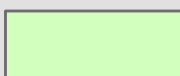

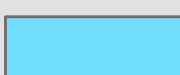






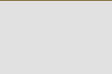

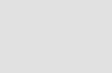

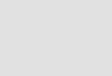
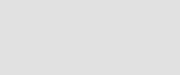
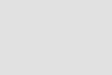
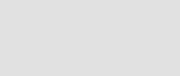
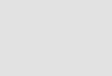

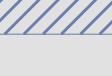
Miles



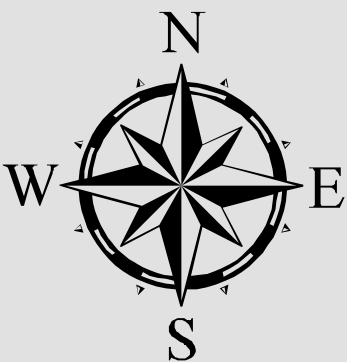
# MONONGALIA COUNTY, WV



## Legend

- |   |   |
|---|---|
|  Monongalia County Boundary |  Fire Department     |
|  Minor Civil Division       |  Hospital            |
|  Incorporated Place         |  Law Enforcement     |
|  Forested                   |  Medical Services    |
|  Open Water                 |  Operations Center   |
|  Electricity Substation     |  Public School       |
|  Landfill                   |  Airport             |
|  Power Plant                |  Interstate Route    |
|  Public Broadcasting Tower  |  U.S. Route          |
|  Sewer Treatment Facility   |  State Route         |
|  Community Health Provider  |  Railroad            |
|  Elder Care                 |  Dam                 |
|   |  100-Year Floodplain |
|   |  Waterway            |

0 1 2 Miles





# PRESTON COUNTY, WV

Legend

Preston County Boundary

Minor Civil Division

Incorporated Place

Forested

Open Water

Electricity Substation

Landfill

Power Plant

Public Broadcasting Tower

Sewer Treatment Facility

Community Health Provider

Elder Care

Fire Department

Hospital

Law Enforcement

Medical Services

Operations Center

Private School

Public School

Airport

Interstate Route

U.S. Route

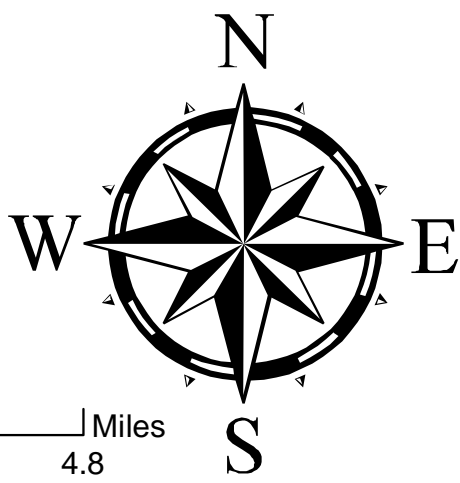
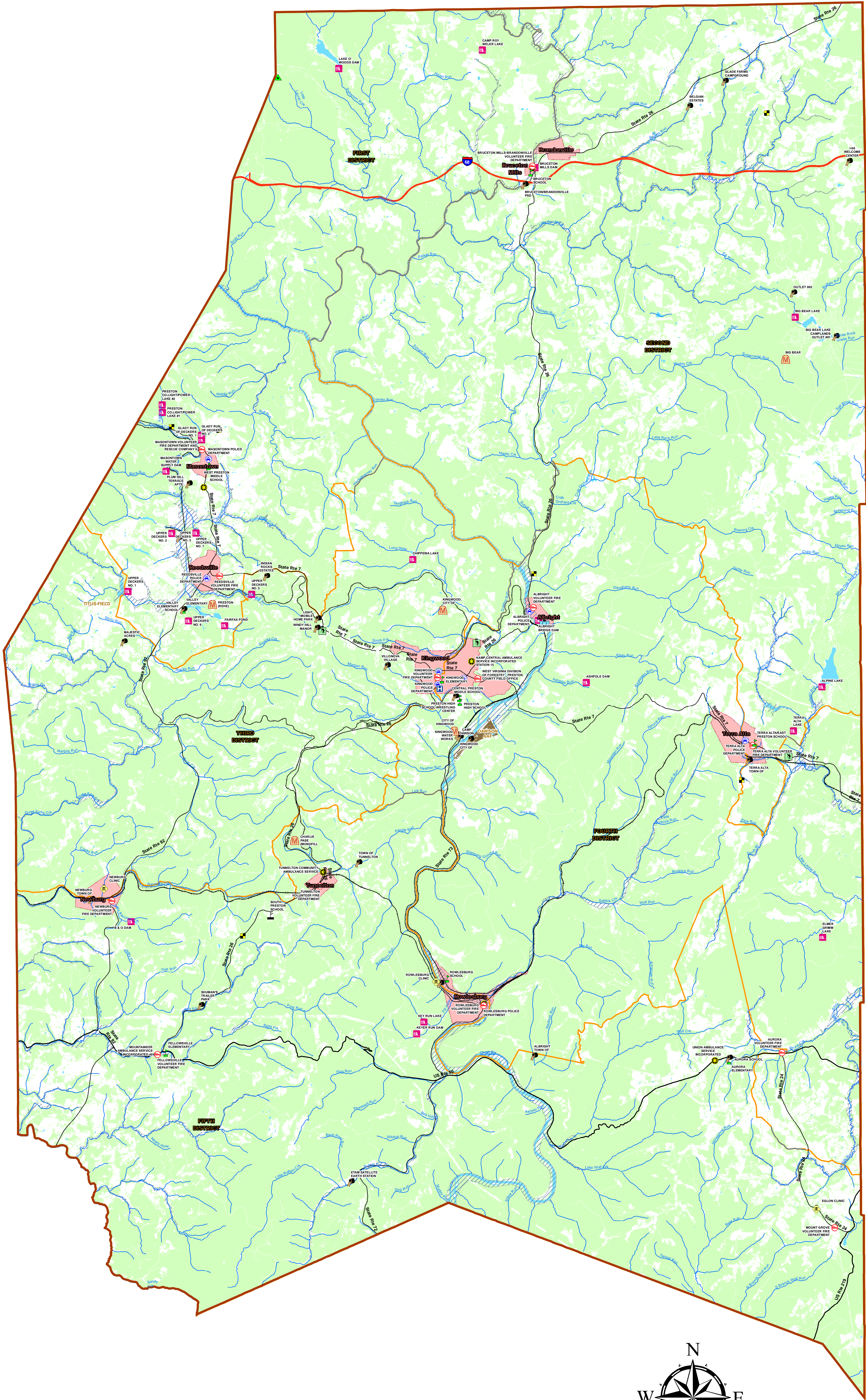
State Route

Railroad

Dam

100-Year Floodplain

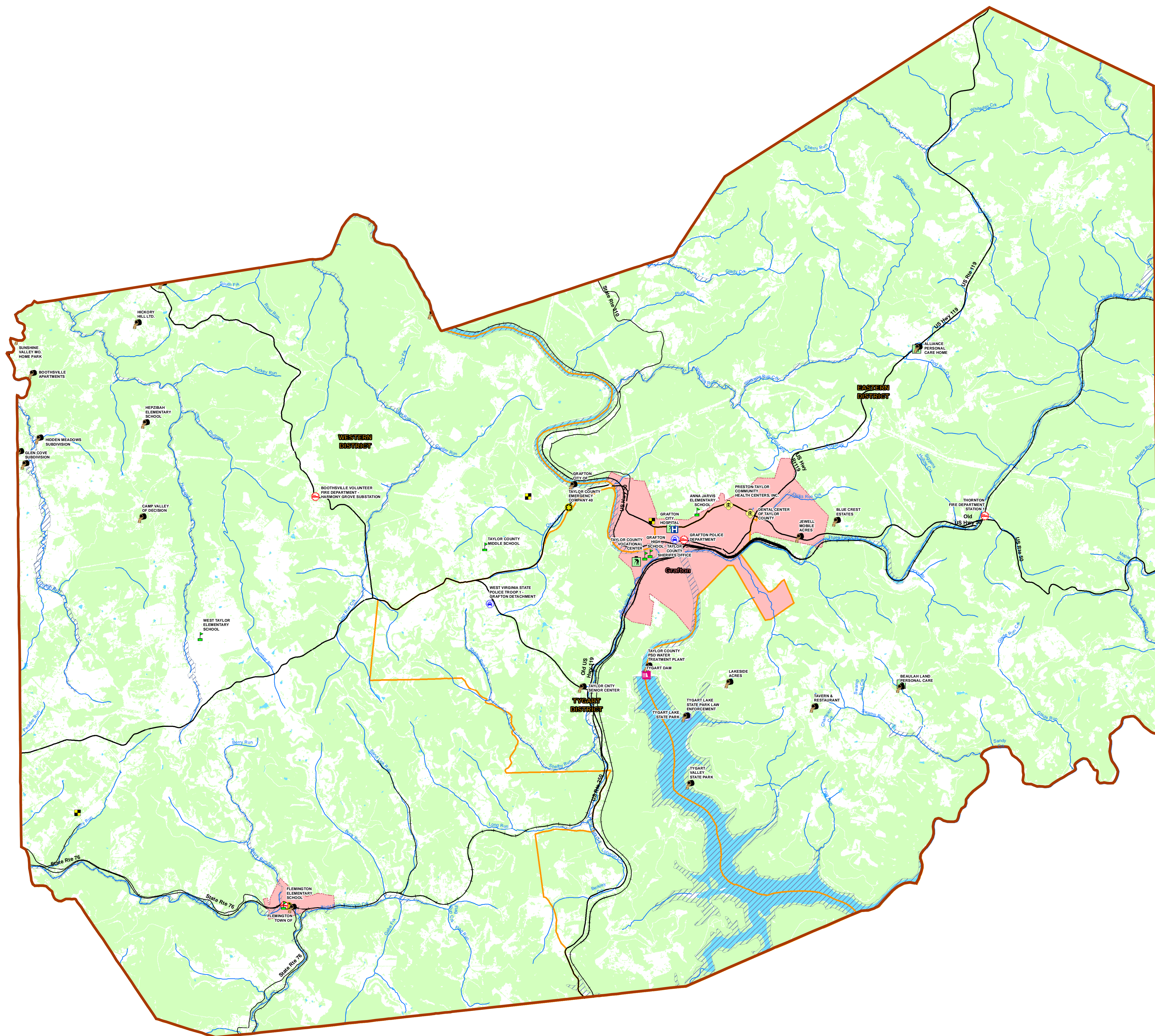
Waterway



0 2.4 4.8 Miles



# TAYLOR COUNTY, WV



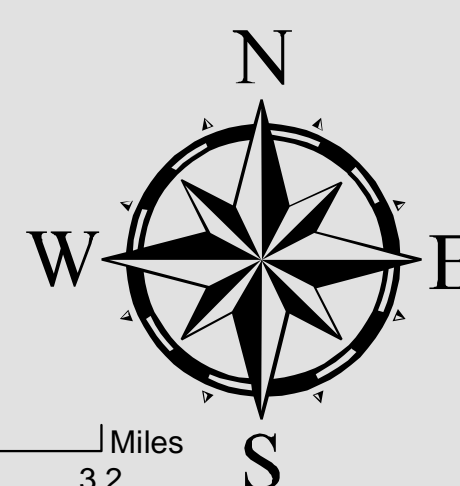
## Legend

- Legend:**

  - Taylor County Boundary
  - Minor Civil Division
  - Incorporated Place
  - Forested
  - Open Water
  - Electricity Substation
  - Sewer Treatment Facility
  - Community Health Provider
  - Elder Care
  - Fire Department
  - Hospital
  - Law Enforcement
  - Medical Services
  - Public School
  - U.S. Route
  - State Route
  - Railroad
  - Dam
  - 100-Year Floodplain
  - Waterway

Scale: 0 to 3.2 Miles

Compass Rose: N, S, E, W



A horizontal number line with tick marks at 0, 16, and 32. The word "Mile" is written at the right end. A solid line segment starts at 0 and ends at 16. At 16, there is an open circle. A dashed line segment starts at 16 and ends at 32.



### **III. MITIGATION STRATEGY**



### III. MITIGATION STRATEGY

Section III uses the risk assessment information from Section II to generate a list of action items (i.e., strategies) that Region VI's member governments can consider to greatly lessen potential hazard losses. This section lists and prioritizes them.

#### A. 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.
-----------------	--

Separate hazard mitigation goals and objectives were identified for the Region VI Planning and Development Council (PDC) and each of its member counties and municipalities in the 2012 regional consolidation plan. Except for the more administrative/management-oriented goals and objectives identified for the PDC, the goals and objectives that were identified for the counties and municipalities were largely similar with significant duplication from one municipality to the next. To remedy the unnecessary bulk associated with this duplication, the Mitigation Planning Committee, in consultation with the West Virginia Division of Homeland Security and Emergency Management, decided that it would be prudent as part of this Hazard Mitigation Plan Update to identify common goals and objectives among all 45 counties and municipalities, thereby establishing a more coordinated and regionalized approach to hazard mitigation. The Region VI PDC and regional county/municipal goals and objectives are listed below.

Also listed below are the respective hazard mitigation strategies that have been identified to achieve each objective. These strategies are listed here for reference purposes only. Section III.B of the plan provides a breakdown of the recommended strategies by individual county and municipality, along with detailed information for the implementation at the local level.

## 1. Region VI PDC Goals and Objectives

### **PDC Goal #1:**

**Lessen flood risk by maintaining compliance with the National Flood Insurance Program (NFIP) and undertaking buyout projects when funding is available.**

Objective PDC 1-A: Maintain compliance with the NFIP.

*Strategy PDC 1-A-1:* Maintain compliance with the NFIP at the jurisdictional level by attending training, monitoring development, and ensuring that local floodplain regulations are as current and applicable as possible.

*Strategy PDC 1-A-2:* Undertake buyout, elevation, and/or relocation projects in the Region VI PDC area when and if funding is available.

Objective PDC 1-B: Provide technical guidance for hazard mitigation.

*Strategy PDC 1-B-1:* Provide financial management and grant administration services for the implementation of flood hazard mitigation projects consistent with the approved Hazard Mitigation Plan in coordination with FEMA and the WV Division of Homeland Security and Emergency Management.

### **PDC Goal #2:**

**Better Identify hazard areas.**

Objective PDC 2-A: Use digital mapping technologies to better identify known hazard areas.

*Strategy PDC 2-A-1:* Coordinate, as appropriate, with partners throughout the region to identify the location of privately-owned dams.

*Strategy PDC 2-A-2:* Improve digital mapping of infrastructure in known hazard areas, including areas prone to flooding, landslides, and land subsidence.

*Strategy PDC 2-A-3:* Improve multi-hazard risk assessments with more detailed site-specific building inventories and hazard layers (i.e., advisory flood zones, depth grids, landslide incidences, landslide susceptibility, etc.).

*Strategy PDC 2-A-4:* Request and obtain historical flood/landslide event information that pinpoints bridge and road closures from the WV DOT 511 database.

### **PDC Goal #3:**

**Enhance mitigation efforts through public education and awareness.**

Objective PDC 3-A: Educate the public as to the hazards that could affect them.

*Strategy PDC 3-A-1:* Undertake public outreach campaigns that better describe the risk to such hazards as earthquakes, severe wind, wildfires, etc.

Objective PDC 3-B: Strengthen notification and warning capabilities.

*Strategy PDC 3-B-1:* Coordinate with critical facilities throughout the region to ensure access to National Oceanic and Atmospheric Administration (NOAA) all-hazard radios.

*Strategy PDC 3-B-2:* Ensure coordination with the National Weather Service (NWS) to enhance warnings of impending severe weather.

**PDC Goal #4:**

**Reduce the negative impacts of prolonged droughts across the region.**

Objective PDC 4-A: Implement public infrastructure improvement/expansion projects.

*Strategy PDC 4-A-1:* Continue to serve in a project management capacity for the implementation of publicly financed water and sewer infrastructure improvement expansion projects across the region.

## **2. Regional County/Municipal Goals and Objectives**

**Goal #1:**

**Reduce the negative effects of flooding.**

Objective 1-A: Minimize future damage due to flooding.

*Strategy 1-A-1:* Amend floodplain ordinance for compliance with the NFIP regulations.

*Strategy 1-A-2:* Establish procedure to amend ordinances as NFIP regulations change.

*Strategy 1-A-3:* Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and Installation of flood walls or shields, as applicable.

*Strategy 1-A-4:* Continuation of acquisition and demolition of Federal Emergency Management Agency (FEMA)-identified repetitive loss structures.

*Strategy 1-A-5:* Revise subdivision regulations to require provision for open space on land that is in the floodplain.

*Strategy 1-A-6:* Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

*Strategy 1-A-7:* Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

*Strategy 1-A-8:* Undertake further flood-proofing of the Bridgeport Fire Department.

*Strategy 1-A-9:* Encourage the preservation of land in the floodplain as passive recreation and open space.

*Strategy 1-A-10:* Design and implement a county-wide program to identify at risk structures from flooding.

*Strategy 1-A-11:* Relocate the Wallace Fire Department to an area not in the floodplain.

*Strategy 1-A-12:* Work with public utilities to:

- Elevate vulnerable equipment where possible, and
- Fasten and seal manholes located in the floodplain.

*Strategy 1-A-13:* Develop and implement a county-wide stormwater management plan.

**Objective 1-B:** Reduce the number of properties that are exposed to flooding.

*Strategy 1-B-1:* Conduct acquisition and relocation projects and adopt ordinances that limit development in the floodplain.

*Strategy 1-B-2:* Continue to seek out opportunities to apply for Hazard Mitigation Assistance (HMA) funds for mitigation reconstruction, elevations, relocations or acquisitions of identified at risk, repetitive loss, non-repetitive loss, substantial damaged, partially or completely demolished or destroyed properties within the county. If mitigation reconstruction is chosen, properties identified as partially or completely demolished, outside of the regulatory floodway, as identified by available flood hazard data, will be reconstructed in accordance with the standards established in the local floodplain ordinance and in accordance with the same conditions as an elevated structure. The county will comply with all acquisition, elevation, relocation and mitigation reconstruction requirements, as per the HMA Guidance.

Objective 1-C: Participate in the Community Rating System (CRS) to help monitor hazard mitigation efforts and to improve the affordability of flood insurance for citizens.

*Strategy 1-C-1:* Coordinate county efforts to meet the requirements of becoming a participant in the CRS.

Objective 1-D: Minimize future flood damage by increasing control over development in the floodplain.

*Strategy 1-D-1:* Use municipal regulations as models to develop a county-wide permitting process to supplement the measures taken by lending institutions to monitor new construction in the floodplain.

*Strategy 1-D-2:* Instate a county-wide permitting process which will require residents and/or developers to file a permit with the county before beginning any new construction as a means of regulating floodplain development.

*Strategy 1-D-3:* Continue the implementation of county-wide floodplain management.

*Strategy 1-D-4:* Place the county floodplain ordinance on the county webpage.

Objective 1-E: Increase public awareness of impending floods.

*Strategy 1-E-1:* Continue to educate faculty and staff at schools on NOAA radio usage.

Objective 1-F: Lessen flood damage by preserving the natural course of waterways, and conducting structural projects.

*Strategy 1-F-1:* Clean Big Sandy Creek and its floodplain, clearing log jams, trees and shrubs, and sediment bars.

*Strategy 1-F-2:* Clean portions of Middle Island Creek and its floodplain, clearing log jams, trees and shrubs, and sediment bars.

*Strategy 1-F-3:* Investigate the feasibility of constructing additional flood-control dams throughout the county.

*Strategy 1-F-4:* Assess the feasibility of using the debris cleaned from the creek and streams to build an earthen floodwall along the creek to protect properties from flooding and erosion.

Objective 1-G: Develop, implement, or strengthen regulatory requirements to lessen flood damage.

*Strategy 1-G-1:* Conduct acquisition and/or relocation projects in frequently flooded portions of the county.

*Strategy 1-G-2:* Participate in the CRS and join the NFIP to reduce flood insurance rates.

*Strategy 1-G-3:* Continue the development of stormwater management codes for future development outside of the City of Morgantown, where such actions are underway.

Objective 1-H: Target owners of properties within identified hazard areas for additional outreach regarding mitigation and disaster preparedness.

*Strategy 1-H-1:* Distribute letters to all property owners in the county regarding potential flood hazards as required for participation in the CRS.

*Strategy 1-H-2:* Hold local courses on NFIP for realtors, bankers, insurers, and municipal development officials.

*Strategy 1-H-3:* Obtain updated information on the number of NFIP policy holders in Taylor County and its municipalities.

Objective 1-I: Identify all repetitive loss structures throughout the county.

*Strategy 1-I-1:* Collect updated information on the number and location of all repetitive loss properties throughout the county and the municipalities.

*Strategy 1-I-2:* Develop a database of information on all repetitive loss properties including maps.

*Strategy 1-I-3:* Identify owners of repetitive loss properties who are interested in participating in future property acquisition and relocation projects.

Objective 1-J: Assess vulnerability of transportation systems and assets located in hazard areas.

*Strategy 1-J-1:* Work with the WV Division of Highways to identify areas of frequent roadway flooding and develop mitigation strategies.

Objective 1-K: Minimize future flood damage in municipal areas through effective stormwater management.

*Strategy 1-K-1:* Develop and conduct acquisition and relocation projects.

*Strategy 1-K-2:* Collect updated information on the number and location of repetitive loss properties.

*Strategy 1-K-3:* Catalog areas prone to flooding and poor drainage to include in potential drainage improvement plans.

*Strategy 1-K-4:* Develop stringent stormwater management codes for future development, possibly including a stormwater utility.

Objective 1-L: Further define the flood risk so that future mitigation projects can be as effective as possible.

*Strategy 1-L-1:* Work with applicable agencies to facilitate studies in repeatedly flooded areas such as Dents Run, Burroughs Run, Dunkard, Sabraton, and areas along Decker's Creek.

**Goal #2:**

**Generally lessen the effects of hazards and disasters.**

Objective 2-A: Undertake general mitigation projects to address a variety of hazards.

*Strategy 2-A-1:* Equip shelter facilities to provide back-up power.

*Strategy 2-A-2:* Maintain and update the early warning systems that are in place throughout the county.

*Strategy 2-A-3:* Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

*Strategy 2-A-4:* Identify and make all private sector resources available in concert with the Local Emergency Planning Committee (LEPC) Resource Manual.

*Strategy 2-A-5:* Install lighting at the town helicopter pad for emergency night landings.

*Strategy 2-A-6:* Encourage local cell phone users to sign up for automated 911 emergency updates.

Objective 2-B: Conduct an inventory of available disaster shelters to determine adequacy for current and future populations.

*Strategy 2-B-1:* Assess the number, location, strength, and ability of shelters to house residents and withstand high wind speeds. Consider constructing concrete safe rooms near mobile home parks and other vulnerable public areas.

*Strategy 2-B-2:* Establish a protocol for the sharing of annual shelter survey information between the local American Red Cross and the TCOES.

Objective 2-C: Undertake structural projects to reduce the risk of water contamination.

*Strategy 2-C-1:* Construct a building over the clarifiers at the water treatment plant.

*Strategy 2-C-2:* Relocate the water intake upstream from the railroad river crossing.

**Goal #3:**

**Reduce the negative effects of severe winter storms.**

Objective 3-A: Minimize future damage due to severe winter storms.

*Strategy 3-A-1:* Adopt and enforce the state building code.

*Strategy 3-A-2:* Encourage the placement of utility lines underground for critical facilities.

*Strategy 3-A-3:* Encourage tree trimming adjacent to utilities.

*Strategy 3-A-4:* Inventory all human and physical resources of public utilities and other public agencies, which may be utilized or shared in emergencies.

Objective 3-B: Streamline snow removal processes to better serve residents.

*Strategy 3-B-1:* Update resource list of contracts with snow removal agencies.

*Strategy 3-B-2:* Acquire a backup snowplow to use during severe winter storms.

Objective 3-C: Ensure adequate emergency services to protect the public during winter storm events.

*Strategy 3-C-1:* Continue outfitting and preparing the winter rescue team to ensure that emergency responders can access all parts of the county.

Objective 3-D: Minimize future damage from severe winter storms by increasing response capabilities.

*Strategy 3-D-1:* Coordinate with local private contractors to develop mutual aid agreements for emergency snow removal, also develop a Debris Management Plan that can be implemented following a disaster occurrence.

Objective 3-E: Utilize building codes and other ordinances to lessen damage from severe winter storms.

*Strategy 3-E-1:* Institute county-wide building codes and other general planning requirements, which will regulate the materials used in construction with respect to snow and ice weight.

*Strategy 3-E-2:* Enforce existing building codes and planning requirements that are already in place.

Objective 3-F: Reduce the amount of blowing and drifting snow over roadways.

*Strategy 3-F-1:* Consider constructing snow fences or planting rows of trees to serve as living snow fences to limit blowing and drifting snow over critical roadways.

#### **Goal #4:**

**Reduce the negative effects of wind storms, thunderstorms, hailstorms, and tornadoes.**

Objective 4-A: Minimize damage due to wind storms, thunderstorms, hailstorms, and tornadoes.

*Strategy 4-A-1:* Adopt and enforce the state building code.

*Strategy 4-A-2:* Encourage the use of laminated glass in window panes during all new construction.



*Strategy 4-A-3:* Develop a public awareness program regarding shelters, the Emergency Alert System (EAS), and retrofitting of existing buildings.

*Strategy 4-A-4:* Identify and structurally analyze all buildings identified as shelters and strengthen as necessary.

Objective 4-B: Increase public awareness/provide adequate warning that a severe storm is imminent.

*Strategy 4-B-1:* Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

*Strategy 4-B-2:* Continue to monitor and maintain the three rain gauges installed at strategic points throughout the county. Use these gauges in conjunction with the new weather station to monitor current and developing weather incidents.

*Strategy 4-B-3:* Coordinate efforts with local media to post advance warnings of severe storms.

*Strategy 4-B-4:* Encourage the use of NOAA weather radios, which continuously broadcast NWS forecasts.

*Strategy 4-B-5:* Encourage authorized individuals to use the EAS on commercial radio, television, and cable systems to send out emergency information targeted to specific areas.

*Strategy 4-B-6:* Conduct NWS Storm Spotter classes.

*Strategy 4-B-7:* Develop an informational brochure describing proper safety procedures to follow during a tornado or severe windstorm.

Objective 4-C: Decrease the probability of utility failures as a direct result of severe thunderstorms.

*Strategy 4-C-1:* Coordinate with the power company to periodically trim trees near power lines to prevent limb breakage and power failures.

*Strategy 4-C-2:* Work with power companies to identify areas prone to power interruptions due to storms and wind events.

Objective 4-D: Minimize future damage from severe wind or tornadoes by increasing control over construction activities.

*Strategy 4-D-1:* Reduce the risk of mobile home damage by suggesting the use of tie-downs with ground anchors appropriate for the soil type.

*Strategy 4-D-2:* Instate county-wide building codes which will regulate the materials used in buildings that are constructed with respect to design wind speeds.

Objective 4-E: Undertake structural projects to minimize the loss of life and number of injuries incurred during a tornado.

*Strategy 4-E-1:* Construct tornado shelters near vulnerable areas, such as mobile home parks.

**Goal #5:**

**Reduce the potential effects of earthquakes.**

Objective 5-A: Ensure that residents understand the earthquake risk.

*Strategy 5-A-1:* 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.

*Strategy 5-A-2:* Encourage the implementation of structural mitigation techniques such as wall bracing, reinforcing walls with fiber materials, and installing dampers or vibration isolation bearings in new construction.

**Goal #6:**

**Mitigate potential damage from land subsidence.**

Objective 6-A: Consider revising codes and other ordinances to protect future assets from land subsidence.

*Strategy 6-A-1:* Educate the public as to the benefits of building codes and overall community and land use planning as well as advantages to mitigation planning.

*Strategy 6-A-2:* Strictly enforce ground disturbance permitting regulations, such as new MS4 requirements, in municipal and county jurisdictions.

*Strategy 6-A-3:* Instate county-wide 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.

Objective 6-B: Undertake projects to shore up areas susceptible to slippage and/or erosion.

*Strategy 6-B-1:* Undertake active re-vegetation and other stormwater programs to cover areas of bare ground that may be susceptible to erosion.

*Strategy 6-B-2:* Evaluate the viability of the retaining wall on Logan and Jefferson Streets in Morgantown's South Park.

Objective 6-C: Assess the feasibility of undertaking mine reclamation projects.

*Strategy 6-C-1:* Consider developing a land use plan or modifying an existing plan to guide development away from and reduce the density of population in subsidence-prone areas.

Objective 6-D: Take actions to limit the number of structures built on known mine subsidence areas.

*Strategy 6-D-1:* Conduct a mapping project to identify old mining areas or geologically unstable terrain so that development can proceed accordingly in those areas.

## **Goal #7:**

**Reduce the negative effects caused by drought.**

Objective 7-A: Upgrade or extend public infrastructure systems.

*Strategy 7-A-1:* Develop plans and schedules with the Department of Agriculture to haul water to residents during drought conditions.

*Strategy 7-A-2:* Extend public water and sewer service to communities currently without service (improve infrastructure).

*Strategy 7-A-3:* Add new pump station(s) for municipal water supply (redundant system).

Objective 7-B: Ensure that residents understand the drought hazard and how to mitigate it.

*Strategy 7-B-1:* Educate local residents on the benefits of conserving water at all times, not just during a drought.

*Strategy 7-B-2:* Consider passing ordinances to prioritize or control water use, particularly for emergency situations such as firefighting.

Objective 7-C: Provide for an emergency backup power supply to the Kingwood water treatment plant.

*Strategy 7-C-1:* Purchase and permanently install two generators at the Kingwood Water Treatment Plant.

Objective 7-D: Increase the stability of the public drinking water supply in the county.

*Strategy 7-D-1:* Interconnect infrastructure systems so that one system could supply another during emergency drought conditions.

*Strategy 7-D-2:* Provide for an emergency backup power supply at all water treatment facilities in the county.

**Goal #8:**

**Reduce damage due to fires.**

Objective 8-A: Minimize damage due to fires.

*Strategy 8-A-1:* Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

*Strategy 8-A-2:* Encourage removing vegetation and combustible materials around structures.

*Strategy 8-A-3:* Explore mechanisms for county residents to obtain fire hydrants and other fire-suppression tools.

*Strategy 8-A-4:* Provide fire roads to aid in firefighting.

*Strategy 8-A-5:* Upgrade roofing with fire-resistant materials.

Objective 8-B: Educate the public on how to avoid starting wildfires.

*Strategy 8-B-1:* Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

*Strategy 8-B-2:* Encourage residents in rural areas to inspect and clean their chimneys at least once a year.

*Strategy 8-B-3:* Encourage residents and businesses to maintain their property in or near forested areas (including short grass; thinned trees and removal of low-hanging branches; cleaning of dead or dry leaves, needles, twigs, etc.) and to create a buffer zone (defensible space) between structures and adjacent forests.

*Strategy 8-B-4:* Create displays for children's programs that teach safety. Examples of information to be used would be similar to that on the FEMA for Kids CD and/or the Sparky Fire Safety Program.

**Goal #9:**

**Continue to strengthen response capabilities to urban fires and wildfires.**

Objective 9-A: Educate the public on the fire risk, to include avoidance measures.

*Strategy 9-A-1:* Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

Objective 9-B: Increase the number of training opportunities aimed at increasing participating jurisdictions' capability to respond to fire incidents.

*Strategy 9-B-1:* Continue to train and organize local fire service personnel to assist in the investigation of structural fires and the citation of code violations through a certification program made available to local fire chiefs.

*Strategy 9-B-2:* Coordinate with the West Virginia State Fire Marshal (WVSFM) to extend the jurisdiction of deputized fire marshals to a statewide jurisdiction.

*Strategy 9-B-3:* Certify police departments (PDs), which have arrest powers, to handle arson investigations in place of fire departments, which do not have arrest powers (include a modified version of the State Police Academy to provide such training).

Objective 9-C: Undertake public awareness campaigns to strengthen the participating jurisdictions' capabilities to respond to fire events.

*Strategy 9-C-1:* Facilitate public awareness campaigns aimed at recruiting more volunteers at volunteer fire departments (VFDs).

*Strategy 9-C-2:* Continue public awareness campaigns in schools, etc.

*Strategy 9-C-3:* Hire additional firefighters at paid-staff fire departments.

Objective 9-D: Ensure resources are in place to fight urban fires and wildfires.

*Strategy 9-D-1:* Continue installing wet and dry hydrants in rural portions of the county.

*Strategy 9-D-2:* Consider planning and subdivision regulations that will require certain levels of fire flow and potable water pressure as subdivisions are developed.

## **Goal #10:**

### **Reduce the negative effects of landslides.**

Objective 10-A: Minimize future damage from landslides by increasing control over construction activities.

*Strategy 10-A-1:* Reduce the amount of landslides by monitoring clear-cutting operations.

*Strategy 10-A-2:* Decrease the number of landslide occurrences around oil and gas wells by monitoring the location of the wells and drilling practices.

*Strategy 10-A-3:* Revise regulations for hillside development and landslide-prone areas in the county's subdivision regulations.

*Strategy 10-A-4:* Assist local utilities with mapping of shutoffs and encourage planned development in event of emergency.

*Strategy 10-A-5:* Instate county-wide building codes which will regulate the number of buildings constructed, the materials used in buildings that are constructed, and the locations in which buildings are constructed.

*Strategy 10-A-6:* Develop ordinances requiring logging companies to clean and replant areas that they log. The ordinance should include the amount of replanting that is expected.

*Strategy 10-A-7:* Analyze the locations of various utility towers and strengthen, as necessary.

*Strategy 10-A-8:* Analyze the locations of water and gas lines and provide shut-off valves, as necessary.

**Objective 10-B:** Reduce future damage to infrastructure (mainly roads) due to landslides.

*Strategy 10-B-1:* Strategically place stabilization walls in slip-prone areas along county highways.

*Strategy 10-B-2:* Reduce the amount of debris on roadways resulting from landslides by erecting safety fences along highways near slip-prone areas.

*Strategy 10-B-3:* Coordinate with West Virginia Division of Highways (WVDOT) to continue monitoring the slippage repairs along U.S. Route 250 near White Hall.

*Strategy 10-B-4:* Research measures, such as retaining cables, to prevent falling rock incidents along roadways.

*Strategy 10-B-5:* Pre-disaster mitigation of slide-prone areas which threaten critical infrastructure or utilities such as roadways, water lines, sewer lines, gas, phone, electric, internet, and cable.

*Strategy 10-B-6:* Work with the West Virginia University GIS Technical Center to develop detailed mapping of known and potential landslide hazard areas.

**Objective 10-C:** Develop more effective response mechanisms when landslides occur.

*Strategy 10-C-1:* Establish procedures with companies to clean up material from a landslide quickly and to monitor areas of high risk.

**Goal #11:**  
**Reduce damage due to dam failures.**

**Objective 11-A:** Reduce the probability of significant flood damage as a result of a dam failure.

*Strategy 11-A-1:* Prepare annual updates of dam assessments in accordance with state law.

*Strategy 11-A-2:* Explore state, federal, and private funding sources for dam rehabilitation.

*Strategy 11-A-3:* Coordinate with the West Virginia Department of Environmental Protection, Dam Control regulations under the provisions of Chapter 22-14 of the West Virginia Dam Control and Safety Act as outlined in the West Virginia Code, to periodically reclassify any dam within Preston County as a result of a change in circumstances not in existence at the time of the initial classification to ensure adequate safety according to the potential for downstream damage.

*Strategy 11-A-4:* Coordinate with the U.S. Army Corps of Engineers (USACE) to update outdated flood studies encompassing areas affected by the failure or topping of Significant Hazard Dams within and near Preston County including, for example, the Masontown Water Supply Dam.

Objective 11-B: Determine what projects can be implemented to reduce the vulnerability in the event of a dam breach.

*Strategy 11-B-1:* Coordinate with the Soil Conservation Service (SCS) to continue updating the map showing areas that would be affected by a dam failure.

Objective 11-C: Regulate development in the hydraulic shadow of dams.

*Strategy 11-C-1:* Identify the areas that would be severely flooded in the event of a severe failure of the Tygart Lake Dam and develop zoning regulations that disallow future development in those areas.

*Strategy 11-C-2:* Regulate development in the hydraulic shadow (or areas where flooding would occur if there was a severe dam failure of the Masontown water supply dam).

Objective 11-D: Use available technology to identify potential hazard-event losses so as to mitigate them.

*Strategy 11-D-1:* Develop a layer to the county's available mapping showing the areas downstream of the Tygart Lake Dam to complement any structural inventory mapping that has been done. As such, county officials can easily sum the potential losses in a single dam's susceptibility area.

## **Goal #12:**

**Improve delivery of services during any emergency or catastrophic event.**

Objective 12-A: Minimize damage improving delivery of services during any emergency or catastrophic event.

*Strategy 12-A-1:* Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

## **Goal #13:**

**Prepare for potential epidemic situations.**

Objective 13-A: Undertake planning projects to protect the population from epidemic and pandemic situations.

*Strategy 13-A-1:* Produce public awareness campaigns via various local media outlets.

Objective 13-B: Work with the local health department to limit or eliminate the spread of diseases by reducing the source of the infection.

*Strategy 13-B-1:* Encourage residents to receive immunizations against communicable infectious diseases.

*Strategy 13-B-2:* Purchase a stockpile of medications for distribution to first responders county-wide. Medications would include antibiotics, antivirals, etc. Purchase a refrigerator for storage and an alarm system and generator for temperature maintenance.

**Goal #14:**

**Reduce the negative effects of utility failures such as communications, electricity, natural gas, water, and wastewater service failures.**

Objective 14-A: Coordinate with utility providers to facilitate a better emergency response capability.

*Strategy 14-A-1:* Encourage Allegheny Power to undertake projects to increase the number of feeder lines into rural areas so as to create back-up electricity in the event that one of the feeder lines fails.

*Strategy 14-A-2:* Encourage Allegheny Power to allow employees to take company vehicles home to be available for emergency call-outs in the event of a downed electric line. These actions will free up local emergency responders who normally monitor the downed line.

Objective 14-B: Educate the public as to steps that can be taken to prevent long-term utility failures.

*Strategy 14-B-1:* Encourage representatives from the county's assets (e.g., company leaders, etc.) to draft and distribute guidelines to implement in the event of Heating Ventilation, and Air Conditioning (HVAC) failure.

Objective 14-C: Create a local capability to enable community assets to prevent utility failures.

*Strategy 14-C-1:* Instate a grant or low-interest loan program to help individual residents finance generators and other back-up electricity systems.

Objective 14-D: Enhance public utilities capability to continue operating during and following natural disasters.

*Strategy 14-D-1:* Purchase and install generators to provide a back-up power supply for all the county's public utilities.

Objective 14-E: Improve and extend emergency communications systems' capabilities county-wide.

*Strategy 14-E-1:* Restrict non-critical phone usage during emergency situations by instating a line-load program through the telephone company.



Objective 14-F: Upgrade feeder lines in rural areas to improve access to the electrical infrastructure.

*Strategy 14-F-1:* Increase the number of feeder lines into rural areas so as to create back-up electricity in the event that one of the feeder lines fails.

*Strategy 14-F-2:* Decrease the probability of utility failures as a direct result of severe thunderstorms by coordinating with the power company to periodically trim trees near power lines to prevent limb breakage and power failures.

**Goal #15:**

**Prolong resource availability for as long as possible during emergencies.**

Objective 15-A: Educate the public regarding the potential for resource shortages; also, develop a notification capability to warn residents of shrinking resource supplies.

*Strategy 15-A-1:* Coordinate with local media to announce low resource/fuel supplies.

*Strategy 15-A-2:* Increase public knowledge as to resource conservation by distributing information to new and existing customers.

**Goal #16:**

**Take measures to lessen the probability and severity of hazardous materials incidents.**

Objective 16-A: Identify potential problem areas within the transportation network.

*Strategy 16-A-1:* Assess the feasibility of cleaning up busy intersections.

*Strategy 16-A-2:* Evaluate railroad and roadway intersections for warning systems, etc.

*Strategy 16-A-3:* Evaluate dams and locks that play an integral role in water transportation.

Objective 16-B: Ensure that the public is both aware of the hazardous material risk and potential protective measures.

*Strategy 16-B-1:* Publicize evacuation plans.

*Strategy 16-B-2:* Facilitate the creation of safe zones as places where residents can go in the event of a hazardous material incident. Further, publicize the location and access to these safe zones.

Objective 16-C: Conduct a county-wide hazardous materials inventory and transport study.

*Strategy 16-C-1:* Conduct a Tier II Assessment on the large retailers in the county to identify who should and who should not be reporting.

*Strategy 16-C-2:* Apply for a Hazardous Materials Emergency Preparedness (HMEP) grant from the WVDHSEM to finance the development of a Commodity Flow Study to determine what hazardous materials are used, stored, and shipped through the county.

Objective 16-D: Ensure adequate manpower, equipment, supplies, etc. are available for first response units.

*Strategy 16-D-1:* Maintain a stock of hazardous materials incident response supplies, such as cleanup materials and personal protective equipment, and increase the number of personnel that are certified to conduct hazardous materials cleanups so that responders have an adequate supply to respond to multiple incidents.

Objective 16-E: Reduce the risks associated with fixed site hazardous materials incidents.

*Strategy 16-E-1:* Coordinate with personnel at facilities that store and use hazardous materials to develop and exercise site emergency plans and community response plans as required under SARA Title III.

*Strategy 16-E-2:* Ensure proper separation and buffering between industrial areas and other land uses such as schools, nursing homes, hospitals, etc.

#### **Goal #17:**

**Protect the general public from biological, chemical, and WMD terrorist attacks.**

Objective 17-A: Protect vulnerable populations from terrorist acts.

*Strategy 17-A-1:* Encourage schools to adopt and/or upgrade procedural and evacuation plans in the event of a bomb threat.

Objective 17-B: Undertake planning projects to build a response capability to terrorist incidents.

*Strategy 17-B-1:* Establish trauma centers to offer medical attention and counseling to affected populations in the event of a terrorist attack.

Objective 17-C: Educate the public regarding preparedness for acts of terrorism.

*Strategy 17-C-1:* Increase the knowledge of the general public concerning preparedness through the preparation of informational brochures, town meetings, training seminars, etc.

Objective 17-D: Facilitate agency collaboration to better prepare for terror incidents.

*Strategy 17-D-1:* Coordinate with first responders for interagency cooperation to assist in collaborative planning.

*Strategy 17-D-2:* Continue education and training efforts of first responders and emergency personnel.

Objective 17-E: Increase county-wide preparedness for terrorist attacks.

*Strategy 17-E-1:* Coordinate with local media to alert the public as to the current threat status.

*Strategy 17-E-2:* Make arrangements or otherwise establish mass morgue facilities to be used following potential mass casualty events.

*Strategy 17-E-3:* Encourage county assets to instate and/or update procedural and evacuation plans in the event of a bomb threat.

*Strategy 17-E-4:* Develop and/or enhance terrorist incident response annexes in the county Emergency Operations Plan (EOP).

Objective 17-F: Increase security around major industrial and critical infrastructural assets.

*Strategy 17-F-1:* Coordinate with local and state law enforcement to increase security at the major assets throughout the county.

**Goal #18:**

**Protect the population from a prolonged heat wave associated with major drought events.**

Objective 18-A: Increase public knowledge of protective measures to take during a drought-related heat wave.

*Strategy 18-A-1:* Develop and distribute an informational brochure to local residents.

**Goal #19:**

**Reduce the occurrence and effects of highway incidents.**

Objective 19-A: Increase public awareness of high risk areas along I-79.

*Strategy 19-A-1:* Research the possibility of lowering speed limits along accident-prone sections of I-79.

Objective 19-B: Improve emergency responder's ability to handle a wide variety of incidents.

*Strategy 19-B-1:* Make hazmat training available for emergency services responders.

**Goal #20:**  
**Prevent civil disturbances.**

Objective 20-A: Strengthen law enforcement presence at large gatherings.

*Strategy 20-A-1:* Increase security at large gatherings, festivals, sporting events, etc. throughout the county and municipalities. Examples include events at Mylan Park, Mountain Fest, and events at WVU.

**B. IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIONS**

§201.6(c)(3)(ii)

The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

This portion of the plan builds on the goals and objectives presented in Section III.A. Whereas Section III.A lists only the hazard mitigation goals and objectives that were identified for the region, this section identifies the corresponding hazard mitigation strategies (or actions) that can be implemented at the local, county, and/or regional level to achieve those goals and objectives. Further, this section also identifies how each mitigation strategy should be implemented by the respective jurisdiction. Each strategy is listed along with a timeframe, primary coordinator, support agencies, cost estimate (and potential funding source), and its current status. Strategies are also categorized by six different types of mitigation projects:

1. Prevention,
2. Property Protection,
3. Natural Resource Protection,
4. Structural Projects,
5. Emergency Services, and
6. Public Education and Awareness.

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 implementation of any strategy is considered, a full cost estimate should be sought prior to securing funding. 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. Finally, as a

navigational note, this section only contains current and/or ongoing mitigation projects (organized by jurisdiction). For those jurisdictions that actively participated in the plan update process, mitigation strategies that were identified as being previously completed were not included. All existing mitigation strategies were still considered to be current and/or ongoing for those jurisdictions that did not respond to the action plan update request.

## 1. Region VI PDC

### **Strategy PDC 1-A-1:**

Maintain compliance with the NFIP at the jurisdictional level by attending training, monitoring development, and ensuring that local floodplain regulations are as current and applicable as possible.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Maintaining compliance is typically an administrative undertaking that would require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Local Floodplain Coordinators, Local Planning Commissions
<b>Support Agencies:</b>	County Commissions Municipal Councils
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

### **Strategy PDC 1-A-2:**

Undertake buyout, elevation, and/or relocation projects in the Region VI PDC area when and if funding is available.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$100,000 (average) per property purchased (HMGP)
<b>Coordinating Agency:</b>	Local Floodplain Coordinators, Local Planning Commissions
<b>Support Agencies:</b>	County Commissions Municipal Councils
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort



**Strategy PDC 1-B-1:**

Provide financial management and grant administration services for the implementation of flood hazard mitigation projects consistent with the approved Hazard Mitigation Plan in coordination with FEMA and the WV Division of Homeland Security and Emergency Management.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$100,000 (average) per property purchased (Pre-Disaster Mitigation, HMGP)
<b>Coordinating Agency:</b>	Local Floodplain Coordinators, Local Planning Commissions
<b>Support Agencies:</b>	County Commissions Municipal Councils
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	New

**Strategy PDC 2-A-1:**

Coordinate, as appropriate, with partners throughout the region to identify the location of privately-owned dams.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with partner entities should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	County Emergency Managers
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy PDC 2-A-2:**

Improve digital mapping of infrastructure in known hazard areas, including areas prone to flooding, landslides, and land subsidence.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with partner entities should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	County Emergency Managers
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy PDC 2-A-3:**

Improve multi-hazard risk assessments with more detailed site-specific building inventories and hazard layers (i.e., advisory flood zones, depth grids, landslide incidences, landslide susceptibility, etc.).

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with partner entities should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	County Emergency Managers
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy PDC 2-A-4:**

Request and obtain historical flood/landslide event information that pinpoints bridge and road closures from the WV DOT 511 database.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with partner entities should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	County Emergency Managers
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy PDC 3-A-1:**

Undertake public outreach campaigns that better describe the risk to such hazards as earthquakes, severe wind, wildfires, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$2,500 per campaign (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	County Emergency Managers
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy PDC 3-B-1:**

Coordinate with critical facilities throughout the region to ensure access to NOAA all-hazard radios.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	County Emergency Managers
<b>Support Agencies:</b>	Critical Facility Representatives
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy PDC 3-B-2:**

Ensure coordination with the NWS to enhance warnings of impending severe weather.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	County Emergency Managers
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy PDC 4-A-1:**

Continue to serve in a project management capacity for the implementation of publicly financed water and sewer infrastructure improvement expansion projects across the region.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Varies
<b>Coordinating Agency:</b>	Varies
<b>Support Agencies:</b>	County Commissions Municipal Councils
<b>Mitigation Type:</b>	Structural Project
<b>Status:</b>	Ongoing

## 2. Albright, Town of

### **Strategy 1-B-1:**

Conduct acquisition and relocation projects and adopt ordinances that limit development in the floodplain.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$70,000 to \$100,000 per house (Flood Mitigation Assistance Program, HMGP)
<b>Coordinating Agency:</b>	Preston County Commission
<b>Support Agencies:</b>	Town Floodplain Manager
<b>Mitigation Type:</b>	Property Protection/Prevention
<b>Status:</b>	This strategy represents an ongoing effort

## 3. Anmoore, Town of

### **Strategy 1-A-1:**

Amend floodplain ordinance for compliance with the NFIP regulations.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Anmoore Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy has been completed as of 2017

### **Strategy 1-A-2:**

Establish procedure to amend ordinances as NFIP regulations change.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Anmoore Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy has been completed as of 2017

**Strategy 1-A-3:**

Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and
- Installation of flood walls or shields, as applicable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Public outreach should require little to no additional funding if done in tandem with other initiatives (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	Town of Anmoore
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy has been completed as of 2017

**Strategy 1-A-4:**

Continuation of acquisition and demolition of FEMA-identified repetitive loss structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$95,500 per purchase (HMGP, CDBG)
<b>Coordinating Agency:</b>	Town of Anmoore
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy was identified as being no longer applicable



**Strategy 1-A-5:**

Revise subdivision regulations to require provision for open space on land that is in the floodplain.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Maintenance of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Anmoore
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy was identified as being no longer applicable

**Strategy 1-A-6:**

Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Anmoore
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy has been completed as of 2017

**Strategy 1-A-7:**

Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 per project, contingent on number of rehabs (CDFI, Banks, Other State/Federal Sources)
<b>Coordinating Agency:</b>	Town of Anmoore
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Landmark Commission, Harrison County Redevelopment Authority
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available

**Strategy 4-A-1:**

Adopt and enforce the state building code.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Updating the ordinance should require little to no additional funding; enforcement may require funds (Local Funding)
<b>Coordinating Agency:</b>	Town of Anmoore
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy has been completed as of 2017

**Strategy 8-A-1:**

Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Anmoore VFD
<b>Support Agencies:</b>	Town of Anmoore, Harrison County Commission
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	A county fire board is in existence and it can establish fire fees for certain areas of the county; this strategy remains in the plan to allow local officials the opportunity to investigate the possibility of using this code section as a method to assist in financing fire departments

**Strategy 12-A-1:**

Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Anmoore
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy has been completed as of 2017

#### 4. Barrackville, Town of

##### **Strategy 1-E-1:**

Continue to educate faculty and staff at schools on NOAA radio usage.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Continued training should not require additional funding (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Board of Education
<b>Mitigation Type:</b>	Public Education and awareness
<b>Status:</b>	This strategy represents an ongoing effort

##### **Strategy 2-A-1:**

Equip shelter facilities to provide back-up power.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Upwards of \$25,000 each – size dependent (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Marion County Department of Homeland Security and Emergency Management (MCDHSEM)
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

##### **Strategy 2-A-2:**

Maintain and update the early warning systems that are in place throughout the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	No additional funding is required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Unchanged

**Strategy 2-A-3:**

Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Studies could cost between \$2,000 and \$7,500, depending on the scope (DOJ-ODP, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Office of Planning and Development, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 3-B-1:**

Update resource list of contracts with snow removal agencies.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No immediate additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	WVDOH, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-2:**

Continue to monitor and maintain the three rain gauges installed at strategic points throughout the county. Use these gauges in conjunction with the new weather station to monitor current and developing weather incidents.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Maintenance and monitoring should require little to no additional funding (Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 7-A-1:**

Develop plans and schedules with the Department of Agriculture to haul water to residents during drought conditions.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Local VFDs
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 10-C-1:**

Establish procedures with companies to clean up material from a landslide quickly and to monitor areas of high risk.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Promotion of the concept can be done as municipal building permits are issued (N/A)
<b>Coordinating Agency:</b>	Municipal Town Councils
<b>Support Agencies:</b>	Cleanup Companies
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort



**Strategy 11-B-1:**

Coordinate with the SCS to continue updating the map showing areas that would be affected by a dam failure.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (SCS)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

## 5. Blacksville, Town of

**Strategy 3-C-1:**

Continue outfitting and preparing the winter rescue team to ensure that emergency responders can access all parts of the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$25,000 (HMGP, Pre-Disaster Mitigation, U.S. Department of Homeland Security, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	First Response Agencies.
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-3:**

Coordinate efforts with local media to post advance warnings of severe storms.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 5-A-1:**

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.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	USGS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 6-A-1:**

Educate the public as to the benefits of building codes and overall community and land use planning as well as advantages to mitigation planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Planning and Zoning
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 6-A-2:**

Strictly enforce ground disturbance permitting regulations, such as new MS4 requirements, in municipal and county jurisdictions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Existing personnel could be used, thus cutting cost (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 6-B-1:**

Undertake active re-vegetation and other stormwater programs to cover areas of bare ground that may be susceptible to erosion.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 to \$10,000, contingent on size of project (Local Funding)
<b>Coordinating Agency:</b>	Planning Commission
<b>Support Agencies:</b>	Municipal Inspection/Planning Offices
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Completed and ongoing

**Strategy 7-B-1:**

Educate local residents on the benefits of conserving water at all times, not just during a drought.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, MCOEM
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-A-1:**

Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	West Virginia Division of Forestry, WVDNR
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-B-1:**

Continue to train and organize local fire service personnel to assist in the investigation of structural fires and the citation of code violations through a certification program made available to local fire chiefs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Training opportunities are often provided through the WVU Fire Service Extension (N/A)
<b>Coordinating Agency:</b>	Local VFDs
<b>Support Agencies:</b>	WVU Fire Service Extension
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 9-B-2:**

Coordinate with the WVSFM to extend the jurisdiction of deputized fire marshals to a statewide jurisdiction.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	WVSFM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 9-B-3:**

Certify PDs, which have arrest powers, to handle arson investigations in place of fire departments, which do not have arrest powers (include a modified version of the State Police Academy to provide such training).

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Project is still in exploration stage, which requires little additional funding.
<b>Coordinating Agency:</b>	Local VFDs
<b>Support Agencies:</b>	West Virginia State Police (WVSP)
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 9-C-1:**

Facilitate public awareness campaigns aimed at recruiting more volunteers at VFDs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local VFDs
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-C-2:**

Continue public awareness campaigns in schools, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local VFDs
<b>Support Agencies:</b>	WVSFM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing



**Strategy 13-A-1:**

Produce public awareness campaigns via various local media outlets.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Monongalia County Health Department
<b>Support Agencies:</b>	CDC, WHO
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 14-A-1:**

Encourage Allegheny Power to undertake projects to increase the number of feeder lines into rural areas so as to create back-up electricity in the event that one of the feeder lines fails.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 14-A-2:**

Encourage Allegheny Power to allow employees to take company vehicles home to be available for emergency call-outs in the event of a downed electric line. These actions will free up local emergency responders who normally monitor the downed line.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 14-B-1:**

Encourage representatives from the county's assets (e.g., company leaders, etc.) to draft and distribute guidelines to implement in the event of HVAC failure.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Company Leaders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 14-C-1:**

Instate a grant or low-interest loan program to help individual residents finance generators and other back-up electricity systems.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 (Initial funds could be local funds, grants from non- profit organizations, etc. Ultimately, funds returned as part of the program could be used to finance subsequent years.)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 15-A-1:**

Coordinate with local media to announce low resource/fuel supplies.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 15-A-2:**

Increase public knowledge as to resource conservation by distributing information to new and existing customers.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-1:**

Assess the feasibility of cleaning up busy intersections.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Assessing feasibility, like coordination, requires little additional funding
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	WVDOH
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-2:**

Evaluate railroad and roadway intersections for warning systems, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Evaluating systems, like coordination, requires little additional funding (N/A)
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	CSX, Norfolk & Western
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-B-1:**

Publicize evacuation plans.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project could be accomplished through existing public information campaigns
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 16-B-2:**

Facilitate the creation of safe zones as places where residents can go in the event of a hazardous material incident. Further, publicize the location and access to these safe zones.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-A-1:**

Encourage schools to adopt and/or upgrade procedural and evacuation plans in the event of a bomb threat.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Schools are already planning; these additional measures would require no additional costs (N/A)
<b>Coordinating Agency:</b>	Monongalia County Schools
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-B-1:**

Establish trauma centers to offer medical attention and counseling to affected populations in the event of a terrorist event.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Monongalia County Health Department
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 17-C-1:**

Increase the knowledge of the general public concerning preparedness through the preparation of informational brochures, town meetings, training seminars, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 17-D-1:**

Coordinate with first responders for interagency cooperation to assist in collaborative planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local First Responders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing



**Strategy 17-D-2:**

Continue education and training efforts of first responders and emergency personnel.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local VFDs, Local PDs, LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**6. Brandonville, Town of****Strategy 4-B-4:**

Encourage the use of NOAA weather radios, which continuously broadcast NWS forecasts.

<b>Timeframe:</b>	3 months
<b>Cost Estimate (Potential Funding):</b>	Encouraging use requires no additional funding; however, purchasing weather radios may require significant funding (up to \$2,000 to purchase and install approximately 15 radios).
<b>Coordinating Agency:</b>	Town officials
<b>Support Agencies:</b>	PCOEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	NWS weather radios are provided throughout the town

## 7. Bridgeport, City of

### **Strategy 1-A-1:**

Amend floodplain ordinance for compliance with the NFIP regulations.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Bridgeport Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

### **Strategy 1-A-2:**

Establish procedure to amend ordinances as NFIP regulations change.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Bridgeport Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-3:**

Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and
- Installation of flood walls or shields, as applicable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Public outreach should require little to no additional funding if done in tandem with other initiatives (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	Bridgeport Office of Emergency Services
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-4:**

Continuation of acquisition and demolition of FEMA-identified repetitive loss structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$95,500 per purchase (HMGP, CDBG)
<b>Coordinating Agency:</b>	City of Bridgeport
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This project is considered as and if funding is available

**Strategy 1-A-5:**

Revise subdivision regulations to require provision for open space on land that is in the floodplain.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Maintenance of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Bridgeport
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-6:**

Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Bridgeport
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

**Strategy 1-A-7:**

Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 per project, contingent on number of rehabs (CDFI, Banks, Other State/Federal Sources)
<b>Coordinating Agency:</b>	City of Bridgeport
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Landmark Commission, Harrison County Redevelopment Authority
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available

**Strategy 1-A-8:**

Undertake further flood-proofing of the Bridgeport Fire Department.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 (AFGP, FEMA, Local Funding)
<b>Coordinating Agency:</b>	Bridgeport Fire Department
<b>Support Agencies:</b>	City of Bridgeport Bridgeport City Engineer
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	This project has taken longer than expected on account of funding availability

**Strategy 3-A-1:**

Adopt and enforce the state building code.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Updating the ordinance should require little to no additional funding; enforcement may require funds (Local Funding)
<b>Coordinating Agency:</b>	City of Bridgeport
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort (i.e., the ordinance is updated when the state code is updated)

**Strategy 3-A-2:**

Encourage the placement of utility lines underground for critical facilities.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Unknown (N/A)
<b>Coordinating Agency:</b>	Bridgeport Office of Emergency Services
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This project has taken longer than expected on account of funding availability



**Strategy 3-A-3:**

Encourage tree trimming adjacent to utilities.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination with utility companies requires little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Bridgeport Office of Emergency Services
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing, continual effort

**Strategy 8-A-1:**

Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Bridgeport Fire Department
<b>Support Agencies:</b>	City of Bridgeport
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	A county fire board is in existence and it can establish fire fees for certain areas of the county; this strategy remains in the plan to allow local officials the opportunity to investigate the possibility of using this code section as a method to assist in financing fire departments

**Strategy 11-A-1:**

Prepare annual updates of dam assessments in accordance with state law.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	This is done by such agencies as the WVDEP as a part of state law (N/A)
<b>Coordinating Agency:</b>	WVDEP
<b>Support Agencies:</b>	City of Bridgeport
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an annual undertaking by state agencies; it is listed as ongoing to show the city's support of these efforts

**Strategy 11-A-2:**

Explore state, federal, and private funding sources for dam rehabilitation.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Exploration should require little to no additional funding (funding could come from Small Cities Block Grant [SCBG], United States Department of Agriculture [USDA], Infrastructure and Jobs Development Council [IJDC], etc.)
<b>Coordinating Agency:</b>	Bridgeport Office of Emergency Services
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services Region VI Planning & Development Council
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	This strategy represents an ongoing portion of potential funding strategies should dams need to be rehabilitated

**Strategy 12-A-1:**

Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Bridgeport
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

## 8. Bruceton Mills, Town of

### **Strategy 1-F-1:**

Clean Big Sandy Creek and its floodplain, clearing log jams, trees and shrubs, and sediment bars.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	USACE, Local Funding (small sections of the creek could cost as much as \$50,000 to \$100,000)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	County Engineer
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy represents an ongoing, continual effort

## 9. Clarksburg, City of

### **Strategy 1-A-1:**

Amend floodplain ordinance for compliance with the NFIP regulations.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Clarksburg Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

### **Strategy 1-A-2:**

Establish procedure to amend ordinances as NFIP regulations change.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Clarksburg Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-3:**

Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and
- Installation of flood walls or shields, as applicable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Public outreach should require little to no additional funding if done in tandem with other initiatives (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	City of Clarksburg
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-4:**

Continuation of acquisition and demolition of FEMA-identified repetitive loss structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$95,500 per purchase (HMGP, CDBG)
<b>Coordinating Agency:</b>	City of Clarksburg
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This project is considered as and if funding is available

**Strategy 1-A-5:**

Revise subdivision regulations to require provision for open space on land that is in the floodplain.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Maintenance of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Clarksburg
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-6:**

Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Clarksburg
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

**Strategy 1-A-7:**

Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 per project, contingent on number of rehabs (CDFI, Banks, Other State/Federal Sources)
<b>Coordinating Agency:</b>	City of Clarksburg
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Landmark Commission, Harrison County Redevelopment Authority
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available



**Strategy 3-A-1:**

Adopt and enforce the state building code.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Updating the ordinance should require little to no additional funding; enforcement may require funds (Local Funding)
<b>Coordinating Agency:</b>	City of Clarksburg
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort (i.e., the ordinance is updated when the state code is updated)

**Strategy 8-A-1:**

Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Clarksburg Fire Department
<b>Support Agencies:</b>	City of Clarksburg, Harrison County Commission
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	A county fire board is in existence and it can establish fire fees for certain areas of the county; this strategy remains in the plan to allow local officials the opportunity to investigate the possibility of using this code section as a method to assist in financing fire departments

**Strategy 12-A-1:**

Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Clarksburg
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

## 10. Doddridge County

**Strategy 1-B-2:**

Continue to seek out opportunities to apply for Hazard Mitigation Assistance (HMA) funds for mitigation reconstruction, elevations, relocations or acquisitions of identified at risk, repetitive loss, non-repetitive loss, substantial damaged, partially or completely demolished or destroyed properties within the county. If mitigation reconstruction is chosen, properties identified as partially or completely demolished, outside of the regulatory floodway, as identified by available flood hazard data, will be reconstructed in accordance with the standards established in the local floodplain ordinance and in accordance with the same conditions as an elevated structure. The county will comply with all acquisition, elevation, relocation and mitigation reconstruction requirements, as per the HMA Guidance.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$100,000 (average) per property depending on the type of mitigation (FEMA HMA)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Local Floodplain Coordinators, WVDHSEM, FEMA
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	New as of 2017

**Strategy 1-D-2:**

Instate a county-wide permitting process which will require residents and/or developers to file a permit with the county before beginning any new construction as a means of regulating floodplain development.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary; however, there may be administrative costs
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Town Council
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 1-F-2:**

Clean portions of Middle Island Creek and its floodplain, clearing log jams, trees and shrubs, and sediment bars.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	USACE, Local Funding (If material cleaned from stream is used, costs decrease. Projects could cost up to \$100,000.)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	County Engineer
<b>Mitigation Type:</b>	Prevention, Structural Projects
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 1-F-3:**

Investigate the feasibility of constructing additional flood-control dams throughout the county.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Feasibility study could cost up to \$50,000 (USACE)
<b>Coordinating Agency:</b>	Doddridge County Office of Emergency Services
<b>Support Agencies:</b>	USACE
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	New as of 2017

**Strategy 1-G-1:**

Conduct acquisition and/or relocation projects in frequently flooded portions of the county.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	HMGP (for 10 sites throughout the county, costs would approach approximately \$700,000)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	FEMA
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 1-G-2:**

Participate in the CRS and join the NFIP to reduce flood insurance rates.

<b>Timeframe:</b>	1 Year
<b>Cost Estimate (Potential Funding):</b>	Participating in these programs requires no additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 2-B-1:**

Assess the number, location, strength, and ability of shelters to house residents and withstand high wind speeds. Consider constructing concrete safe rooms near mobile home parks and other vulnerable public areas.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Local Funding, FEMA (\$15,000 to \$20,000)
<b>Coordinating Agency:</b>	Doddridge County Office of Emergency Services
<b>Support Agencies:</b>	American Red Cross
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 3-D-1:**

Coordinate with local private contractors to develop mutual aid agreements for emergency snow removal, also develop a Debris Management Plan that can be implemented following a disaster occurrence.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	Developing mutual aid agreements requires no additional funding; however, activating those agreements may necessitate local funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	WVDOH, Contractors
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 4-A-2:**

Encourage the use of laminated glass in window panes during all new construction.

<b>Timeframe:</b>	During new construction
<b>Cost Estimate (Potential Funding):</b>	Encouraging use requires no additional funding; however, purchasing materials is contingent upon the size of the facility
<b>Coordinating Agency:</b>	Doddridge County Office of Emergency Services
<b>Support Agencies:</b>	Facility Owners
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Doddridge County Office of Emergency Services
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing as of 2017



**Strategy 4-B-3:**

Coordinate efforts with local media to post advance warnings of severe storms.

<b>Timeframe:</b>	3 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Doddridge County Office of Emergency Services
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 4-B-4:**

Encourage the use of NOAA weather radios among residents that continuously broadcast NWS forecasts and provide direct warnings to the public for natural, technological, and man-made hazards.

<b>Timeframe:</b>	3 months
<b>Cost Estimate (Potential Funding):</b>	Encouraging use requires no additional funding; however, purchasing weather radios may require significant funding (up to \$2,000 to purchase and install approximately 15 radios)
<b>Coordinating Agency:</b>	Doddridge County Office of Emergency Services
<b>Support Agencies:</b>	Facility Owners
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 4-B-5:**

Encourage authorized individuals to use the EAS on commercial radio, television, and cable systems to send out emergency information targeted to specific areas.

<b>Timeframe:</b>	3 months
<b>Cost Estimate (Potential Funding):</b>	The EAS is already an established, available service; its use requires no additional funding
<b>Coordinating Agency:</b>	Doddridge County Office of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 4-C-1:**

Coordinate with the power company to periodically trim trees near power lines to prevent limb breakage and power failures.

<b>Timeframe:</b>	Once a year
<b>Cost Estimate (Potential Funding):</b>	Local Funding, Pre-Disaster Mitigation (up to \$25,000 to \$40,000)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Local power company
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 4-D-1:**

Reduce the risk of mobile home damage by suggesting the use of tie-downs with ground anchors appropriate for the soil type.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A); however, tie-down kits cost approximately \$150 each and usually include four anchors
<b>Coordinating Agency:</b>	Doddridge County Office of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 5-A-1:**

Develop an informational brochure explaining the potential for earthquakes, as well as the potential damages from those earthquakes. The brochure should include information pertaining to measures to take to safe-proof homes and other structures from the potential effects of earthquakes.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	Pre-Disaster Mitigation (\$3,000 for publication and distribution of informative materials)
<b>Coordinating Agency:</b>	Doddridge County Office of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 5-A-2:**

Encourage the implementation of structural mitigation techniques such as wall bracing, reinforcing walls with fiber materials, and installing dampers or vibration isolation bearings in new construction.

<b>Timeframe:</b>	During new construction
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Doddridge County Office of Emergency Services
<b>Support Agencies:</b>	County Commission
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 7-A-2:**

Extend public water and sewer service to communities currently without service (improve infrastructure).

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	N/A
<b>Coordinating Agency:</b>	N/A
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	N/A
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 7-A-3:**

Add new pump station(s) for municipal water supply (redundant system).

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	N/A
<b>Coordinating Agency:</b>	N/A
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	N/A
<b>Status:</b>	New as of 2017

**Strategy 8-B-1:**

Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	WVDNR (\$3,000 to \$5,000 if state agencies do not already have materials printed)
<b>Coordinating Agency:</b>	WVDNR
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 8-B-2:**

Encourage residents in rural areas to inspect and clean their chimneys at least once a year.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Doddridge County Office of Emergency Services
<b>Support Agencies:</b>	Local FDs, Home Owners
<b>Mitigation Type:</b>	Prevention, Property Protection
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 8-B-3:**

Encourage residents and businesses to maintain their property in or near forested areas (including short grass; thinned trees and removal of low-hanging branches; cleaning of dead or dry leaves, needles, twigs, etc.) and to create a buffer zone (defensible space) between structures and adjacent forests.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Home and Business Owners
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention, Property Protection
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 10-A-1:**

Reduce the amount of landslides by monitoring clear-cutting operations.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	WVDNR
<b>Support Agencies:</b>	Timber Industry
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 10-A-2:**

Decrease the number of landslide occurrences around oil and gas wells by monitoring the location of the wells and drilling practices.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Oil and Gas Industry
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 10-B-1:**

Strategically place stabilization walls in slip-prone areas along county highways.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	WVDOH (cost will depend on the number and size of walls constructed; average cost \$50,000 per wall)
<b>Coordinating Agency:</b>	WVDOH
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort



**Strategy 10-B-2:**

Reduce the amount of debris on roadways resulting from landslides by erecting safety fences along highways near slip-prone areas.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	WVDOH (cost will depend on the number and size of fences constructed; average cost \$15,000 to \$25,000)
<b>Coordinating Agency:</b>	WVDOH
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 10-B-6:**

Work with the West Virginia University GIS Technical Center to develop detailed mapping of known and potential landslide hazard areas.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	No additional funding should be needed to coordinate with the WVU GIS Technical Center (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	WVDOH, WVDHSEM
<b>Mitigation Type:</b>	Public Information
<b>Status:</b>	New as of 2017

**Strategy 18-A-1:**

Develop and distribute an informational brochure to distribute to local residents.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	Local Funding, Pre-Disaster Mitigation
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Town Council, DCOES, WVDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

## 11. Fairmont, City of

### **Strategy 1-E-1:**

Continue to educate faculty and staff at schools on NOAA radio usage.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Continued training should not require additional funding (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Board of Education
<b>Mitigation Type:</b>	Public Education and awareness
<b>Status:</b>	This strategy represents an ongoing effort

### **Strategy 2-A-3:**

Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Studies could cost between \$2,000 and \$7,500 depending on the scope (DOJ-ODP, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Office of Planning and Development, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

### **Strategy 2-A-4:**

Identify and make all private sector resources available in concert with the LEPC Resource Manual.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Cost should range between \$7,500 and \$10,000 (SERC)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 3-B-1:**

Update resource list of contracts with snow removal agencies.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No immediate additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	WVDOH, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 11-B-1:**

Coordinate with the SCS to continue updating the map showing areas that would be affected by a dam failure.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (SCS)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

## 12. Fairview, Town of

**Strategy 1-E-1:**

Continue to educate faculty and staff at schools on NOAA radio usage.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Continued training should not require additional funding (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Board of Education
<b>Mitigation Type:</b>	Public Education and awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 2-A-1:**

Equip shelter facilities to provide back-up power.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Upwards of \$25,000 each – size dependent (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM, VFDs
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 2-A-2:**

Maintain and update the early warning systems that are in place throughout the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	No additional funding is required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Unchanged

**Strategy 2-A-3:**

Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Studies could cost between \$2,000 and \$7,500 depending on the scope (DOJ-ODP, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Office of Planning and Development, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 3-B-1:**

Update resource list of contracts with snow removal agencies.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No immediate additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	WVDOH, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-B-1:**

Continue to coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-2:**

Continue to monitor and maintain the three rain gauges installed at strategic points throughout the county. Use these gauges in conjunction with the new weather station to monitor current and developing weather incidents.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Maintenance and monitoring should require little to no additional funding (Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort



**Strategy 7-A-1:**

Develop plans and schedules with the Department of Agriculture to haul water to residents during drought conditions.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Local VFDs
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 10-C-1:**

Establish procedures with companies to clean up material from a landslide quickly and to monitor areas of high risk.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Promotion of the concept can be done as municipal building permits are issued (N/A)
<b>Coordinating Agency:</b>	Municipal Town Councils
<b>Support Agencies:</b>	Cleanup Companies
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 11-B-1:**

Coordinate with the SCS to continue updating the map showing areas that would be affected by a dam failure.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (SCS)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

### 13. Farmington, Town of

#### **Strategy 1-E-1:**

Continue to educate faculty and staff at schools on NOAA radio usage.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Continued training should not require additional funding (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Board of Education
<b>Mitigation Type:</b>	Public Education and awareness
<b>Status:</b>	This strategy represents an ongoing effort

#### **Strategy 2-A-1:**

Equip shelter facilities to provide back-up power.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Upwards of \$25,000 each – size dependent (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM, VFDs
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

#### **Strategy 2-A-2:**

Maintain and update the early warning systems that are in place throughout the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	No additional funding is required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Unchanged

**Strategy 2-A-3:**

Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Studies could cost between \$2,000 and \$7,500 depending on the scope (DOJ-ODP, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Office of Planning and Development, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 3-B-1:**

Update resource list of contracts with snow removal agencies.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No immediate additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	WVDOH, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-B-1:**

Continue to coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-2:**

Continue to monitor and maintain the three rain gauges installed at strategic points throughout the county. Use these gauges in conjunction with the new weather station to monitor current and developing weather incidents.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Maintenance and monitoring should require little to no additional funding (Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 7-A-1:**

Develop plans and schedules with the Department of Agriculture to haul water to residents during drought conditions.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Local VFDs
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 10-C-1:**

Establish procedures with companies to clean up material from a landslide quickly and to monitor areas of high risk.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Promotion of the concept can be done as municipal building permits are issued (N/A)
<b>Coordinating Agency:</b>	Municipal Town Councils
<b>Support Agencies:</b>	Cleanup Companies
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 11-B-1:**

Coordinate with the SCS to continue updating the map showing areas that would be affected by a dam failure.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (SCS)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

#### 14. Flemington, Town of

**Strategy 1-K-1:**

Develop and conduct acquisition and relocation projects.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$77,000 per purchase (HMGP)
<b>Coordinating Agency:</b>	Town of Flemington
<b>Support Agencies:</b>	Taylor County Office of Emergency Services, Taylor County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy is ongoing and is considered when funding is available

**Strategy 1-K-2:**

Collect updated information on the number and location of repetitive loss properties.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$10,000 if a contractor is used (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	Town of Flemington
<b>Support Agencies:</b>	Taylor County Office of Emergency Services, WVDHSEM, FEMA
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

## 15. Grafton, City of

### **Strategy 1-K-1:**

Develop and conduct acquisition and relocation projects.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$77,000 per purchase (HMGP)
<b>Coordinating Agency:</b>	City of Grafton
<b>Support Agencies:</b>	Taylor County Office of Emergency Services, Taylor County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy is ongoing and is considered when funding is available

### **Strategy 11-C-1:**

Identify the areas that would be severely flooded in the event of a severe failure of the Tygart Lake Dam and develop zoning regulations that disallow future development in those areas.

<b>Timeframe:</b>	4 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$3,000 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	City of Grafton
<b>Support Agencies:</b>	Taylor County Office of Emergency Services
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

### **Strategy 17-A-1:**

Encourage schools to instate and/or update procedural and evacuation plans in the event of a bomb threat.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 if a contractor is used (Small Business Administration [SBA], Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Board of Education
<b>Support Agencies:</b>	City of Grafton
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed and ongoing



## 16. Grant Town, Town of

### **Strategy 1-E-1:**

Continue to educate faculty and staff at schools on NOAA radio usage.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Continued training should not require additional funding (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Board of Education
<b>Mitigation Type:</b>	Public Education and awareness
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

### **Strategy 2-A-1:**

Equip shelter facilities to provide back-up power.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Upwards of \$25,000 each – size dependent (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM, VFDs
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

### **Strategy 2-A-2:**

Maintain and update the early warning systems that are in place throughout the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	No additional funding is required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 2-A-3:**

Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Studies could cost between \$2,000 and \$7,500 depending on the scope (DOJ-ODP, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Office of Planning and Development, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 2-A-5:**

Install lighting at the town helicopter pad for emergency night landings.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	TBD (Local Funding)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	New as of 2017

**Strategy 3-B-1:**

Update resource list of contracts with snow removal agencies.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No immediate additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	WVDOH, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services, Prevention
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 3-B-2:**

Acquire a backup snowplow to use during severe winter storms.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	TBD (Local Funding)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	New as of 2017

**Strategy 4-B-1:**

Continue to coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 4-B-2:**

Continue to monitor and maintain the three rain gauges installed at strategic points throughout the county. Use these gauges in conjunction with the new weather station to monitor current and developing weather incidents.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Maintenance and monitoring should require little to no additional funding (Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 7-A-1:**

Develop plans and schedules with the Department of Agriculture to haul water to residents during drought conditions.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Local VFDs
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 10-C-1:**

Establish procedures with companies to clean up material from a landslide quickly and to monitor areas of high risk.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Promotion of the concept can be done as municipal building permits are issued (N/A)
<b>Coordinating Agency:</b>	Municipal Town Councils
<b>Support Agencies:</b>	Cleanup Companies
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 11-B-1:**

Coordinate with the SCS to continue updating the map showing areas that would be affected by a dam failure.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (SCS)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

## 17. Granville, Town of

### **Strategy 3-C-1:**

Continue outfitting and preparing the winter rescue team to ensure that emergency responders can access all parts of the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$25,000 (HMGP, Pre-Disaster Mitigation, DHS, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	First Response Agencies.
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

### **Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

### **Strategy 4-B-3:**

Coordinate efforts with local media to post advance warnings of severe storms.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

### **Strategy 5-A-1:**

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.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	USGS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 6-A-1:**

Educate the public as to the benefits of building codes and overall community and land use planning as well as advantages to mitigation planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Planning and Zoning
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 6-A-2:**

Strictly enforce ground disturbance permitting regulations, such as new MS4 requirements, in municipal and county jurisdictions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Existing personnel could be used, thus cutting cost (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged



**Strategy 6-B-1:**

Undertake active re-vegetation and other stormwater programs to cover areas of bare ground that may be susceptible to erosion.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 to \$10,000, contingent on size of project (Local Funding)
<b>Coordinating Agency:</b>	Planning Commission
<b>Support Agencies:</b>	Municipal Inspection/Planning Offices
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Completed and ongoing

**Strategy 7-B-1:**

Educate local residents on the benefits of conserving water at all times, not just during a drought.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, MCOEM
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 8-B-1:**

Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	West Virginia Division of Forestry, WVDNR
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-B-1:**

Continue to train and organize local fire service personnel to assist in the investigation of structural fires and the citation of code violations through a certification program made available to local fire chiefs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Training opportunities are often provided through the WVU Fire Service Extension (N/A)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVU Fire Service Extension
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 9-B-2:**

Coordinate with the WVSFM to extend the jurisdiction of deputized fire marshals to a statewide jurisdiction.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	WVSFM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 9-B-3:**

Certify PDs, which have arrest powers, to handle arson investigations in place of fire departments, which do not have arrest powers (include a modified version of the State Police Academy to provide such training).

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Project is still in exploration stage, which requires little additional funding
<b>Coordinating Agency:</b>	Local VFDs
<b>Support Agencies:</b>	WVSP
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 9-C-1:**

Facilitate public awareness campaigns aimed at recruiting more volunteers at VFDs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-C-2:**

Continue public awareness campaigns in schools, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVSFM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 13-A-1:**

Produce public awareness campaigns via various local media outlets.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Monongalia County Health Department
<b>Support Agencies:</b>	CDC, WHO
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 14-A-1:**

Encourage Allegheny Power to undertake projects to increase the number of feeder lines into rural areas so as to create back-up electricity in the event that one of the feeder lines fails.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 14-A-2:**

Encourage Allegheny Power to allow employees to take company vehicles home to be available for emergency call-outs in the event of a downed electric line. These actions will free up local emergency responders who normally monitor the downed line.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 14-B-1:**

Encourage representatives from the county's assets (e.g., company leaders, etc.) to draft and distribute guidelines to implement in the event of HVAC failure.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Company Leaders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 14-C-1:**

Instate a grant or low-interest loan program to help individual residents finance generators and other back-up electricity systems.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 (Initial funds could be local funds, grants from non- profit organizations, etc. Ultimately, funds returned as part of the program could be used to finance subsequent years.
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 15-A-1:**

Coordinate with local media to announce low resource/fuel supplies.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 15-A-2:**

Increase public knowledge as to resource conservation by distributing information to new and existing customers.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-1:**

Assess the feasibility of cleaning up busy intersections.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Assessing feasibility, like coordination, requires little additional funding
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	WVDOH
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-2:**

Evaluate railroad and roadway intersections for warning systems, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Evaluating systems, like coordination, requires little additional funding (N/A)
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	CSX, Norfolk & Western
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-B-1:**

Publicize evacuation plans.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project could be accomplished through existing public information campaigns
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing



**Strategy 16-B-2:**

Facilitate the creation of safe zones as places where residents can go in the event of a hazardous material incident. Further, publicize the location and access to these safe zones.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-A-1:**

Encourage schools to adopt and/or upgrade procedural and evacuation plans in the event of a bomb threat.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Schools are already planning; these additional measures would require no additional costs (N/A)
<b>Coordinating Agency:</b>	Monongalia County Schools
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-B-1:**

Establish trauma centers to offer medical attention and counseling to affected populations in the event of a terrorist event.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Monongalia County Health Department
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 17-C-1:**

Increase the knowledge of the general public concerning preparedness through the preparation of informational brochures, town meetings, training seminars, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 17-D-1:**

Coordinate with first responders for interagency cooperation to assist in collaborative planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local First Responders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-D-2:**

Continue education and training efforts of first responders and emergency personnel.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local FDs, Local PDs, LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

## 18. Harrison County

### **Strategy 1-A-1:**

Amend floodplain ordinance for compliance with the NFIP regulations.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Planning Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed and ongoing as of 2017

### **Strategy 1-A-2:**

Establish procedure to amend ordinances as NFIP regulations change.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Planning Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy represents an ongoing initiative

**Strategy 1-A-3:**

Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and
- Installation of flood walls or shields, as applicable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Public outreach should require little to no additional funding if done in tandem with other initiatives (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Under the state planning law, counties with a planning commission and a comprehensive plan may administer and enforce the "location improvement permit." Many of the items in this strategy are required by this permit.

**Strategy 1-A-4:**

Continuation of acquisition and demolition of FEMA-identified repetitive loss structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$95,500 per purchase (HMGP, CDBG)
<b>Coordinating Agency:</b>	Harrison County Planning Commission
<b>Support Agencies:</b>	Harrison County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This project is considered as and if funding is available

**Strategy 1-A-5:**

Revise subdivision regulations to require provision for open space on land that is in the floodplain.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Maintenance of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Planning Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	The county is currently updating its subdivision ordinance

**Strategy 1-A-6:**

Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Commission
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	As of 2017, this strategy was identified as being no longer applicable

**Strategy 1-A-7:**

Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 per project, contingent on number of rehabs (CDFI, Banks, Other State/Federal Sources)
<b>Coordinating Agency:</b>	Harrison County Planning Commission
<b>Support Agencies:</b>	Harrison County Landmark Commission, Harrison County Redevelopment Authority
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy was deleted and replaced by Strategy 1-A-10

**Strategy 1-A-9:**

Encourage the preservation of land in the floodplain as passive recreation and open space.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Encouragement should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Planning Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 1-A-10:**

Design and implement a county-wide program to identify at risk structures from flooding.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Identification of at risk structures can be completed inhouse at minimal cost (N/A)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	New as of 2017

**Strategy 1-A-11:**

Relocate the Wallace Fire Department to an area not in the floodplain.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$1,000,000 (Assistance to Firefighters Grant Program [AFGP], Local Funding)
<b>Coordinating Agency:</b>	Wallace VFD
<b>Support Agencies:</b>	Harrison County Fire Board, Harrison County Commission
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Implementation of this strategy is currently underway



**Strategy 1-A-12:**

Work with public utilities to:

- Elevate vulnerable equipment where possible, and
- Fasten and seal manholes located in the floodplain.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination with utilities should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Planning Commission
<b>Support Agencies:</b>	Water and Sewer Utilities
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy was identified as being no longer applicable

**Strategy 1-A-13:**

Develop and implement a county-wide stormwater management plan.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Development of the plan should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Planning Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy was identified as being not feasible

**Strategy 1-B-2:**

Continue to seek out opportunities to apply for Hazard Mitigation Assistance (HMA) funds for mitigation reconstruction, elevations, relocations or acquisitions of identified at risk, repetitive loss, non-repetitive loss, substantial damaged, partially or completely demolished or destroyed properties within the county. If mitigation reconstruction is chosen, properties identified as partially or completely demolished, outside of the regulatory floodway, as identified by available flood hazard data, will be reconstructed in accordance with the standards established in the local floodplain ordinance and in accordance with the same conditions as an elevated structure. The county will comply with all acquisition, elevation, relocation and mitigation reconstruction requirements, as per the HMA Guidance.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$100,000 (average) per property depending on the type of mitigation (FEMA HMA)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Local Floodplain Coordinators, WVDHSEM, FEMA
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	New as of 2017

**Strategy 1-K-3:**

Catalog areas prone to flooding and poor drainage to include in potential drainage improvement plans.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	New as of 2017

**Strategy 3-A-2:**

Encourage the placement of utility lines underground for critical facilities.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination with utility companies should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Implementation of this strategy is currently underway

**Strategy 3-A-3:**

Encourage tree trimming adjacent to utilities.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination with utility companies requires little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing, continual effort

**Strategy 3-A-4:**

Inventory all human and physical resources of public utilities and other public agencies, which may be utilized or shared in emergencies.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$10,000 if a contractor is used (HMEP, EMPG, U.S. Department of Homeland Security, Local Funding)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	Bridgeport Office of Emergency Services
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Resource inventorying is an ongoing emergency preparedness effort

**Strategy 4-A-1:**

Adopt and enforce the state building code.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Adoption should require no additional funding; enforcement will require funds that are a part of the planning commission's regular budget (N/A)
<b>Coordinating Agency:</b>	Harrison County Planning Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	The county has adopted the current version of the state building code, including property maintenance portions

**Strategy 4-A-3:**

Develop a public awareness program regarding shelters, the EAS, and retrofitting of existing buildings.

<b>Timeframe:</b>	4 years
<b>Cost Estimate (Potential Funding):</b>	Development of an awareness campaign should require little to no additional funding if done in house (N/A)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing emergency preparedness effort

**Strategy 4-A-4:**

Identify and structurally analyze all buildings identified as shelters and strengthen as necessary.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Partnership will require no additional funding; strengthening facilities may require up to \$250,000 per project (FEMA Partnership Grant)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	American Red Cross
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 4-C-2:**

Work with power companies to identify areas prone to power interruptions due to storms and wind events.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	Appropriate Utility Providers
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	New as of 2017

**Strategy 8-A-1:**

Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Harrison County Commission
<b>Support Agencies:</b>	VFDs
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	As of 2017, this strategy was deleted and replaced by Strategy 8-A-3

**Strategy 8-A-2:**

Encourage removing vegetation and combustible materials around structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Encouraging property owners to maintain their property should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	VFDs
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this project represents an ongoing outreach effort

**Strategy 8-A-3:**

Explore mechanisms for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	VFDs
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	New as of 2017

**Strategy 8-A-4:**

Provide fire roads to aid in firefighting.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Pre-planning is a regular fire department function and should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	VFDs
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	As of 2017, this strategy was identified as being no longer applicable

**Strategy 8-A-5:**

Upgrade roofing with fire-resistant materials.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Encouraging property owners to maintain their property should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Volunteer and Municipal Fire Departments
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy was identified as being no longer applicable



**Strategy 10-A-3:**

Revise regulations for hillside development and landslide-prone areas in the county's subdivision regulations.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Revision of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Planning Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Implementation of this strategy is currently underway

**Strategy 10-A-4:**

Assist local utilities with mapping of shutoffs and encourage planned development in event of emergency.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Assistance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	Appropriate Utility Providers
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	New as of 2017

**Strategy 10-A-7:**

Analyze the locations of various utility towers and strengthen, as necessary.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Analysis should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy was identified as being no longer applicable

**Strategy 10-A-8:**

Analyze the locations of water and gas lines and provide shut-off valves, as necessary.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Analysis should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Bureau of Emergency Services
<b>Support Agencies:</b>	Appropriate Utility Providers
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy was deleted and replaced by Strategy 10-A-4

**Strategy 10-B-6:**

Work with the West Virginia University GIS Technical Center to develop detailed mapping of known and potential landslide hazard areas.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	No additional funding should be needed to coordinate with the WVU GIS Technical Center (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	WVDOH, WVDHSEM
<b>Mitigation Type:</b>	Public Information
<b>Status:</b>	New as of 2017

**Strategy 12-A-1:**

Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Harrison County Commission
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	As of 2017, this strategy was identified as being no longer applicable

## 19. Kingwood, City of

### **Strategy 2-C-1:**

Construct a building over the clarifiers at the water treatment plant.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Pre-Disaster Mitigation, CDBG (up to \$100,000)
<b>Coordinating Agency:</b>	City Council
<b>Support Agencies:</b>	County Commission, Contractor, Kingwood Water Works
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

### **Strategy 4-E-1:**

Construct tornado shelters near vulnerable areas, such as mobile home parks.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$50,000 to \$80,000 (FEMA)
<b>Coordinating Agency:</b>	City Council
<b>Support Agencies:</b>	County Commission
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	This strategy has not been addressed

### **Strategy 7-C-1:**

Purchase and permanently install two generators at the Kingwood Water Treatment Plant.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Pre-Disaster Mitigation, CDBG (\$35,000 to \$50,000 to purchase and install)
<b>Coordinating Agency:</b>	Kingwood Water Works
<b>Support Agencies:</b>	Contractor
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

## 20. Lost Creek, Town of

### **Strategy 1-A-1:**

Amend floodplain ordinance for compliance with the NFIP regulations.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Lost Creek Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

### **Strategy 1-A-2:**

Establish procedure to amend ordinances as NFIP regulations change.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Lost Creek Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-3:**

Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and
- Installation of flood walls or shields, as applicable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Public outreach should require little to no additional funding if done in tandem with other initiatives (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	Town of Lost Creek
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-4:**

Continuation of acquisition and demolition of FEMA-identified repetitive loss structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$95,500 per purchase (HMGP, CDBG)
<b>Coordinating Agency:</b>	Town of Lost Creek
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This project is considered as and if funding is available

**Strategy 1-A-5:**

Revise subdivision regulations to require provision for open space on land that is in the floodplain.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Maintenance of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Lost Creek
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-6:**

Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Lost Creek
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

**Strategy 1-A-7:**

Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 per project, contingent on number of rehabs (CDFI, Banks, Other State/Federal Sources)
<b>Coordinating Agency:</b>	Town of Lost Creek
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Landmark Commission, Harrison County Redevelopment Authority
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available



**Strategy 4-A-1:**

Adopt and enforce the state building code.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Updating the ordinance should require little to no additional funding; enforcement may require funds (Local Funding)
<b>Coordinating Agency:</b>	Town of Lost Creek
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort (i.e., the ordinance is updated when the state code is updated)

**Strategy 8-A-1:**

Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Lost Creek VFD
<b>Support Agencies:</b>	Town of Lost Creek, Harrison County Commission
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	A county fire board is in existence and it can establish fire fees for certain areas of the county; this strategy remains in the plan to allow local officials the opportunity to investigate the possibility of using this code section as a method to assist in financing fire departments

**Strategy 12-A-1:**

Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Lost Creek
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

## 21. Lumberport, Town of

**Strategy 1-A-1:**

Amend floodplain ordinance for compliance with the NFIP regulations.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Lumberport Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-2:**

Establish procedure to amend ordinances as NFIP regulations change.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Lumberport Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-3:**

Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and
- Installation of flood walls or shields, as applicable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Public outreach should require little to no additional funding if done in tandem with other initiatives (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	Town of Lumberport
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-4:**

Continuation of acquisition and demolition of FEMA-identified repetitive loss structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$95,500 per purchase (HMGP, CDBG)
<b>Coordinating Agency:</b>	Town of Lumberport
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This project is considered as and if funding is available

**Strategy 1-A-5:**

Revise subdivision regulations to require provision for open space on land that is in the floodplain.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Maintenance of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Lumberport
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-6:**

Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Lumberport
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

**Strategy 1-A-7:**

Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 per project, contingent on number of rehabs (CDFI, Banks, Other State/Federal Sources)
<b>Coordinating Agency:</b>	Town of Lumberport
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Landmark Commission, Harrison County Redevelopment Authority
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available

**Strategy 4-A-1:**

Adopt and enforce the state building code.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Updating the ordinance should require little to no additional funding; enforcement may require funds (Local Funding)
<b>Coordinating Agency:</b>	Town of Lumberport
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort (i.e., the ordinance is updated when the state code is updated)

**Strategy 8-A-1:**

Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Lumberport VFD
<b>Support Agencies:</b>	Town of Lumberport, Harrison County Commission
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	A county fire board is in existence and it can establish fire fees for certain areas of the county; this strategy remains in the plan to allow local officials the opportunity to investigate the possibility of using this code section as a method to assist in financing fire departments

**Strategy 12-A-1:**

Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Lumberport
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

## 22. Mannington, City of

**Strategy 1-E-1:**

Continue to educate faculty and staff at schools on NOAA radio usage.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Continued training should not require additional funding (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Board of Education
<b>Mitigation Type:</b>	Public Education and awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-K-4:**

Develop stringent stormwater management codes for future development, possibly including a stormwater utility.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Developing codes should not require any additional funds (N/A)
<b>Coordinating Agency:</b>	Municipal Councils, local wastewater authorities
<b>Support Agencies:</b>	County Commission
<b>Mitigation Type:</b>	Property Protection, Structural Projects
<b>Status:</b>	This strategy represents an ongoing effort



**Strategy 2-A-1:**

Equip shelter facilities to provide back-up power.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Upwards of \$25,000 each – size dependent (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM, VFDs
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 2-A-2:**

Maintain and update the early warning systems that are in place throughout the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	No additional funding is required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Unchanged

**Strategy 2-A-3:**

Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Studies could cost between \$2,000 and \$7,500 depending on the scope (DOJ-ODP, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Office of Planning and Development, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 3-B-1:**

Update resource list of contracts with snow removal agencies.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No immediate additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	WVDOH, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-B-1:**

Continue to coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-2:**

Continue to monitor and maintain the three rain gauges installed at strategic points throughout the county. Use these gauges in conjunction with the new weather station to monitor current and developing weather incidents.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Maintenance and monitoring should require little to no additional funding (Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 7-A-1:**

Develop plans and schedules with the Department of Agriculture to haul water to residents during drought conditions.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Local VFDs
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 10-C-1:**

Establish procedures with companies to clean up material from a landslide quickly and to monitor areas of high risk.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Promotion of the concept can be done as municipal building permits are issued (N/A)
<b>Coordinating Agency:</b>	Municipal Town Councils
<b>Support Agencies:</b>	Cleanup Companies
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 11-B-1:**

Coordinate with the SCS to continue updating the map showing areas that would be affected by a dam failure.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (SCS)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort.

## 23. Marion County

### **Strategy 1-A-9:**

Encourage the preservation of land in the floodplain as passive recreation and open space.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	Encouragement should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Marion County Floodplain/GIS Office
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention/Natural Resource Protection
<b>Status:</b>	New as of 2017

### **Strategy 1-B-2:**

Continue to seek out opportunities to apply for Hazard Mitigation Assistance (HMA) funds for mitigation reconstruction, elevations, relocations or acquisitions of identified at risk, repetitive loss, non-repetitive loss, substantial damaged, partially or completely demolished or destroyed properties within the county. If mitigation reconstruction is chosen, properties identified as partially or completely demolished, outside of the regulatory floodway, as identified by available flood hazard data, will be reconstructed in accordance with the standards established in the local floodplain ordinance and in accordance with the same conditions as an elevated structure. The county will comply with all acquisition, elevation, relocation and mitigation reconstruction requirements, as per the HMA Guidance.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$100,000 (average) per property depending on the type of mitigation (FEMA HMA)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Local Floodplain Coordinators, WVDHSEM, FEMA
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	New as of 2017

**Strategy 1-D-1:**

Use municipal regulations as models to develop a county-wide permitting process to supplement the measures taken by lending institutions to monitor new construction in the floodplain.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary; however, there may be administrative costs associated with code enforcement (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Office of Planning and Development
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 1-D-4:**

Place the county floodplain ordinance on the county webpage.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Placing the ordinance on the webpage requires no additional funding (N/A)
<b>Coordinating Agency:</b>	Marion County Floodplain/GIS Office
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention/Public Education and Awareness
<b>Status:</b>	New as of 2017

**Strategy 1-E-1:**

Continue to educate faculty and staff at schools on NOAA radio usage.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Continued training should not require additional funding (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Board of Education
<b>Mitigation Type:</b>	Public Education and awareness
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 1-G-1:**

Conduct acquisition and/or relocation projects in frequently flooded portions of the county.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	HMGP (for 10 sites throughout the county, costs would approach approximately \$700,000).
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	FEMA
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	New as of 2017

**Strategy 1-K-4:**

Develop stringent stormwater management codes for future development, possibly including a stormwater utility.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Developing codes should not require any additional funds (N/A)
<b>Coordinating Agency:</b>	Municipal Councils, local wastewater authorities
<b>Support Agencies:</b>	County Commission
<b>Mitigation Type:</b>	Property Protection, Structural Projects
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 2-A-1:**

Equip shelter facilities to provide back-up power.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Upwards of \$25,000 each – size dependent (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM, VFDs
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	Completed and ongoing as of 2017



**Strategy 2-A-2:**

Maintain and update the early warning systems that are in place throughout the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	No additional funding is required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 2-A-3:**

Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Studies could cost between \$2,000 and \$7,500 depending on the scope (DOJ-ODP, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Office of Planning and Development, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 2-A-4:**

Identify and make all private sector resources available in concert with the LEPC Resource Manual.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Cost should range between \$7,500 and \$10,000 (SERC)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 2-A-6:**

Encourage local cell phone users to sign up for automated 911 emergency updates.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	Encouragement should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Marion County 911
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	New as of 2017

**Strategy 3-B-1:**

Update resource list of contracts with snow removal agencies.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No immediate additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	WVDOH, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services, Prevention
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 4-B-2:**

Continue to monitor and maintain the three rain gauges installed at strategic points throughout the county. Use these gauges in conjunction with the new weather station to monitor current and developing weather incidents.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Maintenance and monitoring should require little to no additional funding (Local Funding)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 4-B-3:**

Coordinate efforts with local media to post advance warnings of severe storms.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding is necessary (N/A)
<b>Coordinating Agency:</b>	MCDHSEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 7-A-1:**

Develop plans and schedules with the Department of Agriculture to haul water to residents during drought conditions.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Local VFDs
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 8-B-1:**

Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Cost is variable dependent upon amount of materials to be distributed (WVDNR, State Parks Commission)
<b>Coordinating Agency:</b>	WVDNR
<b>Support Agencies:</b>	State Parks Commission
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 10-B-3:**

Coordinate with WVDOH to continue monitoring the slippage repairs along U.S. Route 250 near White Hall.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Monitoring should require little to no additional funding (FSU)
<b>Coordinating Agency:</b>	WVDOH
<b>Support Agencies:</b>	FSC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 10-B-4:**

Research measures, such as retaining cables, to prevent falling rock incidents along roadways.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Research of retaining measures should require little to no additional funding. Implementation, however, will require funding through grants and/or state and federal sources (WVDOH)
<b>Coordinating Agency:</b>	WVDOH
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 10-B-6:**

Work with the West Virginia University GIS Technical Center to develop detailed mapping of known and potential landslide hazard areas.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	No additional funding should be needed to coordinate with the WVU GIS Technical Center (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	WVDOH, WVDHSEM
<b>Mitigation Type:</b>	Public Information
<b>Status:</b>	New as of 2017

**Strategy 10-C-1:**

Establish procedures with companies to clean up material from a landslide quickly and to monitor areas of high risk.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Promotion of the concept can be done as municipal building permits are issued (N/A)
<b>Coordinating Agency:</b>	Municipal Town Councils
<b>Support Agencies:</b>	Cleanup Companies
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 11-B-1:**

Coordinate with the SCS to continue updating the map showing areas that would be affected by a dam failure.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (SCS)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 18-A-1:**

Continue to distribute an informational brochure to local residents.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	Costs should be minimal (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	Public Safety Departments
<b>Support Agencies:</b>	LEPC, MCDHSEM, WVDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 19-A-1:**

Research the possibility of lowering speed limits along accident-prone sections of I-79.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	MCDHSEM
<b>Support Agencies:</b>	Law Enforcement
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 19-B-1:**

Make hazmat training available for emergency services responders.

<b>Timeframe:</b>	4 years
<b>Cost Estimate (Potential Funding):</b>	\$40 – 125 per person/per class (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	MCDHSEM
<b>Support Agencies:</b>	WVDHSEM, Local Emergency Service Providers
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing as of 2017



## 24. Masontown, Town of

### **Strategy 11-C-2:**

Regulate development in the hydraulic shadow (or areas where flooding would occur if there was a severe dam failure of the Masontown water supply dam).

<b>Timeframe:</b>	During new construction
<b>Cost Estimate (Potential Funding):</b>	No funding required (N/A)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

## 25. Monongah, Town of

### **Strategy 1-E-1:**

Continue to educate faculty and staff at schools on NOAA radio usage.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Continued training should not require additional funding (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Board of Education
<b>Mitigation Type:</b>	Public Education and awareness
<b>Status:</b>	This strategy represents an ongoing effort

### **Strategy 2-A-1:**

Equip shelter facilities to provide back-up power.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Upwards of \$25,000 each – size dependent (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM, VFDs
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 2-A-2:**

Maintain and update the early warning systems that are in place throughout the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	No additional funding is required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Unchanged

**Strategy 2-A-3:**

Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Studies could cost between \$2,000 and \$7,500 depending on the scope (DOJ-ODP, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Office of Planning and Development, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 3-B-1:**

Update resource list of contracts with snow removal agencies.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No immediate additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	WVDOH, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-2:**

Continue to monitor and maintain the three rain gauges installed at strategic points throughout the county. Use these gauges in conjunction with the new weather station to monitor current and developing weather incidents.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Maintenance and monitoring should require little to no additional funding (Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 7-A-1:**

Develop plans and schedules with the Department of Agriculture to haul water to residents during drought conditions.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Local VFDs
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 10-C-1:**

Establish procedures with companies to clean up material from a landslide quickly and to monitor areas of high risk.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Promotion of the concept can be done as municipal building permits are issued (N/A)
<b>Coordinating Agency:</b>	Municipal Town Councils
<b>Support Agencies:</b>	Cleanup Companies
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 11-B-1:**

Coordinate with the SCS to continue updating the map showing areas that would be affected by a dam failure.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (SCS)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

## 26. Monongalia County

### **Strategy 1-B-2:**

Continue to seek out opportunities to apply for Hazard Mitigation Assistance (HMA) funds for mitigation reconstruction, elevations, relocations or acquisitions of identified at risk, repetitive loss, non-repetitive loss, substantial damaged, partially or completely demolished or destroyed properties within the county. If mitigation reconstruction is chosen, properties identified as partially or completely demolished, outside of the regulatory floodway, as identified by available flood hazard data, will be reconstructed in accordance with the standards established in the local floodplain ordinance and in accordance with the same conditions as an elevated structure. The county will comply with all acquisition, elevation, relocation and mitigation reconstruction requirements, as per the HMA Guidance.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$100,000 (average) per property depending on the type of mitigation (FEMA HMA)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Local Floodplain Coordinators, WVDHSEM, FEMA
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	New as of 2017

### **Strategy 1-D-3:**

Continue the implementation of county-wide floodplain management.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Creating codes requires no funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Local floodplain managers
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	Completed and ongoing

**Strategy 1-G-3:**

Continue the development of stormwater management codes for future development outside of the City of Morgantown, where such actions are underway.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Creation and adoption of codes requires no initial funding (administrative costs associated with code enforcement may eventually require funding, however)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Planning and Zoning
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-L-1:**

Work with applicable agencies to facilitate studies in repeatedly flooded areas such as Dents Run, Burroughs Run, Dunkard, Sabraton, and areas along Decker's Creek.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	Planning Commission
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 3-C-1:**

Continue outfitting and preparing the winter rescue team to ensure that emergency responders can access all parts of the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$25,000 (HMGP, Pre-Disaster Mitigation, U.S. Department of Homeland Security, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	First Response Agencies
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort



**Strategy 3-E-1:**

Institute county-wide building codes and other general planning requirements, which will regulate the materials used in construction with respect to snow and ice weight.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Creation and adoption of codes requires no initial funding (administrative costs associated with code enforcement may eventually require funding, however)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 3-E-2:**

Enforce existing building codes and planning requirements that are already in place.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Funds are already budgeted for planning/inspection departments
<b>Coordinating Agency:</b>	Planning Commission
<b>Support Agencies:</b>	Morgantown Planning, Westover Inspection
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-3:**

Coordinate efforts with local media to post advance warnings of severe storms.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-D-2:**

Instate county-wide building codes which will regulate the materials used in buildings that are constructed with respect to design wind speeds.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Creation and adoption of codes requires no initial funding (administrative costs associated with code enforcement may eventually require funding, however)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 5-A-1:**

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.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	USGS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 6-A-1:**

Educate the public as to the benefits of building codes and overall community and land use planning as well as advantages to mitigation planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Planning and Zoning
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 6-A-2:**

Strictly enforce ground disturbance permitting regulations, such as new MS4 requirements, in municipal and county jurisdictions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Existing personnel could be used, thus cutting cost (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 6-A-3:**

Instate county-wide 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.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Creation and adoption of codes requires no funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Planning and Zoning
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	Unchanged

**Strategy 6-B-1:**

Undertake active re-vegetation and other stormwater programs to cover areas of bare ground that may be susceptible to erosion.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 to \$10,000, contingent on size of project (Local Funding)
<b>Coordinating Agency:</b>	Planning Commission
<b>Support Agencies:</b>	Municipal Inspection/Planning Offices
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Completed and ongoing

**Strategy 6-B-2:**

Evaluate the viability of the retaining wall on Logan and Jefferson Streets in Morgantown's South Park.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Evaluating the structure would require little additional funding
<b>Coordinating Agency:</b>	Morgantown Public Works
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 7-B-1:**

Educate local residents on the benefits of conserving water at all times, not just during a drought.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-A-1:**

Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	West Virginia Division of Forestry, WVDNR
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-B-1:**

Continue to train and organize local fire service personnel to assist in the investigation of structural fires and the citation of code violations through a certification program made available to local fire chiefs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Training opportunities are often provided through the WVU Fire Service Extension (N/A)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVU Fire Service Extension
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 9-B-2:**

Coordinate with the WVSFM to extend the jurisdiction of deputized fire marshals to a statewide jurisdiction.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	WVSFM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 9-B-3:**

Certify PDs, which have arrest powers, to handle arson investigations in place of fire departments, which do not have arrest powers (include a modified version of the State Police Academy to provide such training).

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Project is still in exploration stage, which requires little additional funding.
<b>Coordinating Agency:</b>	Local VFDs
<b>Support Agencies:</b>	WVSP
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 9-C-1:**

Facilitate public awareness campaigns aimed at recruiting more volunteers at VFDs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-C-2:**

Continue public awareness campaigns in schools, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVSFM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing



**Strategy 9-C-3:**

Hire additional firefighters at paid-staff fire departments.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$40,000/year per firefighter (Local Funding)
<b>Coordinating Agency:</b>	Morgantown Municipal Council
<b>Support Agencies:</b>	Local FDs
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 9-D-1:**

Continue installing wet and dry hydrants in rural portions of the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$500 - \$750 per hydrant (USDA, NRCS, Local Funding)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	NRCS
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Completed and ongoing

**Strategy 9-D-2:**

Consider planning and subdivision regulations that will require certain levels of fire flow and potable water pressure as subdivisions are developed.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Creation and adoption of codes requires no initial funding (administrative costs associated with code enforcement may eventually require funding, however)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Morgantown Municipal Council
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	Completed and ongoing

**Strategy 10-B-6:**

Work with the West Virginia University GIS Technical Center to develop detailed mapping of known and potential landslide hazard areas.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	No additional funding should be needed to coordinate with the WVU GIS Technical Center (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	WVDOH, WVDHSEM
<b>Mitigation Type:</b>	Public Information
<b>Status:</b>	New as of 2017

**Strategy 13-A-1:**

Produce public awareness campaigns via various local media outlets.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Monongalia County Health Department
<b>Support Agencies:</b>	CDC, WHO
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 14-A-1:**

Encourage Allegheny Power to undertake projects to increase the number of feeder lines into rural areas so as to create back-up electricity in the event that one of the feeder lines fails.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 14-A-2:**

Encourage Allegheny Power to allow employees to take company vehicles home to be available for emergency call-outs in the event of a downed electric line. These actions will free up local emergency responders who normally monitor the downed line.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 14-B-1:**

Encourage representatives from the county's assets (e.g., company leaders, etc.) to draft and distribute guidelines to implement in the event of HVAC failure.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Company Leaders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 14-C-1:**

Instate a grant or low-interest loan program to help individual residents finance generators and other back-up electricity systems.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 (Initial funds could be local funds, grants from non- profit organizations, etc. Ultimately, funds returned as part of the program could be used to finance subsequent years.)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 15-A-1:**

Coordinate with local media to announce low resource/fuel supplies.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 15-A-2:**

Increase public knowledge as to resource conservation by distributing information to new and existing customers.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-1:**

Assess the feasibility of cleaning up busy intersections.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Assessing feasibility, like coordination, requires little additional funding
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	WVDOH
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-2:**

Evaluate railroad and roadway intersections for warning systems, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Evaluating systems, like coordination, requires little additional funding (N/A)
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	CSX, Norfolk & Western
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-3:**

Evaluate dams and locks that play an integral role in water transportation.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Evaluating systems, like coordination, requires little additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	USACE
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-B-1:**

Publicize evacuation plans.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project could be accomplished through existing public information campaigns
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 16-B-2:**

Facilitate the creation of safe zones as places where residents can go in the event of a hazardous material incident. Further, publicize the location and access to these safe zones.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-A-1:**

Encourage schools to adopt and/or upgrade procedural and evacuation plans in the event of a bomb threat.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Schools are already planning; these additional measures would require no additional costs (N/A)
<b>Coordinating Agency:</b>	Monongalia County Schools
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-B-1:**

Establish trauma centers to offer medical attention and counseling to affected populations in the event of a terrorist event.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Monongalia County Health Department
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged



**Strategy 17-C-1:**

Increase the knowledge of the general public concerning preparedness through the preparation of informational brochures, town meetings, training seminars, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 17-D-1:**

Coordinate with first responders for interagency cooperation to assist in collaborative planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local First Responders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-D-2:**

Continue education and training efforts of first responders and emergency personnel.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local FDs, Local PDs, LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 20-A-1:**

Increase security at large gatherings, festivals, sporting events, etc. throughout the county and municipalities. Examples include events at Mylan Park, Mountain Fest, and events at WVU.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Funding for law enforcement security officers is a part of regular operating budgets (N/A)
<b>Coordinating Agency:</b>	Monongalia County Sheriff's Office
<b>Support Agencies:</b>	Municipal PDs
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

## 27. Morgantown, City of

**Strategy 3-C-1:**

Continue outfitting and preparing the winter rescue team to ensure that emergency responders can access all parts of the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$25,000 (HMGP, Pre-Disaster Mitigation, U.S. Department of Homeland Security, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	First Response Agencies
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Ongoing

**Strategy 3-E-2:**

Enforce existing building codes and planning requirements that are already in place.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Enforcing existing codes and requirements requires no additional funding (N/A)
<b>Coordinating Agency:</b>	Planning Office
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-3:**

Coordinate efforts with local media to post advance warnings of severe storms.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 5-A-1:**

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.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	USGS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 6-A-1:**

Educate the public as to the benefits of building codes and overall community and land use planning as well as advantages to mitigation planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Planning and Zoning
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 6-A-2:**

Strictly enforce ground disturbance permitting regulations, such as new MS4 requirements, in municipal and county jurisdictions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Existing personnel could be used, thus cutting cost (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 6-B-1:**

Undertake active re-vegetation and other stormwater programs to cover areas of bare ground that may be susceptible to erosion.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 to \$10,000, contingent on size of project (Local Funding)
<b>Coordinating Agency:</b>	Planning Commission
<b>Support Agencies:</b>	Municipal Inspection/Planning Offices
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Completed and ongoing

**Strategy 6-B-2:**

Evaluate the viability of the retaining wall on Logan and Jefferson Streets in Morgantown's South Park.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Evaluating the structure would require little additional funding
<b>Coordinating Agency:</b>	Morgantown Public Works
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 7-B-1:**

Educate local residents on the benefits of conserving water at all times, not just during a drought.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, MCOEM
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-A-1:**

Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	West Virginia Division of Forestry, WVDNR
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-B-1:**

Continue to train and organize local fire service personnel to assist in the investigation of structural fires and the citation of code violations through a certification program made available to local fire chiefs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Training opportunities are often provided through the WVU Fire Service Extension (N/A)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVU Fire Service Extension
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 9-B-2:**

Coordinate with the WVSFM to extend the jurisdiction of deputized fire marshals to a statewide jurisdiction.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	WVSFM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 9-B-3:**

Certify PDs, which have arrest powers, to handle arson investigations in place of fire departments, which do not have arrest powers (include a modified version of the State Police Academy to provide such training).

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Project is still in exploration stage, which requires little additional funding
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVSP
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged



**Strategy 9-C-1:**

Facilitate public awareness campaigns aimed at recruiting more volunteers at VFDs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-C-2:**

Continue public awareness campaigns in schools, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVSFM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-D-2:**

Consider planning and subdivision regulations that will require certain levels of fire flow and potable water pressure as subdivisions are developed.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Creation and adoption of codes requires no initial funding (administrative costs associated with code enforcement may eventually require funding, however)
<b>Coordinating Agency:</b>	Morgantown Municipal Council
<b>Support Agencies:</b>	County Planning Department
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	Completed and ongoing

**Strategy 13-A-1:**

Produce public awareness campaigns via various local media outlets.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Monongalia County Health Department
<b>Support Agencies:</b>	CDC, WHO
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 14-A-1:**

Encourage Allegheny Power to undertake projects to increase the number of feeder lines into rural areas so as to create back-up electricity in the event that one of the feeder lines fails.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 14-A-2:**

Encourage Allegheny Power to allow employees to take company vehicles home to be available for emergency call-outs in the event of a downed electric line. These actions will free up local emergency responders who normally monitor the downed line.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 14-B-1:**

Encourage representatives from the county's assets (e.g., company leaders, etc.) to draft and distribute guidelines to implement in the event of HVAC failure.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Company Leaders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 14-C-1:**

Instate a grant or low-interest loan program to help individual residents finance generators and other back-up electricity systems.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 (Initial funds could be local funds, grants from non- profit organizations, etc. Ultimately, funds returned as part of the program could be used to finance subsequent years.)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 15-A-1:**

Coordinate with local media to announce low resource/fuel supplies.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 15-A-2:**

Increase public knowledge as to resource conservation by distributing information to new and existing customers.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-1:**

Assess the feasibility of cleaning up busy intersections.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Assessing feasibility, like coordination, requires little additional funding
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	WVDOH
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-2:**

Evaluate railroad and roadway intersections for warning systems, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Evaluating systems, like coordination, requires little additional funding (N/A)
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	CSX, Norfolk & Western
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-3:**

Evaluate dams and locks that play an integral role in water transportation.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Evaluating systems, like coordination, requires little additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	USACE
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-B-1:**

Publicize evacuation plans.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project could be accomplished through existing public information campaigns
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 16-B-2:**

Facilitate the creation of safe zones as places where residents can go in the event of a hazardous material incident. Further, publicize the location and access to these safe zones.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-A-1:**

Encourage schools to adopt and/or upgrade procedural and evacuation plans in the event of a bomb threat.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Schools are already planning; these additional measures would require no additional costs (N/A)
<b>Coordinating Agency:</b>	Monongalia County Schools
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-B-1:**

Establish trauma centers to offer medical attention and counseling to affected populations in the event of a terrorist event.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Monongalia County Health Department
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 17-C-1:**

Increase the knowledge of the general public concerning preparedness through the preparation of informational brochures, town meetings, training seminars, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing



**Strategy 17-D-1:**

Coordinate with first responders for interagency cooperation to assist in collaborative planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local First Responders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-D-2:**

Continue education and training efforts of first responders and emergency personnel.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local FDs, Local PDs, LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 20-A-1:**

Increase security at large gatherings, festivals, sporting events, etc. throughout the county and municipalities. Examples include events at Mylan Park, Mountain Fest, and events at WVU.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Funding for law enforcement security officers is a part of regular operating budgets (N/A)
<b>Coordinating Agency:</b>	Monongalia County Sheriff's Office
<b>Support Agencies:</b>	Municipal PDs
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

## 28. Newburg, Town of

### **Strategy 6-D-1:**

Conduct a mapping project to identify old mining areas or geologically unstable terrain so that development can proceed accordingly in those areas.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Local Funding, Pre-Disaster Mitigation (up to \$10,000 to \$15,000)
<b>Coordinating Agency:</b>	City Council
<b>Support Agencies:</b>	City Engineer
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

## 29. Nutter Fort, Town of

### **Strategy 1-A-1:**

Amend floodplain ordinance for compliance with the NFIP regulations.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Nutter Fort Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

### **Strategy 1-A-2:**

Establish procedure to amend ordinances as NFIP regulations change.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Nutter Fort Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-3:**

Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and
- Installation of flood walls or shields, as applicable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Public outreach should require little to no additional funding if done in tandem with other initiatives (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	Town of Nutter Fort
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-4:**

Continuation of acquisition and demolition of FEMA-identified repetitive loss structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$95,500 per purchase (HMGP, CDBG)
<b>Coordinating Agency:</b>	Town of Nutter Fort
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This project is considered as and if funding is available

**Strategy 1-A-5:**

Revise subdivision regulations to require provision for open space on land that is in the floodplain.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Maintenance of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Nutter Fort
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-6:**

Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Nutter Fort
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

**Strategy 1-A-7:**

Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 per project, contingent on number of rehabs (CDFI, Banks, Other State/Federal Sources)
<b>Coordinating Agency:</b>	Town of Nutter Fort
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Landmark Commission, Harrison County Redevelopment Authority
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available

**Strategy 4-A-1:**

Adopt and enforce the state building code.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Updating the ordinance should require little to no additional funding; enforcement may require funds (Local Funding)
<b>Coordinating Agency:</b>	Town of Nutter Fort
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort (i.e., the ordinance is updated when the state code is updated)

**Strategy 8-A-1:**

Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Nutter Fort VFD
<b>Support Agencies:</b>	Town of Nutter Fort, Harrison County Commission
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	A county fire board is in existence and it can establish fire fees for certain areas of the county; this strategy remains in the plan to allow local officials the opportunity to investigate the possibility of using this code section as a method to assist in financing fire departments

**Strategy 12-A-1:**

Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of Nutter Fort
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

### 30. Pleasant Valley, City of

**Strategy 1-E-1:**

Continue to educate faculty and staff at schools on NOAA radio usage.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Continued training should not require additional funding (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Board of Education
<b>Mitigation Type:</b>	Public Education and awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 2-A-1:**

Equip shelter facilities to provide back-up power.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Upwards of \$25,000 each – size dependent (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM, VFDs
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 2-A-2:**

Maintain and update the early warning systems that are in place throughout the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	No additional funding is required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Unchanged

**Strategy 2-A-3:**

Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Studies could cost between \$2,000 and \$7,500 depending on the scope (DOJ-ODP, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Office of Planning and Development, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 3-B-1:**

Update resource list of contracts with snow removal agencies.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No immediate additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	WVDOH, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services, Prevention
<b>Status:</b>	This strategy represents an ongoing effort



**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-2:**

Continue to monitor and maintain the three rain gauges installed at strategic points throughout the county. Use these gauges in conjunction with the new weather station to monitor current and developing weather incidents.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Maintenance and monitoring should require little to no additional funding (Local Funding)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 7-A-1:**

Develop plans and schedules with the Department of Agriculture to haul water to residents during drought conditions.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Local VFDs
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 10-C-1:**

Establish procedures with companies to clean up material from a landslide quickly and to monitor areas of high risk.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Promotion of the concept can be done as municipal building permits are issued (N/A)
<b>Coordinating Agency:</b>	Municipal Town Councils
<b>Support Agencies:</b>	Cleanup Companies
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 11-B-1:**

Coordinate with the SCS to continue updating the map showing areas that would be affected by a dam failure.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (SCS)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

### 31. Preston County

#### **Strategy 1-B-2:**

Continue to seek out opportunities to apply for Hazard Mitigation Assistance (HMA) funds for mitigation reconstruction, elevations, relocations or acquisitions of identified at risk, repetitive loss, non-repetitive loss, substantial damaged, partially or completely demolished or destroyed properties within the county. If mitigation reconstruction is chosen, properties identified as partially or completely demolished, outside of the regulatory floodway, as identified by available flood hazard data, will be reconstructed in accordance with the standards established in the local floodplain ordinance and in accordance with the same conditions as an elevated structure. The county will comply with all acquisition, elevation, relocation and mitigation reconstruction requirements, as per the HMA Guidance.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$100,000 (average) per property depending on the type of mitigation (FEMA HMA)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Local Floodplain Coordinators, WVDHSEM, FEMA
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	New as of 2017

#### **Strategy 1-F-1:**

Clean portions of Big Sandy Creek and its floodplain, clearing log jams, trees and shrubs, and sediment bars.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	USACE, Local Funding (small sections of the creek could cost as much as \$50,000 to \$100,000)
<b>Coordinating Agency:</b>	County Engineer
<b>Support Agencies:</b>	USACE
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Have corresponded with the conservation agency flood recovery and stream restoration on this strategy

**Strategy 1-F-4:**

Assess the feasibility of using the debris cleaned from the creek and streams to build an earthen floodwall along the creek to protect properties from flooding and erosion.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	USACE, Local Funding (if material cleaned from stream is used, costs decrease; projects could cost up to \$100,000)
<b>Coordinating Agency:</b>	USACE
<b>Support Agencies:</b>	County Engineer
<b>Mitigation Type:</b>	Prevention, Structural Projects
<b>Status:</b>	Have corresponded with the conservation agency flood recovery and stream restoration on this strategy

**Strategy 1-G-1:**

Conduct acquisition and/or relocation projects in frequently flooded portions of the county.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	HMGP (for 10 sites throughout the county, costs would approach approximately \$700,000)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	FEMA
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 2-B-1:**

Assess the number, location, strength, and ability of shelters to house residents and withstand high wind speeds. Consider constructing concrete safe rooms near mobile home parks and other vulnerable public areas.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Local Funding, FEMA (\$15,000 to \$20,000)
<b>Coordinating Agency:</b>	PCOEM
<b>Support Agencies:</b>	American Red Cross
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-A-2:**

Encourage the use of laminated glass in window panes during all new construction.

<b>Timeframe:</b>	During new construction
<b>Cost Estimate (Potential Funding):</b>	Encouraging use requires no additional funding; however, purchasing materials is contingent upon the size of the facility.
<b>Coordinating Agency:</b>	PCOEM
<b>Support Agencies:</b>	Facility Owners
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This is done on a regular basis

**Strategy 4-C-1:**

Coordinate with the power company to periodically trim trees near power lines to prevent limb breakage and power failures.

<b>Timeframe:</b>	Once a year
<b>Cost Estimate (Potential Funding):</b>	Local Funding, Pre-Disaster Mitigation (up to \$25,000 to \$40,000)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Local Power Company
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	The Power Company has made efforts to clear rights-of-way

**Strategy 4-D-1:**

Reduce the risk of mobile home damage by suggesting the use of tie-downs with ground anchors appropriate for the soil type.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A); however, tie-down kits cost approximately \$150 each and usually include four anchors
<b>Coordinating Agency:</b>	PCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 5-A-1:**

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.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	Pre-Disaster Mitigation (\$3,000 for publication and distribution of informative materials)
<b>Coordinating Agency:</b>	PCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 5-A-2:**

Encourage the implementation of structural mitigation techniques such as wall bracing, reinforcing walls with fiber materials, and installing dampers or vibration isolation bearings in new construction.

<b>Timeframe:</b>	During new construction
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	PCOEM
<b>Support Agencies:</b>	County Commission
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	Stakeholders have suggested possible building codes

**Strategy 6-C-1:**

Consider developing a land use plan or modifying an existing plan to guide development away from and reduce the density of population in subsidence-prone areas.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Local Funding (up to \$10,000 to \$50,000)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 7-B-2:**

Consider passing ordinances to prioritize or control water use, particularly for emergency situations such as firefighting.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	USDA, if necessary (\$3,000 for publication and distribution, if USDA does not already have such materials printed)
<b>Coordinating Agency:</b>	Natural Resources
<b>Support Agencies:</b>	Conservation Services (NRCS), Farm Bureau, WV Department of Agriculture
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	The Preston County Commission has not yet addressed this strategy; Town Mayors have media conduct public service announcements regarding water usage during emergency situations

**Strategy 7-D-1:**

Interconnect infrastructure systems so that one system could supply another during emergency drought conditions.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	IJDC, SCBG, USDA, RD (up to \$250,000 to \$500,000)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Prevention, Structural Projects
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 7-D-2:**

Provide for an emergency backup power supply at all water treatment facilities in Preston County.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	IJDC, SCBG, USDA, RD (up to \$250,000 to \$500,000 county-wide)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Prevention, Structural Projects
<b>Status:</b>	This strategy represents an ongoing effort



**Strategy 10-B-6:**

Work with the West Virginia University GIS Technical Center to develop detailed mapping of known and potential landslide hazard areas.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	No additional funding should be needed to coordinate with the WVU GIS Technical Center (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	WVDOH, WVDHSEM
<b>Mitigation Type:</b>	Public Information
<b>Status:</b>	New as of 2017

**Strategy 11-A-3:**

Coordinate with the West Virginia Department of Environmental Protection, Dam Control regulations under the provisions of Chapter 22-14 of the West Virginia Dam Control and Safety Act as outlined in the West Virginia Code, to periodically reclassify any dam within Preston County as a result of a change in circumstances not in existence at the time of the initial classification to ensure adequate safety according to the potential for downstream damage.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	WVDEP quite possible has items such as this budgeted, as this project would fall under the responsibilities of Dam owners in coordination with WVDEP personnel (N/A)
<b>Coordinating Agency:</b>	WVDEP
<b>Support Agencies:</b>	Dam Owners
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 11-A-4:**

Coordinate with the USACE to update outdated flood studies encompassing areas affected by the failure or topping of Significant Hazard Dams within and near Preston County including, for example, the Masontown Water Supply Dam.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	USACE (study likely performed by COE staff; therefore, no local funds necessary)
<b>Coordinating Agency:</b>	USACE
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Periodic correspondence regarding projects and solutions

**Strategy 13-B-1:**

Encourage residents to receive immunizations against communicable infectious diseases.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Local Health Departments
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This is done annually, by the Preston County Health Department

**Strategy 13-B-2:**

Purchase a stockpile of medications for distribution to first responders county-wide. Medications would include antibiotics, antivirals, etc. Purchase a refrigerator for storage and an alarm system and generator for temperature maintenance.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Local Funding, Pre-Disaster Mitigation (up to \$75,000 to \$150,000)
<b>Coordinating Agency:</b>	County Public Health Department
<b>Support Agencies:</b>	PCOEM, WVDHSEM
<b>Mitigation Type:</b>	Prevention, Emergency Services
<b>Status:</b>	This strategy has not yet been addressed; however, it was reiterated during the Pandemic Influenza Tabletop Exercise

**Strategy 14-D-1:**

Purchase and install generators to provide a back-up power supply for all the county's public utilities.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Local Funding, Pre-Disaster Mitigation, FEMA (up to \$3,000 per generator)
<b>Coordinating Agency:</b>	PCOEM
<b>Support Agencies:</b>	Public Utilities
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	PCOEM is working on funding for this strategy

**Strategy 16-D-1:**

Maintain a stock of hazardous materials incident response supplies, such as cleanup materials and personal protective equipment, and increase the number of personnel that are certified to conduct hazardous materials cleanups so that responders have an adequate supply to respond to multiple incidents.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	U.S. Department of Homeland Security (up to \$100,000, depending upon the amount of equipment/supplies purchased and number of personnel trained)
<b>Coordinating Agency:</b>	PCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Preston County has a 20-member Hazardous Incident Response Team, and all fire departments have hazmat response training on some level

**Strategy 16-E-1:**

Coordinate with personnel at facilities that store and use hazardous materials to develop and exercise site emergency plans and community response plans as required under SARA Title III.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Hazmat Facilities
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	All Tier II Facility send Tier II reports to the Preston County LEPC; no exercises have been conducted at facility sites

**Strategy 16-E-2:**

Ensure proper separation and buffering between industrial areas and other land uses such as schools, nursing homes, hospitals, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	No additional funding necessary (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 17-B-1:**

Establish trauma centers to offer medical attention and counseling to affected populations in the event of a terrorist event.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Identifying potential trauma centers should require no additional funding
<b>Coordinating Agency:</b>	PCOEM
<b>Support Agencies:</b>	American Red Cross
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Preston Memorial Hospital and the Preston County Health Department have initiated a Critical Incident Stress Management (CISM) program

**Strategy 17-C-1:**

Increase the knowledge of the general public concerning preparedness through the preparation of informational brochures, town meetings, training seminars, etc.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	FEMA Planning Grant, Pre-Disaster Mitigation (scheduling town meetings would be of relatively low cost)
<b>Coordinating Agency:</b>	PCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Functional and tabletop exercises have been conducted county-wide, civic organizations have conducted presentations, and public service announcements have been made

**Strategy 17-D-2:**

Continue education and training efforts of first responders and emergency personnel.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	FEMA, U.S. Department of Homeland Security (up to \$1,500 per training session)
<b>Coordinating Agency:</b>	PCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This is conducted county-wide on an ongoing schedule

**Strategy 17-E-1:**

Coordinate with local media to alert the public as to the current threat status.

<b>Timeframe:</b>	3 months
<b>Cost Estimate (Potential Funding):</b>	Coordination along requires no additional funding
<b>Coordinating Agency:</b>	PCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This is conducted county-wide on an ongoing schedule

**Strategy 17-E-2:**

Make arrangements or otherwise establish mass morgue facilities to be used following potential mass casualty events.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Local Funding
<b>Coordinating Agency:</b>	Health Department
<b>Support Agencies:</b>	County Coroner, PCOEM
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	The Preston County Health Department has coordinated with local funeral directors concerning this strategy

**32. Reedsville, Town of****Strategy 4-B-4:**

Increase the coverage area and use of NOAA Weather Radios throughout the Town of Reedsville.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Local Funding, Pre-Disaster Mitigation (up to \$200 to \$500 per radio)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	PCOEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	NWS Weather Radios are provided throughout Reedsville, local media is used, as well as the 911 center

### 33. Rivesville, Town of

#### **Strategy 1-E-1:**

Continue to educate faculty and staff at schools on NOAA radio usage.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Continued training should not require additional funding (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Board of Education
<b>Mitigation Type:</b>	Public Education and awareness
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

#### **Strategy 2-A-1:**

Equip shelter facilities to provide back-up power.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Upwards of \$25,000 each – size dependent (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM, VFDs
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	Completed as of 2017

#### **Strategy 2-A-2:**

Maintain and update the early warning systems that are in place throughout the county.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding is required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed as of 2017



**Strategy 2-A-3:**

Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Studies could cost between \$2,000 and \$7,500 depending on the scope (DOJ-ODP, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Office of Planning and Development, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 3-B-1:**

Update resource list of contracts with snow removal agencies.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No immediate additional funding necessary (N/A)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	WVDOH, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services, Prevention
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed as of 2017

**Strategy 4-B-2:**

Continue to monitor and maintain the three rain gauges installed at strategic points throughout the county. Use these gauges in conjunction with the new weather station to monitor current and developing weather incidents.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Maintenance and monitoring should require little to no additional funding (Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 7-A-1:**

Develop plans and schedules with the Department of Agriculture to haul water to residents during drought conditions.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Local VFDs
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed as of 2017

**Strategy 10-B-5:**

Pre-disaster mitigation of slide-prone areas which threaten critical infrastructure or utilities such as roadways, water lines, sewer lines, gas, phone, electric, internet, and cable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	TBD on a site-specific basis
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	WVDOH, Utility Companies
<b>Mitigation Type:</b>	Prevention, Structural Projects
<b>Status:</b>	New as of 2017

**Strategy 10-C-1:**

Establish procedures with companies to clean up material from a landslide quickly and to monitor areas of high risk.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Promotion of the concept can be done as municipal building permits are issued (N/A)
<b>Coordinating Agency:</b>	Municipal Town Councils
<b>Support Agencies:</b>	Cleanup Companies
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 11-B-1:**

Coordinate with the SCS to continue updating the map showing areas that would be affected by a dam failure.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (SCS)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

### 34. Rowlesburg, Town of

**Strategy 1-K-1:**

Develop and conduct acquisition and relocation projects.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$77,000 per purchase (HMGP)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	Preston County Office of Emergency Management
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This project is considered as and if funding is available

**Strategy 2-C-2:**

Relocate the water intake upstream from the railroad river crossing.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	TBD (Local Funding)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	Preston County Office of Emergency Management
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	This strategy represents an ongoing effort

### 35. Salem, City of

**Strategy 1-A-1:**

Amend floodplain ordinance for compliance with the NFIP regulations.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Salem Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-2:**

Establish procedure to amend ordinances as NFIP regulations change.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Salem Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-3:**

Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and
- Installation of flood walls or shields, as applicable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Public outreach should require little to no additional funding if done in tandem with other initiatives (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	City of Salem
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-4:**

Continuation of acquisition and demolition of FEMA-identified repetitive loss structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$95,500 per purchase (HMGP, CDBG)
<b>Coordinating Agency:</b>	City of Salem
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This project is considered as and if funding is available

**Strategy 1-A-5:**

Revise subdivision regulations to require provision for open space on land that is in the floodplain.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Maintenance of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Salem
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-6:**

Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Salem
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

**Strategy 1-A-7:**

Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 per project, contingent on number of rehabs (CDFI, Banks, Other State/Federal Sources)
<b>Coordinating Agency:</b>	City of Salem
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Landmark Commission, Harrison County Redevelopment Authority
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available

**Strategy 4-A-1:**

Adopt and enforce the state building code.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Updating the ordinance should require little to no additional funding; enforcement may require funds (Local Funding)
<b>Coordinating Agency:</b>	City of Salem
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort (i.e., the ordinance is updated when the state code is updated)

**Strategy 8-A-1:**

Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Salem VFD
<b>Support Agencies:</b>	City of Salem, Harrison County Commission
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	A county fire board is in existence and it can establish fire fees for certain areas of the county; this strategy remains in the plan to allow local officials the opportunity to investigate the possibility of using this code section as a method to assist in financing fire departments



**Strategy 11-A-1:**

Prepare annual updates of dam assessments in accordance with state law.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	This is done by such agencies as the WVDEP as a part of state law (N/A)
<b>Coordinating Agency:</b>	WVDEP
<b>Support Agencies:</b>	City of Salem
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an annual undertaking by state agencies; it is listed as ongoing to show the city's support of these efforts

**Strategy 11-A-2:**

Explore state, federal, and private funding sources for dam rehabilitation.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Exploration should require little to no additional funding (funding could come from SCBG, USDA, IJDC, etc.)
<b>Coordinating Agency:</b>	City of Salem
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services Region VI Planning & Development Council
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	This strategy represents an ongoing portion of potential funding strategies should dams need to be rehabilitated

**Strategy 12-A-1:**

Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Salem
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

### 36. Shinnston, City of

**Strategy 1-A-1:**

Amend floodplain ordinance for compliance with the NFIP regulations.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Shinnston Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-2:**

Establish procedure to amend ordinances as NFIP regulations change.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Shinnston Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-3:**

Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and
- Installation of flood walls or shields, as applicable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Public outreach should require little to no additional funding if done in tandem with other initiatives (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	City of Shinnston
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-4:**

Continuation of acquisition and demolition of FEMA-identified repetitive loss structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$95,500 per purchase (HMGP, CDBG)
<b>Coordinating Agency:</b>	City of Shinnston
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This project is considered as and if funding is available

**Strategy 1-A-5:**

Revise subdivision regulations to require provision for open space on land that is in the floodplain.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Maintenance of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Shinnston
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-6:**

Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Shinnston
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

**Strategy 1-A-7:**

Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 per project, contingent on number of rehabs (CDFI, Banks, Other State/Federal Sources)
<b>Coordinating Agency:</b>	City of Shinnston
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Landmark Commission, Harrison County Redevelopment Authority
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available

**Strategy 4-A-1:**

Adopt and enforce the state building code.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Updating the ordinance should require little to no additional funding; enforcement may require funds (Local Funding)
<b>Coordinating Agency:</b>	City of Shinnston
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort (i.e., the ordinance is updated when the state code is updated)

**Strategy 8-A-1:**

Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Shinnston VFD
<b>Support Agencies:</b>	City of Shinnston, Harrison County Commission
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	A county fire board is in existence and it can establish fire fees for certain areas of the county; this strategy remains in the plan to allow local officials the opportunity to investigate the possibility of using this code section as a method to assist in financing fire departments

**Strategy 12-A-1:**

Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Shinnston
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

**37. Star City, Town of****Strategy 3-C-1:**

Continue outfitting and preparing the winter rescue team to ensure that emergency responders can access all parts of the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$25,000 (HMGP, Pre-Disaster Mitigation, U.S. Department of Homeland Security, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	First Response Agencies
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-3:**

Coordinate efforts with local media to post advance warnings of severe storms.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 5-A-1:**

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.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	USGS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing



**Strategy 6-A-1:**

Educate the public as to the benefits of building codes and overall community and land use planning as well as advantages to mitigation planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Planning and Zoning
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 6-A-2:**

Strictly enforce ground disturbance permitting regulations, such as new MS4 requirements, in municipal and county jurisdictions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Existing personnel could be used, thus cutting cost (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 6-B-1:**

Undertake active re-vegetation and other stormwater programs to cover areas of bare ground that may be susceptible to erosion.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 to \$10,000, contingent on size of project (Local Funding)
<b>Coordinating Agency:</b>	Planning Commission
<b>Support Agencies:</b>	Municipal Inspection/Planning Offices
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Completed and ongoing

**Strategy 7-B-1:**

Educate local residents on the benefits of conserving water at all times, not just during a drought.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, MCOEM
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-A-1:**

Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	West Virginia Division of Forestry, WVDNR
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-B-1:**

Continue to train and organize local fire service personnel to assist in the investigation of structural fires and the citation of code violations through a certification program made available to local fire chiefs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Training opportunities are often provided through the WVU Fire Service Extension (N/A)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVU Fire Service Extension
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 9-B-2:**

Coordinate with the WVSM to extend the jurisdiction of deputized fire marshals to a statewide jurisdiction.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	WVSM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 9-B-3:**

Certify PDs, which have arrest powers, to handle arson investigations in place of fire departments, which do not have arrest powers (include a modified version of the State Police Academy to provide such training).

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Project is still in exploration stage, which requires little additional funding.
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVSP
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 9-C-1:**

Facilitate public awareness campaigns aimed at recruiting more volunteers at VFDs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-C-2:**

Continue public awareness campaigns in schools, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVSFM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 13-A-1:**

Produce public awareness campaigns via various local media outlets.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Monongalia County Health Department
<b>Support Agencies:</b>	CDC, WHO
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 14-A-1:**

Encourage Allegheny Power to undertake projects to increase the number of feeder lines into rural areas so as to create back-up electricity in the event that one of the feeder lines fails.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 14-A-2:**

Encourage Allegheny Power to allow employees to take company vehicles home to be available for emergency call-outs in the event of a downed electric line. These actions will free up local emergency responders who normally monitor the downed line.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 14-B-1:**

Encourage representatives from the county's assets (e.g., company leaders, etc.) to draft and distribute guidelines to implement in the event of HVAC failure.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Company Leaders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 14-C-1:**

Instate a grant or low-interest loan program to help individual residents finance generators and other back-up electricity systems.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 (Initial funds could be local funds, grants from non- profit organizations, etc. Ultimately, funds returned as part of the program could be used to finance subsequent years.)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 15-A-1:**

Coordinate with local media to announce low resource/fuel supplies.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 15-A-2:**

Increase public knowledge as to resource conservation by distributing information to new and existing customers.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-1:**

Assess the feasibility of cleaning up busy intersections.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Assessing feasibility, like coordination, requires little additional funding
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	WVDOH
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-2:**

Evaluate railroad and roadway intersections for warning systems, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Evaluating systems, like coordination, requires little additional funding (N/A)
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	CSX, Norfolk & Western
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-3:**

Evaluate dams and locks that play an integral role in water transportation.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Evaluating systems, like coordination, requires little additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	USACE
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-B-1:**

Publicize evacuation plans.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project could be accomplished through existing public information campaigns
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing



**Strategy 16-B-2:**

Facilitate the creation of safe zones as places where residents can go in the event of a hazardous material incident. Further, publicize the location and access to these safe zones.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-A-1:**

Encourage schools to adopt and/or upgrade procedural and evacuation plans in the event of a bomb threat.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Schools are already planning; these additional measures would require no additional costs (N/A)
<b>Coordinating Agency:</b>	Monongalia County Schools
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-B-1:**

Establish trauma centers to offer medical attention and counseling to affected populations in the event of a terrorist event.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Monongalia County Health Department
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 17-C-1:**

Increase the knowledge of the general public concerning preparedness through the preparation of informational brochures, town meetings, training seminars, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 17-D-1:**

Coordinate with first responders for interagency cooperation to assist in collaborative planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local First Responders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-D-2:**

Continue education and training efforts of first responders and emergency personnel.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local FDs, Local PDs, LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 20-A-1:**

Increase security at large gatherings, festivals, sporting events, etc. throughout the county and municipalities. Examples include events at Mylan Park, Mountain Fest, and events at WVU.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Funding for law enforcement security officers is a part of regular operating budgets (N/A)
<b>Coordinating Agency:</b>	Monongalia County Sheriff's Office
<b>Support Agencies:</b>	Municipal PDs
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

### 38. Stonewood, City of

**Strategy 1-A-1:**

Amend floodplain ordinance for compliance with the NFIP regulations.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Stonewood Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-2:**

Establish procedure to amend ordinances as NFIP regulations change.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Stonewood Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-3:**

Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and
- Installation of flood walls or shields, as applicable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Public outreach should require little to no additional funding if done in tandem with other initiatives (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	City of Stonewood
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-4:**

Continuation of acquisition and demolition of FEMA-identified repetitive loss structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$95,500 per purchase (HMGP, CDBG)
<b>Coordinating Agency:</b>	City of Stonewood
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This project is considered as and if funding is available

**Strategy 1-A-5:**

Revise subdivision regulations to require provision for open space on land that is in the floodplain.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Maintenance of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Stonewood
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-6:**

Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Stonewood
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

**Strategy 1-A-7:**

Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 per project, contingent on number of rehabs (CDFI, Banks, Other State/Federal Sources)
<b>Coordinating Agency:</b>	City of Stonewood
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Landmark Commission, Harrison County Redevelopment Authority
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available

**Strategy 4-A-1:**

Adopt and enforce the state building code.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Updating the ordinance should require little to no additional funding; enforcement may require funds (Local Funding)
<b>Coordinating Agency:</b>	City of Stonewood
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort (i.e., the ordinance is updated when the state code is updated)

**Strategy 8-A-1:**

Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	Stonewood VFD
<b>Support Agencies:</b>	City of Stonewood, Harrison County Commission
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	A county fire board is in existence and it can establish fire fees for certain areas of the county; this strategy remains in the plan to allow local officials the opportunity to investigate the possibility of using this code section as a method to assist in financing fire departments

**Strategy 12-A-1:**

Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	City of Stonewood
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

### 39. Taylor County

**Strategy 1-B-2:**

Continue to seek out opportunities to apply for Hazard Mitigation Assistance (HMA) funds for mitigation reconstruction, elevations, relocations or acquisitions of identified at risk, repetitive loss, non-repetitive loss, substantial damaged, partially or completely demolished or destroyed properties within the county. If mitigation reconstruction is chosen, properties identified as partially or completely demolished, outside of the regulatory floodway, as identified by available flood hazard data, will be reconstructed in accordance with the standards established in the local floodplain ordinance and in accordance with the same conditions as an elevated structure. The county will comply with all acquisition, elevation, relocation and mitigation reconstruction requirements, as per the HMA Guidance.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$100,000 (average) per property depending on the type of mitigation (FEMA HMA)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Local Floodplain Coordinators, WVDHSEM, FEMA
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	New as of 2017



**Strategy 1-C-1:**

Coordinate county efforts to meet the requirements of becoming a participant in the CRS.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Taylor County Commission
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-D-2:**

Instate a county-wide permitting process which will require residents and/or developers to file a permit with the county before beginning any new construction as a means of regulating floodplain development.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Establishing a permitting process should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention, Property Protection
<b>Status:</b>	Not completed, this strategy has been tabled

**Strategy 1-H-1:**

Distribute letters to all property owners in the county regarding potential flood hazards as required for participation in the CRS.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$3,000 (Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-H-2:**

Hold local courses on NFIP for realtors, bankers, insurers, and municipal development officials.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$200 per course (Local Funding)
<b>Coordinating Agency:</b>	Taylor County Commission
<b>Support Agencies:</b>	ISO
<b>Mitigation Type:</b>	Prevention, Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-H-3:**

Obtain updated information on the number of NFIP policy holders in Taylor County and its municipalities.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$3,000 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	WVDHSEM, FEMA
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-I-1:**

Collect updated information on the number and location of all repetitive loss properties throughout the county and the municipalities.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 to \$10,000 (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Taylor County Commission, WVDHSEM
<b>Mitigation Type:</b>	Structural Projects Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-I-2:**

Develop a database of information on all repetitive loss properties including maps.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 to develop database (Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Taylor County Office of Emergency Services
<b>Mitigation Type:</b>	N/A
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-I-3:**

Identify owners of repetitive loss properties who are interested in participating in future property acquisition and relocation projects.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$4,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-J-1:**

Work with the WV Division of Highways to identify areas of frequent roadways flooding and develop mitigation strategies.

<b>Timeframe:</b>	4 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$10,000 to \$15,000 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	WVDOH
<b>Mitigation Type:</b>	Prevention Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-K-1:**

Develop and conduct acquisition and relocation projects.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$77,000 per purchase (HMGP)
<b>Coordinating Agency:</b>	Taylor County Commission
<b>Support Agencies:</b>	Taylor County Office of Emergency Services
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy is ongoing; acquisition/relocation projects have performed in some areas of Taylor County already

**Strategy 2-A-1:**

Ensure that all shelters have adequate emergency power resources.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$7,000 (FEMA, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	American Red Cross, Taylor County Schools, Local Churches
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 2-B-2:**

Establish a protocol for the sharing of annual shelter survey information between the local American Red Cross and the TCOES.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	American Red Cross
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 3-D-1:**

Coordinate with local private contractors to develop mutual aid agreements for emergency snow removal, also develop a Debris Management Plan that can be implemented following a disaster occurrence.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$8,500 for plan development; coordinating mutual aid requires little to no additional funding (U.S. Department of Homeland Security, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Commission
<b>Support Agencies:</b>	WVDOH
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-3:**

Coordinate efforts with local media to post advance warnings of severe storms.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Have coordinated with the NWS on this issue. This strategy is ongoing

**Strategy 4-B-4:**

Encourage the use of NOAA weather radios among residents that continuously broadcast NWS forecasts and provide direct warnings to the public for natural, technological, and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Encouraging use requires no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-B-6:**

Conduct NWS Storm Spotter classes.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$3,000 (Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-B-7:**

Develop an informational brochure describing proper safety procedures to follow during a tornado or severe windstorm.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$3,000 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	WVDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	An informational brochure has been developed and will be distributed periodically

**Strategy 4-D-1:**

Reduce the risk of mobile home damage by suggesting the use of tie-downs with ground anchors appropriate for the soil type.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	Suggestion should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 5-A-2:**

Encourage the implementation of structural mitigation techniques such as wall bracing, reinforcing walls with fiber materials, and installing dampers or vibration isolation bearings in new construction.

<b>Timeframe:</b>	Ongoing (during new construction)
<b>Cost Estimate (Potential Funding):</b>	Encouragement should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Commission
<b>Support Agencies:</b>	Taylor County Office of Emergency Services
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 7-B-2:**

Consider passing ordinances to prioritize or control water use, particularly for emergency situations such as firefighting.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Development of codes should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Natural Resource Protection
<b>Status:</b>	This strategy represents an ongoing effort



**Strategy 7-D-2:**

Provide for an emergency backup power supply at all water treatment facilities in the county.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$75,000 to \$120,000 (IJDC, SCBG, USDA RD)
<b>Coordinating Agency:</b>	Local PSDs
<b>Support Agencies:</b>	Taylor County Commission
<b>Mitigation Type:</b>	Prevention, Structural Projects
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 8-B-1:**

Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Distributing pre-existing information should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	WVDNR
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy is complete and is ongoing; such information has been developed and distributed

**Strategy 8-B-2:**

Encourage residents in rural areas to inspect and clean their chimneys at least once a year.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Encouragement requires little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Local VFDs
<b>Mitigation Type:</b>	Prevention, Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 8-B-3:**

Encourage residents and businesses to maintain their property in or near forested areas (including short grass; thinned trees and removal of low-hanging branches; cleaning of dead or dry leaves, needles, twigs, etc.) and to create a buffer zone (defensible space) between structures and adjacent forests.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Encouragement should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 8-B-4:**

Create displays for children's programs that teach safety. Examples of information to be used would be similar to that on the FEMA for Kids CD and/or the Sparky Fire Safety Program.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$3,000 to \$5,000 if materials are not already printed (Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 10-A-5:**

Instate county-wide building codes which will regulate the number of buildings constructed, the materials used in buildings that are constructed, and the locations in which buildings are constructed.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Creation of codes should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention, Property Protection
<b>Status:</b>	The development of such building codes has been discussed; however, this strategy has been tabled

**Strategy 10-A-6:**

Develop ordinances requiring logging companies to clean and replant areas that they log. The ordinance should include the amount of replanting that is expected.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Developing ordinances will require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Natural Resource Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 10-B-6:**

Work with the West Virginia University GIS Technical Center to develop detailed mapping of known and potential landslide hazard areas.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	No additional funding should be needed to coordinate with the WVU GIS Technical Center (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	WVDOH, WVDHSEM
<b>Mitigation Type:</b>	Public Information
<b>Status:</b>	New as of 2017

**Strategy 11-C-1:**

Identify the areas that would be severely flooded in the event of a severe failure of the Tygart Lake Dam and develop zoning regulations that disallow future development in those areas.

<b>Timeframe:</b>	4 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$3,000 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Commission
<b>Support Agencies:</b>	Taylor County Office of Emergency Services
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available

**Strategy 11-D-1:**

Develop a layer to the county's available mapping showing the areas downstream of the Tygart Lake Dam to complement any structural inventory mapping that has been done. As such, county officials can easily sum the potential losses in a single dam's susceptibility area.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$3,000 if a contractor is used (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Taylor County Commission
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available

**Strategy 14-D-1:**

Purchase and install generators to provide a back-up power supply for all the county's public utilities.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$200,000 per generator (U.S. Department of Homeland Security, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Utility Companies
<b>Mitigation Type:</b>	Prevention, Structural Projects
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 14-E-1:**

Restrict non-critical phone usage during emergency situations by instating a line-load program through the telephone company.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Coordination with the phone company requires little to no funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Frontier
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 14-F-1:**

Increase the number of feeder lines into rural areas so as to create back-up electricity in the event that one of the feeder lines fails.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$3,000,000 (Utility Companies)
<b>Coordinating Agency:</b>	Utility Companies
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 14-F-2:**

Decrease the probability of utility failures as a direct result of severe thunderstorms by coordinating with the power company to periodically trim trees near power lines to prevent limb breakage and power failures.

<b>Timeframe:</b>	4 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Commission
<b>Support Agencies:</b>	Utility Companies
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 16-B-2:**

Facilitate the creation of safe zones as places where residents can go in the event of a large-scale hazardous materials incident. Further, publicize the location and access to these safe zones.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$150,000 (Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Taylor County LEPC
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 16-C-1:**

Conduct a Tier II Assessment on the large retailers in the county to identify who should and who should not be reporting.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$7,000 (EMPG, Pre-Disaster Mitigation, HMEP)
<b>Coordinating Agency:</b>	Taylor County LEPC
<b>Support Agencies:</b>	Individual Asset Representatives
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 16-C-2:**

Apply for a HMEP grant from the WVDHSEM to finance the development of a Commodity Flow Study to determine what hazardous materials are used, stored, and shipped through the county.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$7,000 (HMEP, Local Funding)
<b>Coordinating Agency:</b>	Taylor County LEPC
<b>Support Agencies:</b>	Taylor County Office of Emergency Services
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 17-A-1:**

Encourage schools to adopt and/or upgrade procedural and evacuation plans in the event of a bomb threat.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 if a contractor is used (SBA, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Board of Education
<b>Support Agencies:</b>	Taylor County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed and ongoing (all county schools do have bomb threat procedures and evacuation plans in place, and they exercise those plans by having drills periodically)

**Strategy 17-B-1:**

Establish trauma centers at local schools and churches to offer medical attention and counseling to affected populations in the event of a terrorist attack.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination for use of facilities should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Taylor County Board of Education, American Red Cross
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy has not been completed; however, efforts have been made to coordinate with local schools and churches

**Strategy 17-C-1:**

Increase the knowledge of the general public concerning preparedness through the preparation of informational brochures, town meetings, training seminars, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Taylor County, LEPC
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy is ongoing; informational brochures have been distributed and training seminars have been held

**Strategy 17-D-2:**

Continue education and training efforts of first responders and emergency personnel.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$10,000 per exercise (U.S. Department of Homeland Security, HMEP, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Local VFDs, WVDHSEM
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This is an ongoing strategy; table top, functional, and full-scale exercises are held periodically in Taylor County to train on all aspects of emergency response and recovery



**Strategy 17-E-1:**

Coordinate with local media to alert the public as to the current threat status.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Local Media Outlets, WVDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy is ongoing; coordinating with local media has been done, and they do periodically broadcast the most current threat status

**Strategy 17-E-2:**

Make arrangements or otherwise establish mass morgue facilities to be used following potential mass casualty events.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$250,000 (U.S. Department of Homeland Security, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Taylor County Health Department
<b>Support Agencies:</b>	Taylor County Office of Emergency Services, Coroner/ Medical Examiner, WVDHHR, WVDHSEM
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 17-E-3:**

Encourage county assets to instate and/or update procedural and evacuation plans in the event of a bomb threat.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Encouragement should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Individual Asset Representatives
<b>Support Agencies:</b>	Taylor County Office of Emergency Services
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed and ongoing (the majority of the county assets have developed bomb threat procedures, have evacuation plans in place, and exercise those plans periodically)

**Strategy 17-E-4:**

Develop and/or enhance terrorist incident response annexes in the county Emergency Operations Plan (EOP).

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$7,000 (U.S. Department of Homeland Security, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 17-F-1:**

Coordinate with local and state law enforcement to increase security at the major assets throughout the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Taylor County Office of Emergency Services
<b>Support Agencies:</b>	Local Law Enforcement, Taylor County Sheriff, WVSP
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This is an ongoing strategy; increased security has been achieved where appropriate

#### 40. Terra Alta, Town of

**Strategy 3-F-1:**

Consider constructing snow fences or planting rows of trees to serve as living snow fences to limit blowing and drifting snow over critical roadways.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Department of Transportation, Local Funding (up to \$10,000 for professional landscaping; however, local road crews may be able to accomplish this strategy for only the cost of materials)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	WVDOH
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

#### 41. Tunnelton, Town of

**Strategy 6-D-1:**

Conduct a mapping project to identify old mining areas or geologically unstable terrain so that development can proceed accordingly in those areas.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Local Funding, Pre-Disaster Mitigation (\$10,000 to \$15,000)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	County Engineer
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

## 42. West Milford, Town of

### **Strategy 1-A-1:**

Amend floodplain ordinance for compliance with the NFIP regulations.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	West Milford Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

### **Strategy 1-A-2:**

Establish procedure to amend ordinances as NFIP regulations change.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Amendment of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	West Milford Floodplain Coordinator
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-3:**

Establish a public education process for utilities, businesses, and residences regarding floodplain management, to include:

- Permit process;
- Elevation of existing and new residences above flood elevation;
- Elevation of existing and new electrical and mechanical devices above flood elevation;
- Storage of documents, personal objectives, and inventory above floodplain;
- Identification and relocation of stored hazardous materials; and
- Installation of flood walls or shields, as applicable.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Public outreach should require little to no additional funding if done in tandem with other initiatives (Local Funding, Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	Town of West Milford
<b>Support Agencies:</b>	Harrison County Bureau of Emergency Services
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-4:**

Continuation of acquisition and demolition of FEMA-identified repetitive loss structures.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$95,500 per purchase (HMGP, CDBG)
<b>Coordinating Agency:</b>	Town of West Milford
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This project is considered as and if funding is available

**Strategy 1-A-5:**

Revise subdivision regulations to require provision for open space on land that is in the floodplain.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Maintenance of the ordinance should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of West Milford
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 1-A-6:**

Continue and expand the intergovernmental agreement process between the county and municipalities in order to provide floodplain management by a certified floodplain manager.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of West Milford
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

**Strategy 1-A-7:**

Design and implement a county-wide housing rehab program which addresses code violations, elevation, and flooding.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$500,000 per project, contingent on number of rehabs (CDFI, Banks, Other State/Federal Sources)
<b>Coordinating Agency:</b>	Town of West Milford
<b>Support Agencies:</b>	Harrison County Planning Commission, Harrison County Landmark Commission, Harrison County Redevelopment Authority
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort and is considered as funding is available

**Strategy 4-A-1:**

Adopt and enforce the state building code.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Updating the ordinance should require little to no additional funding; enforcement may require funds (Local Funding)
<b>Coordinating Agency:</b>	Town of West Milford
<b>Support Agencies:</b>	Harrison County Planning Commission
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	This strategy represents an ongoing effort (i.e., the ordinance is updated when the state code is updated)

**Strategy 8-A-1:**

Establish a county fire board in order to provide a mechanism for county residents to obtain fire hydrants and other fire-suppression tools.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Investigation and other efforts should require little to no additional funds (N/A)
<b>Coordinating Agency:</b>	West Milford VFD
<b>Support Agencies:</b>	Town of West Milford, Harrison County Commission
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	A county fire board is in existence and it can establish fire fees for certain areas of the county; this strategy remains in the plan to allow local officials the opportunity to investigate the possibility of using this code section as a method to assist in financing fire departments



**Strategy 12-A-1:**

Continue and expand the intergovernmental agreement process amongst the county, municipalities, and other public agencies to encourage cooperation, to eliminate duplication of duties, and to provide cost-effective services to citizens.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Cooperation between jurisdictions should require little to no additional funding (N/A)
<b>Coordinating Agency:</b>	Town of West Milford
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing, cooperative arrangement between the governmental jurisdictions of Harrison County

**43. West Union, Town of****Strategy 1-B-1:**

Conduct acquisition and relocation projects in the Town of West Union and adopt ordinances that limit development in the floodplain.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Local Funding FMA, (up to \$70,000 to \$100,000 per house)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Floodplain Manager
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	Completed and ongoing as of 2017

**Strategy 1-F-2:**

Clean portions of Middle Island Creek and its floodplain, clearing log jams, trees and shrubs, and sediment bars.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	USACE, Local Funding (if material cleaned from stream is used, costs decrease; projects could cost up to \$100,000)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	County Engineer
<b>Mitigation Type:</b>	Prevention, Structural Projects
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 3-F-1:**

Consider constructing snow fences or planting rows of trees to serve as living snow fences to limit blowing and drifting snow over critical roadways.

<b>Timeframe:</b>	3 years
<b>Cost Estimate (Potential Funding):</b>	Department of Transportation, Local Funding (up to \$10,000 for professional landscaping; however, local road crews may be able to accomplish this strategy for only the cost of materials)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	WVDOH
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 4-B-4:**

Increase the coverage area and use of NOAA Weather Radios throughout the Town of West Union.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Local Funding, Pre-Disaster Mitigation (up to \$200 to \$500 per radio)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	DCOES
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	As of 2017, this strategy represents an ongoing effort

**Strategy 7-A-2:**

Extend public water and sewer service to communities currently without service (improve infrastructure).

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	TBD (Local Funding/Utility Companies)
<b>Coordinating Agency:</b>	Town Council
<b>Support Agencies:</b>	County Commission, Utility Companies
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	New as of 2017

#### 44. Westover, City of

**Strategy 3-C-1:**

Continue outfitting and preparing the winter rescue team to ensure that emergency responders can access all parts of the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$25,000 (HMGP, Pre-Disaster Mitigation, U.S. Department of Homeland Security, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	First Response Agencies
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 3-E-2:**

Enforce existing building codes and planning requirements that are already in place.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Funds are already budgeted for planning/inspection departments
<b>Coordinating Agency:</b>	Planning Commission
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-3:**

Coordinate efforts with local media to post advance warnings of severe storms.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 5-A-1:**

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.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	USGS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 6-A-1:**

Educate the public as to the benefits of building codes and overall community and land use planning as well as advantages to mitigation planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils, Planning and Zoning
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 6-A-2:**

Strictly enforce ground disturbance permitting regulations, such as new MS4 requirements, in municipal and county jurisdictions.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Existing personnel could be used, thus cutting cost (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	Municipal Councils
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 6-B-1:**

Undertake active re-vegetation and other stormwater programs to cover areas of bare ground that may be susceptible to erosion.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 to \$10,000, contingent on size of project (Local Funding)
<b>Coordinating Agency:</b>	Planning Commission
<b>Support Agencies:</b>	Municipal Inspection/Planning Offices
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Completed and ongoing

**Strategy 7-B-1:**

Educate local residents on the benefits of conserving water at all times, not just during a drought.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, MCOEM
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 8-B-1:**

Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	WV Division of Forestry, WVDNR
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 9-B-1:**

Continue to train and organize local fire service personnel to assist in the investigation of structural fires and the citation of code violations through a certification program made available to local fire chiefs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Training opportunities are often provided through the WVU Fire Service Extension (N/A)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVU Fire Service Extension
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing initiative

**Strategy 9-B-2:**

Coordinate with the WVSMF to extend the jurisdiction of deputized fire marshals to a statewide jurisdiction.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	WVSMF
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 9-B-3:**

Certify PDs, which have arrest powers, to handle arson investigations in place of fire departments, which do not have arrest powers (include a modified version of the State Police Academy to provide such training).

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Project is still in exploration stage, which requires little additional funding.
<b>Coordinating Agency:</b>	Local VFDs
<b>Support Agencies:</b>	WVSP
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 9-C-1:**

Facilitate public awareness campaigns aimed at recruiting more volunteers at VFDs.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing



**Strategy 9-C-2:**

Continue public awareness campaigns in schools, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Local FDs
<b>Support Agencies:</b>	WVSFM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 13-A-1:**

Produce public awareness campaigns via various local media outlets.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	Monongalia County Health Department
<b>Support Agencies:</b>	CDC, WHO
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 14-A-1:**

Encourage Allegheny Power to undertake projects to increase the number of feeder lines into rural areas so as to create back-up electricity in the event that one of the feeder lines fails.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 14-A-2:**

Encourage Allegheny Power to allow employees to take company vehicles home to be available for emergency call-outs in the event of a downed electric line. These actions will free up local emergency responders who normally monitor the downed line.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	MCOEM, Municipal Council
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 14-B-1:**

Encourage representatives from the county's assets (e.g., company leaders, etc.) to draft and distribute guidelines to implement in the event of HVAC failure.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Company Leaders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 14-C-1:**

Instate a grant or low-interest loan program to help individual residents finance generators and other back-up electricity systems.

<b>Timeframe:</b>	5 years
<b>Cost Estimate (Potential Funding):</b>	Up to \$5,000 (Initial funds could be local funds, grants from non- profit organizations, etc. Ultimately, funds returned as part of the program could be used to finance subsequent years.)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Structural Projects
<b>Status:</b>	Unchanged

**Strategy 15-A-1:**

Coordinate with local media to announce low resource/fuel supplies.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local Media Outlets
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 15-A-2:**

Increase public knowledge as to resource conservation by distributing information to new and existing customers.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-1:**

Assess the feasibility of cleaning up busy intersections.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Assessing feasibility, like coordination, requires little additional funding
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	WVDOH
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-2:**

Evaluate railroad and roadway intersections for warning systems, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Evaluating systems, like coordination, requires little additional funding (N/A)
<b>Coordinating Agency:</b>	MPO
<b>Support Agencies:</b>	CSX, Norfolk & Western
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-A-3:**

Evaluate dams and locks that play an integral role in water transportation.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Evaluating systems, like coordination, requires little additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	USACE
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 16-B-1:**

Publicize evacuation plans.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project could be accomplished through existing public information campaigns
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	N/A
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 16-B-2:**

Facilitate the creation of safe zones as places where residents can go in the event of a hazardous material incident. Further, publicize the location and access to these safe zones.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-A-1:**

Encourage schools to adopt and/or upgrade procedural and evacuation plans in the event of a bomb threat.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Schools are already planning; these additional measures would require no additional costs (N/A)
<b>Coordinating Agency:</b>	Monongalia County Schools
<b>Support Agencies:</b>	MCOEM
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-B-1:**

Establish trauma centers to offer medical attention and counseling to affected populations in the event of a terrorist attack.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	This project is essentially a planning item which, by itself, should not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Monongalia County Health Department
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

**Strategy 17-C-1:**

Increase the knowledge of the general public concerning preparedness through the preparation of informational brochures, town meetings, training seminars, etc.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 17-D-1:**

Coordinate with first responders for interagency cooperation to assist in collaborative planning.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Coordination with other agencies does not require additional funding (N/A)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local First Responders
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 17-D-2:**

Continue education and training efforts of first responders and emergency personnel.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	\$750 - \$2,500 (Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	MCOEM
<b>Support Agencies:</b>	Local FDs, Local PDs, LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Completed and ongoing

**Strategy 20-A-1:**

Increase security at large gatherings, festivals, sporting events, etc. throughout the county and municipalities. Examples include events at Mylan Park, Mountain Fest, and events at WVU.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Funding for law enforcement security officers is a part of regular operating budgets (N/A)
<b>Coordinating Agency:</b>	Monongalia County Sheriff's Office
<b>Support Agencies:</b>	Municipal PDs
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	Unchanged

#### 45. White Hall, Town of

**Strategy 2-A-1:**

Equip shelter facilities to provide back-up power.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Upwards of \$25,000 each – size dependent (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM, VFDs
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 10-B-3:**

Coordinate with WVDOH to monitor the slippage repairs on U.S. Route 250.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Monitoring should require little to no additional funding (FSU)
<b>Coordinating Agency:</b>	WVDOH
<b>Support Agencies:</b>	FSU
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort



#### 46. Worthington, Town of

**Strategy 1-E-1:**

Continue to educate faculty and staff at schools on NOAA radio usage.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Continued training should not require additional funding (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Board of Education
<b>Mitigation Type:</b>	Public Education and awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 2-A-1:**

Equip shelter facilities to provide back-up power.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Upwards of \$25,000 each – size dependent (Pre-Disaster Mitigation)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM, VFDs
<b>Mitigation Type:</b>	Structural Projects, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 2-A-2:**

Maintain and update the early warning systems that are in place throughout the county.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	No additional funding is required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	MCDHSEM
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Unchanged

**Strategy 2-A-3:**

Undertake additional planning efforts to measure the susceptibility to technological and man-made hazards.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Studies could cost between \$2,000 and \$7,500 depending on the scope (DOJ-ODP, Pre-Disaster Mitigation, Local Funding)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Office of Planning and Development, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 3-B-1:**

Update resource list of contracts with snow removal agencies.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No immediate additional funding necessary (N/A)
<b>Coordinating Agency:</b>	County Commission
<b>Support Agencies:</b>	WVDOH, Municipal Councils
<b>Mitigation Type:</b>	Emergency Services, Prevention
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 4-B-1:**

Coordinate with the NWS in Pittsburgh, Pennsylvania, to warn residents of impending severe storm conditions.

<b>Timeframe:</b>	6 months
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	NWS
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	Completed and ongoing

**Strategy 4-B-2:**

Continue to monitor and maintain the three rain gauges installed at strategic points throughout the county. Use these gauges in conjunction with the new weather station to monitor current and developing weather incidents.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	Maintenance and monitoring should require little to no additional funding (Local Funding)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	Local PSDs
<b>Mitigation Type:</b>	Public Education and Awareness
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 7-A-1:**

Develop plans and schedules with the Department of Agriculture to haul water to residents during drought conditions.

<b>Timeframe:</b>	1 year
<b>Cost Estimate (Potential Funding):</b>	No additional funding required (N/A)
<b>Coordinating Agency:</b>	LEPC
<b>Support Agencies:</b>	Local VFDs
<b>Mitigation Type:</b>	Prevention
<b>Status:</b>	Unchanged

**Strategy 10-C-1:**

Establish procedures with companies to clean up material from a landslide quickly and to monitor areas of high risk.

<b>Timeframe:</b>	Ongoing
<b>Cost Estimate (Potential Funding):</b>	Promotion of the concept can be done as municipal building permits are issued (N/A)
<b>Coordinating Agency:</b>	Municipal Town Councils
<b>Support Agencies:</b>	Cleanup Companies
<b>Mitigation Type:</b>	Property Protection
<b>Status:</b>	This strategy represents an ongoing effort

**Strategy 11-B-1:**

Coordinate with the SCS to continue updating the map showing areas that would be affected by a dam failure.

<b>Timeframe:</b>	2 years
<b>Cost Estimate (Potential Funding):</b>	Coordination requires little to no additional funding (SCS)
<b>Coordinating Agency:</b>	Municipal Council, County Commission
<b>Support Agencies:</b>	LEPC
<b>Mitigation Type:</b>	Emergency Services
<b>Status:</b>	This strategy represents an ongoing effort

## C. IMPLEMENTATION OF MITIGATION ACTIONS

§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 section identifies the priority for implementing the projects identified in Sections III.1 and III.2. Each project is listed with a “primary coordinator” in Section III.2 that should be responsible for the overall implementation of the project. Supporting agencies can lend technical support and/or financial assistance, as appropriate.

Project (i.e., strategy) prioritization occurred in two phases. First, the categories were considered against the following criteria (i.e., the STAPLEE method). It should be noted that a jurisdiction may have multiple highly ranked projects.

- **Social Impacts:** Consider whether the public would support implementation of the project. If so, priority likely rises.
- **Technical Feasibility:** Consider whether the project can be done and if it will yield the intended outcomes. If yes, priority would likely rise.
- **Administrative Requirements:** Consider the staffing, funding, and maintenance requirements of the project. If current capabilities can successfully manage and sustain the project, priority would be strengthened.
- **Political Impacts:** Consider the acceptability of the project from the political frame. If it is likely to cause political upheaval, it would receive a lower priority.
- **Legal Ramifications:** Consider whether the project can be lawfully implemented. If not, the project cannot be listed.
- **Environmental Impacts:** Consider whether there would be negative consequences to environmental assets should the project be implemented. If assets are impact, priority would be likely to fall.
- **Economic Impacts/Cost Benefit:** A brief “benefit cost review” per FEMA Publication 386-5: Using Benefit Cost Review in Mitigation Planning was conducted for each project to determine the “pros” and “cons” of each project as it related to project prioritization. Maximizing the use of available funds would positively affect a project’s priority.

Secondly, county representatives looked at the list to ensure that those ranked highly would indeed yield an immediate positive impact upon implementation. Those that were determined to do so kept their high priority; those that did not were re-prioritized. Hazard mitigation priorities were revisited by each of the Region's member governments as part of this 2018 update. The updated hazard mitigation action plans and project priority listings (by jurisdiction) can be found in Appendix H.

#### **D. REGIONAL IMPLICATIONS**

In most cases, the individual implementation of the projects listed in Sections III.1, III.2, and Appendix H would not have a large impact on the region as a whole. There should, however, be several things kept in mind as these projects are undertaken. For example, several member governments expressed a desire to upgrade communications capabilities. As these capabilities are updated, community leaders should bear interoperability in mind – not only within their own jurisdiction but also with neighboring jurisdictions (including other counties in the region).

Other projects, such as public education and awareness efforts, could be accomplished through partnerships with neighboring jurisdictions. As such, individual jurisdictions could share costs and reduce duplication of effort. As can be seen by the above risk assessment, many of the communities in Region VI are susceptible to the same types of hazards. In many cases, this type of planning and public outreach is accomplished regionally, though the area's homeland security region.

Floodplain management as well as the overall custodial responsibility for the elements of this plan differs from jurisdiction to jurisdiction throughout the region. For example, Harrison County's planning commission maintains the bulk of the Harrison County portions of this plan while Preston County's office of emergency management maintains the Preston portions. While this would not cause any inherent problems, it should be noted that these agencies may need to coordinate with different types of partners than they are used to working with to ensure that mitigation efforts across the region are compatible.

For the most part, the strategies outlined throughout Section III would not cause any problems for other jurisdictions if implemented. Some jurisdictions have expressed a desire to undertake stream bank restoration or stream cleaning as a mitigation effort. If done, those

jurisdictions should notify downstream communities as the flow of the water may be slightly changed.

Though this document is a plan, it calls for a number of other planning initiatives to be completed. Those initiatives should keep this process as a part of the overall planning process. In other words, community leaders should not plan for the sake of planning. This document can provide evidence as to the hazards most likely faced by the communities and planning should strengthen capabilities to lessen the effects of these types of emergencies.



#### **IV. PLAN MAINTENANCE PROCESS**

## IV. PLAN MAINTENANCE PROCESS

As with any plan, this document must be actively maintained in order to be a viable mitigation tool for Region VI's member governments. Section IV outlines the general process that will be used to maintain this document.

### A. PLAN MAINTENANCE PROCESS

§201.6(c)(3)(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.

The long-term success of this document depends in large part on routine monitoring, evaluating, and updating so that it will remain a valid tool for the participating communities to use. Also critical to the overall success of this strategy is the continued implementation of local-level multi-jurisdictional mitigation efforts in accordance with this document.

#### 1. Formal Plan Adoption

This regional document has been designed to illustrate the impacts of hazards across the six-county region and to highlight the benefits of a coordinated approach to hazard mitigation. As such, each of the jurisdictions covered by this document will be requested to formally adopt it by a resolution of their governing board.

The adoption process will begin with the delivery of a digital copy of this document to each of the local jurisdictions along with two sample adoption resolutions. One sample adoption resolution can be used to adopt the updated Hazard Mitigation Plan (HMP) as a stand-alone document. The other sample adoption resolution can be used to adopt the updated HMP as an amendment to the local comprehensive plan. Obviously, not every jurisdiction within the Region

VI PDC area has a local comprehensive plan, so the decision on how to adopt the updated HMP will be left to the discretion of each participating jurisdiction. Copies of all adoption resolutions will be collected by the Region VI PDC and incorporated into the appendices of this document.

Prior to local adoption, the updated HMP was submitted to the West Virginia Division of Homeland Security and Emergency Management (WVDHSEM) and the Federal Emergency Management Agency (FEMA) Region III to ensure that all federal and state planning requirements had been met. Doing so prior to adoption meant two things: first, the plan was initially issued an “Approved Pending Adoption” status; secondly, the adoption process was ultimately more efficient (because re-adoptions following revisions were not necessary).

## **2. Implementation**

The implementation of this plan will likely prove to be more difficult than its adoption. While this plan puts forth many worthwhile and “high” priority recommendations, there may be competition among the participating communities throughout Region VI for limited mitigation funds. The decision of which action (i.e., project) to undertake first will be the primary issue that the PDC’s communities face. Fortunately, this plan has been designed with this issue in mind; as such, high-priority actions have been included for each participating jurisdiction so each jurisdiction can pursue high-priority actions independently. Secondly, many of the jurisdictions in the region represent economically distressed areas, meaning that funding for large-scale projects, such as those advocated by this plan, is often an issue. To ensure that mitigation efforts get underway, this document includes several low- or no-cost recommendations.

An example of a low-cost, high-priority recommendation would be to pursue the education efforts necessary for elected officials and the general public as they relate to participation in the National Flood Insurance Program (NFIP). In other cases, jurisdictions may consider updating and/or revising their local floodplain ordinances and assisting state and federal authorities as they update flood mapping in their communities.

Another example of a low-cost project would be to integrate mitigation awareness into the many other pre-emergency public information campaigns that local-level emergency managers distribute on a routine basis. As an example, a variety of information on preparedness for hazardous material emergencies is frequently disseminated by each county’s Local Emergency Planning Committee (LEPC). Those efforts could be integrated into the counties’ (and region’s) overall mitigation strategy. Other public education efforts during such

events as winter weather awareness week, etc. could equip the public with the knowledge necessary to “mitigate for themselves,” which supports the concept of implementing mitigation at the lowest level possible.

Additionally, it should be noted that county emergency managers work with their counterparts in community and economic development and planning to ensure that mitigation and emergency preparedness are integrated into other planning efforts, such as:

- comprehensive planning,
- zoning,
- subdivision and land development planning,
- capital improvement planning, and
- economic development goals and incentives.

These emergency managers make risk information available to their local economic development and planning agencies on a regular basis. Further, the presence of the Region VI PDC, as a centralized planning entity, can help ensure that future development does not add to the region’s overall vulnerability. In fact, the Region VI PDC serves as a clearinghouse of sorts for a variety of projects throughout the region, including mitigation projects.

The guiding principle behind the implementation of this plan is that mitigation should be incorporated, as much as possible, into the daily actions of the coordinating agencies responsible for project implementation. During the development of the individual county plans from 2003 to 2010 (see Appendix D), county mitigation planning committees attempted to align as many existing programs as possible with mitigation efforts. Such an approach was also incorporated into this document. This approach ensures that mitigation efforts occur by default. While ensuring these efforts occur certainly helps show progress when this document is updated, it also builds buy-in for the strengthening of the community by not asking certain coordinating agencies to shoulder an entire list of new responsibilities.

It is also important to continually monitor funding opportunities that can be utilized to implement some of the larger mitigation recommendations in this document. County commissions, municipal councils, county planning commissions, and county-level emergency managers are often the Points of Contact (POCs) for such communication. Fortunately, emergency managers throughout the region (and West Virginia) frequently share these opportunities with colleagues. The PDC actually serves as a watchdog for funding opportunities as well. As such, a repository of funding options should be easy to maintain. Funding opportunities often present themselves in the aftermath of large-scale disasters, but they can also be present on a rotating

cycle. The communities participating in this process have been cognizant of the need to rank different types of projects as “high priority” so that they can be in a position to take advantage of whatever funding opportunities arise.

By adopting this plan, communities served by the Region VI PDC commit to the following:

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

### **3. Integration into Existing Planning Mechanisms**

As the custodial agency of the regional HMP, the Region VI PDC should ensure that mitigation planning is incorporated, as appropriate, into other planning mechanisms. Such a statement is not meant to say that mitigation planning should inhibit other types of planning such as community and economic development efforts. Rather, ensuring consistency between these planning initiatives should provide an opportunity for all types of planners to understand the interplay between risk and development and the potential future vulnerabilities of fully developed areas. Integration can open a dialogue between planners about how to responsibly plan the future of the communities throughout Region VI.

As mentioned, the Region VI PDC acts as a sort of clearinghouse for planning initiatives around its region. The PDC does not “regulate” or “supervise” these efforts, but it does maintain a central repository of efforts that are underway throughout the planning area. It maintains documents such as a Comprehensive Economic Development Strategy (CEDS), housing and community development assessments, etc. The PDC can compare these areas highlighted for development and other projects through its documents with this mitigation plan. For instance, some traditional PDC projects, such as supporting infrastructure (e.g., water and sewer) system extensions, may support mitigation efforts for such hazards as drought and public health emergencies. Conversely, these extensions may not have any effect on hazards such as

flooding. In any circumstance, the PDC may be able to use support of a mitigation effort as further justification for the funding of a project.

The jurisdictions comprising Region VI also have active planning commissions – at both the county and municipal levels. These agencies often administer and enforce land use regulations in their jurisdiction (along with or “for” building and zoning as well as floodplain officials). As such, these agencies can be the ones to revise regulations such as subdivision, location improvement permits, and floodplain ordinances to ensure consistency with mitigation efforts. It is significant to note that floodplain ordinances throughout the region have been revised to comply with current NFIP regulations. In other areas, such as Harrison County, the subdivision ordinance has been amended to encourage the development of open space or passive recreation on land located in the floodplain. In that regard, Appendix K (Multi-Jurisdictional Capability Assessment Matrix) has been added to this plan to provide an overall capability assessment from a local and regional planning perspective. This matrix will be updated as new plans are developed or new planning initiatives are implemented across the region.

Additional agencies throughout the region, such as the county-level offices of emergency management, will actively integrate the information contained in this risk assessment into other planning initiatives, such as the maintenance of their jurisdiction-specific Emergency Operations Plans (EOPs). These documents should support the strengthening of capabilities to respond to the hazards identified by the risk assessment. As mitigation projects are implemented and risk is thus reduced, the emergency services community may need to “re-plan” its response to address what has become (thanks to the mitigation project) a less critical risk.

Further, it is significant to note that all 45 member governments within Region VI are represented by the PDC itself. As the custodial agency of this document, the PDC can schedule a regular review with its member governments at one of its council meetings to ensure that local officials are educated as to the plan’s contents – and in agreement with its contents – even as those officials change and this document is updated. This representation should also facilitate local government comment on both the risks facing their jurisdictions and the types and numbers of mitigation projects that could be implemented.

Finally, one simple and effective way to integrate the recommended measures of this plan into other local planning initiatives is to adopt the updated HMP as an amendment to the local comprehensive plan. Therefore, one of the sample adoption resolutions that will be distributed with this updated plan can be used to adopt the updated HMP as an amendment to the local comprehensive plan. Obviously, not every jurisdiction within the Region VI PDC area

has a local comprehensive plan, so the decision on how to adopt the updated HMP will be left to the discretion of each participating jurisdiction.

#### 4. Maintenance

Plan maintenance requires an ongoing effort to monitor and evaluate the implementation of the plan and to update the plan as progress, roadblocks, or changing circumstances are recognized. Five of the six counties in the region – Doddridge, Marion, Monongalia, Preston, and Taylor – identified their county-level emergency management office as the coordinator of local reviews. In Harrison County, the county planning commission serves as this coordinator. Local reviews are to occur at no less than five-year intervals. The actual review of county-specific actions remains a responsibility of the counties themselves. As such, some have indicated that they will meet more often to review the plan. The counties also indicated that they may facilitate reviews following major disasters. Generally, the following list serves as an update schedule for the six counties in the region.

- **Doddridge County:** The county's Hazard Mitigation Planning Committee (HMC) intends to schedule an annual stakeholders meeting to review the mitigation plan.
- **Harrison County:** The county's mitigation planning group intends to meet in January of each year to review progress and recommend revisions to the county planning commission. The planning commission intends to formulate an "annual report" that provides an analysis of participation by responsible entities, completed or underway mitigation projects, re-evaluation of physical and financial capabilities to undertake projects, etc. The planning commission may also schedule an annual public hearing to discuss mitigation efforts within Harrison County. The report and minutes from any public hearings should be provided to the Region VI PDC for inclusion into updated versions of this document.
- **Marion County:** The county's LEPC recommends an annual meeting of the HMC; however, the county has committed to convening the HMC once every five years.
- **Monongalia County:** Stakeholders will meet a minimum of three times during the fourth year of the current planning cycle. These meetings will allow the group the opportunity to 1) review hazard events that have occurred since the previous revision; 2) update the project list based on implemented projects or new needs; and 3) re-prioritize projects based on new needs and other changing circumstances. The second and third stakeholders' meetings during the review will be advertised and open to the public.



- **Preston County:** County officials will review the plan following major hazard events (but at least once every five years).
- **Taylor County:** The county HMC will review the plan following major hazard events; however, the Taylor County Office of Emergency Services and Taylor County Commission intend to discuss mitigation on a quarterly basis.

Each county identified several conceptual elements that can guide a review of this document. Those elements are as follows:

- **Ease of Implementation:** How smoothly has implementing the project (or similar types of projects) been? Have programs been readily available to assist in funding the implementation of the project (or similar types of projects)?
- **Cost Effectiveness:** Have sufficient funding sources been available to implement the project at a cost manageable by the local government? Have the costs of implementing the project been significantly less than the cumulative future costs potentially incurred by an un-corrected situation?
- **Social Impacts:** Has the public perceived that the project has positively lessened hazard-related losses? Has implementing the project adversely affected any segment of the population?
- **Political Impacts:** Has implementing a particular project (or type of project) been delayed due to the political consequences of its implementation?
- **Economic Impacts:** Has the cost/benefit ratio of implementing the project been acceptable? Has implementing a project adversely affected a particular segment of the local economy?
- **Overall Positive Impacts:** Have local leaders generally agreed that implementing a particular project was beneficial to the community?

When each county convenes for a review, it should coordinate with the Region VI PDC to ensure that this document is updated appropriately. Public participation should be assured as the plan is updated. The Region VI PDC will ensure that a public review process *for the entire regional document* is undertaken at least once per five-year period. This public review will include two initiatives:

- 1) publishing an advertisement in the primary newspaper in all six counties that invites the public to review the existing document with a list of proposed updates, and
- 2) placing discussion of the plan on the agenda of one of the council's regularly scheduled meetings (which are always advertised and open to the public).