



# REGION 11

## Hazard Mitigation Plan

2017 Update

*for Brooke and Hancock Counties  
and the municipalities therein*

**REGION 11**  
**HAZARD MITIGATION PLAN**

**RELEASED 2017**  
**FOR BROOKE AND HANCOCK COUNTIES AND THE MUNICIPALITIES THEREIN**

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## 1.0 INTRODUCTION

This section presents an introduction to the hazard mitigation plan and defines the authority, scope and purpose of the plan.

### Plan Introduction

The *Region 11 Hazard Mitigation Plan* details natural and human-caused hazards that threaten Brooke and Hancock Counties and its various municipalities. The plan fulfills the requirements set forth by the Disaster Mitigation Act of 2000 (DMA, 2000). This Act requires counties to formulate a hazard mitigation plan in order to be eligible for mitigation funds made available by the Federal Emergency Management Agency (FEMA).

### Plan Authority

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

### Plan Scope

The *Region 11 Hazard Mitigation Plan* includes all unincorporated areas of Brooke and Hancock Counties as well as the incorporated areas of all municipalities within the counties. All hazards that have or can affect the residents of Brooke and Hancock Counties have been analyzed. Hazard mitigation objectives, goals and projects are discussed, as are project lead agencies and potential funding sources.

### Plan Purpose

The purpose of the *Region 11 Hazard Mitigation Plan* is to identify and evaluate all natural and human-caused hazards that can and may affect Brooke and Hancock Counties and to describe mitigation strategies to address these hazards.

## 1.1 THE PLANNING PROCESS

An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:

§201.6(b) and  
201.6(c)(1)

- (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;
- (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and
- (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

This plan was developed in accordance with Part 201.6 of 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. Several resources were used during the development of the plan, including the United States Department of Homeland Security (USDHS or DHS) / Federal Emergency Management Agency's (FEMA) *Local Mitigation Planning Handbook* (USDHS/FEMA, 2013), the governing regulations in the Code of Federal Regulations.

### 1.1.1 Current Update Process

Two committees accomplished the update of the hazard mitigation plan – the planning committee and the steering committee. The Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ MPC or BHJ) served as the coordinating agency for West Virginia's Region 11 Planning and Development Council (PDC) Hazard Mitigation Plan update of 2017. The Brooke-Hancock Regional Planning and Development Council served as the full planning committee for the hazard mitigation plan update of 2017. Members attended meetings throughout the update process. A list of planning committee members in attendance at those meetings as well as meeting minutes can be found in [Appendix 1](#).

Full committee membership included representatives from the agencies or organizations outlined in [Table 1.1](#).

TABLE 1.1 REGION 11 PLANNING COMMITTEE REPRESENTATION	
Type	Representative Agency/Organization
Senator Offices	<ul style="list-style-type: none"> <li>• Senator Joe Manchin's Office</li> <li>• Senator Shelly Moore Capito's Office</li> </ul>
Regional Organizations	<ul style="list-style-type: none"> <li>• Region 11 PDC (BHJ MPC)</li> <li>• Business Development Corporation</li> </ul>
County Organizations	<ul style="list-style-type: none"> <li>• Brooke County Commission (Brooke County Office of Emergency Management)</li> <li>• Hancock County Commission (Hancock County Office of Emergency Management)</li> </ul>
Municipal Jurisdictions	<ul style="list-style-type: none"> <li>• Beech Bottom, Village of</li> <li>• Bethany, Town of</li> <li>• Chester, City of</li> <li>• Follansbee, City of</li> <li>• New Cumberland, City of</li> <li>• Wellsburg, City of</li> <li>• Windsor Heights, Village of</li> <li>• Weirton, City of</li> </ul>
Community Organizations	<ul style="list-style-type: none"> <li>• Mary H Weir Public Library</li> </ul>
Transportation	<ul style="list-style-type: none"> <li>• Route 2/168 Authority</li> <li>• Weirton Transit Corporation</li> </ul>

### 1.1.2 Steering Committee Involvement

The BHJ MPC submitted email requests to each county's commissions and jurisdictions on September 15, 2016 for invitations to participate in the hazard mitigation plan update. The email invitation and the signed letters of interest returned from the jurisdictions can be found in [Appendix 1](#).

Following the invitation, Region 11 established a multi-jurisdictional steering committee to guide the completion of the plan at the local level. The team was tasked with making decisions for the plan, attending workshops, completing exercises, and establishing goals and projects for hazard mitigation. The steering committee was the primary body that worked with the consultant. A list of steering committee members is outlined in [Table 1.2](#). All committee members participated in the process through meeting attendance, email correspondence and/or direct phone contact with the consultant.

TABLE 1.2 REGION 11 STEERING COMMITTEE			
Organization	Representative	Position	Status
BHJ MPC	Barbara Zimnox	Region 11 Planner	2012 and 2017 committee member
Brooke County EMA	Andy Nickerson	Deputy Director	New committee member for 2017 update
Brooke County EMA	Robert Fowler	Emergency Management Director	2012 and 2017 committee member
Hancock County OEM	Jeremy Ober	Emergency Management Director	New committee member for 2017 update

TABLE 1.2 REGION 11 STEERING COMMITTEE			
<i>Organization</i>	<i>Representative</i>	<i>Position</i>	<i>Status</i>
Hancock County Commission	Bob Vidas	Director of Technology & Communication	New committee member for 2017 update
Village of Beech Bottom	Becky Uhly	Mayor	New committee member for 2017 update
Village of Beech Bottom	Robert Sadler	Vice-Mayor	New committee member for 2017 update
Town of Bethany	Cindy Hoffman	Recorder	2012 and 2017 committee member
City of Chester	Larry Forsythe	Mayor	New committee member for 2017 update
City of Follansbee	John DeStefano	City Manager	New committee member for 2017 update
City of New Cumberland	Richard Blackwell	Floodplain Manager	New committee member for 2017 update
City of Wellsburg	Steve Maguschak	City Manager	New committee member for 2017 update
Village of Windsor Heights	James Smith	Mayor	New committee member for 2017 update
City of Weirton	Mark Miller	Director of Planning & Development	New committee member for 2017 update

On November 30, 2016, BHI, county and municipal representatives, and the consultant attended a meeting held at the Mary H. Weir Public Library in Weirton, WV to formally kick-off the hazard mitigation plan update project. The consultant explained the purpose and importance of hazard mitigation planning and activities within the region. The steering committee had four meetings during the update of the plan. [Table 1.3](#) provides information about these meetings.

TABLE 1.3 MEETINGS		
<i>Date and Time</i>	<i>Location</i>	<i>Topics Discussed</i>
Meeting 1 November 30, 2016, 12:00 pm	Mary H. Weir Library Weirton, WV	<ul style="list-style-type: none"> <li>• Overview of process</li> <li>• Review and define local hazards</li> <li>• Asset Inventorying</li> <li>• Survey for public involvement</li> </ul>
Meeting 2 December 19, 2016, 12:00 pm	Mary H. Weir Library Weirton, WV	<ul style="list-style-type: none"> <li>• Survey for public involvement</li> <li>• Define hazard mitigation goals</li> <li>• Hazards perceptions exercise</li> </ul>
Meeting 3 February 6, 2017, 12:30 pm	Mary H. Weir Library Weirton, WV	<ul style="list-style-type: none"> <li>• Survey for public involvement</li> <li>• Hazard mitigation goals and projects</li> </ul>
Meeting 4 May 4, 2017, 5:30 pm	Millsop Community Center Weirton, WV	<ul style="list-style-type: none"> <li>• Project review and approval</li> <li>• Assets review and approval</li> <li>• Jurisdictional capabilities</li> <li>• Plan maintenance</li> </ul>

### Committee Meeting 1

The first committee meeting agenda included an overview of the hazard mitigation planning process and an outline of committee members' roles and responsibilities during the

process. The consultant presented a review of each hazard including information on occurrences of each hazard since the last update in 2012. The committee members approved the new grouping of hazards (for example, including hailstorms, lightning, tornadoes, wind, blizzards and ice storms under severe weather) and did not add any other hazards.

After reviewing the hazards, the members participated in an exercise by completing the risk assessment matrix worksheet that consisted of locating each hazard within a range of probability and severity according to their convictions and experiences to determine the risk. The members received their jurisdiction's asset list as well as their project list from 2012 for review and update noting projects that had been completed, deferred, or deleted. The consultant presented the idea of an online survey for public involvement to which the committee agreed.

### **Committee Meeting 2**

During the second committee meeting the consultant presented the members with the link for the online public involvement survey and encouraged them to post it on their websites and social media pages. The members then completed the hazards perception exercise in which they indicated their concerns regarding each hazard. The main exercise of the meeting focused on establishing goals for hazard mitigation. For this activity, the members formed two groups; each group, after a brief discussion, had to determine six mitigation goals for the region. Later they were compared and contrasted to create a total of five goals. After the goals had been established the members rated them in order of priority; this process and results are further explained in [Section 3.1 Local Hazard Mitigation Goals](#).

Once the members established and prioritized the goals, they completed new project worksheets in which the consultant instructed them to add new projects. These projects should be S.M.A.R.T. (specific, measurable, achievable, realistic, and time sensitive) and relate back to the goals previously set.

### **Committee Meeting 3**

The consultant presented the committee members with the current status of the online survey for public involvement to encourage members to reach out to their communities as well as the results of the goal prioritization at the third meeting. After a brief review and discussion of the goals and the projects created in the previous meeting, the

members prioritized their project lists based on a variety of factors further explained in [Section 3.2 Project Implementation](#).

Because the committee members know the area they live in much better than any online database could indicate, the consultant presented maps to the committee for their input and knowledge of drought, hazmat incidents, land subsidence and severe weather. They divided into two groups and identified areas that were more or less prone to those types of hazards.

#### **Committee Meeting 4**

The last committee meeting was held just prior to the public meeting. During this gathering the members reviewed and approved their jurisdictional projects and assets for inclusion in the hazard mitigation plan. Members also completed a worksheet that surveyed their jurisdictional capabilities. Following the review, the members discussed the strategies they would employ for plan maintenance once it is been approved, as well as how they would integrate the hazard mitigation plan into other jurisdictional plans and ideas for continued public involvement.

#### **Non-Meeting Activities**

After the initial and even after the last committee meetings, the members and the consultant had regular communication via phone calls and email. The topics of discussion included gathering information about hazards in each community, reviewing jurisdictional projects for updates and changes, reporting current hazard incidents in the area, and general comments on the hazard mitigation planning process.

Evidence of committee member participation is presented in [Appendix 1](#) and includes the following documents.

- Sign-in sheets
- Agendas
- Presentations
- Documentation of exercises in which committee members participated
- A call log detailing the process of contacting the jurisdictions.

#### **1.1.3 Engaging the Public**

The planning process allowed for multiple opportunities for public involvement such as the local emergency planning committee (LEPC) meetings in Hancock County, a hazard

mitigation specific public meeting, and through the online survey made available in different ways to the public. A few members of the public attended two committee member meetings and attendance at the public meeting was minimal even though BHJ had advertised the meeting in the *Weirton Daily Times* and *Brooke County Review* newspapers.

The consultant developed an online survey using the Survey Monkey platform ([www.surveymonkey.com](http://www.surveymonkey.com)) which received 120 responses between the end of November, 2016 and the end of April, 2017, receiving most of the responses in January, 2017 after select jurisdictions posted the survey link in their newsletters, on their webpages and social media pages. The survey aimed to gather data from the public about hazards in their area, officials' response to incidents, effective methods of communication, flood insurance utilization, and general demographic information.

Evidence of public meetings is presented in [Appendix 1](#) and includes sign in sheets and presentations. Evidence of public involvement through the online survey is presented in [Appendix 2](#) and includes jurisdictions' survey announcements as well as the raw survey data collected.

#### 1.1.4 Research Conducted

The research conducted for the risk assessment phase of this update included data from federal, state, higher education, and mass media sources. The research aim was primarily to validate and describe the hazards included for consideration in this plan. Specific sources relative to individual hazards are listed in the appropriate hazard profile contained in [Section 2.0](#).

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

<b>TABLE 1.3 REFERENCED DOCUMENTS</b>		
<i>Document type</i>	<i>Document citation</i>	<i>How incorporated into plan</i>
Magazine	Business Development Council (2015) <i>Creativity Rewarded</i> . Online	Used to identify targeted development areas.
Report	BHJ-MPC. (2016) <i>Regional Review</i> . Online	Used to identify targeted development areas.
Plan	Federal Energy Regulatory Commission (2016) <i>Rover Pipeline, Panhandle Backhaul, and Trunkline Backhaul Projects, Final Environmental Impact Statement</i> . Online	Used to identify targeted development areas

TABLE 1.3 REFERENCED DOCUMENTS		
<i>Document type</i>	<i>Document citation</i>	<i>How incorporated into plan</i>
Plan	Brooke County. (2014) <i>Comprehensive Plan</i> . Online	Used to identify targeted development areas validate county administrative capabilities
Plan	Hancock County. (2013). <i>Hazardous Materials Emergency Plan</i> .	Used to identify Tier II facilities in the county
Plan	Dewberry. (2013). <i>2013 West Virginia Statewide Standard Hazard Mitigation Plan Update</i> . Online.	Referenced for HIRA and mitigation strategy guidance.
Report	USDHS FEMA. (2016). <i>Disaster Declarations for West Virginia</i> . Online.	Used as data on types of significant hazards incidents to have occurred in Region 3
Technical Information	USACE. (2014). <i>National inventory of dams</i> . Online.	Used to validate list of names and locations of dams in Region 3
Technical Information	USDHS FEMA Region III. (July, 2015). <i>Plan Integration: Linking Local Planning Efforts</i> . Federal Government: Washington, D.C.	Used as guidance on incorporating local planning efforts/plans into the planning process.
Technical Information	USDHS FEMA. (June, 2016). <i>National Mitigation Framework</i> . Federal Government: Washington, DC	Used as general guidance on mitigation planning.
Technical Information	USDHS FEMA. (May, 2005). <i>Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning</i> . Federal Government: Washington, D.C.	Used as general guidance for incorporating historic property and cultural protection.
Technical Information	USDHS FEMA. (March, 2013). <i>Local mitigation planning handbook</i> . Federal Government: Washington, D.C.	Used as general guidance on revised mitigation planning process
Technical Information	USDHS FEMA. (March, 2013). <i>Integrating Hazard Mitigation Into Local Planning</i> . Federal Government: Washington, D.C.	Used as general guidance on existing plan integration for hazard mitigation

### 1.1.5 Implementing the Plan and Monitoring Progress

Region 11's stakeholders realize that the plan must remain viable in order to appropriately guide mitigation in the region. To that end, plan implementation (i.e., the mitigation strategy and project prioritization) is presented in [Section 3.0 Action Plan](#). The monitoring process is presented in [Section 4.0 Plan Maintenance Process](#).



## 1.2 DESCRIPTION OF THE PLANNING AREA

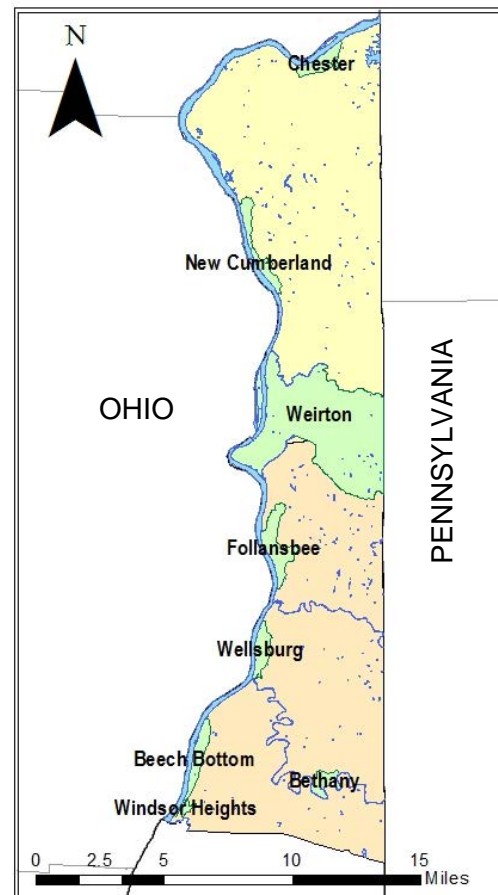
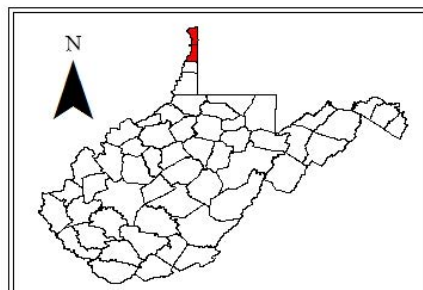
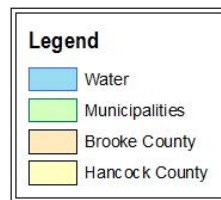
### 1.2.1 County Geography

Region 11 is comprised of Hancock and Brooke Counties located at the northernmost part of the state of West Virginia on the Northern Panhandle. To the north and west, Hancock County is surrounded by Ohio, separated by the Ohio River. On the west it borders Pennsylvania and to the south is Brooke County. Brooke County also borders Pennsylvania and Ohio to the east and west, respectively, and is across the Ohio River from Ohio. To the south of Brooke County is Ohio County, West Virginia. Created in 1848 from Brooke County, Hancock County is the smallest county in the state with only 88 square miles of land and is named after John Hancock, signer of the Declaration of Independence. The county seat is in New Cumberland and its largest city is Weirton. In

Name	Type	County
Brooke	County	N/A
Hancock	County	N/A
Beech Bottom	Village	Brooke
Bethany	Town	Brooke
Follansbee	City	Brooke
Weirton	City	Brooke/Hancock
Wellsburg	City	Brooke
Windsor Heights	Village	Brooke
Chester	City	Hancock
New Cumberland	City	Hancock

1796 Brooke County was established from Ohio County territory and was named after Robert Brooke, the Attorney General of Virginia. The table above lists the municipalities and townships found in Region 11 and these are also displayed on the map to the right.

### REGION 11 MUNICIPALITIES

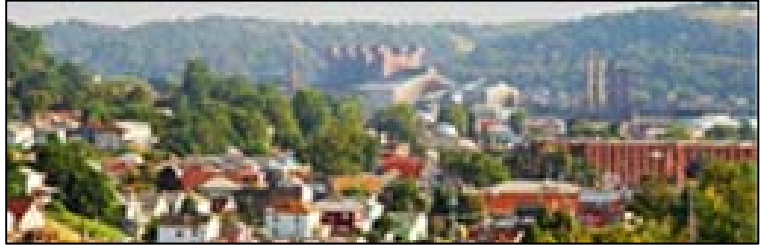


Each village, town and city in Region 11 is unique in its culture, history, and economic diversity. The Business Development Corporation of the Northern Panhandle describes the municipalities in Brooke and Hancock Counties the following way (BDC, n.d.).

- **Beech Bottom/Windsor Heights:** The quiet villages of Beech Bottom and Windsor Heights border the beautiful Ohio River and boast rich industries from farming to coal mining. Both were once "company towns" and remain close-knit communities, where friendships last lifetimes and some third- and fourth-generation laborers work for local manufacturers.
- **Bethany:** The college town of Bethany embraces a diversity of thought and lifestyle, allowing both students and full-time residents to enjoy the opportunity to grow within a small community context. Situated in the foothills of the Allegheny Mountains, Bethany's lush vistas attract visitors to view the spectacular autumn colors.
- **Chester:** Truly at "the top of West Virginia," the city of Chester is sandwiched between the states of Ohio and Pennsylvania. Settled by potters, Chester offers quiet suburban life — a haven for commuters with easy access to two major metropolitan areas. Chester is small in size, big in history and strong on community pride!
- **Follansbee:** The riverside community of Follansbee possesses that rock-solid "Hometown Feeling." With the entrance of the town from the north cut right out of the Allegheny foothills, Follansbee welcomes you! Major industry borders the Ohio River in a town with stately homes and safe, desirable neighborhoods.
- **New Cumberland:** With their motto "Good people make a good town," New Cumberland stands as a pleasant, close-knit residential community of about 1,100 people. Its residents boast possession of one of West Virginia's most beautiful state parks, Tomlinson Run, providing a wide range of recreational opportunities in a spectacular natural landscape buried deep in the West Virginia hills.



- **Weirton:** Forged by steel, the city of Weirton combines the warmth, security and camaraderie inherent in



- a small town with cultural, educational and economic benefits of a metropolitan area. Often described as a "melting pot," Weirton's ethnic diversity provides a cultural variety second to none. Consistently rated as one of the safest cities in the United States with a reasonable cost of living, Weirton borders both the Ohio River and the Pennsylvania border, offering a curious blend of major industry, tourist attractions and recreational opportunities. Weirton is located in Brooke and Hancock Counties.
- **Wellsburg:** Settled by members of the famous Lewis and Clark Expedition, Wellsburg possesses a historical charm and cultural appreciation embraced by both visitors and residents. This riverside community has attracted bus tours and stops by the Mississippi and Delta Queens, while the Brooke Hills Playhouse Players showcase local talent.

### 1.2.2 County Demographics

According to the 2015 U.S. Census Bureau estimates, Brooke and Hancock Counties have a total population of 53,165; of which 23,350 are in Brooke County and 29,815 are in Hancock County. Of that total population, the majority age range is between 18-65 years old, and slightly more than half are female. The vast majority of people are white with a very small percentage of Hispanic, Asian, or African American ethnicity.

The table on the next page summarizes general population information as well as the economy and special status in each county, when available. The data in this table is taken from several sources such as the U.S. Census Bureau database, the Bureau of Labor Statistics database and from Point-In-Time (January 2015) data provided by the Wheeling Coalition for the Homeless.

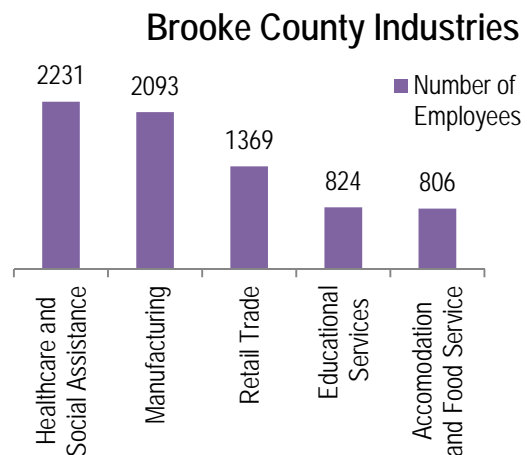
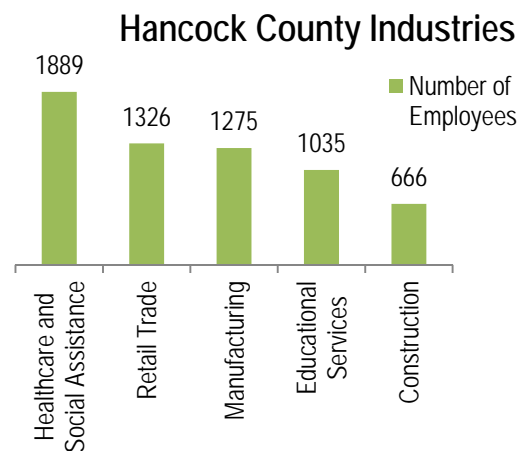
The type of information presented in this table is a base for understanding how the population in Region 11 could potentially be vulnerable to different hazards. [Section 2.1.6 Public Health and Social Vulnerability](#) describes this correlation more in depth. Understanding the demographic makeup and their specific vulnerabilities in the region can inform planners and officials about projects and strategies they should consider to mitigate or lessen the negative impact disaster-causing hazards have on the population.

TABLE 1.6 REGION 11 DEMOGRAPHICS		
Item	Brooke	Hancock
Total Population	23,350	29,815
Land Area (sq. mi.)	89.21	82.61
AGE DISTRIBUTION		
Population over 65	22.10%	20.70%
Population 18-65	60.20%	59.90%
Population Under 18	17.70%	19.40%
Population Under 5	3.80%	4.60%
GENDER		
Female	50.90%	51.60%
Male	49.10%	48.40%
ETHNICITY		
White	96.50%	95.40%
African American	1.70%	2.50%
Asian	0.40%	0.40%
Hispanic	0.90%	1.30%
ECONOMY		
Median Household Income	\$44,067	\$39,342
Per Capita Income	\$23,310	\$23,947
Unemployment rate Jan 2017	7.2	7.0
Unemployment rate Jan 2016	8.1	8.7
Unemployment rate Jan 2015	7.8	8.8
Unemployment rate Jan 2014	8.1	9.1
Unemployment rate Jan 2013	9.6	10.3
Unemployment rate Jan 2012	9.7	10.5
Living in Poverty	15.10%	12.90%
SPECIAL STATUS		
Language other than English	1.70%	1.70%
Disability	10.80%	13.80%
Do Not Own a Vehicle	3.06%	2.50%
Homeless	5	
Mental Illness	14	
Substance Abuse	9	
Veterans	4	

Sources: 2015 U.S. Census Bureau, Bureau of Labor Statistics, 2015 Point-In-Time data, Wheeling Coalition for the Homeless

### 1.2.3 Economy

Four of the top five largest employing industries for Brooke and Hancock Counties are the same: healthcare and social assistance, manufacturing, retail trade and educational services. The bar graphs below show a breakdown of the number of employees in each industry by county, according to information from Data USA.



The ten largest employers in the region are Arcelor Mittal Steel, Mountaineer Casino Racetrack and Resort, Homer Laughlin China, Marsh Bellofram, Severstal

North America, Weirton Medical Center, Ergon, Wheeling Nisshin, Ball Corporation and Eagle Manufacturing. Currently, the state of West Virginia is offering incentives to businesses to move to the area; according to the Milken Institute Cost of Doing Business Index, West Virginia's cost of doing business is 13% lower than the United States average (Business Development Corporation of the Northern Panhandle, 2016).

## 1.2.4 Transportation

### Roads

The major roads in Region 11 include U.S. 22 which winds through the south of Hancock County and the northern part of Brooke County, U.S. 30 in the northern part of Hancock County and State Route 2 that runs along the Ohio River through the western side of both counties. Secondary routes include State Routes 8, 27, 68, and 88. The network of roads passes mostly through rural areas; many of the routes have relatively steep grades. Personal vehicles are the primary means of transportation in the region.

### Rail

There are two rail systems in Region 11.

- **Wheeling & Lake Erie Railway Company:** A short line partner of CSX; operates across 800 miles in Maryland, Ohio, Pennsylvania and West Virginia. Crosses the region east-west between Follansbee and Wellsburg, WV.
- **Norfolk Southern:** This railway company operates along the Ohio River at the far west of Region 11 and parallels Route 2 in both counties.

### Air

The following lists a few of the airports that are closest to the region, both public and privately owned. There are no public airports within Region 11.

- **Herron:** Located in New Cumberland, WV; this airport is privately owned.
- **Wheeling Ohio County Airport:** Located eight miles northeast of Wheeling, WV, just on the Brooke-Ohio County line; this is the closest public airport to Region 11 in West Virginia. A portion of the runway is located within the Brooke County limits.
- **Jefferson County Airpark:** Open to the public and located in Wintersville, OH near Steubenville, approximately seven miles southwest of Weirton, WV.

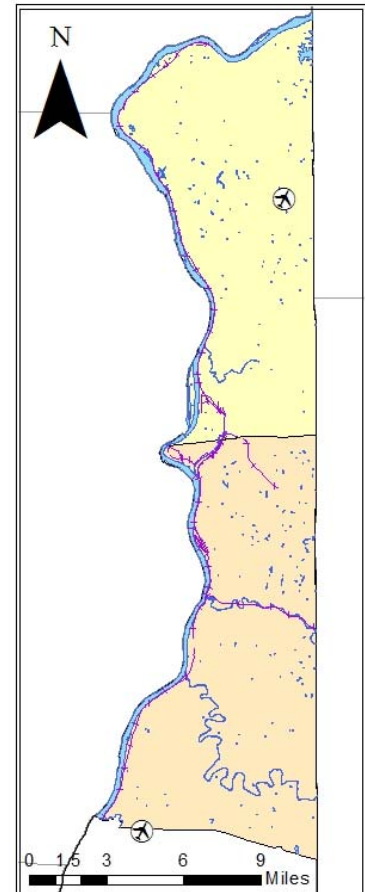
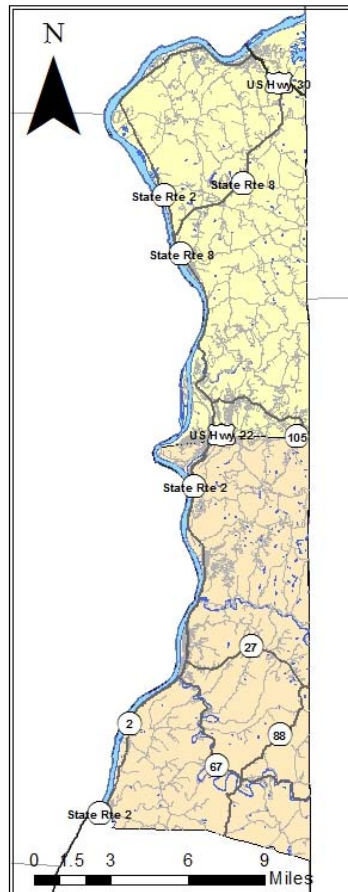
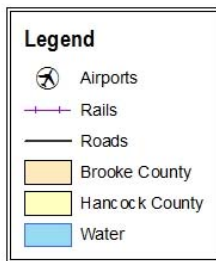
- **Pittsburgh International Airport:** This is the closest international airport to the area, located in Pennsylvania; it is approximately 14 miles from the West Virginia line in Hancock County

Public Transit

Brooke County does not have public transportation. It does, however, have taxi and limousine services that serve both Brooke and Hancock Counties which include Brooke County Cab Company, Weir-Cove Taxi Company, First Class Limousine, and Kirk Livery. Public transit for the area includes the following services.

- **Weirton Transit Corporation (WTC):** Offers bus service throughout the city of Weirton. The bus operates Monday through Friday with limited service on Saturdays (City of Weirton).
- **Regional Access Mobility Partnership (RAMP):** Offers employment, health care, non-emergency specialized transportation, and fixed-route and demand-response public transit services (BHJ).

REGION 11  
TRANSPORTATION



### 1.2.5 Medical Access

Weirton Medical Center is the only hospital located within Region 11. However, just outside Brook and Hancock Counties, across the Ohio River in Ohio and south of Brooke County in Ohio County other hospitals can be found:

- Acuity Specialty Hospital, Ohio
- East Liverpool City Hospital, Ohio
- East Ohio Regional Hospital, Ohio
- Wheeling Hospital, West Virginia

### 1.2.6 Utilities

The following table lists the available cable/internet/telephone, electric, gas, sewer, solid waste and water utility companies in Region 11 according to the Public Service Commission of West Virginia.

TABLE 1.7 UTILITY SERVICES IN REGION 11		
County → Utility ↓	Brooke County	Hancock County
Electric	Monongahela Power Company	Monongahela Power Company
Natural Gas	Mountaineer Gas Company	Mountaineer Gas Company
Sewer	Brooke County PSD Town of Bethany Sanitation Board City of Follansbee City of Weirton Sanitary Board Wellsburg Sanitary Board	Chester Municipal Sewer Department City of New Cumberland City of Weirton Sanitary Board Ogden Sewer Company The Newell Company
Solid Waste	Brooke County Sanitary Landfill	
Telecommunications	Comcast Frontier West Virginia	Comcast Frontier West Virginia
Water	City of Weirton Hammond PSD Ohio County PSD Washington Pike PSD Village of Beech Bottom City of Follansbee Wellsburg Municipal Water Department Brooke County PSD	Hancock County PSD The Newell Company Grant PSD Oakland PSD Tomlinson PSD City of New Cumberland City of Weirton Chester municipal Water Department

Source: Public Service Commission of West Virginia

### 1.2.7 Jurisdictional Capabilities

Participating jurisdictions have a number of capabilities that can support (or at least be related to) mitigation efforts. The capabilities, what they mean, and how they tie into mitigation efforts are described below.

- **Planning Commission:** Determines locations where development is allowed. With the help of the risk assessment, the planning commission can designate certain areas as high or low risk and allow or restrict development in those areas.
- **Comprehensive Plan:** Lays out a strategy for how the jurisdiction plans to grow. The comprehensive plan contains projects that can be considered to mitigate a hazard.
- **Radiological Emergency Plan:** Outlines response and evacuation procedures in case of radiological emergencies at the nuclear power plant. When an incident occurs at the power plant, the population will know what to do if they are familiar with the plan and reduce the risk to themselves by evacuating in time.
- **Floodplain Regulations:** Restrict construction in certain flood-prone areas and seek to make existing buildings in floodplains safer. The impacts of flooding are reduced if buildings, infrastructure, and development are kept out of the floodplain or follow the required steps for construction within a floodplain.
- **Building Codes:** Require new construction and building remodeling to be up-to-date and built with the current standards.
- **Zoning Ordinances:** Allow for development to be directed towards lower risk areas. The ordinances restrict construction in places that are determined to be high risk areas. Enforcing the ordinances in high risk hazard areas can reduce vulnerability.
- **Historic Preservation Plan:** Historic properties and cultural resources are economic assets that increase property values and attract businesses. The plan provides for the protection of historic buildings and areas from hazards.
- **Community Rating System:** Encourages jurisdictions to go above and beyond regular National Flood Insurance Program (NFIP) requirements.
- **Capital Budget:** Funds long-term infrastructure projects within a jurisdiction. These can include hazard mitigation projects outlined in the hazard mitigation plan.
- **Public Works Budget:** Designates funds to general utility projects. These can include hazard mitigation projects such as storm water management.
- **Community Economic Development Strategy (CEDs):** Similar to the comprehensive plan, the CEDs establishes strategies for business development in the area.



The table below outlines each jurisdiction’s capabilities.

**TABLE 1.8 JURISDICTIONAL CAPABILITIES**

<i>Capability</i> → <i>Jurisdiction</i> ↓	Planning Commission	Comprehensive Plan	Radiological Emergency Plan	Floodplain Regulations	Building Codes	Zoning Ordinances	Historic Preservation Plan	Community Rating System	Capital Budget	Public Works Budget	CEDS
Brooke County	YES	YES	YES	YES	YES**	YES	YES	NO	YES	NO	YES**
Hancock County	YES	NO	YES	YES	YES**	YES	NO	NO	NO	NO	YES**
Beech Bottom	YES†	NO	YES	YES	YES**	NO	NO	NO	NO	NO	YES**
Bethany	YES†	NO	YES	YES	YES**	NO	NO	NO	NO	NO	YES**
Chester	YES†	NO	YES	YES	YES**	NO	NO	NO	NO	NO	YES**
Follansbee	YES	YES	YES	YES	YES**	YES	NO	NO	YES	YES	YES**
New Cumberland	YES†	NO	YES	YES	YES**	NO	NO	NO	YES	NO	YES**
Weirton	YES	YES	YES	YES	YES**	YES	NO	NO	YES	NO	YES**
Wellsburg	YES†	NO	YES	YES	YES**	NO	NO	NO	NO	NO	YES**
Windsor Heights	YES†	NO	YES	NO	YES**	NO	NO	NO	NO	NO	YES**

\*\* Covered under state, regional or county plan/codes

† Planning commission is Region 11 PDC

### 1.2.8 Disaster Declarations in Brooke and Hancock Counties

As of November 2016, there have been 67 FEMA declarations in the state of West Virginia, including emergency declarations, fire management assistance declarations, and major disaster declarations. Four of these declarations have included either Brooke or Hancock Counties or both. Emergency declarations and major disaster declarations differ in that major disasters will involve damaged caused by some natural event, with some exceptions, and provides a wide range of federal assistance programs while emergency declarations can be declared for any occasion when the President determines federal assistance is needed. By statute an emergency declaration may not exceed \$5 million in assistance (FEMA, 2011). The incident types and total number of declarations in Region 11 are shown in the table below. The hurricane declaration is related to sheltering issues faced

during the evacuation of the gulf coast during Katrina. Some evacuees were relocated to the region.

**TABLE 1.9 EMERGENCY/DISASTER DECLARATIONS IN BROOKE AND HANCOCK COUNTIES SINCE 2010**

<i>Declaration</i>	<i>Hazard</i>	<i>Counties</i>	<i>Description</i>	<i>Assistance</i>
1903 Major Disaster Declaration April 23, 2010	Severe Winter Storms and Snowstorms (Severe Weather)	Berkeley, Brooke, Doddridge, Hampshire, Hancock, Hardy, Jefferson, Marion, Marshall, Morgan, Ohio, Pocahontas, Preston, Ritchie, Tucker, Tyler, Wetzel.	President Obama declared a major disaster in West Virginia. This declaration made Public Assistance requested by the Governor available to State and eligible local governments and certain private nonprofit organizations on a cost-sharing basis for emergency work and the repair or replacement of facilities damaged by the severe winter storms and snowstorms. This declaration also made Public Assistance, including snow assistance, requested by the Governor available to State and eligible local governments. Finally, this declaration made Hazard Mitigation Grant Program assistance requested by the Governor available for hazard mitigation measures statewide.	Per Capita Impact: Brooke County: \$5.49 Hancock County: \$6.14
3345 Emergency Declaration June 29, 2012	Severe Thunderstorms (Severe Weather)	All 55 counties of West Virginia	Federal emergency aid was made available to West Virginia to supplement state and local response efforts due to the emergency conditions resulting from severe storms beginning on June 29, 2012, and continuing. (A.K.A. 2012 North American Derecho).	N/A
3358 Emergency Declaration October 29, 2012	Severe Snowstorms (Severe Weather)	All 55 counties of West Virginia	Federal emergency was made available to West Virginia to supplement state and local response efforts due to the emergency conditions resulting from Hurricane Sandy beginning on October 29, 2012, and continuing.	Public assistance Category B: \$19,645.54
4220 Major Disaster Declaration May 18, 2015	Severe Storms, Flooding, Landslides and Mudslides (Flooding, Land Subsidence & Severe Weather)	Braxton, Brooke, Doddridge, Gilmer, Jackson, Lewis, Marshall, Ohio, Pleasants, Ritchie, Tyler, Wetzel.	Federal disaster aid was made available to West Virginia to supplement state and local recovery efforts in the area affected by severe storms, flooding, landslides, and mudslides during the period of April 8-11, 2015.	Total public assistance grants - dollars obligated: \$7,137,833.86  Emergency work (Categories A & B) dollars obligated: \$11,537.97  Permanent work (Categories C-G) dollars obligated: \$7,075,885.89

SOURCE: FEMA

## 2.0 RISK ASSESSMENT

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

### Section Overview

A risk assessment analyzes “the potential for damage, loss, or other impacts created by the interaction of hazards with community assets” (FEMA, 2013). The risk assessment section contains information on identified hazards that threaten the region, the vulnerability of the area as it relates to its assets and a list of community assets for both Brooke and Hancock Counties.

## 2.1 HAZARDS & VULNERABILITY

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

§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.

### 2.1.1 Hazard Analysis

The goal of the hazard analysis section is to identify those naturally-occurring, technological and human-caused hazards that pose a risk to Brooke and Hancock Counties and their various municipalities. Current conditions within the counties and historical hazard occurrences inform each hazard profile. Each hazard profile includes the following components: a brief overview of the hazard, location and extent, historical occurrences, impacts and social vulnerability, loss and damages, probability and severity calculation, and a risk map detailing locations within the counties that are most vulnerable to each hazard.

### 2.1.2 Hazard Identification

Historically, Region 11 has been vulnerable to a number of natural hazards that disrupt lives and damage or destroy property. This mitigation plan takes the following list of natural hazards present in the region into consideration for further development. This list shows how the hazards have changed from the previous 2012 plan update.

- Drought (no change)
- Earthquakes (no change)
- Extreme Temperatures (new hazard)
- Flooding (no change)
- Mass Movements (previously Land Subsidence)
- Severe Weather (consolidated: hail, thunderstorm, wind and winter weather and added: tornado, winter storm, and winter weather.)
- Wildfires (no change)

For the purposes of this document *extreme temperatures* will include both heat and cold temperatures and *severe weather* will encompass all types of winter weather, hail, thunderstorms, high wind, and tornadoes; these have been grouped under one profile

heading because mitigation efforts and strategies are similar for these types of severe weather events.

Non-natural or human-caused hazards are also included in this risk assessment. Given the proximity of Hancock and Brooke Counties to the Beaver Valley Nuclear Power Plant (NPP) in Shippingport, PA, a radiological component has been identified as a hazard that could affect the region and therefore has been included in the profiles. Non-natural, technological and human-caused hazards analyzed in this risk assessment include the following hazards. Any changes from the previous plan in 2012 are noted here.

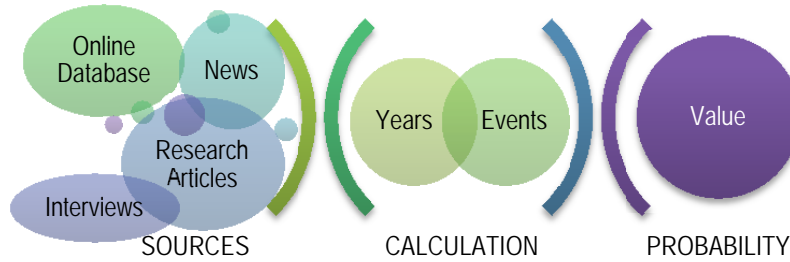
- Acts of Violence (previously Civil Disturbance)
- Dam Failure (no change)
- Hazardous Materials (no change)
- Radiological (no change)

The risk assessment identified several other naturally-occurring hazards that do not affect either Brooke or Hancock Counties. Because of the location of the region in the continent (i.e. far from any coast) and its geography, the following hazards are not considered.

- Avalanches happen mainly in the western United States and Canada (Keller, Devecchio, 2015 p. 229).
- Coastal Erosion, Coastal Storms, Hurricanes and Tsunamis because the East Coast is approximately 320 miles away and the West Coast is approximately 2,250 miles away (Google Earth).
- Volcanoes are not a threat to the area. The closest monitored volcano is in Yellowstone National Park in Wyoming (USGS) and is approximately 1,550 miles away (Google Earth).

### **2.1.3 Probability vs. Severity**

One of the components of the risk assessment is determining both the probability of a hazard occurring and the potential severity of that hazard event. This process helps identify which hazards pose the most significant risk to Region 11 and its municipalities. The probability and severity of an event are largely based on historical research. The probability of an event happening is determined based on the number of events that have occurred within a certain timeframe. The timeframe is based on information available from different resources and varies depending on the data.



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

TABLE 2.1 PROBABILITY		
<i>Value</i>	<i>Description</i>	<i>Definition</i>
3.1+	Frequent	Likely to occur frequently
1.6 - 3	Probable	Will occur several times in a year
0.7 - 1.5	Occasional	Likely to occur sometime during a year
0.3 - 0.6	Remote	Unlikely to occur in a year
0 - 0.2	Improbable	So unlikely that it can be assumed it will not occur in a year

The chance of occurrence of a hazard within the next year can be quantified based on historical data. This can be expressed in a numerical measure or as a percentage of 0-100 percent. It is calculated by adding the total occurrences of a specific hazard and dividing it by the years of data. For example, if there have been seven earthquakes in a region between 1950 and 2016 (66 years), the quantitative probability would be calculated by dividing seven events by 66 years. The result would be 0.10 or 10% chance of earthquake, roughly one every ten years. The percentage would then indicate an 'improbable' probability of occurrence, based on the information presented in the table above. This formula for calculating probability will be used when appropriate (i.e. historical data is available).

$$\frac{\text{Number of events}}{\text{Number of years}} = \text{Probability} \quad \text{OR} \quad \frac{7}{66} = 0.10 \quad \text{OR} \quad 1 \text{ time every } 10 \text{ years}$$

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

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

TABLE 2.2 SEVERITY	
<i>Description</i>	<i>Definition</i>
Catastrophic	Death or major structural loss
Critical	Severe injury, severe illness, or marginal structural damage
Marginal	Minor injury, minor illness, or structural damage
Negligible	Less than minor injury, illness or structural damage

The combination of hazard probability and hazard severity results are shown in the table below, known as the Risk Assessment Matrix. The matrix is designed to show the hazards that are of most concern to Region 11 and its municipalities.

TABLE 2.3 RISK ASSESSMENT MATRIX						
		PROBABILITY				
		<i>Frequent</i>	<i>Probable</i>	<i>Occasional</i>	<i>Remote</i>	<i>Improbable</i>
SEVERITY	<i>Catastrophic</i>	High	High	High	Moderate	Moderate
	<i>Critical</i>	High	High	Moderate	Moderate	Moderate
	<i>Marginal</i>	Moderate	Moderate	Moderate	Moderate	Low
	<i>Negligible</i>	Moderate	Moderate	Low	Low	Low

In the table below, each hazard is located within the risk assessment matrix based on the research and analysis of each hazard. For more detailed information, refer to each hazard profile section.

TABLE 2.4 RISK ASSESSMENT MATRIX WITH HAZARDS						
		PROBABILITY				
		<i>Frequent</i>	<i>Probable</i>	<i>Occasional</i>	<i>Remote</i>	<i>Improbable</i>
SEVERITY	<i>Catastrophic</i>				Acts of Violence	
	<i>Critical</i>	HazMat	Flood		Radiological	Dam Failure
	<i>Marginal</i>	Severe Weather Mass Movements				
	<i>Negligible</i>		Extreme Temperatures	Drought, Earthquake	Wildfires	

#### 2.1.4 Complicating Variables

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

A number of situations could occur that would result in a disruption to a number of critical systems throughout Brooke and Hancock Counties. Some hazards are complicated by a series of loosely-related variables; these are often considered *cascading hazards*. For example, high winds may cause sporadic damage throughout the county, but often do not become a significant countywide concern until a large number of residents are without power. In addition to weather-related power outages, cascading hazards in Region 11 could include (but not be limited to) the following.

- Damage to infrastructure (i.e. roads, bridges, tunnels, pipes, utility poles etc.) and to residences following flooding
- Flooding of downstream areas in the event of a dam failure
- Drinking water supply shortages and contamination following severe and prolonged drought conditions or floods
- Power outages, ruptured gas lines, etc. following earthquakes or severe weather
- Public health concerns following flooding conditions or a HazMat incident
- Road closures resulting from land subsidence

The complicating variables related to each hazard are described within the profiles. The information presented is based on worst-case scenario events; a single event may not always reach all impacts described. However, it is important to understand that the impacts of hazards go beyond what is seen immediately after the event. The effects of one event can last months or even years, especially where public health, social, economic, environmental and infrastructure impacts are concerned.



### 2.1.5 Hazards and Climate Change

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

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

- Since recordkeeping began in 1895, the average U.S. temperature has increased by 1.3°F to 1.9°F with most of the increase happening since 1970. In addition, the first decade of the 2000s has been the warmest on record.
- The average precipitation across the U.S. has increased since 1900 with some areas experiencing higher than the national average and some lower. Heavy downpours are increasing, especially over the last 30-50 years.
- Drought events have increased in the west. Changes in precipitation and runoff, combined with changes in consumption and withdrawal, have reduced surface and groundwater supplies in many areas.
- Some types of severe weather events have experienced changes; heat waves are more frequent and intense, and cold waves have become less frequent and intense overall.
- The intensity, frequency, and duration of North Atlantic hurricanes have increased since the early 1980s.

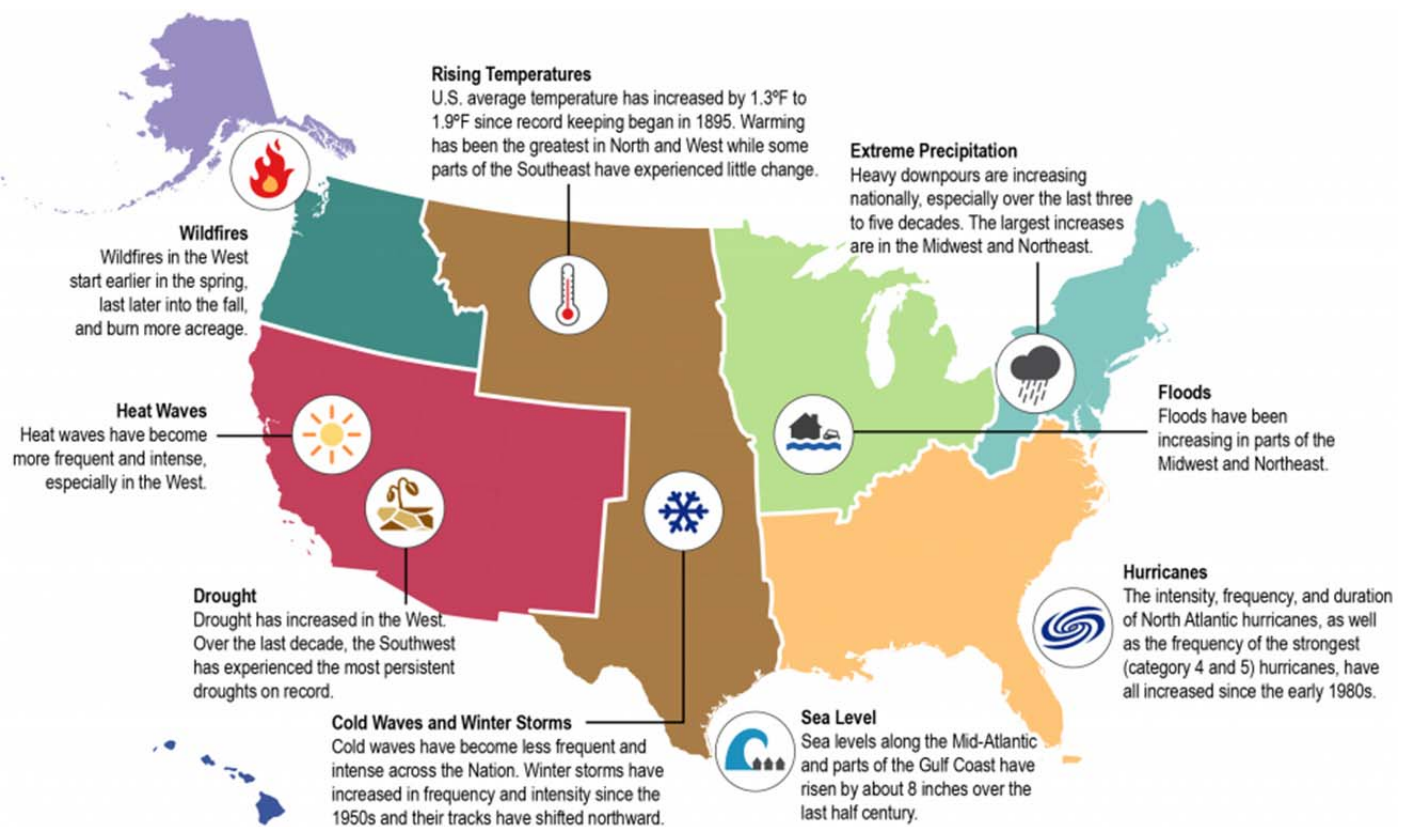
Climate change can have a significant impact on human health and the environment. The changes mentioned above can affect the environment by leading to changes in land-use, ecosystems, infrastructure conditions, geography and agricultural production. Extreme heat, poor air quality, reduced food and water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

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

- wildfires and heat waves on the west coast,

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

In West Virginia, the trend will be an increase in precipitation which will lead to more events of hazards such as flooding, mass movements, and possible dam failures. This is detailed in the map below.



### 2.1.6 Public Health and Social Vulnerability

Area demographics, economy, income, the physical environment, clinical care and health behaviors are all factors that are closely interrelated with the public health of the counties and contribute to overall social vulnerabilities to hazards. The following paragraphs outline the general public health of Region 11 considering the factors mentioned previously.

According to the American Lung Association (ALA) in their State of the Air 2015 report, the Pittsburgh-New Castle-Weirton, PA-OH-WV area is included on the lists for the top 25 most polluted cities by ozone, by year-round particle pollution, and by short-term particle pollution falling at numbers 21, 9, and 10, respectively, 1 being the highest. Brooke and Hancock County fall within this area. The ALA gives grades to air quality and Hancock County fails the ozone quality test putting it in the red category, indicating “unhealthy” air quality with a

range of 86-105 ppb (parts per billion) of ozone. The different



levels of air quality are shown in the colored circles. Ozone data for Brooke County was not recorded in the report but it can be assumed, due to its proximity to Hancock County and similar condition, that the air quality would be similar. However, both counties have a grade “A” for particle pollution in a 24-hour period (ALA, 2017). Heavy industrial activity in both Brooke and Hancock Counties as well as the surrounding areas in Pennsylvania and Ohio may play a role in causing these unhealthy levels.

The annual County Health Rankings reports for West Virginia published by the University of Wisconsin Population Health Institute and the Robert Wood Johnson Foundation include information on public health factors that affect the overall health outcomes for each county in the state. The study considers health factors such as health behaviors (tobacco use, diet and exercise, alcohol and drug use, sexual activity), clinical care (access to care, quality of care), social and economic factors (education, employment, income, family and social support, community safety), and the physical environment (air and water quality, housing and transit). All of these factors are given a certain percentage that influences the overall health outcomes (length of life and quality of life) (UWPHI, 2017). Each county in the state is ranked from 1 to 55, 1 is the highest ranking indicating the best health outcome or health factors. Reports to back to the year 2011; rankings for Brooke and Hancock Counties since then until 2017 are shown below.

The data suggests that Region 11's population health outcomes (quality and length of life) have slightly increased over the last six years, while the health factors considered in the study have steadily declined. Given the downward ranking trend of overall health factors (which inform the health outcomes), it can be expected that the overall health outcomes could decline over the next few years if changes are not made to improve public health.

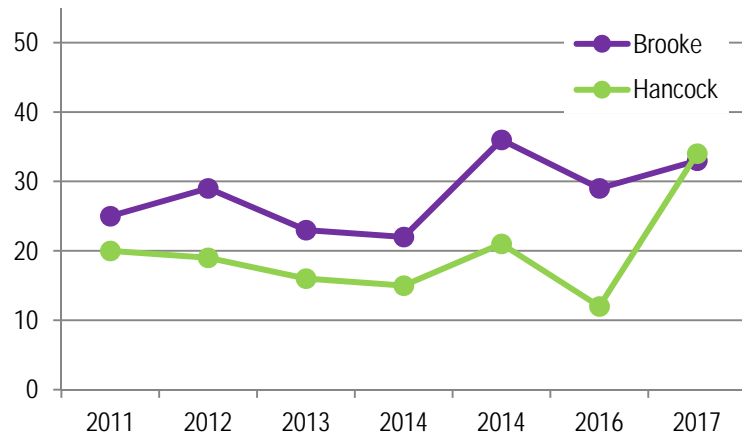
Vulnerable populations, populations of concern, or populations at risk are defined as those individuals or groups of people who are more exposed to the risks of the

impacts of a hazard because of their age, gender, income, occupation, disability, physical or mental health, literacy, income, religion, education, or ethnicity.

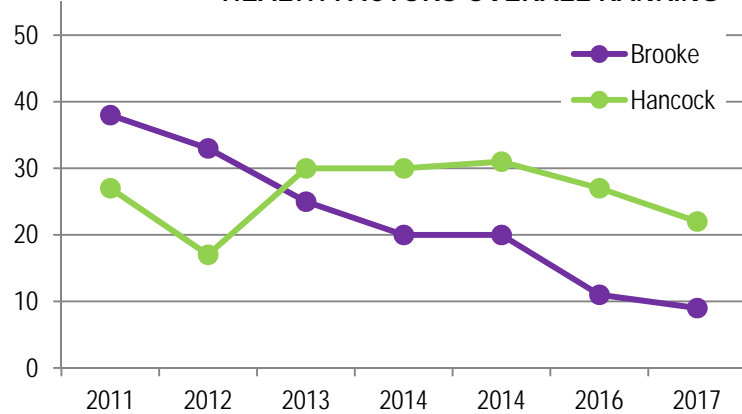
Some groups face a number of stressors related to both climate and non-climate factors. For example, people living in impoverished urban or isolated rural areas, floodplains, coastlines, and other at-risk locations are more vulnerable not only to extreme weather and persistent climate change but also to social and economic stressors. Many of these stressors can occur simultaneously or consecutively. Over time, this "accumulation" of multiple, complex stressors is expected to become more evident as climate impacts interact with stressors associated with existing mental and physical health conditions and with other socioeconomic and demographic factors

Some populations of concern demonstrate relatively greater vulnerability to the health impacts of climate change. The definitions of the following key concepts are

HEALTH OUTCOMES OVERALL RANKING



HEALTH FACTORS OVERALL RANKING



important to understand how some people or communities are disproportionately affected by climate-related health risks. Definitions are adapted from the Intergovernmental Panel on Climate Change (IPCC) and the National Research Council (NRC) (USGCRP, 2016).

It is important to understand the impacts each hazard could potentially have on different individuals and groups of people. One hazard may affect one group of people differently than another. For example, severe weather conditions may affect children and elderly adults more than women; or the need to evacuate would affect people with disabilities and those who cannot read more than those who are of a certain religion, while acts of violence may be directed at a group of people of a certain religion and not at children.

It is important to keep in mind what this information tells us: when planning for disasters we must consider the population living within the community along with their strengths and vulnerabilities. Accounting for age, disabilities, economic status, etc., a large portion of the population may be vulnerable to different hazards. Making considerations for different types of vulnerabilities of populations within the region during mitigation planning can make a community more resilient to disasters and ultimately save lives.

Each hazard profile goes further into detail explaining how the hazard could affect public health and social vulnerability.

### 2.1.7 Hazard Snapshots

The following table contains a summary of all the hazards analyzed, presented in alphabetical order. Data within the table includes the following information:

- **Description:** Definition of the hazard.
- **Period of Occurrence:** The typical time of the year events of this type can occur
- **Number of Years:** Actual number of years data is available based on the 'record years'.
- **Number of Events:** The times that event has occurred within the timeframe of the 'number of years' according to the sources.
- **Probability:** The calculation of occurrence of a certain event based on number of years and number of events, as described above (ranging from 0.0 to 7.0, based on the highest probability calculated in this table; probability can be higher if more events take place).
- **Severity:** Based on historical impacts
- **Risk:** Low, medium or high based on the risk assessment matrix

- **Warning Time:** The amount of time that passes from when the event is detected to when it occurs
- **Total Damages to Date:** Amount in dollars of damages to property or cost of repair.
- **Vulnerable Populations:** Lists the type of populations that may be vulnerable to the specific hazard.
- **Impacts:** To include public health, social, economic, environmental and infrastructure impacts of the hazard on the community.
- **Cascading Effects:** primary hazards can have secondary effects; one hazard could give way to other consequences.

For more complete information, refer to each hazard profile for detailed descriptions, historical occurrences, methods of loss and damage estimation as well as the probability and severity calculation, and risk area maps.

TABLE 2.5 HAZARD SNAPSHOTS

Hazard	Description	Period of Occurrence	# of Years	# of Events	Probability	Severity	Regional Risk	Warning Time	Total Damages to Date	Vulnerable Populations
Acts of Violence	"An intentional use of force or power, against oneself, another person, or against a group or community, which either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation" (WHO).	At any time throughout the year	N/A	N/A	N/A Remote	Catastrophic	Moderate	None Days Weeks	\$0	<ul style="list-style-type: none"> <li>Everyone surrounding the incident</li> <li>Targeted populations (varies)</li> </ul>
	Public Health Impacts: Death, injury, illness (depending on type of attack), PTSD, exacerbation of chronic illnesses Social Impacts: Distrust of groups of people, displacement of population, disruption of normal activities, hysteria Economic Impacts: Loss or damage to homes and businesses, disruption of business and income, cost of clean-up Environmental Impacts: Water quality (depending on type of attack), air quality (depending on type of attack) Infrastructure Impacts: Power outages, loss or damage to structures and transportation infrastructure (roads, bridges, rail)									<u>Cascading effects:</u> Dam failure HazMat Radiological Fires
Dam Failure	"The sudden breach of a river water containment wall, known as a dam, which results in a sudden and uncontrolled downstream rush of water and debris." (Haddow, Bullock, & Coppola, 2014, pg.389).	At any time throughout the year	21	0	0 Improbable	Critical	Moderate	Days Weeks Months	\$0	<ul style="list-style-type: none"> <li>People living within the risk area</li> <li>People who cannot evacuate</li> </ul>
	Public Health Impacts: Death, injury, illness (water-borne), standing water, exacerbation of chronic illnesses Social Impacts: Displacement of population, disruption of normal activities, evacuation Economic Impacts: Loss or damage to homes and businesses, disruption of business and income, cost of clean-up Environmental Impacts: Erosion, water quality, change in topography, change in natural habitat Infrastructure Impacts: Power outages, loss or damage to structures and transportation infrastructure (roads, bridges, rail)									<u>Cascading effects:</u> Flood

TABLE 2.5 HAZARD SNAPSHOTS

Hazard	Description	Period of Occurrence	# of Years	# of Events	Probability	Severity	Regional Risk	Warning Time	Total Damages to Date	Vulnerable Populations
Drought	"Extended period of unusually low precipitation that produces a temporary shortage of water for people, animals, and plants (Keller, DeVecchio, 2015).	Summer months or periods of low precipitation	9	10	1.1 Occasional	Negligible	Low	Weeks Months	\$0	<ul style="list-style-type: none"> <li>Agricultural workers</li> </ul>
	Public Health Impacts: Social Impacts: Economic Impacts: Environmental Impacts: Infrastructure Impacts:	Illness (water-borne), insect infestations, compromised food, standing water Disruption of recreational activities Loss of crops and livestock Erosion, water quality, change in topography, change in natural habitat, air quality Power outages							<u>Cascading effects:</u> Extreme temperatures Mass movements	
Earthquake	"Sudden, rapid shaking of the earth's crust cause by the breaking and shifting of tectonic plates beneath the earth's surface" (Haddow, Bullock, & Coppola, 2014, pg.34).	At any time throughout the year	16	12	0.75 Occasional	Negligible	Low	None	\$0	<ul style="list-style-type: none"> <li>Everyone</li> </ul>
	Public Health Impacts: Social Impacts: Economic Impacts: Environmental Impacts: Infrastructure Impacts:	Death, injury, PTSD, Exacerbation of chronic illnesses Displacement of population, disruption of normal activities, hysteria Loss or damage to homes and businesses, disruption of business and income, cost of clean-up Erosion, air quality, water quality, change in natural habitat Power and water outages, loss or damage to structures and transportation infrastructure (roads, bridges, rail)							<u>Cascading effects:</u> Mass movements HazMat Radiological	



TABLE 2.5 HAZARD SNAPSHOTS

Hazard	Description	Period of Occurrence	# of Years	# of Events	Probability	Severity	Regional Risk	Warning Time	Total Damages to Date	Vulnerable Populations
Extreme Temperatures	"Major diversions in average seasonal temperatures. Extreme heat occurs when temperatures of ten or more degrees above the average high temperature persist across a geographic region for several days or weeks. There is no standard definition for extreme cold, but generally refers to periods of colder than normal conditions." (Haddow, Bullock, & Coppola, 2014).	Any season, but generally summer and winter	7	8	1.14 Probable	Negligible	Moderate	Hours Days	\$0	<ul style="list-style-type: none"> <li>Children</li> <li>Elderly adults</li> <li>Poor</li> </ul>
	Public Health Impacts: Social Impacts: Economic Impacts: Environmental Impacts: Infrastructure Impacts:	Frostbite, heat stroke, exacerbation of chronic illnesses Disruption of recreational activities Disruption of business and income Air quality, water quality Power outages, damage to structures							<u>Cascading effects:</u> Severe weather	
Flood	"An overabundance of water that engulfs land and other property that is normally dry" (Haddow, Bullock, & Coppola, 2014, pg.32.)	At any time throughout the year	19	57	3 Probable	Critical	High	Hours Days	\$61.7M	<ul style="list-style-type: none"> <li>Homeless</li> <li>Poor</li> <li>Children</li> <li>Elderly Adults</li> <li>People living within risk area</li> <li>People who cannot evacuate</li> </ul>
	Public Health Impacts: Social Impacts: Economic Impacts:	Death, injury, illness (water-borne), standing water, exacerbation of chronic illnesses Displacement of population, disruption of normal activities, hysteria, evacuation Loss or damage to homes and businesses, disruption of business and income, cost of clean-up							<u>Cascading effects:</u> Dam failure Mass movements	

TABLE 2.5 HAZARD SNAPSHOTS

Hazard	Description	Period of Occurrence	# of Years	# of Events	Probability	Severity	Regional Risk	Warning Time	Total Damages to Date	Vulnerable Populations
	Environmental Impacts: Infrastructure Impacts:	Erosion, water quality, air quality, change in natural habitats Power and water outages, loss or damage to structures and transportation infrastructure (roads, bridges, rail)								
HazMat	"Hazardous materials are chemical substances that if released or misused can pose a threat to environment or personal health" (Haddow, Bullock, & Coppola, 2014, pg.55).	At any time throughout the year	25	162	6.48 Frequent	Critical	High	None	\$204K	<ul style="list-style-type: none"> <li>Everyone surrounding the incident</li> </ul>
	Public Health Impacts: Social Impacts: Economic Impacts: Environmental Impacts: Infrastructure Impacts:	Death, injury, illness, PTSD, compromised food Displacement of population, disruption of normal activities, hysteria, evacuation Loss or damage to homes, businesses and crops, disruption to businesses and income, cost of clean-up Air quality, water quality, change of natural habitats Loss or damage to structures and transportation infrastructure (roads, bridges, rail)								<u>Cascading effects:</u> Radiological
Mass Movements	Sinking, settling, or other lowering of parts of the crust of the Earth (Keller, DeVecchio, 2015)	At any time throughout the year. Increased chance following long periods of heavy rain, snowmelt, or near construction activity	10	147	14.7 Frequent	Marginal	Moderate	Days Weeks Months	\$18.6M	<ul style="list-style-type: none"> <li>People living within the risk area</li> <li>People who cannot evacuate</li> </ul>
	Public Health Impacts: Social Impacts: Economic Impacts: Environmental Impacts: Infrastructure Impacts:	Death, injury Displacement of population, disruption of normal activities, evacuation Loss or damage to homes and businesses, disruption to businesses and income, cost of clean-up Erosion, change in topography, change of natural habitats Loss or damage to structures and transportation infrastructure (roads, bridges, rail)								<u>Cascading effects:</u> Earthquakes

TABLE 2.5 HAZARD SNAPSHOTS

Hazard	Description	Period of Occurrence	# of Years	# of Events	Probability	Severity	Regional Risk	Warning Time	Total Damages to Date	Vulnerable Populations
Radiological	Radiation is any form of energy that travels through space or matter. The radiation emitted by many radioactive isotopes contains enough energy to change the physical state of the material through which it passes. A radiological emergency is an incident that poses an actual or potential hazard to public health or safety or loss of property. (FEMA)	At any time throughout the year	N/A	N/A	N/A Remote	Critical	Moderate	Hours Days Weeks	\$0	<ul style="list-style-type: none"> <li>Everyone</li> <li>People who cannot evacuate</li> </ul>
	Public Health Impacts: Social Impacts: Economic Impacts: Environmental Impacts: Infrastructure Impacts:	Death, illness, injury (burns), cancer, compromised food Displacement of population, disruption of normal activities, hysteria, evacuation Loss or damage to homes and businesses, disruption to businesses and income, cost of clean-up Air quality, water quality, change of natural habitats Power and water outages, loss or damage to structures and transportation infrastructure (roads, bridges, rail)								<u>Cascading effects:</u>
Severe Weather	Severe weather "affects considerable portions of North America and cause significant death and destruction each year" (DeVecchio & Keller, 2015). Includes instances of hail, heavy snow, high wind, lightning, strong wind, thunderstorm wind, winter storms and winter weather.	The various types of severe weather can occur year-round	59	264	4.47 Frequent	Marginal	Moderate	Days Weeks	\$3M	<ul style="list-style-type: none"> <li>Children</li> <li>Elderly adults</li> <li>Poor</li> </ul>
	Public Health Impacts: Social Impacts: Economic Impacts:	Exacerbation of chronic illnesses Disruption of normal and recreational activities, evacuation Loss or damage to homes and businesses, disruption to businesses and income, cost of clean-up								<u>Cascading effects:</u> Flood Drought

TABLE 2.5 HAZARD SNAPSHOTS

Hazard	Description	Period of Occurrence	# of Years	# of Events	Probability	Severity	Regional Risk	Warning Time	Total Damages to Date	Vulnerable Populations
	Environmental Impacts:	Air quality, water quality, change of natural habitats, erosion								
	Infrastructure Impacts:	Power and water outages, loss or damage to structures and transportation infrastructure (roads, bridges, rail)								
Wildfire	"A large, often out-of-control burning of trees, fallen wood, detritus, and other debris in uninhabited or sparsely inhabited forest or grasslands" (Haddow, Bullock, Coppola, 2014).	At any time throughout the year. Increased chance following dry weather	N/A	N/A	N/A Remote	Negligible	Low	None Hours	\$0	<ul style="list-style-type: none"> <li>Everyone surrounding the incident</li> </ul>
	Public Health Impacts:	Illness (breathing), death, injury (burns), PTSD								Cascading effects: Flood
Social Impacts:	Disruption of normal activities, displacement of population, evacuation									
Economic Impacts:	Loss or damage to homes and businesses, disruption to businesses and income, cost of clean-up									
Environmental Impacts:	Air quality, water quality, change of natural habitats, erosion									
	Infrastructure Impacts:	Power and water outages, loss or damage to structures								

## 2.2 PROFILE HAZARDS

§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.

### Section Overview

Several natural and human-caused hazards affect Region 11, as noted in [Section 2.1](#). This section contains a profile of each hazard considered by this plan, which provides details on how the hazard impacts the area. Within each profile, research and historical data informs the following elements:

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

The beginning of each profile displays a table that contains a definition of the hazard, possible hazard warning time, a summary of the risk assessment as calculated in the profile, and the 2013 West Virginia Hazard Mitigation Plan risk assessment determination for that hazard.

## 2.2.1 ACTS OF VIOLENCE

"An intentional use of force or power, against oneself, another person, or against a group or community, which either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation" (WHO).			
<i>Period of Occurrence</i>	<i>Warning Time</i>	<i>Region 11 Risk Assessment</i>	<i>State Risk Assessment</i>
At any time throughout the year	None / Days / Weeks	MODERATE	Not ranked

With the increase in violence countrywide, it is necessary to analyze the potential impacts different acts of violence could have in Brooke and Hancock County. For the purposes of this analysis, acts of violence are not considered to be routine law enforcement activities, robbery, homicides, kidnapping, sexual assault, or domestic disputes. Acts of violence considered include the following topics.

- **Active Assailants:** Attacks with weapons, including plots of attacks located at, but not limited to schools, work places, shopping plazas, industrial facilities, infrastructure, and government buildings.
- **Civil Disturbance:** Including but not limited to protests relating to environmental issues due to heavy industry, politics, race, religion, etc.
- **Drug and Gang-Related Violence:** Increase in consumption translate directly or indirectly to increase in violence and criminal activity.
- **Terrorism/Bioterrorism:** To include active groups in West Virginia, Pennsylvania and Ohio.

Human activity is difficult, if not impossible to predict. An active assailant can be described as, "an individual actively engaged in killing or attempting to kill people in a confined and populated area. In most cases, active assailants use firearms and there is no method to their selection of victims. Active assailant situations are unpredictable and evolve quickly" (Washoe County Sheriff's Department, n.d.).

The region is home to a great deal of industry, which could lead to various types of demonstrations, protests, sabotage, etc. Other local events, such as sporting events, could lead to smaller-scale disturbances.

Both Brooke and Hancock Counties are within the Appalachia High Intensity Drug Trafficking Areas (HIDTA). According to the 2015 AHIDTA report, in most recent years, prescription drugs, methamphetamine and heroin have had significant impact in the area;



## POSSIBLE CAUSES

There is no single cause of acts of violence; it is typically a non-rational, complicated, intertwined, series of reasons that have the outcome of violence. In his article *Causes of Terrorism*, Nick Grothaus lays out the most common causes cited by leaders in the field of counterterrorism. These categories may apply to other types of violence not related to terrorism.

- **Ethno-Nationalism:** The desire of a population to break away from a government or ruling power and create a state of their own.
- **Alienation/Discrimination:** Individuals or groups face discrimination leading to further feelings of isolation. These people may become jaded towards society and feel excluded.
- **Religion:** Religion as a part of terrorism has been mainly attributed to Islamic fundamentalism although other religions have also had involvement in terrorist activities. For example, Christian Fundamentalists target abortion clinics, the Aryan Nation and the Church of Christ, Christians target the Jews and minorities (Post, 2007, pp. 211-212).
- **Socio-Economic Status:** Individuals and groups may be driven by a sense of relative deprivation and lack of upward mobility within society.
- **Political Grievances:** A lack of political inclusiveness or grievances against a certain political order may cause individuals to join or create terrorist groups.

## LOCATION AND EXTENT

Potential locations of acts of violence include schools, government buildings, shopping plazas, businesses, and infrastructure. Brooke and Hancock Counties have events such as festivals, county fairs, concerts, etc., assets, and facilities that could lead to potential acts of violence.

Due to the proximity of both counties to large cities with drug trafficking, gang activities, and reports of terrorist camps, among other considerations, the entire geographical areas of Brooke and Hancock Counties are determined to be at risk for acts of violence. Of particular concern are the areas surrounding Route 22 that connect Pennsylvania to Ohio through Weirton in West Virginia, Route 30 passing through Chester, and Route 2 that runs along the entire western border of West Virginia, since these are the



routes that allow drug transportation between one state and another.

## HISTORICAL OCURRENCES

### **September 25, 2009**

Police arrested two people, a student and his mother, in relation to threatening text messages received by various students at Weirton High School (WHSV 3ABC, 2009).

### **December 30, 2016**

A man was charged with threatening to commit a terrorist act after he made threats toward a school and its employees in Hancock County citing that he could “get away with it because he is bi-polar” and could say he forgot to take his medication. The man was upset because a bus driver did not drop his child off at his house (Black, 2016).

### **December 17, 2015**

In Harrisburg, PA, a 19 year old was arrested for trying to help ISIS. Investigators discovered several items in his possession leading them to believe he was planning an attack. The teenager used social media to advocate violence and disseminate ISIS propaganda (CBS Pittsburgh, 2015).

The occurrence of this event indicates that there have been activities reported in Pennsylvania that are connected with terrorism. If this type of activity can be located in a small city like Harrisburg, the probability exists that the same type or similar activity can be found in a larger city such as Pittsburgh. Pittsburgh is approximately 30 miles from the center of Weirton.

## IMPACTS AND SOCIAL VULNERABILITY

Social vulnerability from acts of violence depends on what individual, group of people or organization is perpetrating the crime and who it is against as well as what the motivation is. It is impossible to predict who will target someone at any given time, for this reason it is assumed that all people are equally at risk to an act of violence; even if they are not the intended target, they may be bystanders that come in contact with the violent event.

In the case of bioterrorism, there are some specific agents that have been identified as possible methods of infection: anthrax, botulism, plague, smallpox, tularemia, and viral hemorrhagic fever. Each one of these has specific effects on the body.

When the form of attack is an explosive, the main injuries are caused by barotraumas, which are damage resulting from dramatic pressure change, and blast injuries,

to include damage to hollow organs such as the ears, eyes, lungs, gastrointestinal tract, blunt trauma injuries, fractures, burns, crush injuries and respiratory problems (Clements, 2009, pp.66-69). If chemical agents are used as a weapon, these may have different effects depending on the type. For information on hazardous materials health effects, see section [2.2.7 Hazmat](#).

During active assailant events, the injuries involved can be directly caused by a variety of weapons such as rifles, pistols, axes, or knives; indirectly injuries resulting from falls or fighting may also be present. Any act of violence, regardless of the cause, has the potential to cause mental distress, anxiety, panic attacks, and post-traumatic stress at varying degrees of intensity and for varying amounts of time in each individual directly or indirectly affected by the attack.

#### LOSS AND DAMAGES

An estimation of loss and damages is not calculated for acts of violence because there has been no significant event relating to this hazard in the planning area. In addition, acts of violence, no matter what type, are random, unpredictable acts that cannot be financially estimated.

#### PROBABILITY AND SEVERITY CALCULATION

Instances of acts of violence can include such a wide variety of events that it is impossible to calculate the amount of incidents that have occurred with any accuracy and assign probability based on historical data alone. However, given that there have been some instances of violence in the region, the probability is determined as “remote”.

**PROBABILITY: REMOTE**

Although the impacts of acts of violence have been marginal or even negligible in the past, the possible severity of acts of violence can be “catastrophic” for the region, depending on the incident.

**SEVERITY: CATASTROPHIC**

Given the “remote” probability of an event, combined with its potential “catastrophic” effects, acts of violence are a “moderate” risk to region 11, according to the risk assessment matrix.

**RISK: MODERATE**

## RISK MAP

No risk map is calculated for this hazard due to the highly unpredictable nature of any type of acts of violence.

## 2.2.2 DAM FAILURE

"The sudden breach of a river water containment wall, known as a dam, which results in a sudden and uncontrolled downstream rush of water and debris." (Haddow, Bullock, & Coppola, 2014, pg.389).			
<i>Period of Occurrence</i>	<i>Warning Time</i>	<i>Region 11 Risk Assessment</i>	<i>State Risk Assessment</i>
At any time throughout the year	Weeks / Days / Months	MODERATE	N/A

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

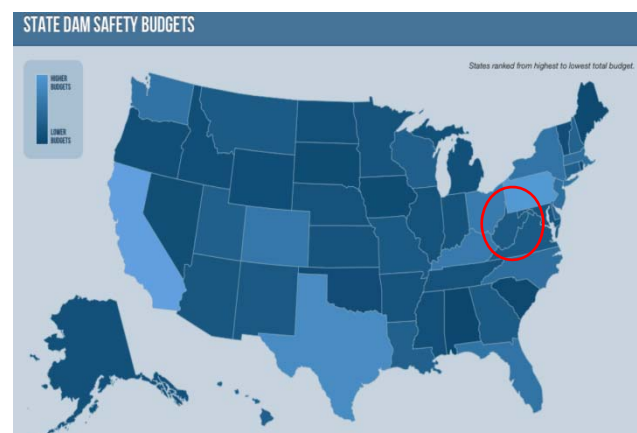
The WVDEP classifies dams into four categories, including the following:

- **Class 1 (High Hazard):** Dams located where failure may cause loss of human life or major damage to dwellings, commercial or industrial buildings, main railroads, important public utilities, or where a high risk highway may be affected or damaged. All Class 1 - High Hazard dams must have an Emergency Action Plan as required by the West Virginia Department of Environmental Protection (2016).
- **Class 2 (Significant Hazard):** Dams located where failure may cause minor damage to dwellings, commercial or industrial buildings, important public utilities, main railroads, or cause major damage to unoccupied buildings, or where a low risk highway may be affected or damaged. Loss of human life from a failure of a Class 2 dam is unlikely.
- **Class 3 (Low Hazard):** Dams located in rural or agricultural areas where failure may cause minor damage to non-residential and normally unoccupied buildings, or rural or agricultural land. Failure of a Class 3 dam would cause only a loss of the dam itself and a loss of property use, such as use of related roads, with little additional damage to adjacent property.
- **Class 4 (Negligible Hazard):** Dams where failure is expected to have no potential for loss of human life, no potential for property damage, and no potential for significant harm to the environment.

Dams are used for a variety of purposes (recreation, flood control, water storage, irrigation, mine tailings, electrical generation, debris control or navigation); in Region 11, the 14 dams are used for one of the following, as described by FEMA.

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

The average age of dams in the U.S. is 52 years old. In Brooke and Hancock Counties the average is 48 based on data available from the NPD and the National Inventory of Dams (NID). According to the *2013 Report Card for America's Infrastructure*, the number of high-hazard dams in the country is beginning to rise due to aging infrastructure and gives an overall average score of dams in the country a "D". However, the state of West Virginia has a higher percentage of dams with an emergency action plan (EAP), ranked at number 18 nationwide with 91%, and is also ranked in the higher percentage of the states for the amount of budget dedicated to dam safety, ranked at number 20 with an average budget of \$625k (ASCE, 2013). The top map above shows states in lighter blue having a higher percentage of EAPs. In the map below, the states with lighter blue indicate states that have higher dam safety budgets.



## POSSIBLE CAUSES

Dam failure is often the result of prolonged rainfall or flooding or, during prolonged dry periods, erosion. The primary hazard surrounding dam failure is the swift and unpredictable flooding of areas immediately downstream. According to the Association of State Dam Safety Officials (ASDSO), most dam failures fall into one of three categories: structural failures, mechanical failures and hydraulic failures.

- **Structural Failures:** Foundation or piping defects, including settlement and slope instability or damaged cause by earthquakes, have caused about 30% of all U.S. dam failures.
- **Mechanical Failures:** Malfunctioning gates, conduits or valves can cause dam failure or flooding both upstream and downstream.
- **Hydraulic Failures:** Overtopping of a dam is often a precursor of dam failure. National statistics show that overtopping due to inadequate spillway design, debris blockage of spillways or settlement of the dam crest account for approximately 34% of all U.S. dam failures (2012, p.8).

Dam failures generally result from a complex interrelationship of several failure modes. Uncontrolled seepage may weaken the soil 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.

## LOCATION AND EXTENT

The National Performance of Dams Program (NPDP) from Stanford University maintains a database of dams in the United States and identifies 12 dams within the borders of Region 11; nine of those are classified as Class 1 or High Hazard dams, two are classified as Class 2 or Significant Hazard, and one is unknown. The National Inventory of Dams (NID) identifies Harmon Creek Dam #6 as being in Brooke County but has no location data available for the dam; the NPDP does not recognize this dam. For this reason, it is omitted from the list. Although physically located just across the state line in Pennsylvania, Little Blue Run Dam, classified as High Hazard, could affect the north easternmost part of Hancock County near the Ohio River should it fail. For this reason it is included in the following list of dams in Region 11.

Dams may have a long period of warning time before they fail when it is related to erosion or maintenance issues because inspections should be carried out regularly. There may be less warning time when a failure is due to heavy rain that could overtop the structure and cause problems downstream. This means that dam failure could happen at any time throughout the year and is not confined to any one season or period of time.

The dams in the region, although of high or significant hazard, are located in areas of low population that are mostly wooded areas.

TABLE 2.6 DAMS IN REGION 11							
<i>Dam Name</i>	<i>Owner</i>	<i>Purpose</i>	<i>Height</i>	<i>Hazard</i>	<i>City</i>	<i>County</i>	<i>Built</i>
Burek Farm Pond	Joe Burek	Recreation	34	Unknown	Short Creek	Brooke	1988
Castleman's Run Lake No. 1	WVDNR	Recreation	34	High	Bethany	Brooke	1961
Cherry Lake Dam	Paul Settle	Recreation	21	High	New Cumberland	Hancock	1972
Harmon Creek No. 1 Dam (Sappington Run)	City of Weirton	Flood Control	84	High	Weirton	Brooke	1974
Harmon Creek No. 2 Dam	City of Weirton	Flood Control	71	High	Weirton	Brooke	1973
Harmon Creek No. 3 Dam (Mechling Run)	City of Weirton	Flood Control	77	High	Colliers	Brooke	1970
Harmon Creek No. 4 Dam (Mechling Run)	City of Weirton	Flood Control	64	High	Colliers	Brooke	1970
Harmon Creek No. 13 Dam	City of Weirton	Flood Control	72	High	Colliers	Brooke	1973
Harmon Creek No. 14 Dam (a.k.a. Alexanders Run)	City of Weirton	Flood Control	76	High	Weirton	Brooke	1968
New Cumberland Locks and Dam (New Cumberland Pool)	CELRP	Navigation	64	High	New Cumberland	Hancock	1963
Tomlinson Lake Dam (Tomlinson Run Dam)	WVDNR	Recreation	38	Significant	New Manchester	Hancock	1936
Woodland Lake Dam	D. Dawson	Recreation	34	Significant	Gas Valley	Hancock	1969
Little Blue Lake Dam*	First Energy Generation, LLC	Tailings	122	High	Greene, PA	Beaver	1977

\* Dam located outside Region 11 boundaries but failure effects within range of Hancock County.

*SOURCES: National Inventory of Dams (NID) by US Army Corps of Engineers  
Stanford University National Performance of Dams Program*

## HISTORICAL OCCURRENCES

The Stanford National Performance of Dams Program (NPDP) tracks dam incidents

that occur around the world and collects data related to these incidents. According to the NPDP there have been no incidents within Brooke or Hancock Counties or any other dam outside the jurisdiction that would affect the region. However, dam failures have occurred in West Virginia and in the surrounding states. Two of the closest, most notable dam failures near Region 11 are described herein.

### **February 26, 1972**

The failure of the Buffalo Creek Valley coal-waste impoundment failed and killed 125 people and caused more than \$400M in damages as it flooded the area. It also destroyed over 500 homes. (Damsafety.org, n.d.). The photo to the right illustrates some of the damages caused by the dam failure near the town of Lorado, in Logan County, WV. This



is an example of what could happen in a West Virginia community if a dam were to fail in the region.

### **June 14, 2004**

The Simmons Dam in Washington County, PA overtopped after heavy rains. Some inhabitants voluntarily evacuated the area and there were no significant damages caused. The DEP ordered the dam owner to drain the lake and obtain necessary permits for the dam improvements. This dam failure occurred in a neighboring counties.

## **IMPACTS AND SOCIAL VULNERABILITY**

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



## LOSS AND DAMAGES

There have been no losses of life or property in Brooke or Hancock Counties since there has never been a dam failure event in the region. However, this does not mean that there will never be any losses due to this type of event.

“Dam safety risk assessment is like a stool that stands on three legs. These legs quantify the likelihood that various initiating events (hydrologic, seismic, structural/internal, mechanical, or human error) will occur; the likelihood that the dam would fail given these initiating events; and the likelihood that, given a failure, the resulting flood wave would result in various levels of damage. The meaningful quantification of risk depends on credible estimates of the damages that would result from each significant failure scenario. Loss of human life is generally accepted as the most important consequence so it often dominates dam-safety decisions. Unfortunately, the confidence with which life loss can currently be estimated is low. This high level of uncertainty applies to both statistical confidence limits and to expert opinion. As such, this single limitation is a critical hindrance to the credibility and value of dam-safety risk assessment results. Indeed, some would like to push the stool over on its weak leg and abandon probabilistic risk assessment altogether” (USACE, 2002).

## PROBABILITY AND SEVERITY CALCULATION

Based on the absence of events that have occurred in the area, the probability of a dam failure event is low, but not impossible; something that has not happened yet does not mean that it will never happen. Because there have been no occurrences of dam failure in the region, it is impossible to calculate the probability of it happening in any given year based on historical events. However, even though there have been no occurrences in the past, the risk of a failure is still present due to the fact that there are dams in the area, therefore the probability of a dam failure is assigned as “improbable”.

**PROBABILITY: IMPROBABLE**

The severity of a failure can vary from one dam to another and cause varying amounts of damages. However, the majority of dams, although designated as high hazard, may not affect large amounts of population but may cause structural damage. Because of the majority designation of high hazard, the severity is determined to be “critical”.

**SEVERITY: CRITICAL**

With a probability determination of “improbable” and given the “critical” severity of the hazard, the risk assessment matrix gives dam failures a “moderate” risk to the region.

**RISK: MODERATE**

**RISK MAP**

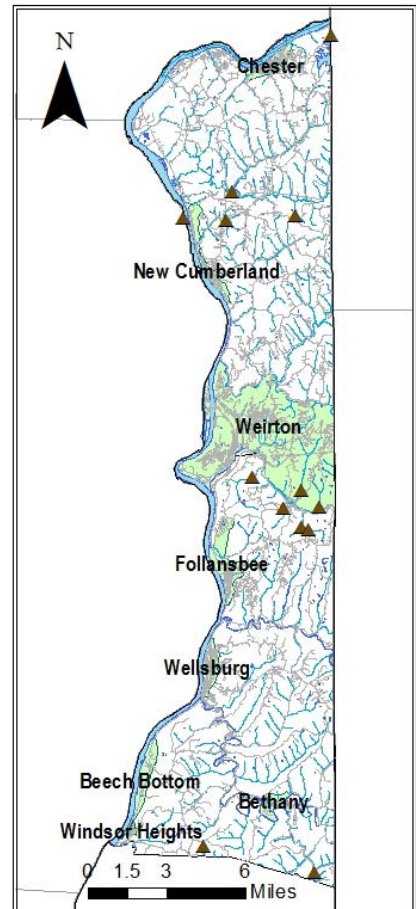
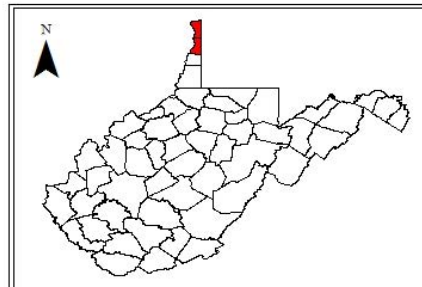
The map to the right shows the locations of the twelve dams that affect Region 11. Following this map are closer views of each dam showing the possible flooding that could be caused by failure. These are organized in alphabetical order. There is no map of the New Cumberland Locks and Dam because even if it failed, it would not cause any significant rise in the river level

**REGION 11  
DAMS**

**Legend**

**SymbolID**

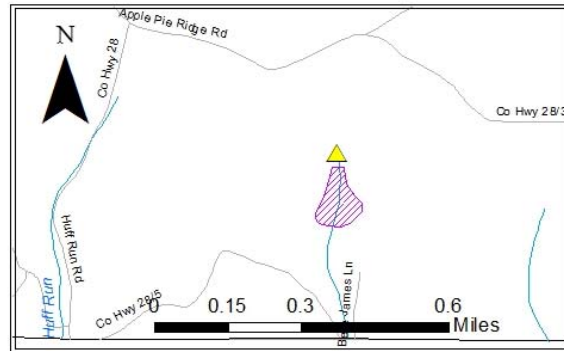
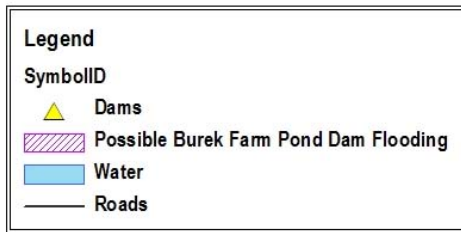
- ▲ Dams
- Water
- Roads
- Municipalities



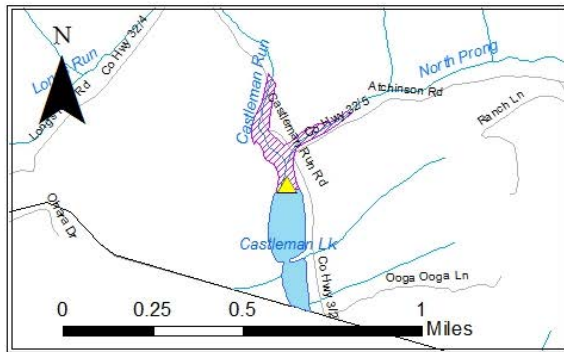
because it is a navigational dam, not a flood control dam. The maps show the dam location, the lake, stream or creek on which they are located and surrounding roads. In some cases where the dams are close to the 100-year floodplain, it is shown.

These renderings are not intended to be utilized for engineering purposes but rather general mitigation planning purposes. The failure was calculated using a combination of available data and analysis of topography; each dam’s emergency operations plan (EOP) maintained by the owner should contain exact failure specifications and outcomes.

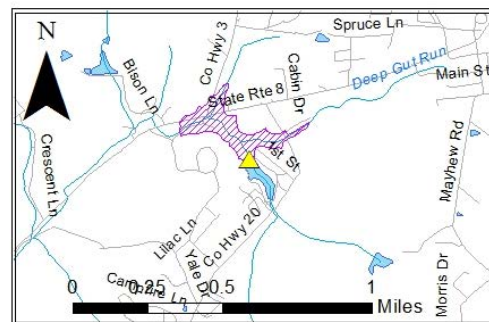
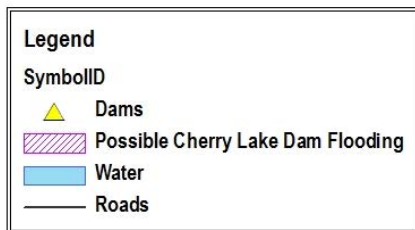
## BUREK FARM POND DAM FAILURE



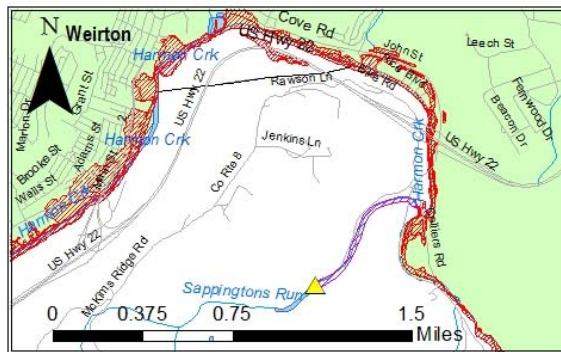
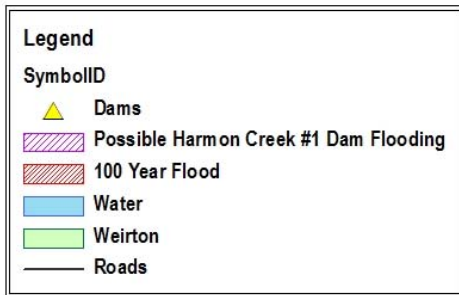
## CASTLEMAN'S RUN LAKE DAM FAILURE



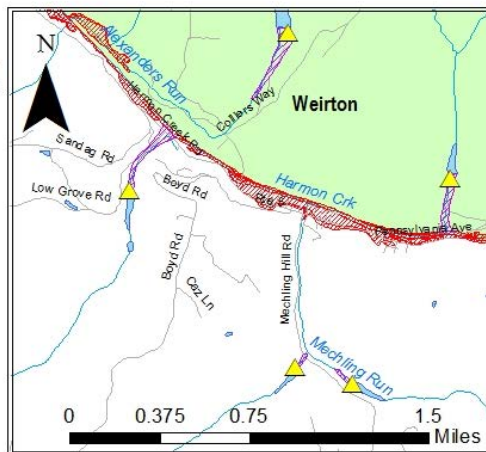
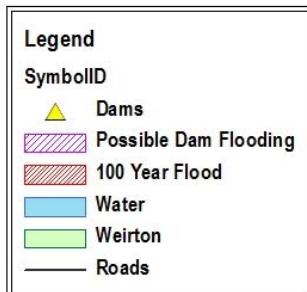
## CHERRY LAKE DAM FAILURE



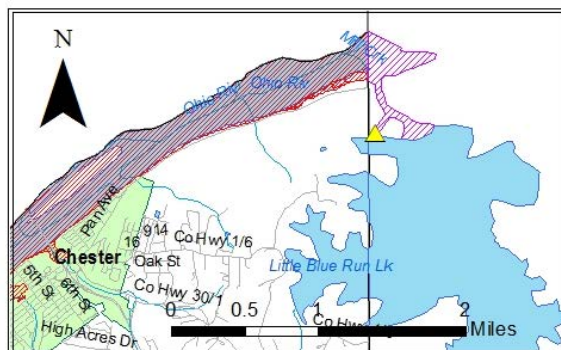
## HARMON CREEK #1 DAM FAILURE



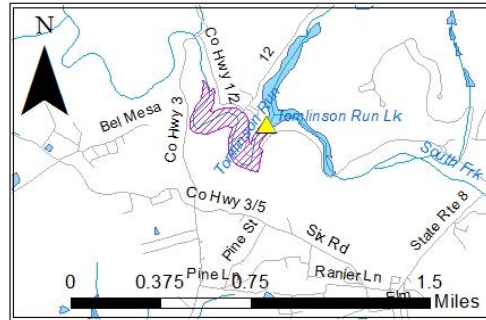
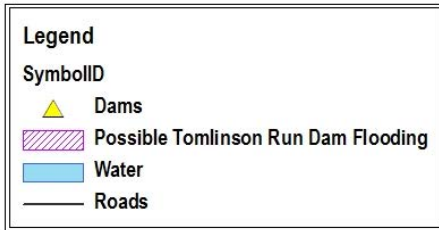
## HARMON CREEK #2, #3, #4, #13, & #14 DAM FAILURE



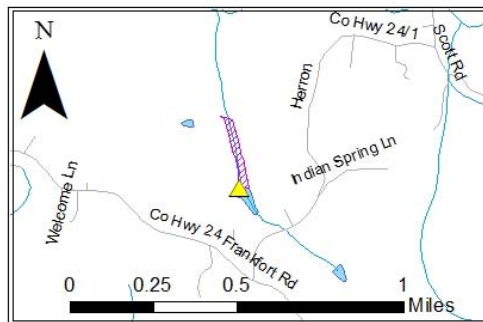
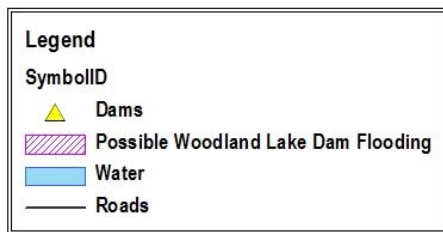
## LITTLE BLUE RUN LAKE DAM FAILURE



## TOMLINSON RUN DAM FAILURE



## WOODLAND LAKE DAM FAILURE














### 2.2.3 DROUGHT

"Extended period of unusually low precipitation that produces a temporary shortage of water for people, animals, and plants (Keller & DeVecchio, 2015).			
<i>Period of Occurrence</i>	<i>Warning Time</i>	<i>Region 11 Risk Assessment</i>	<i>State Risk Assessment</i>
Summer months or periods of low precipitation	Weeks / Months	LOW	LOW

A drought, according to the National Center for Environmental Information (NCEI), is a complex event that is difficult to monitor or define. It is a "prolonged dry period in natural climate cycle. It is a slow-onset phenomenon caused by rainfall deficit combined with other predisposing factors. They are often predictable" (WHO).

The most prevalent method of measuring drought severity in the United States is the Palmer Drought Severity Index (PDSI) developed in 1965. The index takes a number of factors into account to assign a score between -4 (extremely dry) and +4 (extremely wet), with 0 being the "normal" value (Palmer, 1965). Palmer drought values typically reflect long term drought, but can be calculated both monthly and weekly. The PDSI is shown graphically to the right.

	< -4.0	Extreme drought
	-3.99 to -3.0	Severe drought
	-2.99 to -2.0	Moderate drought
	-1.99 to -1.0	Mild drought
	-0.99 to -0.5	Incipient drought
	-0.49 to 0.49	Near normal
	0.50 to 0.99	Incipient moist spell
	1.0 to 1.99	Moist spell
	2.0 to 2.99	Unusual moist spell
	3.0 to 3.99	Very moist spell
	> 4.0	Extreme moist spell

Drought conditions are not the same everywhere. To know what drought conditions for the area are, it is necessary to know the normal precipitation amount and average climate of the region. The NCEI provides average "normal" of precipitation; the closest city to the Region 11 area with recorded information is Wheeling, WV. In Wheeling, the average annual precipitation between the years of 1981 and 2010 is of 3.36 inches of rain.

### POSSIBLE CAUSES

Precipitation in the form of rain or snow falls in uneven patterns across the country. The amount of precipitation at a particular location varies from year to year, but over a

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

There are four types of droughts, increasing in severity level: meteorological drought, hydrological drought, agricultural drought, and socioeconomic drought.

- **Meteorological Drought:** Dry weather patterns dominating an area.
- **Hydrological Drought:** Usually after several months of meteorological drought, when low water supplies become noticeable (i.e. low water levels in streams and reservoirs).
- **Agricultural Drought:** When crops become affected by the drought conditions.
- **Socioeconomic Drought:** Relates the supply and demand of various commodities to drought.

## LOCATION AND EXTENT

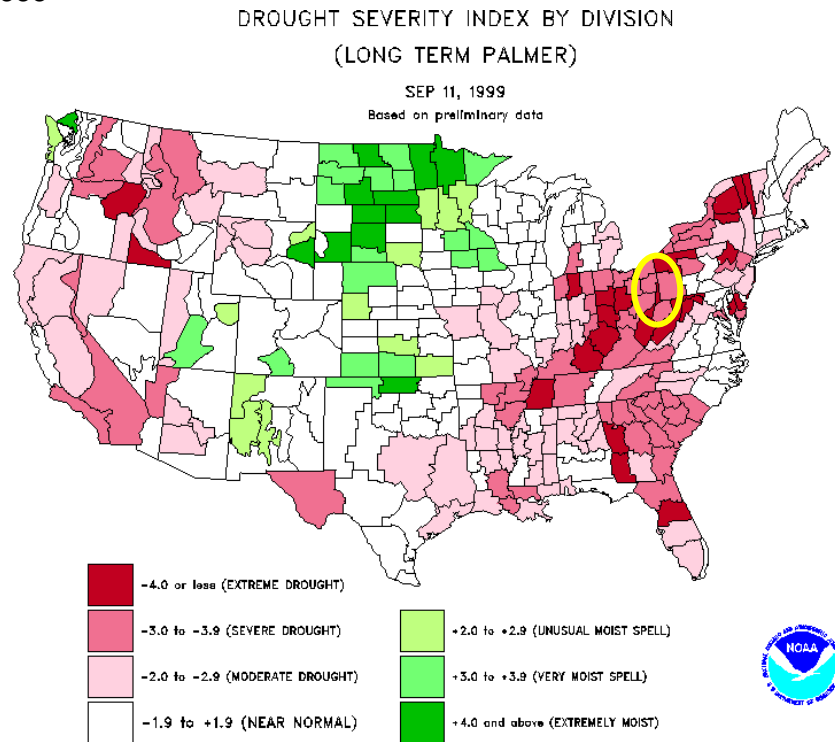
Both Brooke and Hancock Counties have experienced droughts that affected the entire region in the past. Generally, the extent of drought conditions would encompass an entire county, as well as neighboring counties. This hazard is a region-wide hazard that can affect all areas and jurisdictions within the region. Droughts are widespread events that may extend to several states in varying degrees of severity. In Brooke and Hancock Counties, the extent of a drought would be equal given the region's geography and environmental qualities.

A drought can vary in severity throughout the year; what starts out as a mild drought can reach severe or extreme drought status and then return to a mild drought. This process could take weeks or even months and the effects could be felt even months after the drought conditions are over.

## HISTORICAL OCCURRENCES

### August and September, 1999

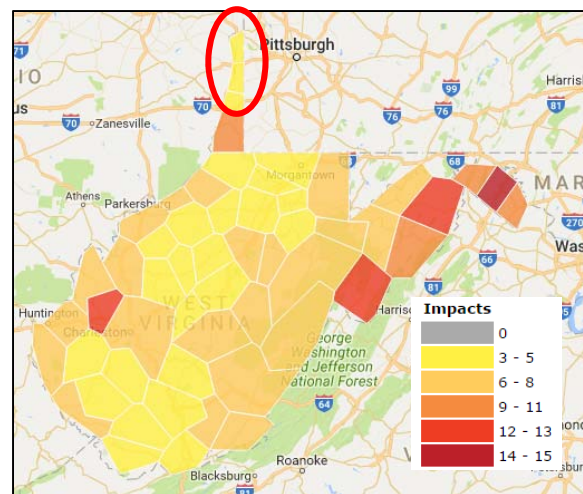
The NOAA National Centers for Environmental Information (NCEI) Storm Events Database records one drought event in both Brooke and Hancock Counties lasting the months of August and September of 1999, but no disaster declarations were issued. Dry conditions began in July of the previous year and continued across



Northern West Virginia. Rainfall deficits in August and September averaged between 15% and 25% below normal conditions and for the previous year ranged from 10% to 20% below normal. Roughly, this translates to around two to six inches of rain.

The image above illustrates the NOAA record dated for the week of September 11, 1999, during the drought. As shown in the blue circle on the map, the Northern Panhandle of West Virginia is tinted red indicating Extreme Drought measuring -4.0 or less.

Since 2007, the latest year of record available on the National Drought Mitigation Center's Drought Impact Reporter, there have been between three and five droughts in Brooke and Hancock Counties as shown in the map to the right. Information was gathered from sources such as the U.S. Drought Monitor Map Archive as well as from the National Weather Service's (NWS) Climate Prediction Center. The data analyzed from these sources had some minor discrepancies about dates of reports indicating the





highest drought conditions in the area. However, they do correspond in year and season. The U.S. Drought Monitor Map Archive shows “abnormally dry” conditions for Brook and Hancock Counties for June to August of 2007, October of 2008 to January of 2009, sporadically from March to November of 2009, on and off from April to November of 2010, June through October of 2012, August to October of 2015, and July and August of 2016 with “moderate drought” conditions in June of 2007 and July of 2012. Data from the NWS Climate Prediction Center indicates “severe drought” conditions for September of 2007, August and September of 2012, and September of 2015. Both sources are consistent in identifying years of drought to be in the summer months of 2007, 2012 and 2015.

As mentioned previously, amount of precipitation and the variants it has can play a role in determining drought conditions. For the drought year of 1999, the average precipitation was a -2.94 departure from the mean of 0.05 and in 2007 it was -1.08. However, according to data from NCEI, the years previously determined to be years of abnormal dryness only have -0.02 departure from the mean in 2012 and in 2015 the average was 0.82 above the mean.

## IMPACTS AND SOCIAL VULNERABILITY

Droughts can impact drinking water both in terms of availability and demand. According to the U.S. Environmental Protection Agency (EPA), as temperatures rise, people and animals need more water to maintain health. Additionally, a large number of economic activities require abundant water sources such as energy production (hydroelectric and nuclear power generation, for example) and growing food crops. As droughts reduce available water sources, local officials will need to closely monitor water usage to maintain enough for critical uses.

## LOSS AND DAMAGES

Droughts mainly affect people, animals and crops rather than structures. The following table shows data from the U.S. Department of Agriculture’s (USDA) survey and inventory data for a few selected years. The year 1997 was chosen for setting a precedent for the drought year of 1999. Additionally, 2002, 2007 and 2012 are the National Agricultural Statistics Service (NASS) census years so data from those publications is included. Also included is available information for the years 2014, 2015 and 2016. The table shows how drought can affect crops and livestock. For example, in the years following the 1999 drought, there was a reduction in hay yield and heads of cattle for each county. As

evidenced in the historical occurrences, 2012 also had impacts in the following years regarding crop yield and amounts of heads of cattle.

TABLE 2.8 USDA SURVEY AND CENSUS INFORMATION (2002-2016)							
		# Farms	Change from previous year	Hay Yield (In Tons)	Change from previous year	Heads of cattle	Change from previous record year
Brooke County	1992	80	N/A	N/A	N/A	1,412	N/A
	1997	95	+15	N/A	N/A	1,840	+428
	1999	95*	N/C	2.0	N/A	2,000	+160
	2002	98	+3	1.97	-0.03	938	-1,072
	2007	104	+6	1.5	-0.47	1,961	+1023
	2012	96	-8	1.6	+0.1	2,054	+93
	2014	N/A	N/A	1.7	+0.1	1,900	-154
	2015	N/A	N/A	1.6	-0.1	1,800	-100
	2016	N/A	N/A	N/A	N/A	1,900	+100
Total Change			+16		-0.4		+478
		# Farms	Change from previous year	Hay Yield (In Tons)	Change from previous year	Heads of cattle	Change from previous record year
Hancock County	1992	75	N/A	N/A	N/A	952	N/A
	1997	64	-11	N/A	N/A	824	-128
	1999	64*	N/C	1.6	N/A	1,000	+176
	2002	81	+17	1.42	-0.18	394	-606
	2007	109	+28	1.22	-0.2	790	+396
	2012	96	-13	1.5	+0.28	662	-164
	2014	N/A	N/A	1.35	-0.15	600	-62
	2015	N/A	N/A	1.35	N/C	600	N/C
	2016	N/A	N/A	N/A	N/A	600	N/C
Total Change			+21		-0.25		-388
*Number of Farms is from 1997 Census, data not available for 1999. Survey Source: US Department of Agriculture National Agriculture Statistics Survey 1997, 2007, 2012, 2016						N/A - Not Available or Applicable N/C - No Change	

## PROBABILITY AND SEVERITY CALCULATION

Based on recorded events from the U.S. Drought Monitor Map Archive and the NWS since 2007, the earliest year that both sources have records, there have been 10 events of abnormally dry conditions. The latest year of record is 2016.

Number of events	10		
_____ = Probability		OR	_____ = 1.1
Number of years	9		

**PROBABILITY: OCCASIONAL**

The severity of the drought hazard in Region 11 is determined to be very low due to the lack of damage it causes to humans and structures.

**SEVERITY: NEGLIGIBLE**

With a value of 1.1 events in a given year, the probability of an event is determined to be “occasional” and given the “negligible” severity of the hazard, the risk assessment matrix gives this hazard a “low” risk to the region.

**RISK: LOW**

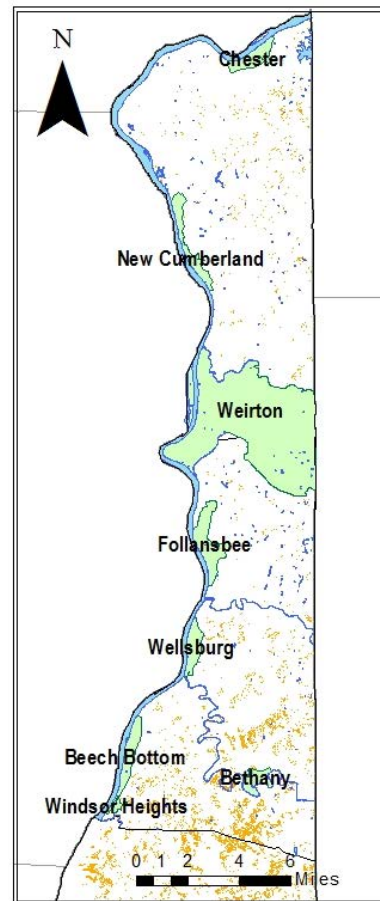
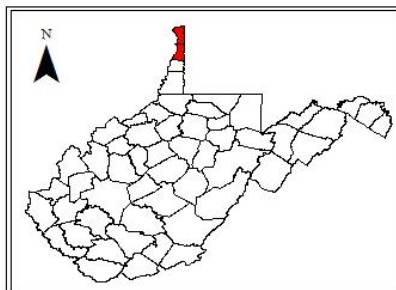
**RISK MAP**

Drought in Region 11 is most likely to occur in land covered with crops. According to the USDA, crops are located in orange areas shown on the map to the right; these places within the region would be most susceptible to drought conditions.

**REGION 11  
DROUGHT  
RISK MAP**

**Legend**

- Crops
- Municipalities
- Water



## 2.2.4 EARTHQUAKES

"Sudden, rapid shaking of the earth's crust cause by the breaking and shifting of tectonic plates beneath the earth's surface" (Haddow, Bullock, & Coppola, 2014, pg.34).			
<i>Period of Occurrence</i>	<i>Warning Time</i>	<i>Region 11 Risk Assessment</i>	<i>State Risk Assessment</i>
At any time throughout the year	None	LOW	LOW

An earthquake's sudden release of stored energy may manifest itself by the shaking or displacement of the ground. According to the U.S. Geological Society, based on historical trends, the frequency of an earthquake occurrence inversely relates to its magnitude. There are an estimated 1.3 million earthquakes every year with a magnitude between 2.0 and 2.9 while there is, on average, one magnitude 8.0 or higher earthquake annually.

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

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

Developed in 1935, the Richter scale measures the scale and severity of an earthquake. The magnitude of an earthquake can range between 0 and 10. The image to the right shows the Richter scale and what effects each magnitude can have. The effects of an earthquake can extend far beyond the site of its occurrence.

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

Peak ground acceleration (PGA) is "the

TABLE 2.9

Modified Mercalli Scale		Richter Magnitude Scale
I	Detected only by sensitive instruments	1.5
II	Felt by few persons at rest, especially on upper floors; delicately suspended objects may swing	2
III	Felt noticeably indoors, but not always recognized as earthquake; standing autos rock slightly, vibration like passing truck	2.5
IV	Felt indoors by many, outdoors by few, at night some may awaken; dishes, windows, doors disturbed; autos rock noticeably	3
V	Felt by most people; some breakage of dishes, windows, and plaster; disturbance of tall objects	3.5
VI	Felt by all, many frightened and run outdoors; falling plaster and chimneys, damage small	4
VII	Everybody runs outdoors; damage to buildings varies depending on quality of construction; noticed by drivers of autos	4.5
VIII	Panel walls thrown out of frames; fall of walls, monuments, chimneys; sand and mud ejected; drivers of autos disturbed	5
IX	Buildings shifted off foundations, cracked, thrown out of plumb; ground cracked; underground pipes broken	5.5
X	Most masonry and frame structures destroyed; ground cracked, rails bent, landslides	6
XI	Few structures remain standing; bridges destroyed, fissures in ground, pipes broken, landslides, rails bent	6.5
XII	Damage total; waves seen on ground surface, lines of sight and level distorted, objects thrown up in air	7

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

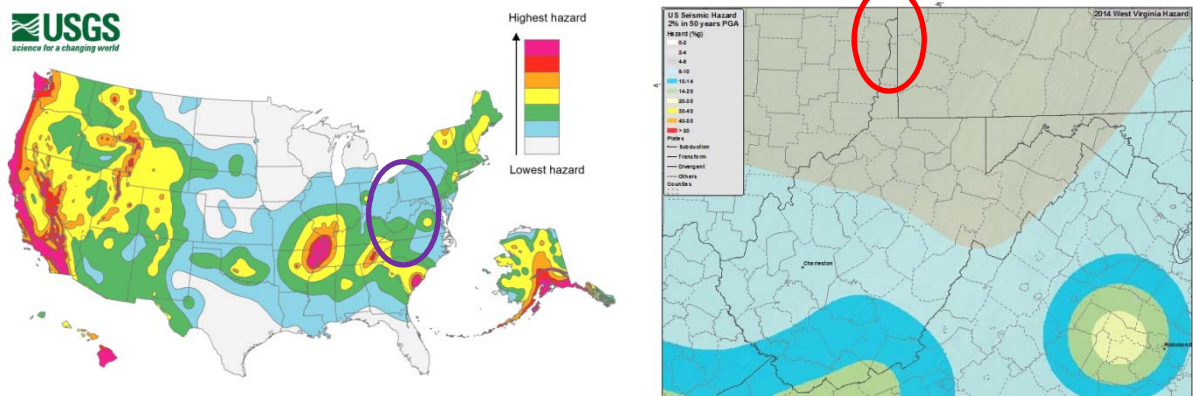
## POSSIBLE CAUSES

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

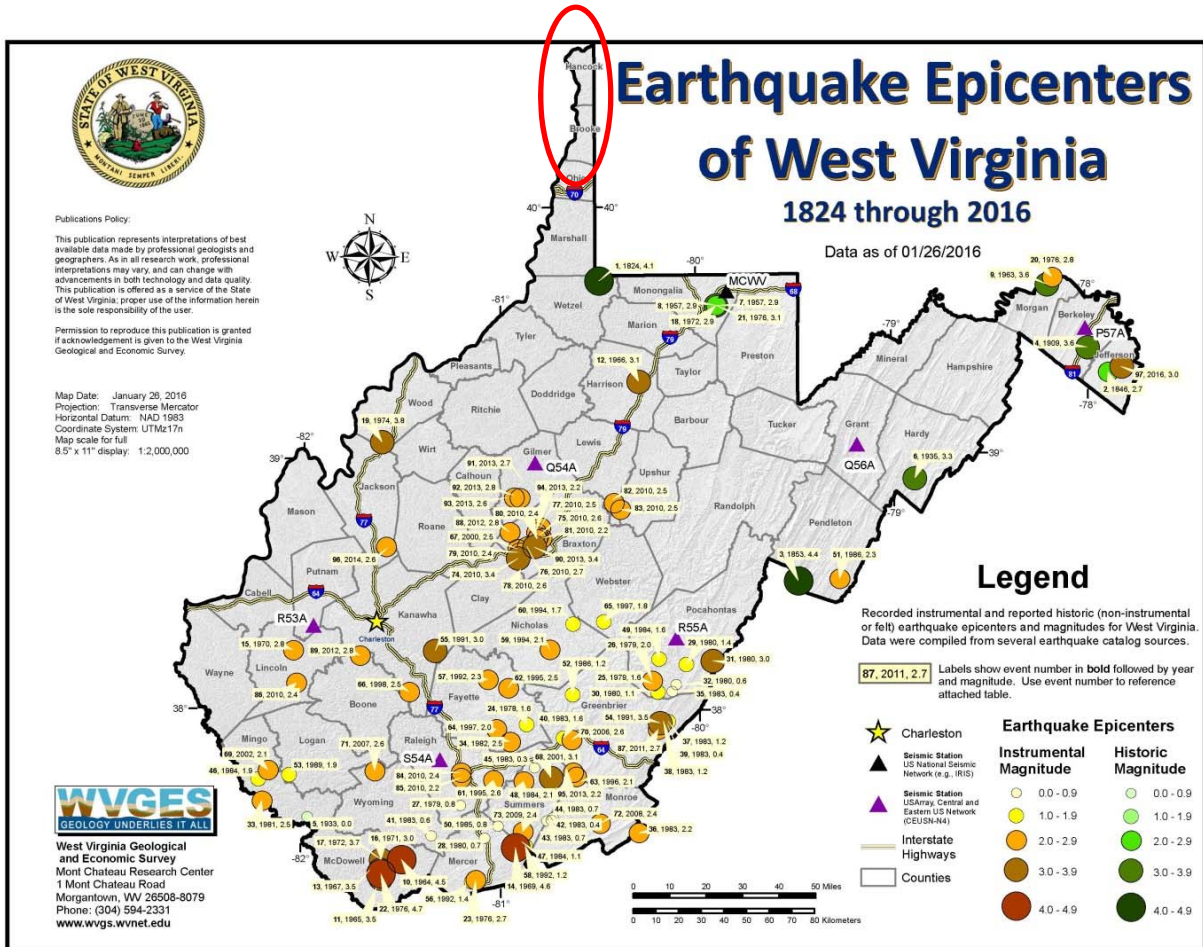
A common misconception is that hydraulic fracturing, or “fracking” is causing all of the induced earthquakes. In reality, fracking “is directly causing a small percentage of the felt-induced earthquakes observed in the United States...Most induced earthquakes in the United States are a result of the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

## LOCATION AND EXTENT

The United States has areas that are prone to earthquakes. The coasts of California, Oregon and Washington are more vulnerable to seismic activity due to the presence of the Ballenas, Brothers, and the San Andreas Faults on the west coast. Also of note is the New Madrid Seismic Zone located in Arkansas, Missouri, and Tennessee. On the east coast, there is the Eastern Tennessee Seismic Zone that stretches from Alabama to Virginia. These faults can be seen in the map below to the left, shown in red. To the left is a map of West Virginia showing how earthquake-prone the state is; Brooke and Hancock Counties fall under a very low percentage of earthquakes.



According to the West Virginia Geological and Economic Survey, there have been no earthquakes with epicenters originating in Brooke or Hancock Counties between 1824 and 2016. However, the state of West Virginia has had earthquake epicenters with a magnitude of no more than 4.0-4.9 on the Richter scale, generally located in the central and southern parts of the state.



Although no earthquake epicenters have originated in either Brooke or Hancock Counties, there is still possibility of feeling earthquakes and their effects. An earthquake that originates as far away as Canada can still have effects on the local region. For this reason, the possible extent of the damage can be determined to be countywide if an earthquake that is large enough reaches the area because the effects of earthquakes are not localized to one region.

### HISTORICAL OCCURRENCES

While earthquake epicenters have historically been nonexistent in Region 11, there

have been a few earthquakes that have been felt in the area since 1925 (NOAA). Of note are the following events.

**Wheeling, West Virginia**

March 1, 1925. 7.0 Magnitude, 2 MMI. This earthquake's epicenter originated in Saguenay, Quebec, Canada, a distance of 1,209 miles away and was felt in Wheeling, WV. No structural damage was caused by this earthquake in the area.

**Wheeling, West Virginia**

July 27, 1980. 5.1 Magnitude, 2 MMI. The epicenter was located in Sharpsburg, KY, 344 miles away and was registered in Wheeling, WV. No structural damage was caused by this earthquake in the area.

**Brooke and Hancock Counties**

August 23, 2011. 5.8 Magnitude, 7MMI. An earthquake felt along the East Coast all the way into Canada that originated in Louisa, VA was also felt in both Brooke and Hancock Counties. No structural damage was caused by this earthquake in the area.

**IMPACTS AND SOCIAL VULNERABILITY**

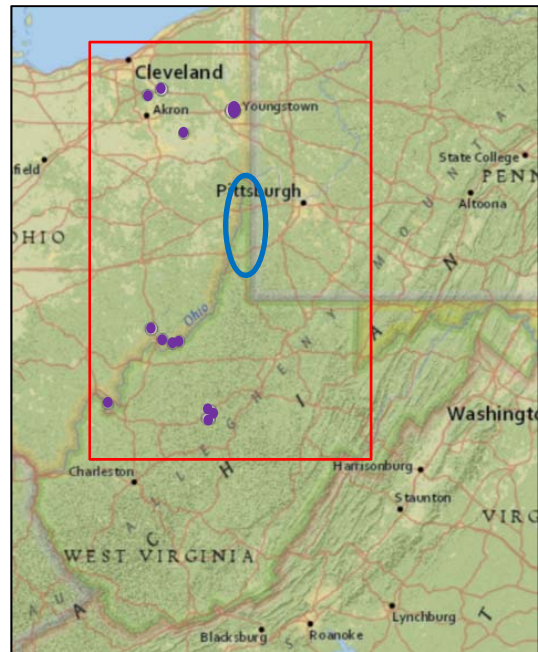
Earthquakes can affect people and structures alike, although older structures may be more susceptible to cracks and damage. "With most earthquakes, trauma caused by the collapse of buildings is the cause of most deaths and injuries. However, a surprisingly large number of patients require acute care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

## LOSS AND DAMAGES

The somewhat random historical occurrences of earthquakes would indicate that structures throughout both counties to roughly be equally at risk from earthquakes (some older structures may be more vulnerable due to age and type of construction). The severity of those earthquakes though, is expected to be very low. Officials in both counties estimated earthquake losses to be zero.

## PROBABILITY AND SEVERITY CALCULATION

Since 2000, there have been 12 earthquakes in the area surrounding Region 11. Information is based off of the USGS earthquakes mapping tool that focused on an area between Cleveland, OH and just north of Charleston, WV. The limit to the west is Huntington, WV and to the east is Oakland, MD. This area roughly encompasses 33,000 square miles around Region 11 which is shown in the red box on the map to the right; Region 11 is in the blue circle and the recorded earthquakes are identified with purple circles.



Number of events	12
Number of years	16
$\frac{12}{16} = \text{Probability} \quad \text{OR} \quad \frac{12}{16} = 0.75$	

### PROBABILITY: OCCASIONAL

The severity of the earthquake hazard in Region 11 is very low due to the low magnitude of the events and lack of damages from previously felt earthquakes in the region. Of the 12 earthquakes identified in this region, the highest magnitude reported was of 4.0 in the Youngstown-Akron urban area in Ohio in 2011, roughly 40 miles north of Region 11. The most number of earthquakes in one year was four in 2011 (USGS). All other earthquakes in



the area varied in magnitude from as low as 2.6. The years used to search the database were from 2000 to 2016.

**SEVERITY: NEGLIGIBLE**

With a value of 0.75 events in a given year, the probability of an event is determined to be “occasional” and given the “negligible” severity of the hazard, the risk assessment matrix gives this hazard a “low” risk to the region.

**RISK: LOW**

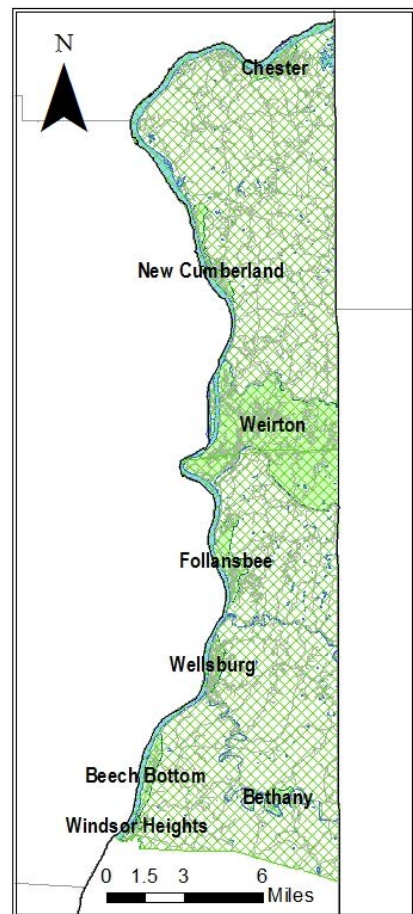
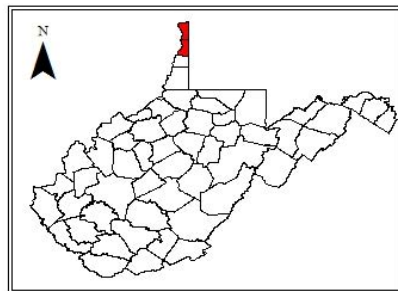
**RISK MAP**

Both counties in Region 11 are equally at low risk of earthquakes.

**REGION 11  
EARTHQUAKE  
RISK MAP**

**Legend**

- Low Earthquake Risk
- Roads
- Water
- Municipalities



## 2.2.5 EXTREME TEMPERATURES

“Major diversions in average seasonal temperatures. Extreme heat occurs when temperatures of ten or more degrees above the average high temperature persist across a geographic region for several days or weeks. There is no standard definition for extreme cold, but generally refers to periods of colder than normal conditions.”  
(Haddow, Bullock, & Coppola, 2014).

<i>Period of Occurrence</i>	<i>Warning Time</i>	<i>Region 11 Risk Assessment</i>	<i>State Risk Assessment</i>
Any season, but generally summer and winter months.	Hours / Days	MODERATE	N/A (Extreme Heat) Not Ranked (Extreme Cold)

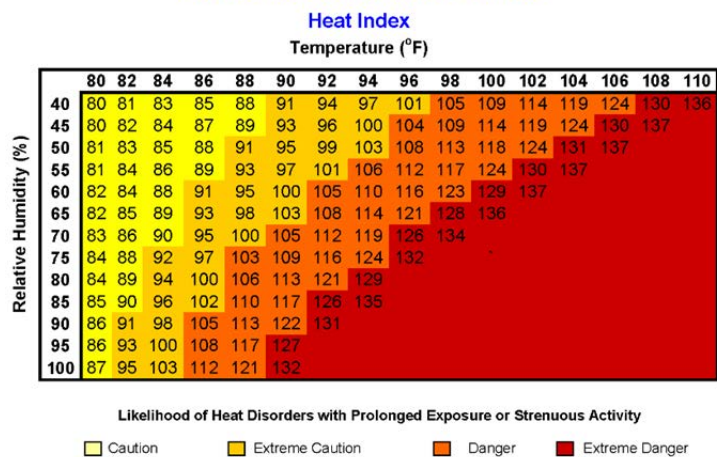
Temperatures vary widely over the course of a year, but each season has average temperature ranges associated with them. Summer and winter have, generally, the highest and lowest range of temperatures,

respectively. When the temperature is consistently greater than the normal in summer, meteorologists refer to it as a heat wave, which means, “temperatures of ten or more degrees above the average high temperature persist across the geographic region for several days

or weeks” (Haddow, Bullock, & Coppola, 2014, p.51). These conditions can be a contributor to drought conditions when combined with a lack of rainfall. Excessive heat has a history of being deadly. In the United States “more than 1,500 die from exposure to excessive heat” (Haddow, Bullock, & Coppola, 2014, p.52). These conditions can also have serious impacts on crops, causing below average harvests. Repeated years of extreme temperatures can easily cause significant economic impacts on agricultural industries.

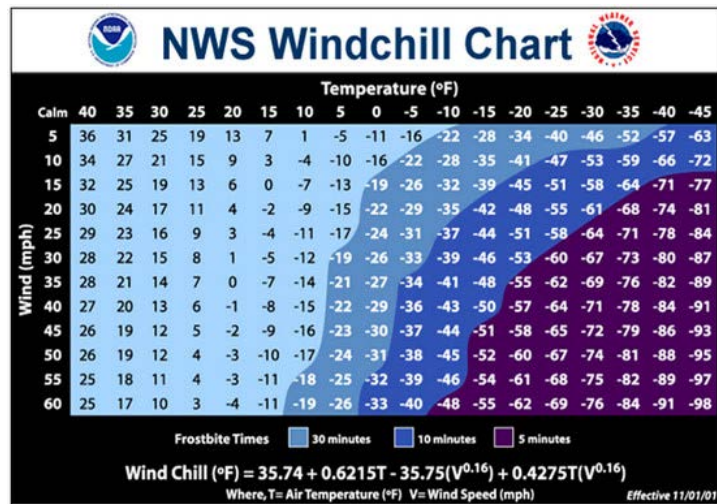
While there is no widely accepted definition of extremely cold temperatures, periods of colder than average conditions can cause an array of negative consequences depending on their duration (Haddow, Bullock, & Coppola, 2014, p.51). Extremely cold temperatures are immediately dangerous to both humans and livestock by causing frostbite and hypothermia, which can lead to permanent injury and death. The chart on the next page shows how quickly frostbite can occur at different temperatures and wind speeds. In unprotected structures cold temperatures can freeze water pipes causing them to burst

### NOAA's National Weather Service

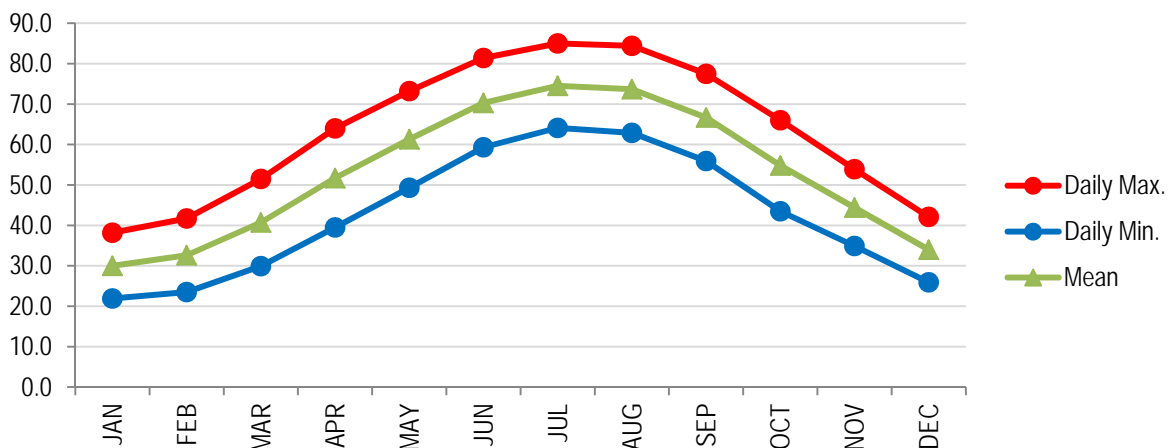


upon thawing, leading to significant damage. Cold snaps during typically warmer weather during the growing season can damage and destroy some crops, depending on their sensitivity to temperature.

To know what range of temperature is considered extreme for the region, it is necessary to know what the average temperatures are throughout any given year. The National Oceanic and Atmospheric Administration



(NOAA), through its National Environmental Satellite, Data, and Information Service, can generate reports of monthly normals at its different stations. The closest to the region is in Wheeling, WV. The following graphic shows average ranges of temperature from 1981 to 2010. Every month has a high, low average and mean temperature in degrees Fahrenheit. Extreme temperatures would be those either 10 degrees above or below the average high or low temperatures.



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

- **Cold/Wind Chill:** Period of low temperatures or wind chill temperatures reaching or exceeding locally/regionally defined advisory (typical value is -18° F or colder) conditions, on a widespread or localized basis. There can be situations where

advisory criteria are not met, but the combination of seasonably cold temperatures and low wind chill values (roughly 15° F below normal) may result in a fatality.

- **Extreme Cold/Wind Chill:** A period of extremely low temperatures or wind chill temperatures reaching or exceeding locally/regionally defined warning criteria (typical value around -35° F or colder), on a widespread or localized basis. Normally these conditions should cause significant human and/or economic impact.
- **Heat:** A period of heat resulting from the combination of high temperatures (above normal) and relative humidity. A heat event occurs whenever heat index values meet or exceed locally/regionally established advisory thresholds or a directly-related fatality occurs due to the heat event.
- **Excessive Heat:** Excessive heat results from a combination of high temperatures (well above normal) and high humidity. An excessive heat event occurs when heat index values meet or exceed locally/regionally established excessive heat warning thresholds, on a widespread or localized basis (National Weather Service Instruction 10-1605, 2007).

## POSSIBLE CAUSES

Weather patterns throughout the year naturally cause temperatures to rise and fall in the summer and winter months due to the inclination of the Earth towards the sun. However, the extreme temperatures that have been experienced in the last decade are attributable to climate change. See [Section 2.1.5 Hazards and Climate Change](#).

## LOCATION AND EXTENT

Extreme temperatures are a region wide hazard that can affect all geographic areas and jurisdictions of the counties at once. Extreme temperatures have the potential to last several days or even weeks and typically have sufficient warning time (a matter of days) for preparation.

## HISTORICAL OCCURRENCES

Since 2009, there have been seven recorded events of excessive temperature that have occurred in Region 11 per the NCEI. Excessive temperature events have a large extent by their nature. Generally, such an event will occur in all parts of Brooke and Hancock Counties as well as in neighboring counties and states.

The table to the right shows the breakdown of these events by the types defined above and recorded by the NCEI. Cold events are more prevalent than heat events based on the historical data. A total of eight cold temperature events have been recorded by NCEI. Although there is no data recorded for heat events, this does not mean that there have not been heat or excessive heat events.

Type	#
Cold/Wind Chill	1
Extreme Cold/Wind Chill	7
Heat	0
Excessive Heat	0
Total	8

**Brooke and Hancock County, WV**

From January 5 to 7 of 2014, extreme cold temperatures were registered in the region. “An arctic cold front crossed the Upper Ohio Valley on the 6<sup>th</sup>, bringing record low temperatures and extreme wind chills the morning of the 7<sup>th</sup>. It was the coldest January 7<sup>th</sup> on record in Pittsburgh with a low temperature of 9 below zero and a high temperature of 4 above zero. Across eastern Ohio, western Pennsylvania, northern West Virginia, and Garrett County, Maryland, low temperatures ranged from 5 to 15 degrees below zero on the morning of the 7<sup>th</sup>, with the lowest wind chill readings from 25 to 55 degrees below zero” according to data from the NCEI. However, no damages, injuries or fatalities were attributed to this event.

**Brooke County, WV**

Between February 14 and February 16, 2015, “an arctic cold front crossed eastern Ohio, western Pennsylvania, northern West Virginia and Garrett County, Maryland the afternoon of the 14<sup>th</sup>, with snow squalls reducing visibility below one quarter mile at times. Wind gusts over 40 mph occurred with the snow squalls, and thunder snow was reported. Behind the front from the morning of the 15<sup>th</sup> into the 16<sup>th</sup>, temperatures dropped below zero, with extreme wind chills; a wind chill of -24 was recorded the morning of the 15<sup>th</sup> near Bethany, with a low temperature of -8° on the morning of the 16<sup>th</sup>“(NCEI). No damages, injuries, or fatalities were reported to be caused by this event.

**IMPACTS AND SOCIAL VULNERABILITY**

The majority of the impacts of extreme temperatures affect the population’s health rather than damage buildings. Some of the effects extreme temperatures could have on structures are minor compared to other hazards. Effects on buildings and infrastructure could include broken pipes, cracks in roads or bridges due to expansion and contraction,

and power outages. In addition to impacts on health, extreme temperatures can also cause damages to transportation infrastructure, agriculture, energy, and water resources.

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

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

In Region 11, according to the 2016 U.S. Census, vulnerable people under the age of five and over 65 years constitute approximately 27% of the population, roughly one third of the total population in Brooke and Hancock Counties. More population could be at risk if the overall health factors continue to decline as described in section [2.1.6 Public Health and Social Vulnerability](#).

## LOSS AND DAMAGES

This region of the country has become accustomed to fluctuations in temperature that range from extreme heat to extreme cold throughout the year. Destruction of property and injury are typically not associated with these types of events; the NCEI reports a loss of \$0 for extreme temperature events, both heat and cold, since 2009. However, damages can be inflicted on properties if pipes freeze and burst.

## PROBABILITY AND SEVERITY CALCULATION

Based on recorded events from the National Center for Environmental Information, there have been eight events of extreme temperatures in Region 11 between 2009 and 2016.

Number of events	8
_____ = Probability	OR _____ = 1.14
Number of years	7

**PROBABILITY: PROBABLE**

The severity of the extreme temperature hazard in Region 11 is determined to be very low due to the lack of damage it causes to structures.

**SEVERITY: NEGLIGIBLE**

With a value of 1.14 events in a given year, the probability of an event is determined to be “probable” and given the “negligible” severity of the hazard, the risk assessment matrix gives this hazard a “moderate” risk to the region.





**RISK: MODERATE**

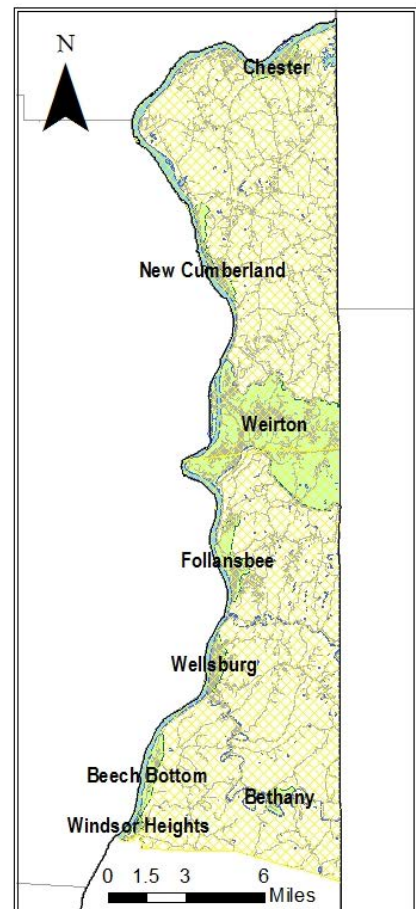
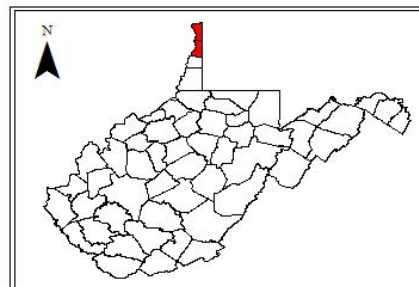
RISK MAP

Brooke and Hancock Counties are equally at moderate risk of extreme temperature occurrences throughout the year. This includes both hot and cold temperature extremes.

REGION 11  
EXTREME  
TEMPERATURE  
RISK MAP

**Legend**

-  Moderate Extreme Temperature Risk
-  Roads
-  Water
-  Municipalities



## 2.2.6 FLOOD

"An overabundance of water that engulfs land and other property that is normally dry" (Haddow, Bullock, & Coppola, 2014, p.32).			
<i>Period of Occurrence</i>	<i>Warning Time</i>	<i>Region 11 Risk Assessment</i>	<i>State Risk Assessment</i>
At any time throughout the year	Hours / Days	HIGH	HIGH

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

- **River Floods** typically develop over a period of days and occur when a river gradually rises and overflows its banks. These floods can be attributed to large amounts of rain or snowmelt both in the region impacted and upstream. Due to their nature of gradually building up, these types of floods will typically have a warning period of a few days.
- **Flash Floods** are the most common severe weather emergency in the United States according to the National Flood Insurance Program (NFIP) (2016). The NFIP also states that a flash flood is defined as, "a rapid flooding of low-lying areas in less than six hours, which is caused by intense rainfall from a thunderstorm or several thunderstorms" (2016).
- The third type of flooding is caused by **dam failures**, which are discussed in more detail in the "2.2.2 Dam Failure" section of this plan.

The NFIP is a governmental program administered through FEMA that, "aims to reduce impact on private and public structures... by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations" (FEMA). Each jurisdiction participating in the NFIP has a designated NFIP coordinator, sometimes referred to as the floodplain manager. This individual maintains the jurisdiction's floodplain ordinance and ensures that development is compliant with that ordinance. In Brooke and Hancock Counties, generally, all floodplain managers provide floodplain identification, floodplain management, and outreach. Each



local floodplain manager serves as the point of contact with FEMA regarding floodplain mapping. For more information on how each jurisdiction participates in the NFIP, refer to [Appendix 6 NFIP Surveys](#).

TABLE 2.11 COMMUNITIES PARTICIPATING IN THE NFIP						
CID	Jurisdiction	County	Initial FIRM Identified	Current Effective Map Date	Regular Emergency Date	Interested in CRS participation
540093	Beech Bottom	Brooke	4/19/2010	4/19/2010	4/26/2011	Undecided
540012	Bethany	Brooke	9/28/1979	04/19/2010 (M)	9/28/1979	Undecided
540011	Brooke County	Brooke	12/15/1983	4/19/2010	12/15/1983	Undecided
540048	Chester	Hancock	12/1/1982	4/19/2010	12/1/1982	Undecided
540013	Follansbee	Brooke	9/30/1982	4/19/2010	9/30/1982	Undecided
540047	Hancock County	Hancock	6/15/1984	4/19/2010	6/15/1984	Yes
540049	New Cumberland	Hancock	5/15/1980	4/19/2010	5/15/1980	Undecided
540014	Weirton	Brooke/Hancock	9/28/1979	4/19/2010	9/28/1979	Undecided
540015	Wellsburg	Brooke	11/17/1982	4/19/2010	11/17/1982	Undecided
<i>FIRM - Flood Insurance Rate Map (M) - No elevation determined - All Zone A, C and X</i>				<i>Source: FEMA Community Status Book Report West Virginia</i>		

The Community Rating System (CRS) is an additional program run by the NFIP to encourage additional community activities that exceed minimum NFIP requirements, with the goal of reducing flood risk. By participating in the CRS, a community can receive discounted flood insurance premiums.

#### POSSIBLE CAUSES

- According to NOAA, some of the possible causes for flooding include the following.
- **Excessive Rainfall:** This is the most common cause of flooding. Water accumulates quicker than the soil can absorb resulting in flooding.
  - **Snowmelt:** It occurs when the major source of water involved is caused by melting snow. Unlike rainfall that can reach the soil almost immediately, the snowpack can store the water for an extended amount of time until temperatures rise above freezing and the snow melts.
  - **Ice or Debris Jams:** Common during the winter and spring along rivers, streams and creeks. As ice or debris moves downstream, it may get caught on any sort of obstruction to the water flow. When this occurs, water can be held back, causing upstream flooding. When the jam finally breaks, flash flooding can occur

downstream.

- **Dam Breaks or Levee Failure:** Dams can overtop, have excessive seepage or have structural failure. For more information on this topic see section 2.2.2 Dam Failure.

## LOCATION AND EXTENT

Historically, severe flooding has occurred along the numerous streams, creeks and rivers that wind through Brooke and Hancock Counties. Additional flooding can occur due to inadequate storm drain capacity and/or ground saturation. The vast amount of streams, creeks and rivers in both Brooke and Hancock Counties make flooding extremely likely. Flooding along the Ohio River in both counties, Kings Creek in Hancock County, and Harmon Creek, Cross Creek and Buffalo Creek in Brooke County is a common occurrence.

There is an area in the town of Bethany behind Bethany College at Buffalo Creek that has experienced repetitive flooding. Local officials took the photo seen to the right in December of 2016. This area is adjacent to the floodplain and is next to the community center that has experienced damage from floodwaters in the past.



Another area of concern due to the pile-up of debris is Allegheny Creek that runs through the city of Follansbee. The creek runs directly through the downtown area of the city and has caused problems in the past as well. In some places it runs open and in others



it runs through underground pipes under roads and residential buildings. The bottom image above shows some of the debris found in the creek; the photo was taken in February of 2017. The City of Follansbee is currently seeking mitigation funds for this project.

Floods can have some warning time of up to a couple of days if precipitation amounts have been high over a period of days or weeks; flash floods have less warning time. The amount of time that clean-up after a flood takes varies greatly from home to home and town to town. The effects of the flood can still be felt long after the waters have receded.

## HISTORICAL OCCURRENCES

Flash floods are a common concern in the region and have historically occurred frequently. Of the 57 flooding events compiled by NCEI in the studied time period between 1996 and 2015, 32 were flash floods. Flash floods develop more quickly than river flooding, and are harder to predict.

County	Flash Floods	Floods
Brooke	19	12
Hancock	13	13
Totals	32	25

Source: NCEI

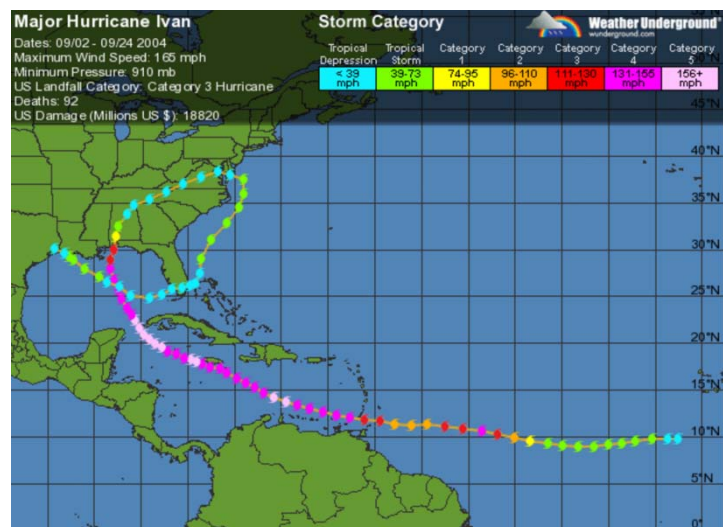
Unlike river flooding, flash floods can occur in many places that river flooding does not. These areas are less prepared for flooding, leading to greater danger and potential for property damage.

### July, 2016

In late July, the region experienced heavy rains causing flooding in Follansbee, WV. “Virginia Avenue and other areas of Follansbee were flooded heavily when the former Lantz Dairy building collapsed into the adjacent Allegheny Creek, causing water from the creek to rise up to two feet over Allegheny Street and other side streets” (Scott, 2016). The flooding caused street closures, power outages and debris. Debris in Allegheny Creek caused water to back up and flood city streets in Follansbee (Miller, 2016).

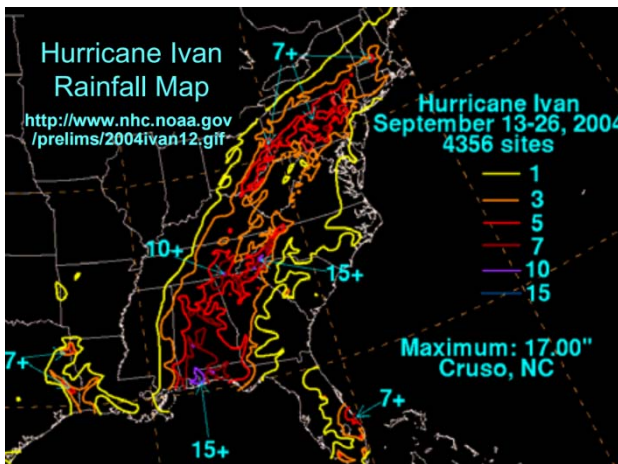
### September, 2004

Hurricane Ivan formed in the Atlantic and traveled through the Caribbean, turned north towards the Florida Panhandle and continued northeast crossing Alabama, Tennessee, and Virginia before turning south and heading for southern Florida, then turning west and ending in Texas. It started as a tropical depression and got up to a Category 5 hurricane before reducing back to a tropical depression when it made landfall



(Weather Underground). The eye of the storm passed just south of West Virginia in September of 2004.

The city of Wellsburg and surrounding areas experienced flooding due to the effects of Hurricane Ivan. The hurricane affected southeastern states and east coast states alike dropping up to 15” of rain in some areas; rainfall amounts can be seen in the map below on the left. According to maps from the NOAA, the rainfall for the northern panhandle of West Virginia was around 7”. The photo shown below on the right was taken by the Brooke County Sheriff’s Department and can be found on their website along with many others.



### March, 1936

The flood referred to as “the big one” caused the Ohio River to crest at 55.2 feet after heavy snow and rainfall in March of 1936. Utility services were interrupted and bridges were closed in the flood that caused 16 deaths and 20,000 people to leave their homes (Ohio County Public Library Archives, 2015). In Weirton, WV, impacted areas included the Ohio River and Hammond Creek submerging railroads and roads, reaching houses and businesses.



## IMPACTS AND SOCIAL VULNERABILITY

“Fast-flowing water carrying debris, such as boulders and fallen trees, accounts for the primary flood-related injuries and deaths. Not surprisingly, the main cause of death from floods is drowning, followed by various combinations of trauma, drowning, and hypothermia with or without submersion. From a public health viewpoint, floods may disrupt water

purification and sewage disposal systems, causing toxic waste sites to overflow or dislodge chemicals stored above ground. There is potential for water-borne disease transmission. Despite the potential for communicable diseases that follow floods, mass vaccination programs have been counterproductive for a variety of reasons. They not only distract limited personnel and resources from other critical relief tasks, but also may create a false sense of security and cause persons who have been vaccinated to neglect basic hygiene. The proper approach to the problem of communicable diseases is to set up an epidemiological surveillance system so that an increase in cases of communicable diseases in the flood stricken area can be identified quickly” (Noji, 2000).

“People affected by floods are often apprehensive about the potential, long term adverse effects of exposure to contaminants, mold, and toxic substances that may be present in their homes after clean up. Unfortunately there are no data that address these concerns. The long term effects of flooding on psychological health may perhaps be even more important than illness or injury. For most people the emotional trauma continues long after the water has receded. Making repairs, cleaning up, and dealing with insurance claims can be stressful. If there is a lack of support during the recovery process, stress levels may increase further” (Ohl & Tapsell, 2000, p.1167).

“Floods may indirectly lead to an increase in vector-borne diseases through the expansion in the number and range of vector habitats. Standing water caused by heavy rainfall or overflow of rivers can act as breeding sites for mosquitoes, and therefore enhance the potential for exposure of the disaster-affected population and emergency workers to infections such as dengue, malaria and West Nile fever. Flooding may initially flush out mosquito breeding, but it comes back when the waters recede. The lag time is usually around 6-8 weeks before the onset of a malaria epidemic. Contrary to common belief, there is no evidence that corpses pose a risk of disease "epidemics" after natural disasters. Most agents do not survive long in the human body after death (with the exception of HIV -which can be up to 6 days) and the source of acute infections is more likely to be the survivors. Human remains only pose health risks in a few special cases requiring specific precautions, such as deaths from cholera or hemorrhagic fevers. Power cuts related to floods may disrupt water treatment and supply plants thereby increasing the risk of water-borne diseases as described above but may also affect proper functioning of health facilities, including cold chain” (WHO).

## LOSS AND DAMAGES

The National Center for Environmental Information keeps records on the cost of events. As mentioned previously, there have been 57 floods and flash floods in both Brooke and Hancock Counties. According to NCEI, the total amount of damages of the flash floods in the area since 1996 was \$140k, and the total in damages of floods was \$61.6M, bringing the total damages in Region 11 to \$61,745,000. This amount indicates, historically, the average cost of a flood or flash flood event is just over \$1M.

Some properties are more vulnerable to floods than others. For those properties that have had claims, FEMA defines repetitive loss (RL) and severe repetitive loss (SRL) properties as follows:

*A Repetitive Loss (RL) property is any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. A RL property may or may not be currently insured by the NFIP. Currently there are over 122,000 RL properties nationwide.*

*A Severe Repetitive Loss (SRL) property is a single family property (consisting of 1 to 4 residences) that is covered under flood insurance by the NFIP and has incurred flood-related damage for which 4 or more separate claims payments have been paid under flood insurance coverage, with the amount of each claim payment exceeding \$5,000 and with cumulative amount of such claims payments exceeding \$20,000; or for which at least 2 separate claims payments have been made with the cumulative amount of such claims exceeding the reported value of the property. There are currently approximately 6,000 properties nationwide meeting the definition.*

In Brooke and Hancock Counties there are a few properties that meet these criteria. Based on information provided by WVDHSEM, the breakdown of RL properties is shown in the table below. According to the report, no severe repetitive loss properties exist in Brooke or Hancock Counties.

TABLE 2.13 PROPERTY LOSSES				
<i>County</i>	<i>Total Payments</i>	<i>Average Payments</i>	<i>Losses</i>	<i>Properties</i>
Brooke County	\$110,141.98	\$13,767.75	8	3
Weirton	\$323,894.08	\$8,097.35	40	17
Wellsburg	\$2,183,955.47	\$18,352.57	119	53
Hancock County	\$392,152.70	\$11,204.36	35	16
New Cumberland	\$811,123.16	\$21,922.25	37	16
<b>Totals</b>	<b>\$3,821,267.39</b>	<b>\$14,668.85</b>	<b>239</b>	<b>105</b>

The HAZUS-MH program from FEMA estimates that approximately 283 buildings would be at least moderately damaged by a 100-year flood in Region 11, and 40 would be substantially damaged, for a total of 323 damaged buildings. The following tables summarize the HAZUS data by county.

<i>Occupancy</i>	<i>1-10</i>		<i>11-20</i>		<i>21-30</i>		<i>31-40</i>		<i>41-50</i>		<i>Substantially</i>	
	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	1	0.84	27	22.69	18	15.13	55	46.22	18	15.13
<b>Total (120)</b>	<b>0</b>		<b>2</b>		<b>27</b>		<b>18</b>		<b>55</b>		<b>18</b>	

<i>Building Type</i>	<i>1-10</i>		<i>11-20</i>		<i>21-30</i>		<i>31-40</i>		<i>41-50</i>		<i>Substantially</i>	
	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>
Concrete	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Manufactured Housing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	9	100.00
Masonry	0	0.00	0	0.00	5	20.83	4	16.67	14	58.33	1	4.17
Steel	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	1	1.16	22	25.58	14	16.28	41	47.67	8	9.30

<i>Category</i>	<i>Area</i>	<i>Residential</i>	<i>Commercial</i>	<i>Industrial</i>	<i>Others</i>	<i>Total</i>
Building Loss	Building	17.10	1.67	0.02	0.47	19.25
	Content	10.25	4.77	0.04	2.64	17.70
	Inventory	0.00	0.08	0.01	0.00	0.09
	<b>Subtotal</b>	<b>27.35</b>	<b>6.52</b>	<b>0.07</b>	<b>3.11</b>	<b>37.04</b>
Business Interruption	Income	0.00	0.02	0.00	0.00	0.02
	Relocation	0.02	0.00	0.00	0.00	0.02
	Rental Income	0.00	0.00	0.00	0.00	0.00
	Wage	0.00	0.02	0.00	0.04	0.06
	<b>Subtotal</b>	<b>0.02</b>	<b>0.03</b>	<b>0.00</b>	<b>0.04</b>	<b>0.10</b>
<b>All</b>	<b>Total</b>	<b>27.37</b>	<b>6.55</b>	<b>0.07</b>	<b>3.05</b>	<b>37.14</b>

<i>Occupancy</i>	<i>1-10</i>		<i>11-20</i>		<i>21-30</i>		<i>31-40</i>		<i>41-50</i>		<i>Substantially</i>	
	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>
Agriculture	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Commercial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Education	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Government	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Industrial	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Religion	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Residential	0	0.00	5	2.46	46	22.66	24	11.82	106	52.22	22	10.84
<b>Total (203)</b>	<b>0</b>		<b>5</b>		<b>46</b>		<b>24</b>		<b>106</b>		<b>22</b>	

<i>Building Type</i>	<i>1-10</i>		<i>11-20</i>		<i>21-30</i>		<i>31-40</i>		<i>41-50</i>		<i>Substantially</i>	
	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>	<i>Ct.</i>	<i>%</i>
Concrete	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Manufactured Housing	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		
Masonry	0	0.00	1	2.00	12	24.00	5	10.00	28	56.00	4	8.00
Steel	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Wood	0	0.00	4	2.61	34	22.22	19	12.42	78	50.98	18	11.76

<i>Category</i>	<i>Area</i>	<i>Residential</i>	<i>Commercial</i>	<i>Industrial</i>	<i>Others</i>	<i>Total</i>
Building Loss	Building	3.12	2.97	2.01	1.09	37.19
	Content	18.66	7.87	3.72	4.97	35.21
	Inventory	0.00	0.17	0.43	0.00	0.60
	<b>Subtotal</b>	<b>49.78</b>	<b>11.00</b>	<b>6.16</b>	<b>6.06</b>	<b>73.00</b>
Business Interruption	Income	0.00	0.04	0.00	0.00	0.05
	Relocation	0.03	0.00	0.00	0.00	0.03
	Rental Income	0.00	0.00	0.00	0.00	0.00
	Wage	0.00	0.04	0.00	0.30	0.35
	<b>Subtotal</b>	<b>0.03</b>	<b>0.09</b>	<b>0.00</b>	<b>0.31</b>	<b>0.43</b>
<b>All</b>	<b>Total</b>	<b>49.80</b>	<b>11.09</b>	<b>6.16</b>	<b>6.37</b>	<b>73.43</b>

There have been a few local projects to mitigate the effects of flooding. In Follansbee, WV, the estimated cost to clean out the debris from Allegheny Creek, clean out the retention pond, and reconstruct the sewage line is approximately \$454k.



## PROBABILITY AND SEVERITY CALCULATION

Based on recorded events from the NCEI, there have been a total of 57 flood and flash flood events of in Region 11. Data is available for the years between 1996 and 2015.

Number of events	57
————— = Probability	OR ——— = 3
Number of years	19

### PROBABILITY: PROBABLE

Based on damages recorded, the cost of floods in this area is high. Although no fatalities have been reported, this hazard is classified as 'critical'.

### SEVERITY: CRITICAL

With a value of three events in a given year, the probability of an event is determined to be "probable" and given the "critical" severity of the hazard, the risk assessment matrix gives this hazard a "high" risk to the region.

### RISK: HIGH

## RISK MAPS

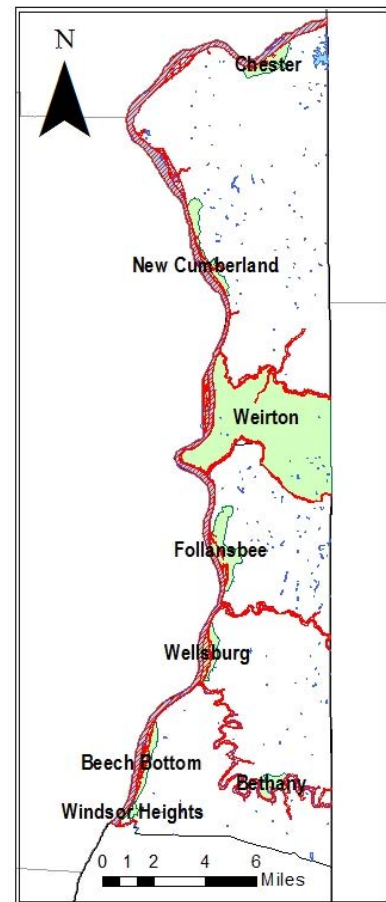
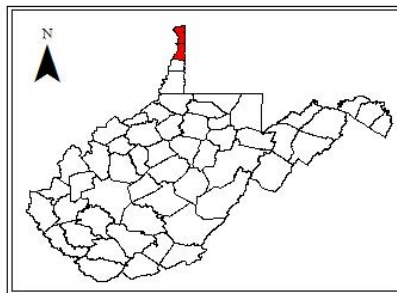
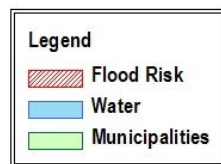
The map to the right shows the areas that are most prone to flooding in Region 11 in red. The shaded areas reflect the following flood zones:

- Zone A
- Zone AE
- 0.2% Chance

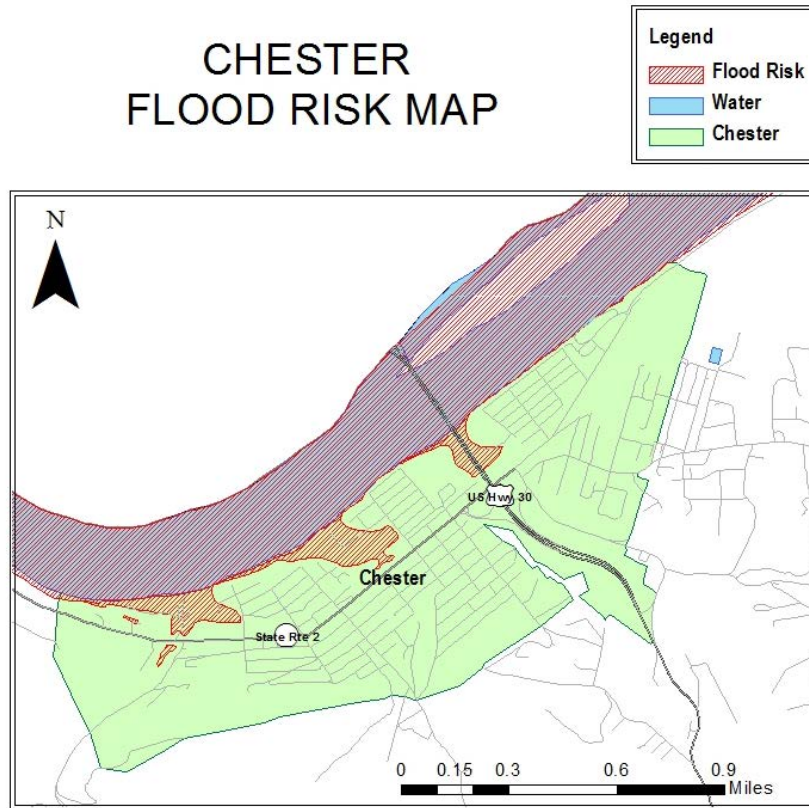
The following pages contain more detailed maps for each jurisdiction shown in geographical order from north to south, then east. A brief description of creeks and roads that would be affected is included with each jurisdictional map. The 100-year flood plain shows the parts of the jurisdictions that are most affected by severe flooding.

Outside of the City of Chester to the west, is the town of Congo. This falls under the jurisdiction of Hancock County since it is not incorporated. It is worth mentioning because during a 100-year flood event, most, if not all of the roads northwest of State Route 2 would be flooded. Most of what is located in this area is industrial; Ergon West Virginia, Ergon Trucking, Shell Lubricants, and CE Minerals Processing, among others, are situated in this flood zone.

## REGION 11 FLOOD RISK MAP



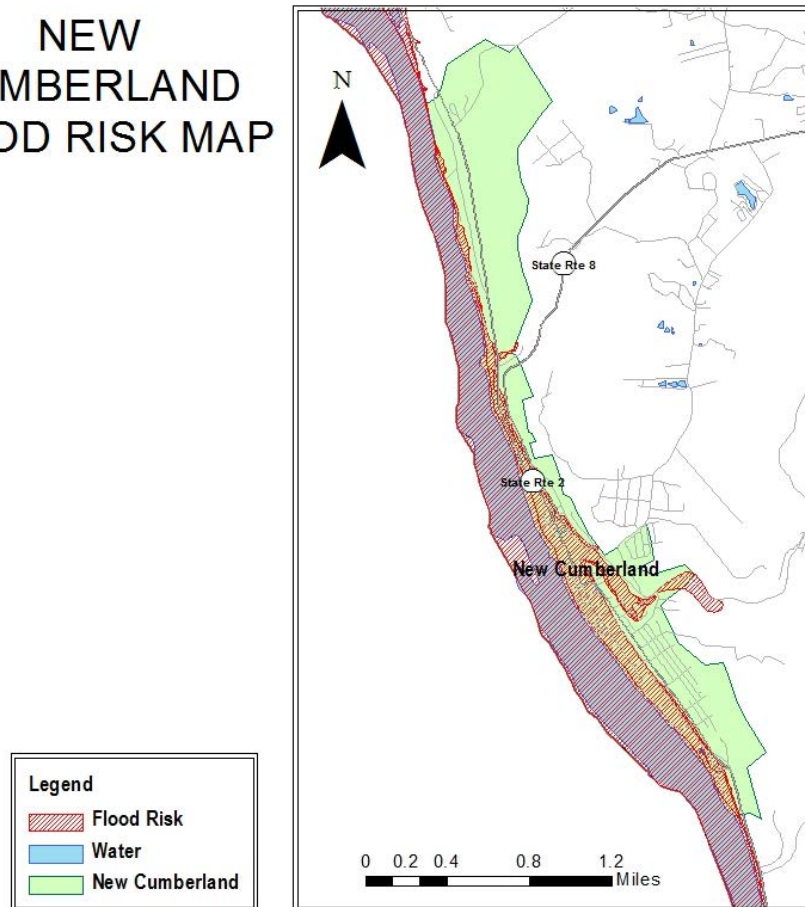
## CHESTER FLOOD RISK MAP



As shown in the map above, parts of the City of Chester are in the 100-year floodplain. Middle Run Creek is also affected by flooding. Some of the streets affected if this type of flood would occur would include the following:

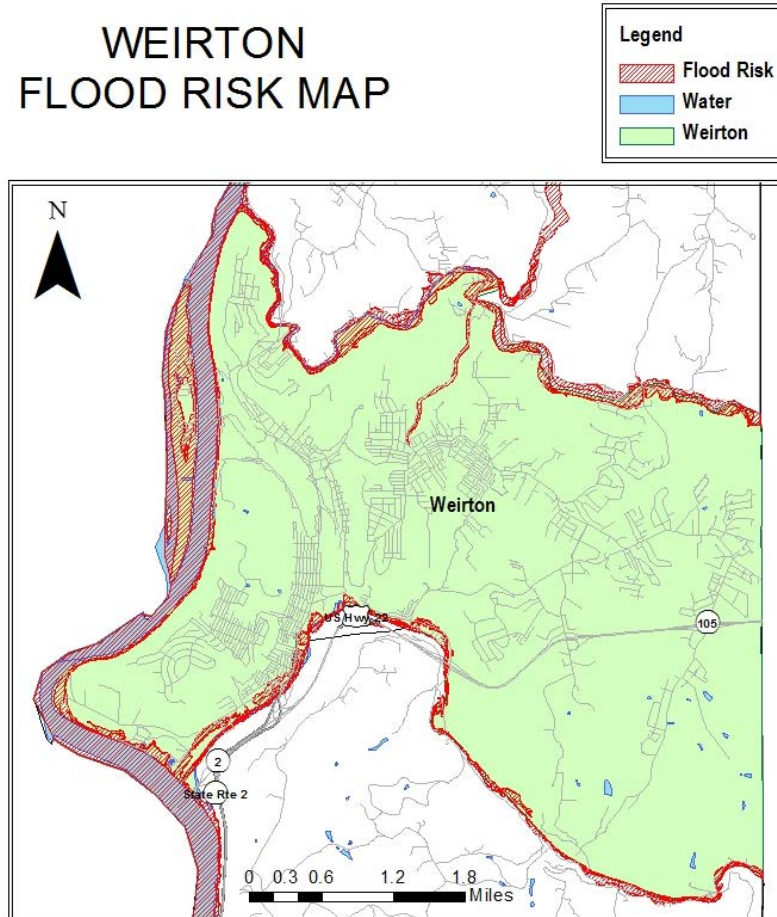
- Louella Ave
- Columbia Dr
- Ferry Rd

## NEW CUMBERLAND FLOOD RISK MAP



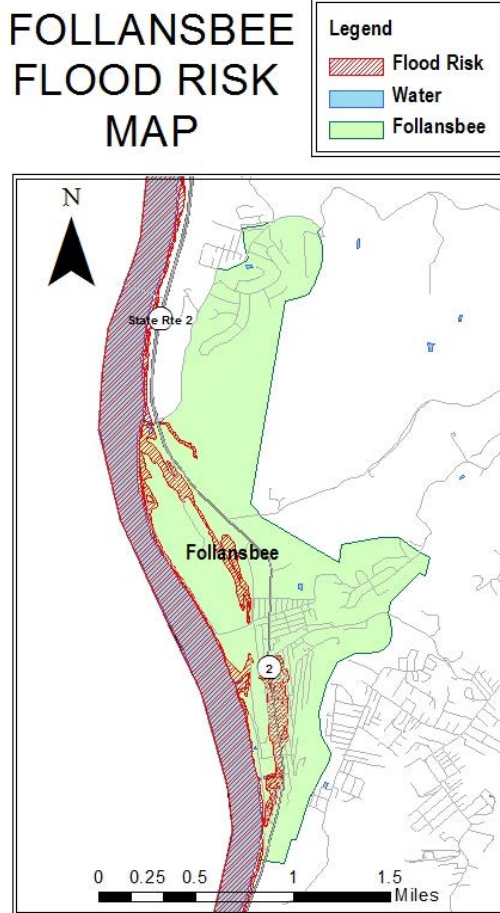
In New Cumberland, the low-lying area west of State Route 2 along the Ohio River is the most affected. The area has residential buildings as well as recreational facilities and industrial facilities. Hardin Run would flood.

## WEIRTON FLOOD RISK MAP



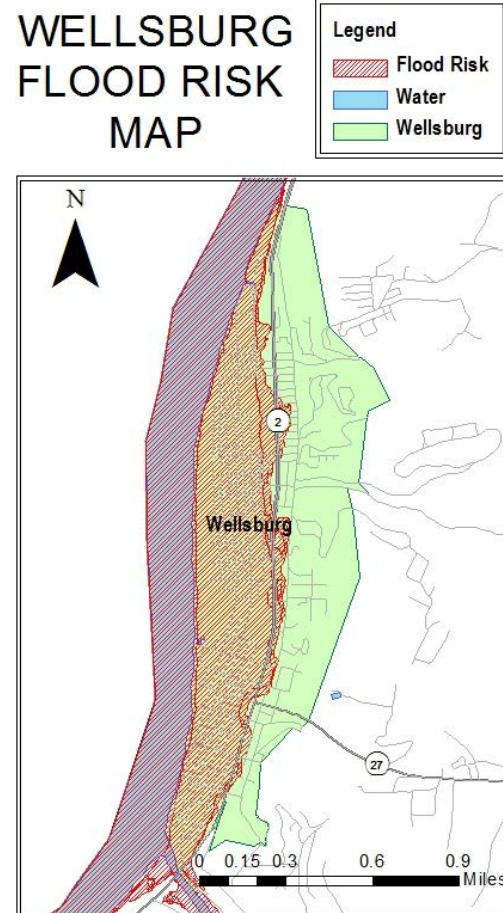
Some of the creeks around the Weirton area that would be affected by floods would include Alexander's Run, King's Creek, North Run, Morrow Run, and Harmon Creek.

In addition, roads that border these creeks would also be affected. The areas just outside the Weirton jurisdictional boundaries across the creeks would be similarly flooded.



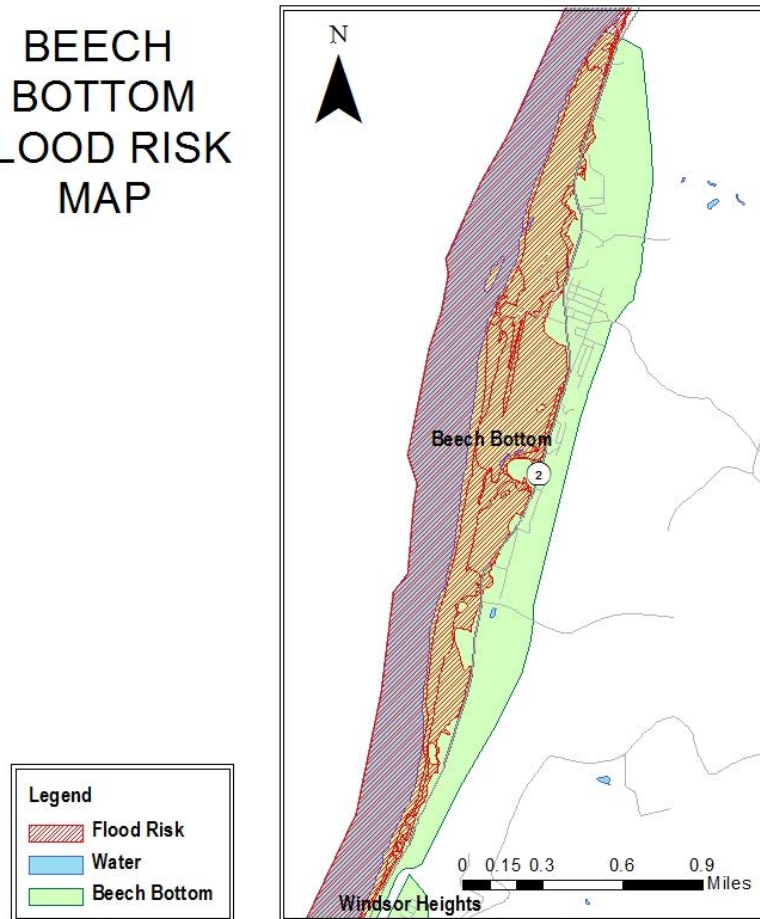
The most affected area in Follansbee during a 100-year flood event would be along State Route 2, also known as Main Street. Flood waters would spread to streets on either side of Main St. from Washington Dr. and Harris St. in at the south end of Follansbee as far north as Allegheny St. The area is mostly residential.

Allegheny Creek is not in the 100-year flood zone but due heavy rain it could cause flooding along its banks.

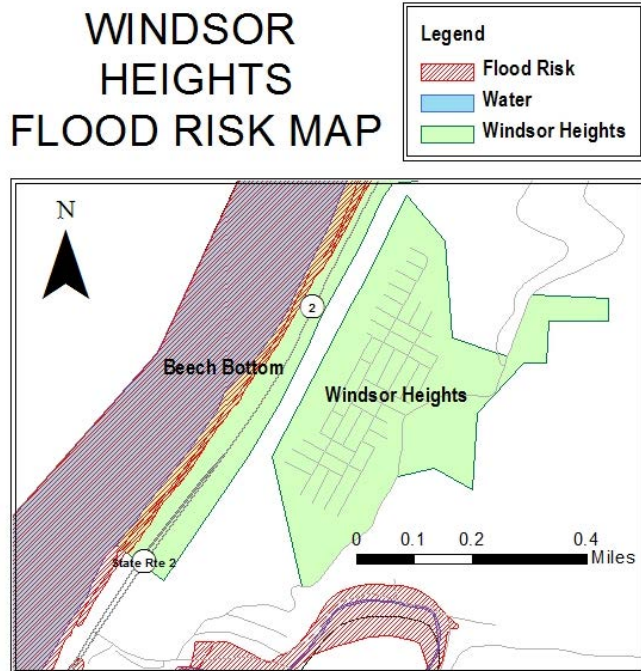


In the City of Wellsburg, a 100-year flood event would flood over half of the jurisdiction. With flood waters rising from the Ohio River as far east as State Route 2, also known as Commerce St., the majority of the residential areas would be under water. Also affected would be some recreational facilities and some industrial buildings. Buffalo Creek, just south of Wellsburg, would flood.

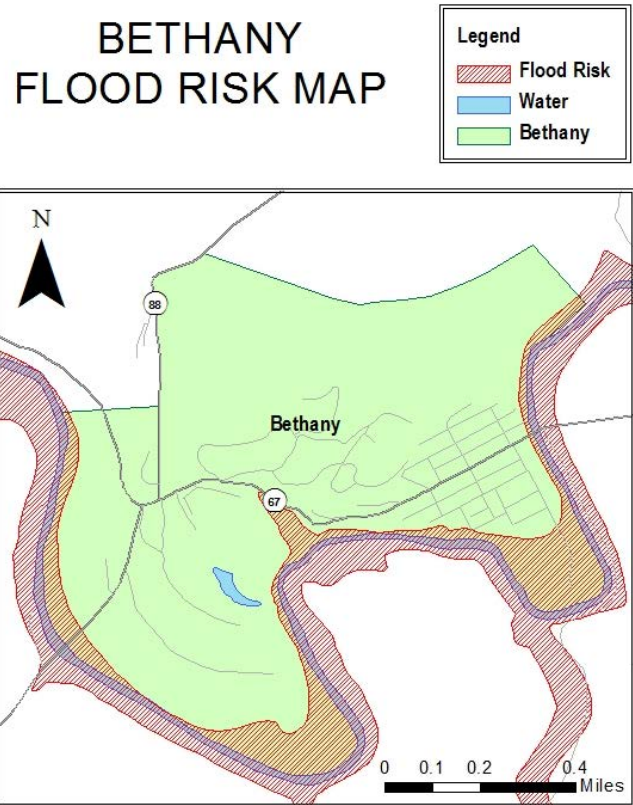
## BEECH BOTTOM FLOOD RISK MAP



Although this map looks like most of Beech Bottom would be under water in a 100-year flood event, the reality is that most of the area shown in red are open fields and wooded areas, although it does have some industrial buildings within it. The majority of the residential area is east or State Route 2, mostly outside the flood zone.



Windsor Heights, as the name suggests sits on a high plain. For this reason, the entire jurisdiction of Windsor Heights is unaffected by 100-year flood events, as shown in the map above.



Most of the flooding in Bethany takes place along Buffalo Creek. The areas shown under water in red are mostly recreational facilities and wooded areas, rarely affecting structures.

However, when the creek floods, it can isolate the town because the creek causes flooding downstream along Bethany Pike making it impossible to travel and/or evacuate to the west. This also would cause problems for evacuation from the west, from towns like Wellsburg and Beech Bottom.



## 2.2.7 HAZMAT

"Hazardous materials are chemical substances that if released or misused can pose a threat to environment or personal health" (Haddow, Bullock, & Coppola, 2014, pg.55).			
<i>Period of Occurrence</i>	<i>Warning Time</i>	<i>Region 11 Risk Assessment</i>	<i>State Risk Assessment</i>
At any time throughout the year	None / Hours	HIGH	Not Ranked

The use of hazardous materials (Hazmat) is prevalent in a large number of industries and products, including agriculture, medicine, and research. (Haddow, Bullock, & Coppola, 2014). The Emergency Planning and Citizen Right to Know Act (EPCRA) of 1984 requires facilities to report what chemicals they have on site and their quantities. The act also requires local governments to have emergency response plans in place.

The Pipeline and Hazardous Materials Safety Administration (PHMSA), a division of the U.S. Department of Transportation (DOT), tracks hazardous materials incidents that occur during transport. Between 1997 and 2016 in West Virginia, there have been a total of 31 significant pipeline related incidents causing five fatalities and 12 injuries with a total of \$29,390,261 in damages over the course of the 19 years of reporting period. The Right to Know Network (RTK Net) maintains data, based on reports from the Coast Guard's National Response Center, on incidents that involve a hazardous materials release. In West Virginia, there were 1,890 incidents between 2010 and 2015 (the most recent complete year available). These resulted in 62 fatalities, 157 hospitalizations, and 177 injuries. Nearly half of these incidents (46.5%) involved a mobile vehicle, while 34% were at a fixed site such as a building. The U.S. Department of Transportation (DOT) also maintains records of hazardous materials incidents that occur during transport at the state level. According to the DOT, there were 59 incidents in West Virginia in 2015, resulting in four injuries and over \$24 Million in damage. The majority of these incidents involved highway transportation vehicles (2016).

Data analyzed within this section includes hazardous materials information relating transportation (highway, rail, and water), pipelines, and fixed facilities (industries, gas stations, and storage tanks).

### POSSIBLE CAUSES

There are a few different causes attributed to hazardous materials incidents that the National Response Center identifies. The most common are listed below with the

percentage of occurrence for each type based on data from 162 incidents.

- Equipment Failure 35.8%
- Unknown 26.54%
- Operator Error 25.3%
- Natural Phenomenon 9.87%
- Dumping 2.46%

## LOCATION AND EXTENT

Hazmat incidents can occur at any location within Region 11. However, there are some areas that are more susceptible to incidents than others. For example, roads, highways and rails, where hazardous materials are transported will have a higher chance of accidents, spills or leaks. At the same time, due to the nature of the some businesses in the area, certain fixed facilities, especially Tier II reporting facilities or gas stations, have a higher chance of incident occurrence. In Brooke County, there are 12 Tier II reporting facilities; in Hancock County there are 25. There are four facilities located in Weirton, WV that report to both counties for a total of 41 Tier II reporting facilities in Region 11 based on data provided by local officials. The table above outlines the type of incidents occurred between 1990 and 2015.

Type of Incident	Incidents
Transportation - Highway	59
Transportation - Rail	2
Transportation - Water	17
Fixed Facilities	64
Pipeline	2
Water Sheet	18
Total	162

Sources: PHMSA & NRC

In addition to incidents and accidents on roadways, railroads, waterways, and industries, another type of fixed facility can include oil and gas drilling sites. The map to the right indicates drilling sites with green dots within Region 11 according to drillingmaps.com. These sites can be potential locations for incidents due to the materials that are used and/or extracted at the site. According to a report by Molly Peterson, it was found that “more than 40 toxic chemicals have been used in dozens of drilling operations, often near homes, schools, and hospitals” (2014). Some of these chemicals include the use of silica, methanol, hydrofluoric acid, and formaldehyde.



Spills of hazardous materials are most difficult to plan for during transportation since they can occur at any time, at any place and involve a wide variety of materials. While leaks, spills and accidents occur in a specific location, the effects of these have the potential to affect distant regions.

In Region 11, there are several sites that are qualified as superfunds or brownfields.

Any land that has been contaminated by hazardous waste and identified by the EPA because of its risk to human health and/or the environment is known as a “superfund” site. Some superfunds are on the National Priorities List (NPL) which is, “the list of hazardous waste sites in the U.S. eligible for long-term remedial action (cleanup) financed under the

Type of Site	Brooke County	Hancock County	Totals
Superfunds	22	39	61
Active NPL	0	0	0
Active Non-NPL	5	6	11
Archived	17	33	50
Brownfields	9	16	25
Tanks & Spills	56	131	187
Totals	87	186	273

Source: homefacts.com from EPA information

federal Superfund program. Congress created the Superfund in 1980 to pay for the cleanup of the country's most hazardous waste sites” (Homefacts.com). Brownfields are defined as property locations where “the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant” (Homefacts.com). The table to the right lists the quantities of superfunds, brownfields, and tanks and spills listed by the EPA in each county. There are a total of 61 superfunds and 25 brownfields in Region 11. The breakdown of types of sites are shown in the table.

## HISTORICAL OCURRENCES

### Follansbee, WV

On the morning of January 26, 2015, there was a pressure drop that caused a rupture in an Enterprise Products Partners LP’s pipeline going from Washington County, PA to Mont Belvieu, TX in Follansbee. The 20” ATEX (Appalachia to Texas) caught fire after releasing ethane causing an explosion (Willis, 2015). Two of the four injection points were impacted by the blast and deliveries were limited downstream. The ruptured location was part of a 369-mile segment that had been recently built (Nichols, 2015).

### **New Cumberland, WV**

On December 9, 2010, the AL Solutions plant had an explosion of titanium powder which is used as an alloy addition for aluminum. The metal powder exploded, and the subsequent fire was put out by six fire departments. Two people were killed and two others were severely burned as a result. This was the fourth fire in five years and the second fatal fire since 2006, according to OSHA (Spencer, 2010). As a result, the company shut down.

### **Weirton, WV**

On March 17, 1998, a driver left a carrier terminal property with a loaded trailer and noticed drippage within the first mile. He turned around at Weirton but left a 10-gallon puddle of product at the turn around point and made it back to carrier yard when the major portion of the underside of the trailer collapsed onto the ground spilling most of the shipment. The material was 500° F. Weavertown Environmental Group cleaned the scene and state highway crews worked on the spill in Weirton. One motorist passing by was nauseated by the smells and fumes. He became ill, called the sheriff and then reported to the hospital for examination. This incident was the most costly reported by the RTK Network at a cost of \$87,000.

## **IMPACTS AND SOCIAL VULNERABILITY**

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

Spills into waterways and those that reach the groundwater are of particular concern due to the threat they impose to drinking water and subsequently public health, the environment, and fauna in the area. For a list of contaminants found in groundwater and their potential effects, refer to [Appendix 5 Hazmat and Health](#).

The *Hancock County Commodity Flow Study* identified five extremely hazardous substances (EHSs) over the course of the study: ammonia, chlorine, hydrochloric acid, hydrogen peroxide and sulfuric acid. The EHSs made up 4% of the total Hazmat traffic (HCLEPC 2015, p.13). For details on how these EHSs could be potentially harmful, refer to [Appendix 5 Hazmat and Health](#).

## LOSS AND DAMAGES

The Right-to-Know (RTK) Network and the National Response Center (NRC) have databases of Hazmat incidents going back to 1990; the RTK database includes costs. Some incidents, because of their size, have no cost associated with them; these include incidents such as spilling a small amount of product while filling a tank, to reports of sheens on the Ohio River. Of the 55 incidents recorded by the RTK Network, only 26 have a cost associated with them. Of those 26, 14 are under \$1000 per incident. The total cost of all 55 incidents with costs reported is \$204,595.

Because the EPA, NRC and PHMSA databases do not include costs, the historical losses for highway and rail incidents are calculated based on information available from the RTK Network. At a total cost of \$204,595 for 55 incidents, the average cost per incident is \$3,720.

## PROBABILITY AND SEVERITY CALCULATION

Information gathered from PHMSA, the RTK Network and the NRC between the years of 1990 and 2015 indicated a total of 162 separate Hazmat events.

Number of events	162
_____ = Probability	OR _____ = 6.48
Number of years	25

**PROBABILITY: FREQUENT**

Historically, the severity of Hazmat incidents in Region 11 has resulted in very few injuries or illness, and there has been little property damage. However, the potential for damage is high given the frequent occurrence of this type of events. For this reason, the severity of the hazard is categorized as “critical”.

**SEVERITY: CRITICAL**

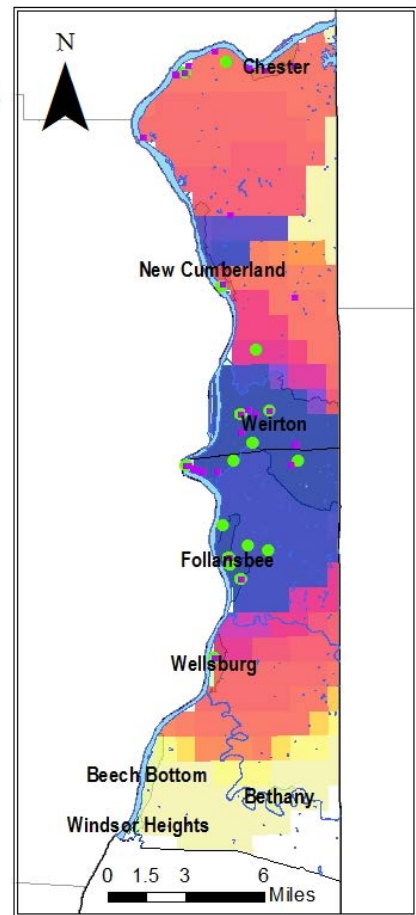
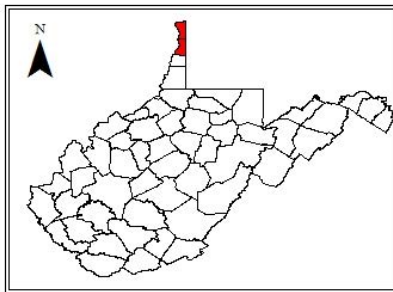
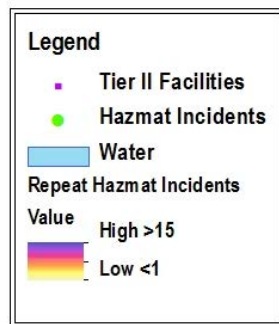
With a value of 6.48 events in a given year, the probability of an event is determined to be “frequent” and given the “critical” severity of the hazard, the risk assessment matrix gives this hazard a “high” risk to the region, with the understanding that there are locations in the counties that are more prone to incidents as discussed previously.

**RISK: HIGH**

**RISK MAP**

The map on the right shows the locations of Tier II reporting facilities as well as locations of known hazmat incidents, as reported by the RTK Network. Areas in purple symbolize facilities that have had more than 15 incidents since 1990. The color scale ranges from purple through pink, orange and finally yellow. The light yellow areas symbolize locations that have had one or less reported incidents since 1990.

**REGION 11  
HAZMAT INCIDENTS**



The purple areas are mainly located in Weirton and New Cumberland regions. This is due to the higher amount of industries in the area. By simple probability, the more industries that work with chemicals in a small area, the more chance there will be of an incident occurrence.

In addition to fixed facilities as shown on this map, general areas of higher occurrence of spills can take place along transportation routes, by river, road, and rail.

## 2.2.8 MASS MOVEMENTS

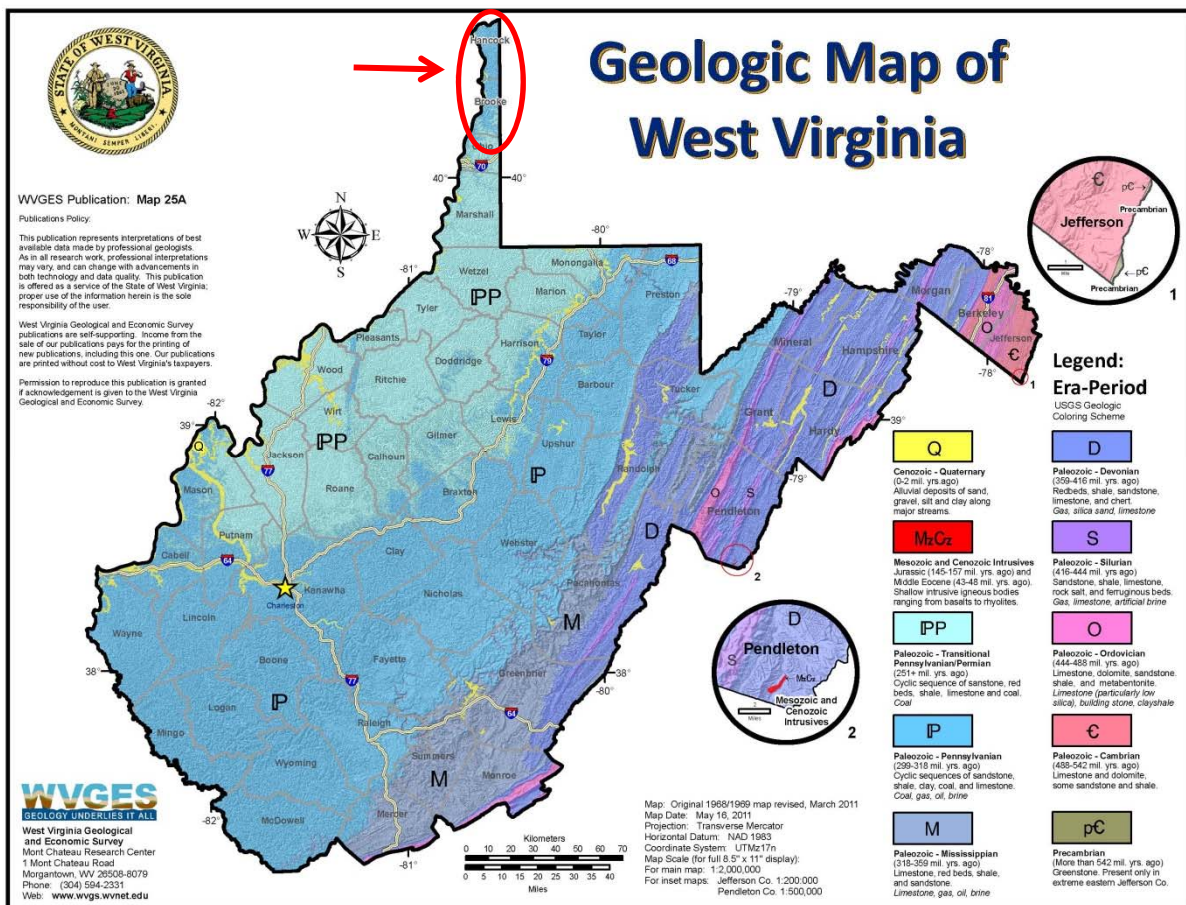
Sinking, settling, or other lowering of parts of the crust of the Earth (Keller, DeVecchio, 2015)			
<i>Period of Occurrence</i>	<i>Warning Time</i>	<i>Region 11 Risk Assessment</i>	<i>State Risk Assessment</i>
At any time throughout the year. Increased chance following long periods of heavy rain, snowmelt or construction activity.	Days / Weeks / Months	MODERATE	N/A (Landslide)

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

- **Landslides:** Landslides occur when areas of relatively dry rock, soil or debris move uncontrollably down a slope. Landslides may be localized or massive in size and can move at high rates of speed.
- **Mudflows:** Mudflows are water saturated rivers of earth, rock and debris. Mudflows develop when water rapidly accumulates in the material, such as during heavy rainfall or rapid snowmelt. Mudflows can develop and move quickly, giving little to no warning. There is no historical evidence of mudflows in Region 11.
- **Rock Falls:** Rock falls occur when rocks or other materials detach from a slope or cliff and descend in a freefall, rolling or bouncing manner. Rock falls can occur naturally, through faults and seismic activity, or as a product of human activity, such as blasting.
- **Land Subsidence:** Land subsidence is the loss of elevation caused by the removal of support below the surface. These events can range in size from a large regional lowering to severe localized collapses, such as sinkholes. The primary cause of land subsidence is human activity such as mining and the extraction of groundwater or petroleum.
- **Expansive Soils:** Expansive soils are soils or soft rocks that will swell or shrink depending on their moisture content. The swelling and shrinking action can cause extensive damage to transportation routes, such as highways and rail lines, and

structures that are built over these areas. There is no historical evidence of expansive soils in Region 11.

As seen on the map below, West Virginia has a wide variety of types of soil. For Brooke and Hancock Counties, the most prevalent era-period soil is “Q”, Cenozoic – Quaternary (0-2 million years ago), composed of alluvial deposits of sand, gravel, silt and clay along major streams, and “P”, Paleozoic-Pennsylvanian (299-318 million years ago), which has cyclic sequences of sandstone, shale, clay, coal, and limestone with deposits of coal, gas, oil and brine (WVGES, 2011). This type of soil composition makes the land susceptible to mass movements.



The entire state of West Virginia contains many steep slopes that have retaining walls or experience rock falls and road slips. Steve Kite, the chair of West Virginia University's Department of Geology and Geography says that "a lot of the costs of a land slide is the prevention of landslides through things like retaining walls and structures that prevent fatalities and injuries and damage." Kite has been working on a Light Imaging and



Detecting Radar (LIDAR) that are laser beams attached to fixed-wing planes or helicopters that map the ground area below. This technology allows the detecting of landslides and to determine the causes (Board, 2014).

## POSSIBLE CAUSES

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

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

## LOCATION AND EXTENT

Due to the nature of the steep mountainous terrain in the entire state of West Virginia, mass movements are common, and Region 11 is no exception. The most notable areas of land subsidence according to local officials are along Route 2 in both Brooke and Hancock Counties where the mountains are steep on the east side of the road leading into the Ohio River. In addition to this location, there are several other places that are currently experiencing mass movements to include land subsidence and rock falls. For more detail on these, refer to the Historical Occurrences section below.

The most common areas for mass movements in Brooke and Hancock Counties are along the state and county routes. Although land subsidence can happen in one location, the extent of the impact can reach far beyond that location. For example, if a state or county road were to experience land subsidence and, as a result, have to be closed, the impact would go far beyond the location of the subsidence since residents and visitors would have to find another route to get around the incident. It could also potentially block off access to an entire village or town. For this reason, the extent of the impact could be countywide.

In data provided by the WV Department of Transportation (DOT), there have been 147 slips in Brooke and Hancock Counties the past 10 years; of those, 71.7% were in Brooke County while only 28.6% were located in Hancock County. This data correlates with information provided by local officials, where Brooke County officials mentioned several

mass movement incidents occurring, while officials in Hancock County did not have any incidences of note.

## HISTORICAL OCCURRENCES

### **Follansbee, WV**

Recently, Follansbee has experienced land subsidence in two places: “City Park”, near the Parkview residential area behind the Follansbee Middle School and downtown at the Volunteer Fire Department building on the corner of Main Street and Allegheny Street where Allegheny Creek flows under the parking lot. The images below illustrate land subsidence in these two areas. The image to the left is of City Park and the image to the right is the parking lot at the Follansbee Volunteer Fire Department.

The City of Follansbee provided documentation for costs of repair for the gabion wall that collapsed into Alleghany Creek. The estimated cost of the restoration is around \$41,660. The estimation provided also included costs for cleaning out the creek to mitigate against flooding; for more information on this project refer to section 2.2.6 Flood.



### **Weirton, WV**

On October 17, 2016, a landslide presented on Pennsylvania Avenue in Weirton due to construction activity in the area. The WV Department of Transportation (WVDOT) issued the following announcement on its website:

Hancock County: WV105 closed due to road slip

The West Virginia Division of Highways advises that effective immediately, WV 105, Pennsylvania Avenue in Weirton will be closed due to a slip. The closure will occur approximately ½ mile from the intersection with WV 2 to 11<sup>th</sup> Street.

The alternate route is WV2 South to US 22 East to Exit 5, Colliers Way, left off the exit to WV 105.

As of March 2017, the road had not been opened; according to officials, there is currently no date for reopening the road. WTOV9 Fox reported the



incident; an image taken from the video on the website of the report can be seen below.

### **Bethany, WV**

Another area prone to land subsidence and rock falling is Route 67 from Route 2 in Wellsburg southeast to Bethany. There are several places that are experiencing mass movements along this road. Two examples include rock falling close to Mile Marker 5 shown below on the left and evidence of road shifting just outside McKinleyville illustrated below on the right.



### **Beech Bottom, WV**

The Village of Beech Bottom has experienced several instances of mass movement

activity. According to village officials, there have been significant events recorded relating to old storm sewer pipes suspected to be built in the early 1900's by the Beech Bottom Mine, now known as the Windsor Mine. The pipes were built using clay tiles and have eroded after one hundred years of use. Aside from eroding, the pipe has caved in in several locations around the village. The most significant incident occurred in 1966 on 2<sup>nd</sup> Street where a small sinkhole was noticed in the ground and in only a month, the sinkhole grew to approximately 10 feet in diameter; FEMA paid close to \$83,000 to repair it. The Village has had to make major repairs to the old storm sewer pipe throughout the years: the most notable instances were in 1987, 1996, 1988, 2007, 2011, and 2016.

The following photographs illustrate the existing condition of the pipe (on the left) and the 1996 sinkhole that appeared as a result of the old infrastructure (on the right).



## IMPACTS AND SOCIAL VULNERABILITY

Although there have not been any instances of large, catastrophic mass movements in Region 11, the potential for damage is still present. Generally, mass movements cause death, injuries, trauma and suffocation from entrapment. Short and long-term mental health effects have been observed. Depending on the location, these events could cause loss or damage to homes, infrastructure and critical facilities and block whole communities off. There is potential for loss of property value, livestock and crops (WHO).

## LOSS AND DAMAGES

The information gathered for loss and damage estimation purposes comes directly from the WV Department of Transportation database. Within the information received, costs are shown that are associated with each slip. Slips can include very minor jobs where there is little to no disturbance to roads and highways, to severe incidents that block and reroute

traffic. There were 147 total incidents (105 in Brooke County and 42 in Hancock County) in the 10 years of data for both Brooke and Hancock Counties. The average cost of fixing a slip is around \$126,600, which amounts to over \$18.6M over the last 10 years.

**PROBABILITY AND SEVERITY CALCULATION**

Records from the WV DOT going back 10 years indicate that there have been 147 slips that have had to be fixed.

Number of events	147		
_____ = Probability		OR	_____ = 14.7
Number of years	10		

**PROBABILITY: FREQUENT**

The severity of mass movements has historically been negligible or marginal at best since there have been no deaths or injuries associated with them. However, given the damages in injuries, death and damage to property, this hazard is categorized as a “marginal” one.

**SEVERITY: MARGINAL**

With a value of 14.7 events in a given year, the probability of an event is determined to be “frequent” and given the “marginal” severity of the hazard, the risk assessment matrix gives this hazard a “moderate” risk to the region.

**RISK: MODERATE**

## RISK MAP

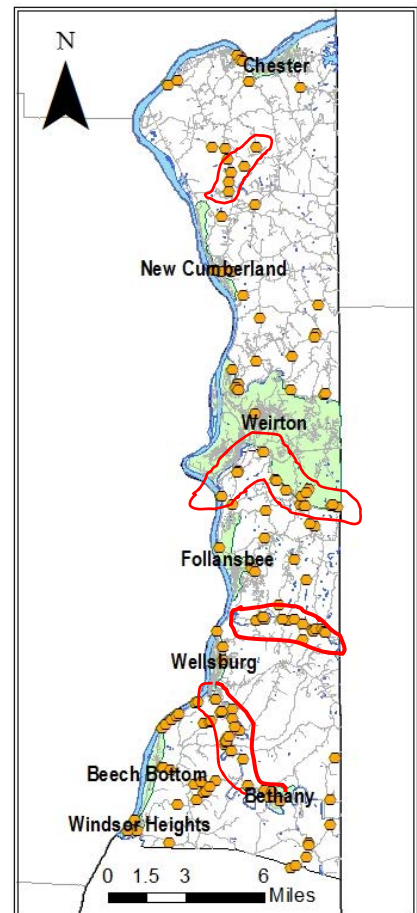
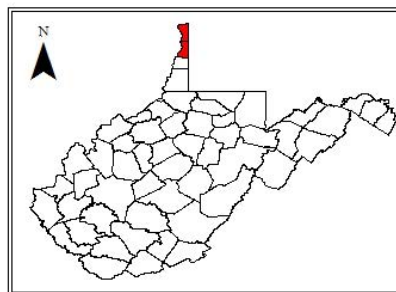
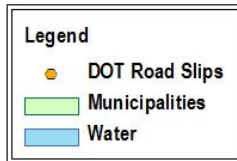
The map to the right shows each road slip that the West Virginia Department of Transportation (WVDOT) registered within approximately the last ten years. As evidenced by the Historical Events section above, many of the mass movement events occur on roadways and vary in severity.

This map shows clusters of dots which form lines along roads. According to the data, many of these slips have occurred. From north to

south, the following are brief descriptions of these clusters, shown on the map circled in red.

- Just north of New Cumberland, mainly along Rt. 8.
- South of Weirton, a cluster can be seen along US 22.
- South of Wellsburg along Rt. 67 going east to Bethany.
- Along Rt. 2 in both counties (not shown in red circle).

## REGION 11 MASS MOVEMENTS



## 2.2.9 RADIOLOGICAL

Radiation is any form of energy that travels through space or matter. The radiation emitted by many radioactive isotopes contains enough energy to change the physical state of the material through which it passes. A radiological emergency is an incident that poses an actual or potential hazard to public health or safety or loss of property (FEMA).

<i>Period of Occurrence</i>	<i>Warning Time</i>	<i>Region 11 Risk Assessment</i>	<i>State Risk Assessment</i>
At any time throughout the year	Hours / Days / Months	<b>MODERATE</b>	Not Ranked

Although there are no major radiological hazards within either of the counties of Region 11, the radiological hazard is considered due to the proximity to the Beaver Valley Nuclear Power Plant (NPP) located in Shippingport, Pennsylvania. The Beaver Valley NPP is currently operated by First Energy Nuclear Operating Company but will be sold or closed starting in mid-2018 (Funk, 2017). The plant has two active water reactors; the first NPP reactor began operation in July of 1976 and the second in August of 1987 (Hancock County Office of Emergency Management, 2010).

### POSSIBLE CAUSES

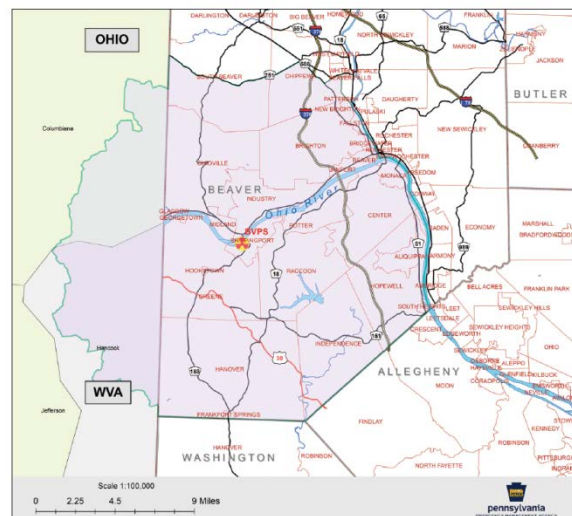
This radiological hazard can be considered similar to the causes of hazardous materials incidents at fixed facilities. Some of the possible causes of failure involving nuclear components may include:

- equipment failure,
- operator error, and
- natural phenomenon (severe weather, earthquake, flooding).

### LOCATION AND EXTENT

The Beaver Valley NPP is located in Shippingport, PA approximately 4.6 miles directly east of the West Virginia – Pennsylvania border. The closest city in West Virginia is Chester in Hancock County.

The Nuclear Regulatory Commission (NRC) defines two emergency planning zones (EPZ): the first extends 10 miles in radius,



known as the plume exposure pathway, and the second extends 50 miles in radius and is considered the ingestion pathway (WVDHSEM. 2010). The northeastern part of Hancock County falls within the 10-mile radius EPZ as shown to the right in a map included in the *2016/2017 Emergency Preparedness Information* booklet published by the Beaver County Emergency Management Agency. The green line outlines the 10-mile EPZ that extends to Hancock County in the bottom left corner of the map.

The 50-mile radius EPZ includes the entire area of Hancock and Brook Counties and beyond. If a significant incident were to occur, the entire region would be considered affected.

## HISTORICAL OCURRENCES

The Beaver Valley Nuclear Power Plant has not had a significant incident affecting the public's health or safety since its construction. However, there have been cases of small spills reported. The following are a few examples of those occurrences.

### **August 24, 1977**

A leak originated from a contained sump area through a connection intended to connect Beaver Valley 1 and 2. "The water traveled along an underground duct and spilled into soil on a steep trenched area within the Unit 2 construction site, according to a Duquesne Light statement" ("Radioactive leak found at Shippingport", 1977).

### **June 22, 1981**

According to an article by *The Gettysburg Times*, radioactive water leaked inside Reactor 1 due to a malfunctioning degasifier. At the time the NPP was owned by Duquesne Light Co. and Reactor 2 hadn't been built. The spill occurred in an auxiliary building in a discharge ventilation duct and was shut down as soon as the spill was detected. No contamination was spread to surrounding communities ("Reactor leak didn't spill", 1981).

### **November 2, 1985**

The NRC and emergency management agencies were notified of a 300 gallon radioactive water leak due to a partially open valve. Some of the water reached the Ohio River but the water was tested about 2 miles downstream and tests did not detect radioactive material. This situation did not pose any threat to the health and safety of the public ("Radioactive water gets dumped into a pipe trench", 1985).



## IMPACTS AND SOCIAL VULNERABILITY

The Uranium (U-235) used in nuclear power generation can radiate alpha particles and gamma rays. Alpha particles are not able to penetrate human skin but they might be inhaled, ingested, or absorbed through an open wound. They can irradiate surrounding living cells and cause chronic health risks and can only travel a few inches through the air (Clements, 2009). Radiation from gamma rays is more dangerous; the electromagnetic energy can penetrate most surfaces and can travel many feet in the air (Clements, 2009). They can pass completely through the human body and as they do, they could cause damage to tissue and DNA (EPA).

Chronic doses of radiation are cumulative over each person's lifetime and are known to cause thyroid cancer, leukemia, solid cancers, circulatory disease, cataracts, and birth defects. In general, children and pregnant women are at higher risk to radiation exposure. However, should a radiological disaster occur, the entire population living within the exposure zone will be equally vulnerable.

## LOSS AND DAMAGES

According to an article published by MSNBC in 2011, the U.S. Nuclear Regulatory Commission (NRC) analyzed the possibilities of an earthquake causing catastrophic failure to the nuclear plants across the country. The factors that were taken into consideration were the chance of a serious earthquake and the strength of design of the NPP. Beaver Valley 1 ranks among the top 10 on the list of 104 total analyzed plants. Beaver Valley 2 ranked at number 36 on the list. The estimates are not based on the Richter or Mercalli scale, but on the peak ground acceleration, a unit that measures how violently the ground shakes, caused by the depth, distance from the epicenter and frequencies of waves that the earthquake generates (Dedman, 2011). For more information about peak ground acceleration, refer to section [2.2.4 Earthquakes](#).

## PROBABILITY AND SEVERITY CALCULATION

The probability of an event cannot be calculated based on traditional historical occurrences over a period of years since there have not been any major incidents at the nuclear power plant. However, the fact that there is a power plant that includes Hancock County within its 10-mile emergency planning zone, the possibility of there being an occurrence cannot be ignored. Given that there have been some minor incidents at the

power plant, the possibility of another occurrence is present; for this reason the possibility is determined to be “remote”.

**PROBABILITY: REMOTE**

In the past, the severity of the radiological hazard has been negligible. However, if there were a significant incident at the power plant, the severity of the impact to Hancock and Brooke Counties would be “critical”.

**SEVERITY: CRITICAL**

According to the risk assessment matrix, a “remote” possibility of occurrence combined with a “critical” severity will pose a “moderate” risk to Region 11 with a possibility of higher impacts in Hancock County within the 10-mile emergency planning zone.





**RISK: MODERATE**

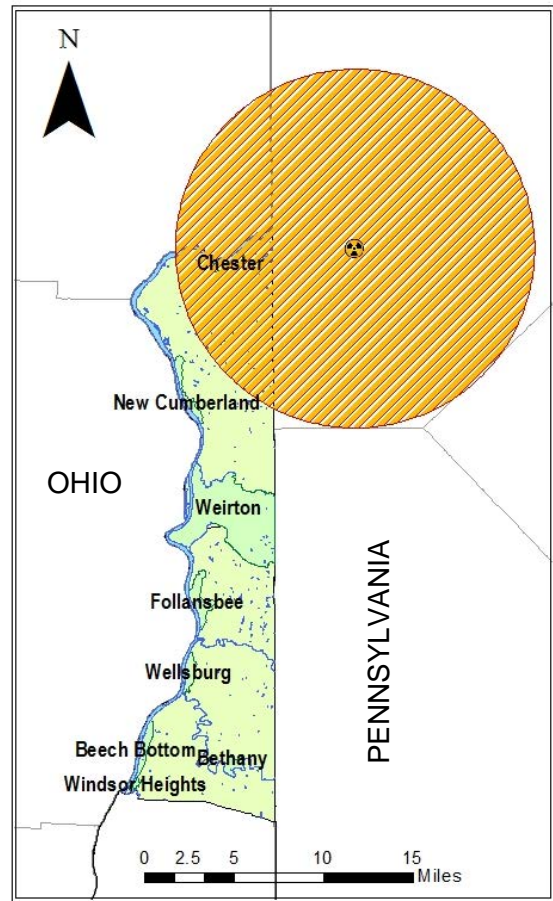
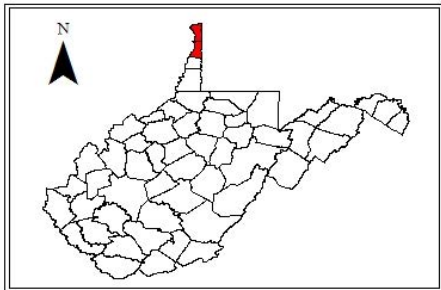
**RISK MAP**

The Beaver Valley Nuclear Power Plant 10-Mile Emergency Planning Zone (EPZ) reaches parts of northern Hancock County as shown on the map to the right.

**REGION 11  
BEAVER VALLEY  
10-MILE EPZ**

**Legend**

-  Beaver Valley Nuclear Power Plant
-  10 Mile Buffer
-  Municipalities
-  Water



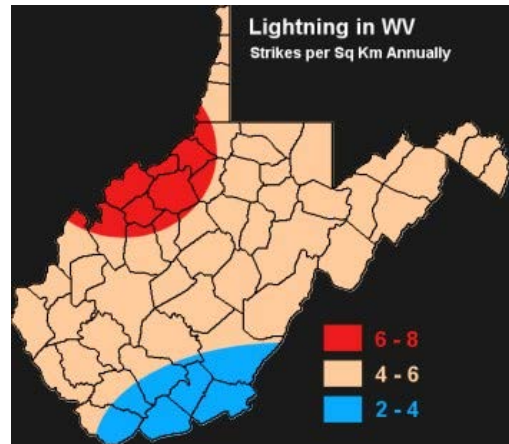
## 2.2.10 SEVERE WEATHER

<p>Various types of severe weather can occur throughout the year, typically defined by seasonal meteorological activity. Severe weather “affects considerable portions of North America and cause significant death and destruction each year” (DeVecchio &amp; Keller, 2015). This severe weather hazard profile includes instances of hail, heavy snow, high wind, lightning, strong wind, thunderstorm wind, winter storms and winter weather.</p>			
<i>Period of Occurrence</i>	<i>Warning Time</i>	<i>Region 11 Risk Assessment</i>	<i>State Risk Assessment</i>
The various types of severe weather can occur year-round.	Days / Weeks	MODERATE	LOW (Hail)
			N/A (Lightning)
			MEDIUM (Tornado)
			MEDIUM (Wind)

Severe weather, for the purposes of this analysis, will include the following types of events that can occur throughout the entire year in all areas of Region 11. Because mitigation efforts are similar for these types of hazards, they were grouped under one common profile heading.

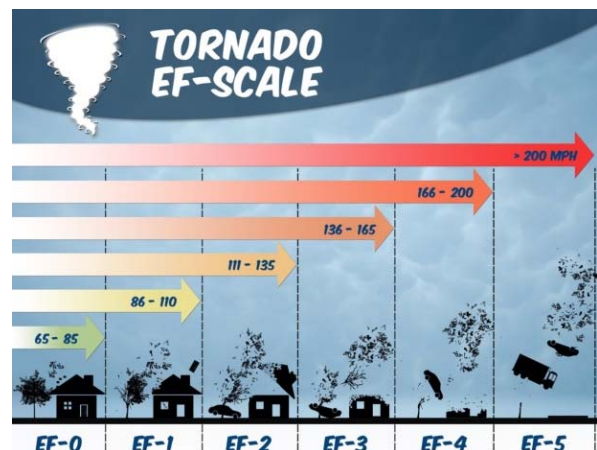
- **Blizzard:** A winter storm which produces the following conditions for three hours or longer: 1) sustained winds or frequent gusts 30 knots (35 mph) or greater, and 2) falling and/or blowing snow reducing visibility frequently to less than 1/4 mile, on a widespread or localized basis (NCEI).
- **Ice Storm:** Ice accretion meeting or exceeding locally/regionally defined warning criteria (typical value is 1/4 or 1/2 inch or more), on a widespread or localized basis (NCEI).
- **Hailstorms:** The National Severe Storms Laboratory (NSSL), a division of NOAA, defines hail as “a form of precipitation that occurs when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere where they freeze into balls of ice” (Severe Weather 101.) Hail can damage aircraft, homes, cars, and can even injure or be deadly to livestock. Obviously, the larger the size of the hail the more potential it has to cause damage or injury. The NSSL considers a severe hailstorm to contain hail that is one inch or more in diameter. This is approximately the size of a quarter.
- **Heavy Snow:** Snow accumulation meeting or exceeding locally/regionally defined 12 and/or 24 hour warning criteria, on a widespread or localized basis. This could mean such values as four, six or eight inches or more in 12 hours or less; or six, eight or ten inches in 24 hours or less (NCEI).

- Lightning:** Lightning is a giant spark of electricity between the atmosphere and the ground. In the initial stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground; however, when the differences in the charges becomes too great, this insulating capacity of the air breaks down and there is a rapid discharge of electricity known as lightning (NWS). The map to the right by Storm Highway illustrates the average recordings of lightning strikes per square kilometer in the state of West Virginia. Hancock and Brook Counties experience between four and six.



- Thunderstorms:** The wind gusts and lightning associated with thunderstorms can pose a threat to life and property. Thunderstorms also have the potential to produce hail and tornadoes, as discussed previously. Thunderstorms are typically associated with cold fronts and can move in “lines,” meaning that a location can possibly be struck by several storms in the course of minutes or hours. The heavy rainfall associated with one or multiple storms has been known to create flash floods in the presence of oversaturated soils. A major secondary threat associated with thunderstorms is lightning. Individual lightning strikes occur with no warning and kill between 75 and 100 Americans every year (Haddow, Bullock, & Coppola, 2014, p.51.) Lighting can reach a significant distance from a storm, up to 25 miles according to the National Severe Storms Library (NSSL). While lightning is a common occurrence and can be seen in most thunderstorms, only about 20% of the lighting observed in a storm will strike the ground

- Tornadoes:** Tornadoes are typically associated with the strongest thunderstorms and are capable of causing tremendous damage. The Enhanced Fujita Scale (EF Scale) measures tornadoes and categorizes these events based on wind speed. There are six categories in the EF



Scale, from EF0 through EF5. An EF0 tornado will cause some minor damage, while an EF5 is considered to cause massive destruction. The graphic above, developed by the Insurance Institute for Business & Home Safety and StateFarm, shows the wind scales and the damaged expected in each category. Tornadoes are historically very difficult to predict. The storms that may produce a tornado can be forecasted, but not every storm with that potential will spawn a tornado and predicting where and when that will happen is incredibly difficult. Historical trends show that some areas of the country, such as the Midwest plain states, have a higher probability of tornado occurrence. However, they can and have struck in many other areas.

- **Wind:** A wind event is typically not associated with other hazards, such as thunderstorms. Wind events will have little or no rain associated with them and may last considerably longer than other events like thunderstorm wind and tornadoes. Wind events can result in a number of impacts, including blowing tree limbs and trees onto structures, roadways, and power lines. The National Centers for Environmental Information (NCEI) records two types of stand-alone wind events: high wind events and strong wind events. (NWS Instruction 10-1605).
- **Winter Storms:** A winter weather event which has more than one significant hazard (i.e., heavy snow and blowing snow; snow and ice; snow and sleet; sleet and ice; or snow, sleet and ice) and meets or exceeds locally/regionally defined 12 and/or 24 hour warning criteria for at least one of the precipitation elements, on a widespread or localized basis (NCEI).
- **Winter Weather:** A winter precipitation event that causes a death, injury, or a significant impact to commerce or transportation but does not meet locally/regionally defined warning criteria. A winter weather event could result from one or more winter precipitation types (snow, or blowing/drifting snow, or freezing rain/drizzle), on a widespread or localized basis (NWS Instruction 10-1605).

## POSSIBLE CAUSES

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

- **Urban Heat Island Effect:** a local climatic condition in which a metropolitan area may become as much as 22° F warmer than the surrounding countryside.
- **Burning of Fossil Fuels:** gasses emitted from burning of fossil fuels can linger in

- the atmosphere contributing to climate changes. (Keller, Devecchio, 2015, p 317).
- **Climate Change:** weather and climate change are closely related to the increase of occurrences in severe weather. For more complete information, refer to section [2.1.5. Hazards and Climate Change](#).

## LOCATION AND EXTENT

Severe weather is a hazard that can affect all areas and jurisdictions of the region. Brooke and Hancock Counties, as well as surrounding counties and states, are at similar risk of exposure to these types of severe weather events. Severe weather events have the potential of lasting seconds (i.e. lightning), a few minutes (i.e. tornadoes), several hours (i.e. thunderstorms, hailstorms, heavy snow, etc.), or even days (i.e. winter weather, high winds).

## HISTORICAL OCCURRENCES

According to local officials and residents, weather events in Brooke and Hancock Counties are typical of the region's climate and geography; for that reason, there are no severe weather events that stand out of significant impact. However, the NCEI records these types of events and a selected few are mentioned here, the ones selected are events that have had the most damages attributed to a single event.

### **Weirton, WV**

On August 24, 1998, the NCEI reports that lightning struck a house and sparked a fire resulting in roof and smoke damage. On the same day, lightning also struck another house causing an exterior wall to char and smoke damage within the house.

### **Follansbee, WV**

On July 18, 2012, severe thunderstorms developed along a slow moving cold front from eastern Ohio to northern West Virginia and western Pennsylvania. Heavy rainfall produced isolated flash flooding in some areas. Law enforcement reported numerous trees and power lines down in and around Follansbee.

### **Brooke and Hancock Counties**

Low pressure from the remains of Hurricane Ike moved across central Ohio on September 14, 2014. Areas affected included eastern Ohio, northern West Virginia and western Pennsylvania. Widespread damage to trees and power lines occurred across the

region causing damage to some structures. Sustained winds during the storm were from 30 to 50 mph, with gusts well over 60 mph.

## IMPACTS AND SOCIAL VULNERABILITY

There are many impacts of severe weather. To analyze them, they are categorized into events relating to winter weather (blizzards, ice storms, winter storms), wind (tornadoes and high winds), and hailstorms.

- **Winter Weather:** Causes respiratory illnesses and cold-related injuries to humans, damage to the vegetation (fallen trees), and can cause damage to infrastructure (water outages, downed power lines leading to power outages, road and bridge closures and damage to roads from plows, damage to homes, etc).
- **Wind:** Causes respiratory illnesses, damage to the vegetation (fallen trees), and can cause damage to infrastructure due to flying debris.
- **Hailstorms:** Can cause injury to humans and animals if directly exposed, damage to vegetation and infrastructure.

As with all hazards, severe weather hazards can also have an effect on the mental health of the population causing anxiety, panic attacks and post-traumatic stress. Vulnerable populations can include those who are unable to evacuate during a severe weather event, those with health issues that may be exacerbated, as well as children and elderly adults. If poor populations are unable to provide necessary shelter during an event, they will be at higher risk and may be more vulnerable to the effects of that event.

## LOSS AND DAMAGES

The following table lists the severe weather occurrences in the region according to data gathered from the National Centers for Environmental Information (NCEI) storm events database. Blizzards and winter storms were combined into a single category and events relating to wind and high winds were also grouped.

It is possible that there have been more events than recorded here; however, this list indicates the events that were reported to the NCEI. Also, there have been no officially recorded tornadoes since 1950, although interviews with local officials indicate that there may have been unconfirmed sightings. Note that different events have different timeframe years; some records are not available before the year noted.

The total cost of severe weather in damages is over \$3M, giving an average cost per event of roughly \$11,000.

TABLE 2.22 SEVERE WEATHER					
Event	Occurrences Brooke County	Occurrences Hancock County	Total Occurrences	Timeframe	Damages
Blizzard/Winter Storm	6	7	13	1999-2016	\$30,000
Hailstorm	13	28	41	1980-2016	\$0
Ice Storm	8	6	14	1997-2016	\$6,000
Lightning	0	2	2	1996-2016	\$23,000
Thunderstorm	84	85	169	1957-2016	\$2,348,750
Tornado	0	0	0	1950-2016	\$0
Wind	12	13	25	1999-2016	\$626,500
<b>Totals</b>	<b>123</b>	<b>141</b>	<b>264</b>		<b>\$3,034,250</b>

SOURCE: NOAA National Centers for Environmental Information  
Storm Events Database

#### PROBABILITY AND SEVERITY CALCULATION

The total number of severe weather events in Brooke and Hancock Counties is 264. The earliest year of record with any recorded events is 1957, giving a total number of years of 59. This information is based on data available from NCEI.

Number of events		264		
_____	= Probability	OR	_____	= 4.47
Number of years		59		

**PROBABILITY: FREQUENT**

Although the average cost per severe weather event is low, the overall cost of this hazard is noticeable. Damage to structures is the most costly since there have been no reports of injuries or illnesses directly related to severe weather in Region 11.

**SEVERITY: MARGINAL**

With a value of 4.47 events in a given year, the probability of an event is determined to be “frequent” and given the “negligible” severity of the hazard, the risk assessment matrix



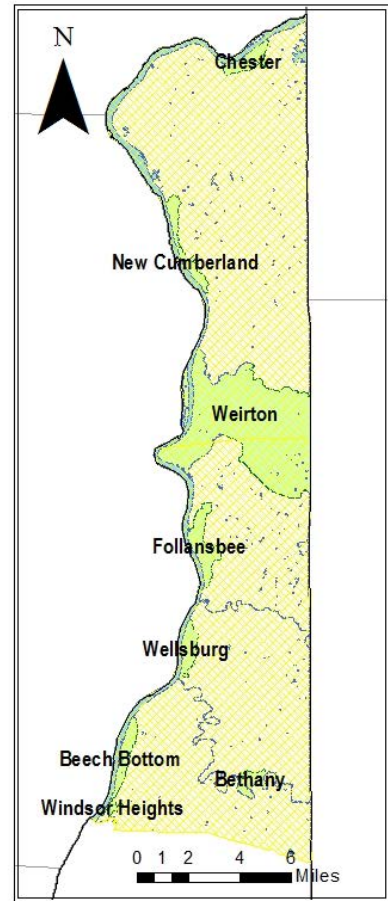
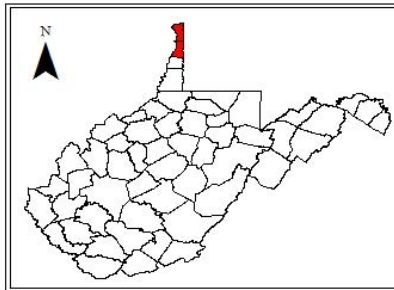
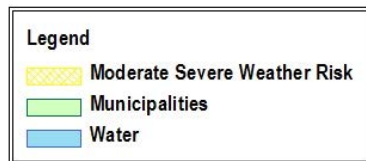
gives this hazard a “moderate” risk to the region.

**RISK: MODERATE**

### RISK MAP

All regions of Brooke and Hancock Counties are equally at a moderate risk of severe weather events.

## REGION 11 SEVERE WEATHER RISK MAP



## 2.2.11 WILDFIRES

"A large, often out-of-control burning of trees, fallen wood, detritus, and other debris in uninhabited or sparsely inhabited forest or grasslands" (Haddow, Bullock, & Coppola, 2014).			
<i>Period of Occurrence</i>	<i>Warning Time</i>	<i>Region 11 Risk Assessment</i>	<i>State Risk Assessment</i>
At any time throughout the year. Increased chance following dry weather.	None / Hours / Days	LOW	LOW

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

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

"Wildland fire can be a friend and a foe. In the right place at the right time, wildland fire can create many environmental benefits, such as reducing grass, brush, and trees that can fuel large and severe wildfires and improving wildlife habitat. In the wrong place at the wrong time, wildfires can wreak havoc, threatening lives, homes, communities, and natural and cultural resources" (U.S. Forest Service).

### POSSIBLE CAUSES

According to the WV Division of Forestry, "people cause the majority of forest fires in West Virginia. In the spring of 2015, 43% of all forest fires were the result of escaped debris fires. Equipment use was the second highest ... causing 29% of all wildfires. Fires set purposely accounted for 13%" (n.d.).

The National Park Service lists several possible causes of wildfires including human-caused and nature-caused. Human-caused fires "result from campfires left unattended, the

burning of debris, negligently discarded cigarettes and intentional acts of arson”, which account for up to 90% of fires. Lightning or lava causes the remaining 10% of fires (NPS).

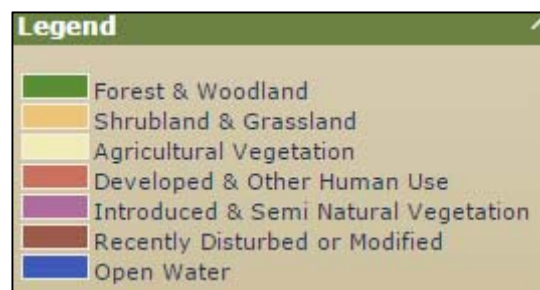
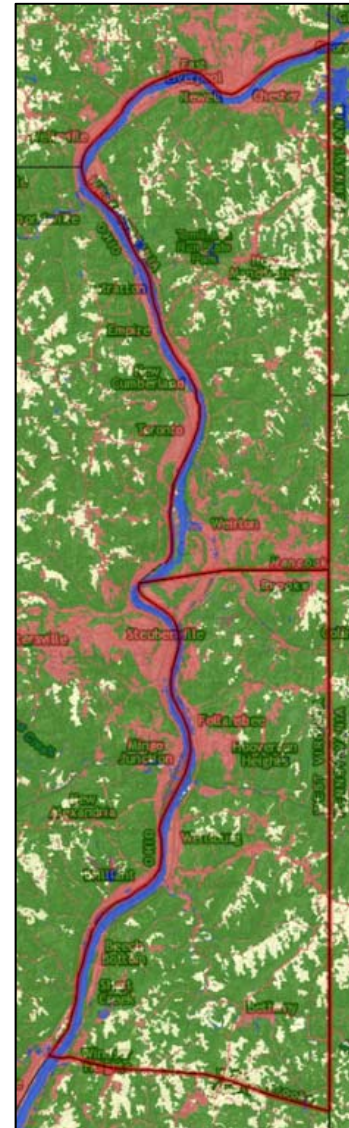
## LOCATION AND EXTENT

Fires always have an ignition point that originates in a specific location; typically wildfires start in or around wooded lands and begin to spread. The USGS National Gap Analysis Program Land Cover Data Viewer shows the different types of vegetation in each county. As shown on the map to the right, Brooke and Hancock Counties are comprised of three different elements: forest and woodland, agricultural vegetation and developed and other human use. Scattered throughout the counties in a very low amount are other types of land use, as identified in the legend below.

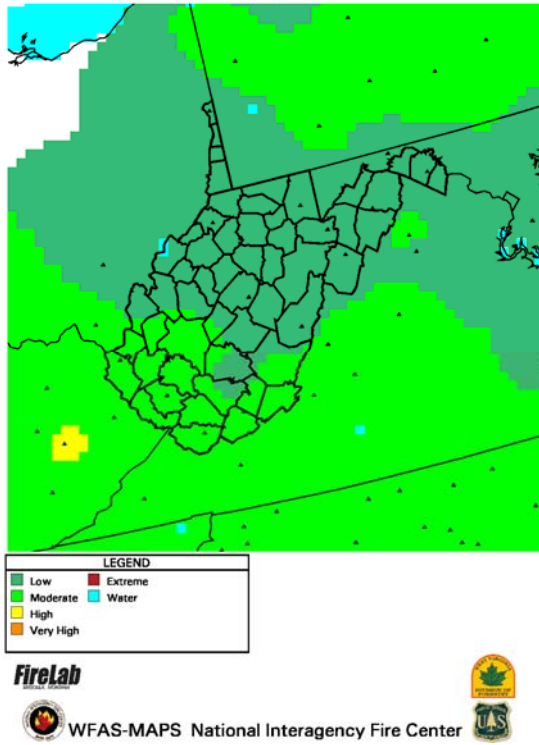
Wildfires are a region-wide hazard that can affect all areas and jurisdictions of the counties. One wildfire or brush fire can cover several acres at time and spread rapidly though the region. The topography of the area is important; “slopes exposed to prevailing winds tend to have drier vegetation than do slopes sheltered from the wind, and thus, are more prone to combustion. Also, in mountainous areas, winds tend to circulate up canyons providing an easy path for wildfires” (Keller, Devecchio, 2015, p.450).

Historically, the state of West Virginia and the northern panhandle in particular, have not been prone to wildfire activity. However, these events do happen as evidenced by the section

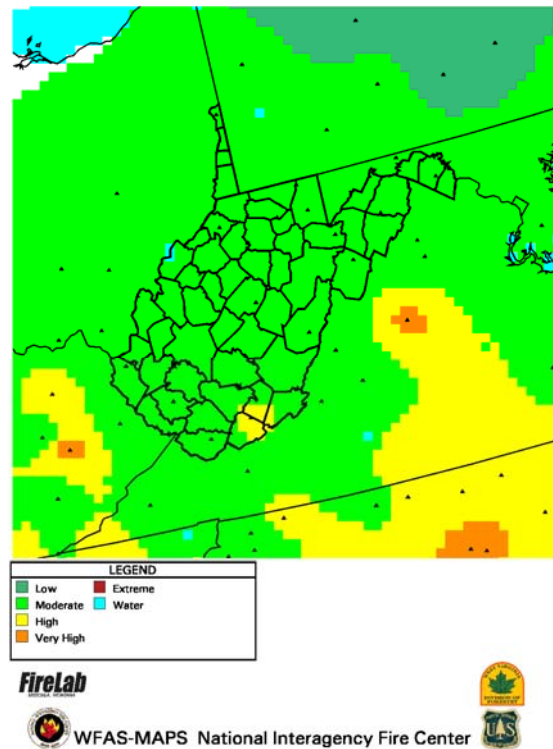
below. The WV Division of Forestry periodically publishes fire danger maps on its website created by the National Interagency Fire Center (NIFC). Shown on the next page are snapshots taken in November of 2016 and February of 2017; the risk is not always the same throughout the year.



West Virginia Forecast Fire Danger Class: 01-NOV-16



West Virginia Forecast Fire Danger Class: 17-FEB-17



## HISTORICAL OCURENCES

According to interviews with local fire chiefs, there have not been many wild or brushfires of note in the area and they are few and far between. The following are a couple of instances where brushfires made the local news.

### Weirton, WV

On November 13, 2015, flames grew along the hillside of Cove Road in Weirton. Nine fire departments responded to the human-caused incident; extinguishing fire on steep terrain with blowing wind was a difficult task. A month later, trees and logs were still smoldering in the 15 acres that had been consumed. There was no structural damage (WVAways.com, 2015).

### New Manchester, WV

In March of 2016, human error caused three brushfires in northern Hancock County: one on Route 8, another on Westlake Lane and on Snyder Road. The last one originated at a resident's property but continued to spread into the Hillcrest Wildlife Management Area (The Review, 2016).

## IMPACTS AND SOCIAL VULNERABILITY

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

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

## LOSS AND DAMAGES

No data for losses or damages has been reported as being caused by wild or brushfires in the area.

## PROBABILITY AND SEVERITY CALCULATION

There have not been enough events to place a value of probability of occurrence on wildfires in the area. Since they have happened in the past years there is a “remote” possibility of a wildfire or brushfire happening in any given year.

**PROBABILITY: REMOTE**

The damages caused by wild and brush fires have been “negligible”; no significant damages have been reported.

**SEVERITY: NEGLIGIBLE**

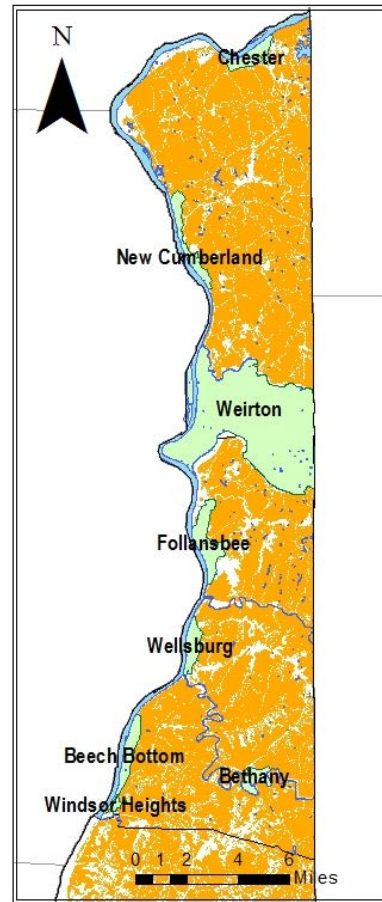
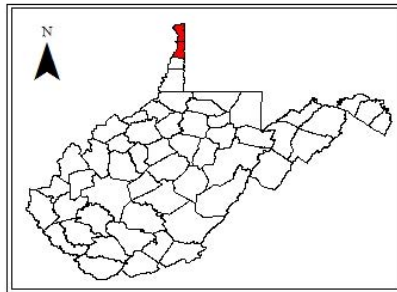
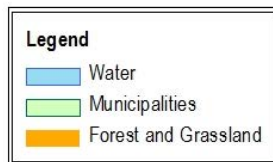
With a “remote” possibility of occurrence and “negligible” impacts on the region, wildfires are of “low” risk to Region 11.

**RISK: LOW**

## RISK MAP

The areas shown on the map in orange correspond to forest and grassland land use, according to the USGS. These areas, although they have a low risk of wildfire events, are the most vulnerable to the hazard.

### REGION 11 WILDFIRE RISK MAP



## 2.3 INVENTORY ASSETS

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

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

### Methodology

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

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

## Asset Inventory

The following tables list assets on a community-by-community basis. Each asset table denotes the name, address, and category of asset for each facility listed as well as a determination of vulnerability for each hazard. Vulnerability is listed as low (L), moderate/medium (M), or high (H). Vulnerability was assessed by mapping the assets using mapping software and overlaying hazard areas. The following describes the reasoning for assigning the level of vulnerability to each asset according to the hazard.

- **Acts of Violence:** All assets are considered to be of medium vulnerability considering the unpredictable nature of the hazard.
- **Dam Failure:** Unless the assets are in direct contact with the projected dam flooding path in case of a failure, all assets are considered to be low vulnerability to this hazard.
- **Drought:** All assets are considered to be of a low vulnerability to drought because this hazard does not affect structures.
- **Earthquake:** All assets are currently considered to be low vulnerability to earthquakes. A more in-depth, site specific study is required to determine each asset's vulnerability to include age of structure, materials used, maintenance, etc.
- **Extreme temperatures:** Extreme temperatures can cause assets to deteriorate. For this reason, all assets are of medium vulnerability.
- **Flood:** Assets clearly within the 100-year floodplain are considered to be high vulnerability. If the assets were on or close to the edge of the floodplain, they're considered to have a medium vulnerability. All other assets outside the floodplain are low vulnerability.
- **Hazmat:** Assets that are also Tier II reporting facilities or in very close proximity to these facilities are considered to be high vulnerability. Gas stations and assets along highly travelled routes such as State Route 2 and Route 27 are considered to have a medium vulnerability.
- **Mass Movements:** All assets are considered to be outside the mass movement areas. For this reason, they are considered to be of a low vulnerability. However, due to the old, decaying infrastructure in Beech Bottom and all the maintenance that has had to be done, Beech Bottom's assets are considered to be a moderate vulnerability to the hazard.



- **Radiological:** Assets inside the 10-mile emergency planning zone (EPZ) are considered to have high vulnerability. Any asset outside the EPZ is considered to have low vulnerability.
- **Severe Weather:** Severe weather can cause varying degrees of damage to. For this reason, all assets are of medium vulnerability.
- **Wildfire:** All assets are considered to be outside potential wildfire areas. All assets are considered to be of a low vulnerability.

## 2.3.1 ASSET INVENTORY

TABLE 2.23 BROOKE COUNTY ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
Colliers Volunteer Fire Department - Ladies Aux Inc.	Critical	341 Pennsylvania Avenue	Colliers	M	L	L	L	M	H	L	L	L	M	L
Colliers Primary School	Vulnerable Population	270 Pennsylvania Avenue	Colliers	M	L	L	L	M	M	L	L	L	M	L
Colliers Post Office	Special Consideration	327 Pennsylvania Avenue	Colliers	M	L	L	L	M	H	L	L	L	M	L
Promise of Victory Church of God	Vulnerable Population	47 Dennis Ridge Road	Colliers	M	L	L	L	M	L	L	L	L	M	L
Cross Creek United Presbyterian Church	Vulnerable Population	3831 Tent Church Road	Colliers	M	L	L	L	M	L	L	L	L	M	L
Follansbee Church of Christ	Vulnerable Population	833 Archer Hill Road	Colliers	M	L	L	L	M	L	L	L	L	M	L
Short Creek Volunteer Fire Department	Critical	12 Short Creek Road	Short Creek	M	L	L	L	M	L	L	L	L	M	L
Short Creek Post Office	Special Consideration	1 Short Creek Road	Short Creek	M	L	L	L	M	L	L	L	L	M	L

TABLE 2.24 HANCOCK COUNTY ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
New Manchester Elementary School	Vulnerable Population	128 Frankfort Road	New Manchester	M	L	L	L	M	L	L	L	M	M	L
New Manchester Volunteer Fire Department	Critical	193 Main Street	New Manchester	M	L	L	L	M	L	L	L	H	M	L
New Manchester Post Office	Special Consideration	290 High Street	New Manchester	M	L	L	L	M	L	L	L	H	M	L
Old Courthouse	Historical Consideration	High and Elm Street	New Manchester	M	L	L	L	M	L	L	L	H	M	L
Fairview Presbyterian	Vulnerable Population	99 Market Street	New Manchester	M	L	L	L	M	L	L	L	H	M	L
New Manchester Christian Church	Vulnerable Population	172 High Street	New Manchester	M	L	L	L	M	L	L	L	H	M	L
Oak Glen Middle School	Vulnerable Population	39 Golden Bear Drive	New Manchester	M	L	L	L	M	L	L	L	H	M	L
Oak Glen High School	Vulnerable Population	195 Golden Bear Drive	New Manchester	M	L	L	L	M	L	L	L	H	M	L
Newell Volunteer Fire Department	Critical	542 Washington Street	Newell	M	L	L	L	M	L	M	L	H	M	L
Baker's Bottom Historic District	Historical Consideration	WV 2	Newell	M	L	L	L	M	L	L	L	H	M	L
Baker's Fort Massacre Site	Historical Consideration	WV 2	Newell	M	L	L	L	M	L	L	L	H	M	L
Nathan Hellings Apple Barn	Historical Consideration	WV 2	Newell	M	L	L	L	M	L	L	L	H	M	L
Mountaineer Racetrack and Gaming Resort	Historical Consideration	1420 Mountaineer Circle	Newell	M	L	L	L	M	L	L	L	H	M	L
William E. Wells House	Historical Consideration	372 Virginia Terrace	Newell	M	L	L	L	M	L	L	L	H	M	L
First Presbyterian Church	Vulnerable Population	602 Grant Street	Newell	M	L	L	L	M	L	L	L	H	M	L
First Methodist Episcopal Church	Vulnerable Population	318 Grant Street	Newell	M	L	L	L	M	L	L	L	H	M	L
Newell United Methodist Church	Vulnerable Population	311 Grant Street	Newell	M	L	L	L	M	L	L	L	H	M	L
Ergon West Virginia, Inc.	Economic Asset	9995 Ohio River Boulevard	Newell	M	L	L	L	M	H	H	L	H	M	L
Newell Water Tank	Critical	Wells Avenue	Newell	M	L	L	L	M	L	L	L	H	M	L
Sunoco	Economic Asset	600 Washington Street	Newell	M	L	L	L	M	L	M	L	H	M	L

TABLE 2.25 BEECH BOTTOM ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
Beech Bottom Primary School	Vulnerable Population	High Street	Beech Bottom	M	L	L	L	M	L	L	M	L	M	L
Beech Bottom Volunteer Fire Department	Critical	13 3rd Street	Beech Bottom	M	L	L	L	M	L	L	M	L	M	L
Beech Bottom Volunteer Fire Department Station 9	Critical	3rd Street	Beech Bottom	M	L	L	L	M	L	L	M	L	M	L
Beech Bottom Police Department	Critical	11 3rd Street	Beech Bottom	M	L	L	L	M	L	L	M	L	M	L
Beech Bottom Village Office	Critical	11 3rd Street	Beech Bottom	M	L	L	L	M	L	L	M	L	M	L
Beech Bottom Post Office	Special Consideration	15 3rd Street	Beech Bottom	M	L	L	L	M	L	L	M	L	M	L
Beech Bottom Community Church	Vulnerable Population	Alley C	Beech Bottom	M	L	L	L	M	L	L	M	L	M	L
Village of Beech Bottom	Critical	11 3rd Street	Beech Bottom	M	L	L	L	M	L	L	M	L	M	L

TABLE 2.26 BETHANY ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)											
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire	
Bethany College	Vulnerable Population	31 S Loop Campus Drive	Bethany	M	L	L	L	M	L	L	L	L	L	M	L
Bethany Volunteer Fire Department	Critical	11 WV 88	Bethany	M	L	L	L	M	L	L	L	L	L	M	L
Bethany Police Department	Critical	Church Street	Bethany	M	L	L	L	M	M	L	L	L	L	M	L
Bethany Post Office	Special Consideration	1 Ross Street	Bethany	M	L	L	L	M	L	L	L	L	L	M	L
Alexander Campbell Mansion	Historical Consideration	Main Street	Bethany	M	L	L	L	M	L	L	L	L	L	M	L
Delta Tau Delta Founders Home	Historical Consideration	211 Main Street	Bethany	M	L	L	L	M	L	L	L	L	L	M	L
Old Main, Bethany College	Historical Consideration	31 S Loop Campus Drive	Bethany	M	L	L	L	M	L	L	L	L	L	M	L
Old Bethany Church	Vulnerable Population	Main and Church Street	Bethany	M	L	L	L	M	L	L	L	L	L	M	L
Castleman Run Church	Vulnerable Population	Castleman Run Road	Bethany	M	L	L	L	M	L	L	L	L	L	M	L
Bethany Memorial Christian Church	Vulnerable Population	Main Street	Bethany	M	L	L	L	M	L	L	L	L	L	M	L
St. John Fisher Catholic Church	Vulnerable Population	201 Richardson Street	Bethany	M	L	L	L	M	L	L	L	L	L	M	L

TABLE 2.27 CHESTER ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
Orchards at Foxcrest	Vulnerable Population	125 Fox Lane	Chester	M	L	L	L	M	L	L	L	H	M	L
A.T. Allison Elementary	Vulnerable Population	605 Railroad Street	Chester	M	L	L	L	M	L	L	L	H	M	L
Chester Volunteer Fire Department	Critical	371 Carolina Avenue	Chester	M	L	L	L	M	L	M	L	H	M	L
Lawrenceville Volunteer Fire Department	Critical	616 Pyramys Street	Chester	M	L	L	L	M	L	L	L	H	M	L
Chester Police Department	Critical	600 Indiana Avenue	Chester	M	L	L	L	M	L	L	L	H	M	L
City of Chester	Critical	600 Indiana Avenue	Chester	M	L	L	L	M	L	L	L	H	M	L
Chester Post Office	Special Consideration	323 Carolina Avenue	Chester	M	L	L	L	M	L	M	L	H	M	L
Chester City Hall	Critical	600 Indiana Avenue	Chester	M	L	L	L	M	L	L	L	H	M	L
James F Murray House a.k.a. Murray-Abrams House	Historical Consideration	530 Louisiana Avenue	Chester	M	L	L	L	M	L	L	L	H	M	L
Lynn Murray Memorial Special Consideration	Special Consideration	601 Railroad Avenue	Chester	M	L	L	L	M	L	L	L	H	M	L
Church of Christ	Vulnerable Population	201 Virginia Ave	Chester	M	L	L	L	M	L	L	L	H	M	L
Chester Church of the Nazarene	Vulnerable Population	205 3rd Street	Chester	M	L	L	L	M	L	L	L	H	M	L
First Christian Church	Vulnerable Population	330 Indiana Avenue	Chester	M	L	L	L	M	L	L	L	H	M	L
Sacred Heart Catholic Church	Vulnerable Population	418 4th Street	Chester	M	L	L	L	M	L	L	L	H	M	L
Westminster Presbyterian Church	Vulnerable Population	508 Indiana Avenue	Chester	M	L	L	L	M	L	L	L	H	M	L
Emmanuel Mission church	Vulnerable Population	Fairview Road	Chester	M	L	L	L	M	L	L	L	H	M	L
Chester Sewage Treatment Plant	Critical Water	Louella Avenue	Chester	M	L	L	L	M	H	L	L	H	M	L
Chester City Pump House	Critical	Collins Memorial Drive	Chester	M	L	L	L	M	L	L	L	H	M	L
Chester Water Tank	Critical	Liberty Avenue	Chester	M	L	L	L	M	L	L	L	H	M	L
Sunoco	Economic Asset	800 Caroline Avenue	Chester	M	L	L	L	M	L	M	L	H	M	L

TABLE 2.28 FOLLANSBEE ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
BP	Economic Asset	1522 Main Street	Follansbee	M	L	L	L	M	L	M	L	L	M	L
Brooke County EMS	Critical	1960 Main Street	Follansbee	M	L	L	L	M	L	M	L	L	M	L
City of Follansbee	Critical	872 Main Street	Follansbee	M	L	L	L	M	H	M	L	L	M	L
Downtown Water Plant	Critical	Washington Street	Follansbee	M	L	L	L	M	H	L	L	L	M	L
First Church of the Nazarene	Vulnerable Population	114 Mahan Lane	Follansbee	M	L	L	L	M	L	L	L	L	M	L
First Energy Substation (Mon Power)	Critical	WV 2	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Follansbee Water Plant	Critical	807 Lee Road	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Follansbee Library	Special Consideration	844 Main Street	Follansbee	M	L	L	L	M	H	M	L	L	M	L
Follansbee Middle School	Vulnerable Population	1440 Main Street	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Follansbee Police Department	Critical	872 Main Street	Follansbee	M	L	L	L	M	M	M	L	L	M	L
Follansbee Post Office	Special Consideration	1005 Main Street	Follansbee	M	L	L	L	M	H	M	L	L	M	L
Follansbee United Methodist Church	Vulnerable Population	1002 Virginia Avenue	Follansbee	M	L	L	L	M	H	L	L	L	M	L
Follansbee Volunteer Fire Department	Critical	1061 Main Street	Follansbee	M	L	L	L	M	H	M	L	L	M	L
Follansbee Waste Water Plant	Critical	Riverview Avenue	Follansbee	M	L	L	L	M	L	L	L	L	M	L
FSTI	Economic Asset	800 Veterans Drive	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Goodwill Church	Vulnerable Population	2514 Eldersville Road	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Hooverson Heights Primary School	Vulnerable Population	200 Rockdale Road	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Hooverson Heights Volunteer Fire Department	Critical	116 May Road	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Hooverson Heights Volunteer Fire Department (garage)	Critical	2518 Eldersville Road	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Jefferson Primary School	Vulnerable Population	1098 Jefferson Street	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Koppers Chemical	Economic Asset	100 Koppers Road	Follansbee	M	L	L	L	M	L	L	L	L	M	L

TABLE 2.28 FOLLANSBEE ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
Lombardi Development Company	Economic Asset	649 Virginia Avenue	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Mount Zion Church	Vulnerable Population	635 Virginia Avenue	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Mountain State Carbon	Critical	WV 2	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Murphy Consolidated Industries	Economic Asset	575 Veterans Drive	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Sheetz	Economic Asset	1525 Main Street	Follansbee	M	L	L	L	M	L	M	L	L	M	L
Sierra Chemicals	Economic Asset	200 Archer Hill Road	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Spectra Energy	Economic Asset	600 Veterans Drive	Follansbee	M	L	L	L	M	L	L	L	L	M	L
St. Anthony Church	Vulnerable Population	1017 Jefferson Street	Follansbee	M	L	L	L	M	L	L	L	L	M	L
Sunoco	Economic Asset	1405 Main Street	Follansbee	M	L	L	L	M	L	M	L	L	M	L
United Presbyterian Church	Vulnerable Population	1254 Main Street	Follansbee	M	L	L	L	M	L	M	L	L	M	L
Wheeling-Nisshin Inc.	Economic Asset	400 Penn Street	Follansbee	M	L	L	L	M	L	L	L	L	M	L



TABLE 2.29 NEW CUMBERLAND ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)											
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire	
Herron Airport	Critical	529 Herron	New Cumberland	M	L	L	L	M	L	L	L	H	M	L	
Lafarge	Economic Asset	28 Quarry Drive	New Cumberland	M	L	L	L	M	H	L	L	L	M	L	
City of New Cumberland Fire Department	Critical	303 N Chester Street	New Cumberland	M	L	L	L	M	H	M	L	L	M	L	
New Cumberland Ambulance Services	Critical	205 N Chester Street	New Cumberland	M	L	L	L	M	H	M	L	L	M	L	
Hancock County Sheriff's Department	Critical	104 N Court Street	New Cumberland	M	L	L	L	M	L	L	L	L	M	L	
City of New Cumberland Police Department	Critical	104 N Court Street	New Cumberland	M	L	L	L	M	L	L	L	L	M	L	
West Virginia State Police	Critical	32 County Highway 66/1	New Cumberland	M	L	L	L	M	M	L	L	L	M	L	
Hancock County	Critical	102 N Court	New Cumberland	M	L	L	L	M	L	L	L	L	M	L	
City of New Cumberland	Critical	104 N Court Street	New Cumberland	M	L	L	L	M	L	L	L	L	M	L	
Hancock County Courthouse	Critical	102 N Court	New Cumberland	M	L	L	L	M	L	L	L	L	M	L	
New Cumberland Post Office	Special Consideration	504 Ridge Avenue	New Cumberland	M	L	L	L	M	L	M	L	L	M	L	
First National Bank - Graham Building	Historical Consideration	100 N Chester Street	New Cumberland	M	L	L	L	M	H	M	L	L	M	L	
Marshall House a.k.a. McNeil House	Historical Consideration	1008 Ridge Avenue	New Cumberland	M	L	L	L	M	L	M	L	L	M	L	
New Cumberland Church of the Nazarene	Vulnerable Population	49 Nazarene Lane	New Cumberland	M	L	L	L	M	L	L	L	L	M	L	
Hancock County Solid Waste Authority	Critical	831 Gas Valley Road	New Cumberland	M	L	L	L	M	L	L	L	H	M	L	
N C Sanitation Inc.	Critical	292 Gas Valley Road	New Cumberland	M	L	L	L	M	L	L	L	H	M	L	
Hancock County PSD	Critical Water	1530 N Chester Street	New Cumberland	M	L	L	L	M	H	M	L	H	M	L	
New Cumberland Water Tank (3)	Critical	Rolling Acres Road	New Cumberland	M	L	L	L	M	L	L	L	L	M	L	
New Cumberland Waste Water Treatment Plant	Critical Water	South Chestnut Street	New Cumberland	M	L	L	L	M	M	L	L	L	M	L	
New Cumberland Water Wells	Critical	Adams Street	New Cumberland	M	L	L	L	M	H	M	L	L	M	L	

TABLE 2.29 NEW CUMBERLAND ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
New Cumberland Vac Station	Critical	Adams Street	New Cumberland	M	L	L	L	M	H	M	L	L	M	L
Fryers Auto Service	Economic Asset	657 Ohio River Boulevard	New Cumberland	M	L	L	L	M	H	M	L	L	M	L
Smith Oil Company	Economic Asset	306 S Chester Street	New Cumberland	M	L	L	L	M	H	M	L	L	M	L

TABLE 2.30 WEIRTON ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)											
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire	
The Wyngate Senior Living Community	Vulnerable Population	100 Wyngate Drive	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Weirton Madonna High School	Vulnerable Population	150 Michael Way	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Lauretta B Millsop Primary School	Vulnerable Population	1401 Legion road	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Weirton Medical Center	Critical, Vulnerable Population	601 Colliers Way	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Ball Metal Food and Household Products	Economic Asset	3010 Birch Drive	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Neo Industries	Economic Asset	3025 Birch Drive	Weirton	M	L	L	L	M	L	H	L	L	M	L	
SAL Chemical	Economic Asset	3036 Birch Drive	Weirton	M	L	L	L	M	L	H	L	L	M	L	
Feroleto Steel Company	Economic Asset	Half Moon Industrial Park	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Walmart	Economic Asset	400 Three Springs Drive	Weirton	M	L	L	L	M	L	L	L	L	M	L	
St. Nicholas Orthodox Church	Vulnerable Population	608 Colliers Way	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Mazzare Church	Vulnerable Population	415 Old Colliers Way	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Seventh Day Adventist Church	Vulnerable Population	600 Colliers Way	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Weirton Water Treatment Plant	Critical	5000 Freedom Way	Weirton	M	L	L	L	M	M	L	L	L	M	L	
Weirton Elementary School	Vulnerable Population	3428 Pennsylvania Avenue	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Weir Middle School	Vulnerable Population	125 Sinclair Avenue	Weirton	M	L	L	L	M	L	L	L	L	M	L	
St. Paul School	Vulnerable Population	140 Walnut Street	Weirton	M	L	L	L	M	H	L	L	L	M	L	
West Virginia Northern Community College	Vulnerable Population	150 Michael Way	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Weirton High School	Vulnerable Population	100 Red Rider Road	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Weirton Heights Elementary School	Vulnerable Population	160 S 12th Street	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Westbrook University	Vulnerable Population	3185 Wylie Ridge Road	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Weirton Area Ambulance	Critical	1305 Pennsylvania Avenue	Weirton	M	L	L	L	M	L	L	L	L	M	L	
Weirton Police Department	Critical	200 Municipal Plaza	Weirton	M	L	L	L	M	L	L	L	L	M	L	

TABLE 2.30 WEIRTON ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
City of Weirton	Critical	200 Municipal Plaza	Weirton	M	L	L	L	M	L	L	L	L	M	L
US Army Reserve Training Center	Critical	199 Front Street	Weirton	M	L	L	L	M	L	L	L	L	M	L
Johnston-Truax House	Historical Consideration	209 Seneca Street	Weirton	M	L	L	L	M	L	L	L	L	M	L
Marland Heights Park and Mansion Weir Memorial Pool	Historical Consideration	Williams Drive and Riverview Drive	Weirton	M	L	L	L	M	L	L	L	L	M	L
People's Bank	Historical Consideration	3383 Main Street	Weirton	M	L	L	L	M	L	M	L	L	M	L
Dr. George Rigas House	Historical Consideration	3412 West Street	Weirton	M	L	L	L	M	L	L	L	L	M	L
MedExpress Urgent Care	Critical, Vulnerable Population	218 Three Springs Drive	Weirton	M	L	L	L	M	L	L	L	L	M	L
Arcelor Mittal Weirton Inc.	Economic Asset	100 Pennsylvania Avenue	Weirton	M	L	L	L	M	L	H	L	L	M	L
Weirton Steel Corporation	Economic Asset	400 Three springs Drive	Weirton	M	L	L	L	M	L	L	L	L	M	L
Mary H Weir Public Library	Special Consideration	3442 Main Street	Weirton	M	L	L	L	M	L	M	L	L	M	L
Voice of Pentecost	Vulnerable Population	106 Mendenhall Street	Weirton	M	L	L	L	M	M	L	L	L	M	L
Salvation Army	Vulnerable Population	794 Cove Road	Weirton	M	L	L	L	M	L	L	L	L	M	L
Sacred Heart of Mary Church	Vulnerable Population	200 Preston Avenue	Weirton	M	L	L	L	M	L	L	L	L	M	L
Mercy Baptist Church	Vulnerable Population	3474 Pennsylvania Avenue	Weirton	M	L	L	L	M	L	L	L	L	M	L
Christ United Methodist	Vulnerable Population	3598 Pennsylvania Avenue	Weirton	M	L	L	L	M	L	L	L	L	M	L
Pleasant Valley Methodist Church	Vulnerable Population	101 Lisa Court	Weirton	M	L	L	L	M	H	L	L	L	M	L
Kings Creek Union Chapel	Vulnerable Population	2883 Kings Creek Road	Weirton	M	L	L	L	M	H	L	L	L	M	L
Oakland Church	Vulnerable Population	34 Swearingen Road	Weirton	M	L	L	L	M	L	L	L	L	M	L
New Hope Baptist Church	Vulnerable Population	2682 Wylie Ridge Road	Weirton	M	L	L	L	M	L	L	L	L	M	L
Oakland United Presbyterian	Vulnerable Population	253 Laurel Heights	Weirton	M	L	L	L	M	L	L	L	L	M	L
St. Joseph The Worker Church	Vulnerable Population	229 California Avenue	Weirton	M	L	L	L	M	L	L	L	L	M	L
Weirton Water Tank	Critical	3712 Wylie Ridge Road	Weirton	M	L	L	L	M	L	L	L	L	M	L
Weirton Heights Water Tank	Critical	125 E Belleview Drive	Weirton	M	L	L	L	M	L	L	L	L	M	L

TABLE 2.30 WEIRTON ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
Sunoco	Economic Asset	1228 Pennsylvania Ave	Weirton	M	L	L	L	M	L	M	L	L	M	L
A&M Quick Market Corporation	Economic Asset	201 S 11th Street	Weirton	M	L	L	L	M	L	M	L	L	M	L
Marathon Gas	Economic Asset	2820 Pennsylvania Avenue	Weirton	M	L	L	L	M	L	M	L	L	M	L
Sunoco	Economic Asset	3009 Pennsylvania Avenue	Weirton	M	L	L	L	M	L	M	L	L	M	L
Marathon Gas	Economic Asset	3128 Pennsylvania Avenue	Weirton	M	L	L	L	M	L	M	L	L	M	L
Sunoco	Economic Asset	101 Three Springs Drive	Weirton	M	L	L	L	M	L	M	L	L	M	L
Sheetz	Economic Asset	239 Three springs Drive	Weirton	M	L	L	L	M	L	H	L	L	M	L
Kroger Gas Station	Economic Asset	100 St. Thomas Drive	Weirton	M	L	L	L	M	L	M	L	L	M	L
Marathon Gas	Economic Asset	3700 Pennsylvania Avenue	Weirton	M	L	L	L	M	H	M	L	L	M	L
BP	Economic Asset	128 American Way	Weirton	M	L	L	L	M	L	H	L	L	M	L
Weirton Main Gas Station	Economic Asset	3775 Main Street	Weirton	M	L	L	L	M	L	M	L	L	M	L
Marathon Gas	Economic Asset	4139 Freedom Way	Weirton	M	L	L	L	M	L	M	L	L	M	L
Weirton Madonna High School	Vulnerable Population	150 Michael Way	Weirton	M	L	L	L	M	L	L	L	L	M	L
St. Joseph The Worker School	Vulnerable Population	151 Michael Way	Weirton	M	L	L	L	M	L	L	L	L	M	L

TABLE 2.31 WELLSBURG ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
Wellsburg Primary School	Vulnerable Population	1148 Main Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Ann's Country Retreat	Vulnerable Population	1439 Washington Pike	Wellsburg	M	L	L	L	M	L	M	L	L	M	L
Blue Ridge Manor	Vulnerable Population	400 Blue Ridge Manor Drive	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Brooke High School	Vulnerable Population	29 Bruin Drive	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Wellsburg Middle School	Vulnerable Population	1447 Main Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Franklin Primary School	Vulnerable Population	1305 Washington Pike	Wellsburg	M	L	L	L	M	L	M	L	L	M	L
Bethany Pike Volunteer Fire Department	Critical	32 Center Street	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Franklin Community Volunteer Fire Department	Critical	960 Washington Pike	Wellsburg	M	L	L	L	M	L	M	L	L	M	L
McKinleyville Volunteer Fire Department	Critical	237 Cherry Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Wellsburg Volunteer Fire Department	Critical	84 12th Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Brooke County EMS	Critical	632 Main street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Brooke County Sheriff's Department	Critical	632 Main Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Wellsbug Police Department	Critical	70 7th Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Brooke County Courthouse	Critical	632 Main Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
City of Wellsburg	Critical	70 Town Square	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Beallmore a.k.a. Booher, William T. Jr., and June, House	Historical Consideration	1500 Pleasant Avenue	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Brooke Cemetery	Historical Consideration	2200 Pleasant Avenue	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Danforth Brown House a.k.a. Old Worrell Farm	Historical Consideration	555 Washington Pike (US 27)	Wellsburg	M	L	L	L	M	L	M	L	L	M	L
Gen. I. H. Duval Mansion	Historical Consideration	1222 Pleasant Avenue	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Elmhurst a.k.a. William Lynn and Carol House	Historical Consideration	1606 Pleasant Avenue	Wellsburg	M	L	L	L	M	L	L	L	L	M	L

TABLE 2.31 WELLSBURG ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
David Flemming and Lucy Tarr Mansion a.k.a. Oxtoby Mansion	Historical Consideration	2000 Pleasant Avenue	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Lewis Hall Mansion a.k.a. Charles Beall III and Sue House	Historical Consideration	1300 Pleasant Avenue	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Inn at Fowlerstown a.k.a. Drover's Inn	Historical Consideration	1001 Washington Pike (WV 27)	Wellsburg	M	L	L	L	M	L	M	L	L	M	L
Kirker House a.k.a. Daniel Finell and Donna House	Historical Consideration	1520 Grand Avenue	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Miller's Tavern a.k.a. Brooke County Historical Museum	Historical Consideration	724 Charles Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Nicholls House and Woolen Mill Site	Historical Consideration	21 Hillview Drive	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Paul, Harry and Louisiana Beall Mansion a.k.a. Morningside	Historical Consideration	1312 Pleasant Avenue	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
John C. Reeves House	Historical Consideration	100 Reeves Drive	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Lucy Tarr Mansion a.k.a. Highland Place	Historical Consideration	1456 Pleasant Avenue	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Vancroft (Aspen Manor)	Historical Consideration	227 Brinker Road	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Wellsburg Wharf	Historical Consideration	132 5th Street	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Eagle Manufacturing Company	Economic Asset	2400 Charles street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Mazzella Welding and Fabrication	Economic Asset	3 Bethany Pike	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Brooke County Public Library	Special Consideration	945 Main Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Brooke Hills Park	Special Consideration	140 Gist Lane	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Apostolic Faith Assembly Church	Vulnerable Population	552 Main Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Brooke Hills Free Methodist Church	Vulnerable Population	1340 Washington Pike	Wellsburg	M	L	L	L	M	L	M	L	L	M	L

TABLE 2.31 WELLSBURG ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)										
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire
Franklin United Methodist Church	Vulnerable Population	3553 Washington Pike	Wellsburg	M	L	L	L	M	L	M	L	L	M	L
Christ Episcopal Church	Vulnerable Population	1014 Main Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Wellsburg Church of Christ	Vulnerable Population	92 Rose Cottage Lane	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Salvation Army Corps	Vulnerable Population	401 Commerce Street	Wellsburg	M	L	L	L	M	L	M	L	L	M	L
St. John the Evangelist Roman Catholic Church	Vulnerable Population	1300 Charles Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
First Baptist Church of Wellsburg	Vulnerable Population	1803 Charles Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Church of Christ of Latter-day Saints	Vulnerable Population	84 26th Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Wellsburg Church of the Nazarene	Vulnerable Population	835 Washington Pike	Wellsburg	M	L	L	L	M	L	M	L	L	M	L
First Presbyterian Church of Wellsburg	Vulnerable Population	901 Charles Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Washington Pike Public Service District	Critical	890 Washington Pike	Wellsburg	M	L	L	L	M	L	M	L	L	M	L
Brooke County Public Service District	Critical	711 Charles Street	Wellsburg	M	L	L	L	M	H	L	L	L	M	L
Hammond Public Service District	Critical	95 Elk's Road	Wellsburg	M	L	L	L	M	L	L	L	L	M	L
Kroger Fuel Center	Economic Asset	91 27th Street	Wellsburg	M	L	L	L	M	M	M	L	L	M	L
Marathon Gas	Economic Asset	725 Commerce Street	Wellsburg	M	L	L	L	M	H	M	L	L	M	L
Exxon	Economic Asset	601 Commerce Street	Wellsburg	M	L	L	L	M	H	M	L	L	M	L
Big D Oil Co,	Economic Asset	16 3rd Street	Wellsburg	M	L	L	L	M	H	M	L	L	M	L
Clark Gas Station	Economic Asset	601 Commerce Street	Wellsburg	M	L	L	L	M	H	M	L	L	M	L
Smith Oil Company	Economic Asset	WV 2	Wellsburg	M	L	L	L	M	L	M	L	L	M	L



TABLE 2.32 WINDSOR HEIGHTS ASSETS

Asset Name	Category	Address	City	Asset Vulnerability to Hazards (H, M, L)											
				Acts of Violence	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flood	Hazmat	Mass Movements	Radiological	Severe Weather	Wildfire	
Windsor Heights Volunteer Fire Department	Critical	841 Main Street	Windsor Heights	M	L	L	L	L	L	L	L	L	M	M	L
Windsor Heights Post Office	Special Consideration	728 Windy Hill Road	Windsor Heights	M	L	L	L	L	L	L	L	L	M	M	L
Windsor Heights Church of God	Vulnerable Population	819 Main Street	Windsor Heights	M	L	L	L	L	L	L	L	L	M	M	L

## 2.4 ANALYZE DEVELOPMENT TRENDS

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

In 1993, there were five economic development organizations in Region 11 that were consolidated to form a single organization dedicated to creating jobs and encouraging economic investment called the Business Development Corporation of the Northern Panhandle (BDC). The BDC established Brooke and Hancock Counties as Certified Development Communities. (Business Development Corporation, n.d.).

The profiles in [Section 2.2](#) provide a background of risk and loss estimates based on historical data, and are based in the past. Identifying and analyzing development trends allows for the consideration of future vulnerability. This information comes in a variety of sources, including economic trends, municipal comprehensive plans, and interviews with local officials.

The *2014 Brooke County Comprehensive Plan* identifies potential partners for economic development and the need for preferred development areas. The plan describes considerations that should be followed regarding where future development should and should not occur. Making these land-use decisions helps the county avoid urban sprawl and achieve a better layout of designated areas for business and industrial expansion.

- Infrastructure development for present and future needs
- Support of existing business or industry retention and expansion
- Priority sites for continuing residential, commercial, and industrial expansion
- Recruitment of desired, high growth businesses or industries (Brooke County Planning Commission, 2014).

According to local officials, the City of Weirton is currently in the process of updating its comprehensive plan; the last update was done in 2000.

There are a few instances of large development activities in Region 11 territory presented below. Development of land may take years to complete when factors such as purchasing the parcels, clearing and preparing the land (including demolition of old buildings and clean-up of brownfields, etc.), selling the land to the new owner, getting investors interested, and finally constructing new facilities or buildings suitable to the plan.

### **Rock Springs Business Park, Chester, WV**

The former Taylor Smith and Taylor (TSST) pottery factory located in Chester along the Ohio River is the new site of The Rock Springs Business Park designed to attract big business and revitalize industry in the Ohio Valley.

The site was filled with abandoned, contaminated former industrial sites. The Taylor factory sat empty and decaying for decades before BDC acquired it in 2012 coordinating public, private, local, state and federal partners to navigate a path that led to demolition, remediation and construction of the new industrial park. BDC first had to demolish and remove the dilapidated remnants of the 80,000-square-foot factory, which was laced with asbestos and lead. Then, the soil itself, which was also contaminated with toxic chemicals, had to be trucked away. Finally, the river had to be dredged for pottery shards, since—for decades—factory employees threw all the broken, lead-leaching pottery over the bank into the river. Then construction began. (Li, Board, & Grant, 2017)

Efforts finally came to fruition in November 2015, when the BDC received a \$2 million loan from the West Virginia Economic Development Authority for the construction of a 30,000-square-foot building. A second building, a mixed-use office complex, is planned for the section closer to the river. Meanwhile, crews are cleaning up the lead contamination of the riverbank above and below the Ohio River waterline.

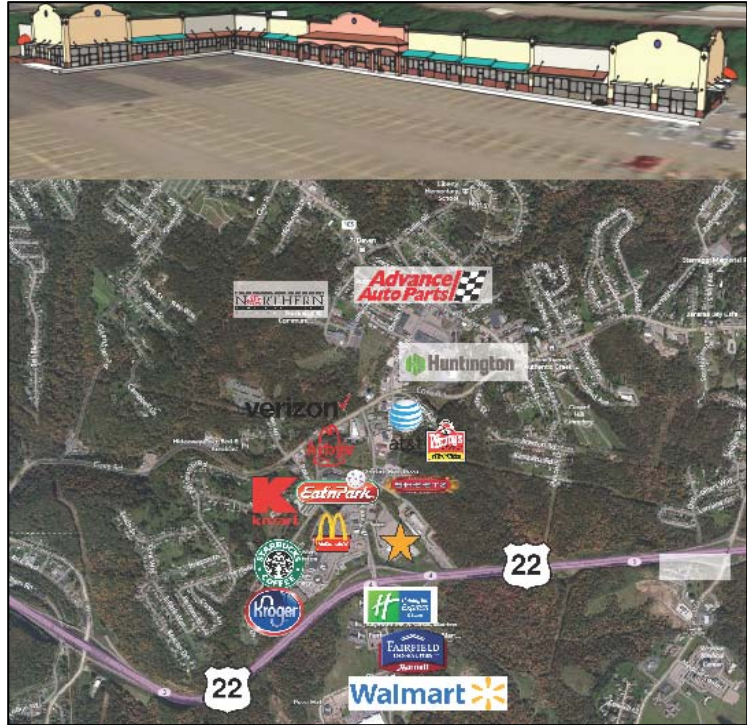
Chester sought outside help with what to do with the rest of the riverfront for development of recreation and tourism opportunities, and how to connect the Upper End to the city's central business district including a pedestrian/bicycle path. Riverlife received a grant from the Pittsburgh-based Claude Worthington Benedum Foundation to replicate the success it has had with Pittsburgh's riverfronts with smaller communities in West Virginia and Pennsylvania. Among other projects, Riverlife has been instrumental in the renovation of Pittsburgh's Point State Park and the development of North Shore Riverfront Park & Trail and South Shore Riverfront Park (Huba, 2016).

### **Three Springs Business Park, Weirton, WV**

In recent years, through presence at trade shows, the BDC and the State of West Virginia have been marketing the area to companies throughout Europe and Asia. These trade shows have focused on areas such as metals manufacturing, automotive industries, metallurgical companies and brownfield redevelopment, bringing local representatives in contact with business and government officials from around the globe. That is where contact

was first made with officials from the Italian company Pietro Fiorentini (Weirton Daily Times & Herald-Star, 2015, p. 11), who has recently located in Weirton.

Pietro Fiorentini is expanding in the northern panhandle in a move state officials say will create 41 jobs in phase one, and up to 150 when fully operational, and more than \$9 million in capital investment. The expansion takes place on 26.4 acres in the Three Springs Business Park, owned by the



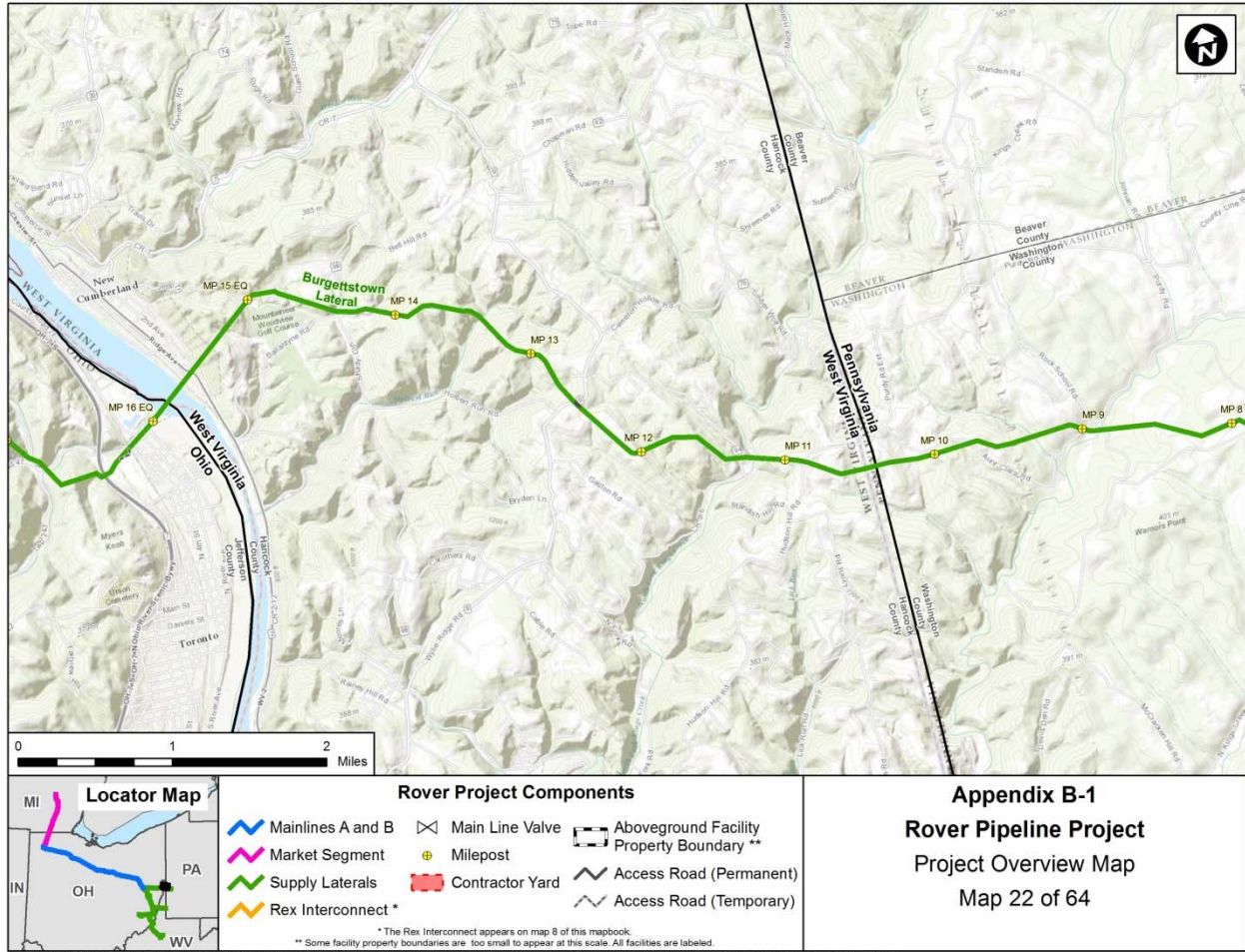
West Virginia Economic Development Authority (WVEDA). This was the fourth major industrial project announced in the Three Springs Business Park in the past five years, joining Rue21, Barney's Bakery, and North American Industrial Services (Trade and Industry Development, 2017).

Century Realty is currently leasing the properties located off of Rt. 22. A picture from their promotional brochure is shown above.

### **Rover Pipeline, New Cumberland, WV**

In 2017 the Federal Regulatory Commission approved licenses for the Rover Pipeline. The project consists of nine supply laterals and three mainlines. Generally, the supply laterals will transport gas from receipt points in the Marcellus and Utica shale supply areas in West Virginia, Pennsylvania, and Ohio to various delivery points.

Approximately 51.8 miles of 36-inch diameter pipeline connecting at the Burgettstown Compressor Station in Washington county, PA, extending to the Burgettstown Tie-In and the interconnection with supply Connector lines in Carroll County, OH (Burgettstown Lateral) (Federal Regulatory Commission, 2017). The supply lateral line is planned to connect Washington County in Pennsylvania and Jefferson County in Ohio through Hancock County roughly at the New Cumberland area as shown in the plan on the following page.



### Follansbee Steel, Follansbee, WV

The BDC purchased a property formerly belonging to Follansbee Steel for more than \$1.3 million and hired a company for the brownfield remediation assessment. The site had been vacant for over four years. The mission of the BDC and Brooke and Hancock County Commissions over the past five years has been to reclaim B.A.D. — brownfield, abandoned and dilapidated — properties, develop them and put people back to work on these properties. The development plan calls for selling parcels to two to three new businesses, possibly in the energy, metals or transportation industries. The BDC and local officials consider the property to be very valuable due to its easy access to the river, railway and highway (Weirton Daily Times, 2016).

Just as in these cases, the Brooke and Hancock County Commissions as well as the Business Development Corporation of the Northern Panhandle and the Brooke-Hancock-Jefferson Metropolitan Planning Commission, have plans for many other properties that vary

in size and location throughout the region. During planning and development phases officials and stakeholders should carefully consider the proposed land use and how they may be vulnerable to different hazards detailed in previous sections of this plan.

### 3.0 ACTION PLAN

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

### 3.1 LOCAL HAZARD MITIGATION GOALS

§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.

The core planning committee determined several regional goals to mitigate the hazard risks identified in the risk assessment. These mitigation actions were developed based on projects thought to be most feasible and beneficial to hazard reduction.

Local mitigation priorities have changed since the previous hazard mitigation update cycle. The committee has consolidated a number of hazards in the risk assessment section, based on their similarities. The committee also chose to create a “Severe Weather” hazard that encompasses all weather events. The committee recognized that there are few, if any, structural mitigation actions that can be taken for severe weather events. The focus of mitigation for these events has been shifted to public education/awareness and notification.

Based on the risk assessment of hazards in the region described in [Section 2.0](#), the committee members set new mitigation goals for the 2017 plan update. These may differ from the ones set forth in the previous 2012 update of the plan because of the shift in jurisdictions’ priorities and available resources.

#### 3.1.1 Setting and Prioritizing Goals

Hazard mitigation goals were set and prioritized for the current plan update at the second steering committee meeting on December 19, 2016. The six goals were determined by consensus of the attendees after group-based discussion. Prioritization is based on the following voting system: each member was given three different colored stickers: red, indicating high priority; yellow, indicating medium priority; and green, indicating low priority. The list of goals was written on a board and each member placed each of their stickers next to the goal they determined to be of high, medium or low priority. Each sticker was given a point value: 3 points for high priority, red; 2 points for medium priority, yellow; and 1 point for low priority, green. The points were then added up and the results are displayed in the following table.

The prioritization of these goals is for regional purposes (i.e. Brooke and Hancock Counties); the projects under each goal for the various participating jurisdictions may not line up with the goal prioritization due to the fact that every county and municipality has different priorities within their own jurisdictional boundaries.



TABLE 3.1 ORIGINAL GOAL PRIORITIZATION VOTING RESULTS					
<i>Region 11 Goals</i>	<i>High</i>	<i>Medium</i>	<i>Low</i>	<i>Totals</i>	<i>Priority</i>
Assigned Point Value	3	2	1		
Flooding	5	1	0	17	1
Water Source Protection	3	2	1	14	2
Accessibility	1	2	4	11	3
Land Subsidence (Mass Movements)	2	1	2	10	4
Hazmat	1	2	1	8	5
Community Education	0	3	2	8	5

Based on the exercises completed at the meeting, the six goals were set. Each goal relates to at least one hazard identified in the risk assessment section of this plan.

TABLE 3.2 REGION 11 ORIGINAL HAZARD MITIGATION GOALS		
<i>Goal</i>	<i>Description</i>	<i>Hazard</i>
FLOODING	Mitigate effects of flooding and flash flooding in Region 11 by reducing costs and loss of property	Flooding
WATER SOURCE PROTECTION	Protect and secure water sources within Region 11	Acts of Violence Flooding Hazmat
ACCESSIBILITY	Promote safety by increasing public road accessibility throughout Region 11	All Hazards
MASS MOVEMENTS	Minimize occurrences of land subsidence and associated property loss	Land Subsidence
HAZARDOUS MATERIALS	Reduce impact of Hazardous Materials on the environment through awareness and planning	Hazmat
EDUCATION	Minimize effects of the hazards affecting Region 11 and increase public awareness through education	All Hazards

When the committee developed projects, few aligned with the water source protection and the accessibility goals; for this reason, and after committee discussion and consensus, it was determined that the goal of water source protection could be integrated into the hazardous materials goal since the base of water source protection is to protect it from hazardous materials, and that the accessibility goal could fall under mass movements. The final list of goals stands as follows.

<b>TABLE 3.3 REGION 11 FINAL HAZARD MITITAGION GOALS</b>		
<i>Goal</i>	<i>Description</i>	<i>Hazard</i>
FLOODING	Mitigate effects of flooding and flash flooding in Region 11 by reducing costs and loss of property	Flooding
MASS MOVEMENTS	Minimize occurrences of land subsidence and associated property loss and promote road safety by increasing accessibility throughout Region 11	Land Subsidence
HAZARDOUS MATERIALS	Reduce impact of Hazardous Materials on the environment and in source water through awareness and planning	Hazmat
EDUCATION	Minimize effects of the hazards affecting Region 11 and increase public awareness through education	All Hazards

Mitigation projects developed by the committee members from each jurisdiction will align with these goals set forth by the committee.

## 3.2 PROJECT IMPLEMENTATION

§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.

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

This portion of the plan builds on the goals presented in [Section 3.1](#). Each project below is listed with a timeframe, primary coordinator, support agencies, potential funding source (and cost estimate), and its current status. It is important to note that the cost estimates are tentative and meant as a starting point for research on project feasibility. More specifically, these cost estimates are only ranges of probable project costs; all figures are approximations. At the time the implementation of any strategy is considered, a full cost estimate should be sought prior to securing funding. Possible funding sources identified include:

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

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

Project prioritization occurred during the third committee meeting utilizing the project prioritization matrix. An example of this matrix can be found in [Appendix 1](#). Committee members were asked to rate each project on six criteria using a one to five scale where five is best. The criteria used are:

- Ease of Implementation
- Cost Effectiveness
- Social Impacts
- Political Impacts
- Economic Impacts
- Overall Positive Impact

The highest score that a proposed project could attain would be a 30 and the lowest would be a six. The project prioritization instructions used to calculate the results can be found in [Appendix 1](#). The prioritized project list is shown in the table below. A list of projects that were deleted by the committee and of projects that have been completed within the planning cycle can be found in [Appendix 4](#).

Letters assigned to each jurisdiction will indicate the project number that corresponds to that jurisdiction. For example, project F3 would represent the third project for Chester, as shown below:

- A. Region 11
- B. Brooke County
- C. Hancock County
- D. Beech Bottom
- E. Bethany
- F. Chester
- G. Follansbee
- H. New Cumberland
- I. Weirton
- J. Wellsburg
- K. Windsor Heights

TABLE 3.4 REGION 11 PROJECTS

Goal	Project #	Projects	Priority	Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	A1	Engage each municipality within Region 11 to continue to support NFIP "discount on insurance" support Community Rating System (2012 Project 1.1.1) (Revised)	2	Review every 2 years	Ongoing	N/A	N/A	County Floodplain Coordinators	Municipal Floodplain Coordinators
	A2	Continue to participate in acquisition / demolition, relocation, mitigation reconstruction, and elevation. (2012 Project 1.1.3).	8	10 years	Ongoing	Approx. \$84,450 per purchased structure	HMGP	Local Floodplain Coordinators	Local government WV DHSEM FEMA
	A3	Create a Repetitive Loss (RL) database from the ongoing collection of information of properties to aid in municipal flooding project implementation and refining of a strategy to address RL areas. (2012 Project 1.1.4).	9	3 years	Ongoing	N/A	N/A	Local Floodplain Coordinators	WVDHSEM
MASS MOVEMENTS	A4	Work with WVDOT and each municipality for accessibility issues.	3	Ongoing as funding becomes available	New	Varies according to project	Federal and state transportation money.	BHJ	WVDOT, federal highways, each municipality
HAZMAT	A5	Identify specific brownfield locations for clean-up due to contamination at formal industrial sites. Do assessments of sites. (2012 Project 3.1.1).	1	3 years	Ongoing	Up to \$1,000,000 per site	EPA brownfields assessments grant	Business development Corporation	BHJ, WVDEP, Jefferson County port authority,
	A6	Partner with municipalities to identify potential water source protection issues and support project development.	4	Ongoing	New	Varies according to entity	Bureau of Health	BHJ	Each municipality
	A7	Form a preparedness "task force" with officials from industries such as oil and natural gas exploration to determine actual risks, share findings and facts, etc. (2012 Project 2.1.3).	5	Ongoing	Ongoing	Unknown	Unknown	Unknown	Facilities

TABLE 3.4 REGION 11 PROJECTS

<i>Goal</i>	<i>Project #</i>	<i>Projects</i>	<i>Priority</i>	<i>Time Frame</i>	<i>Status</i>	<i>Cost Estimate</i>	<i>Funding Source</i>	<i>Coordinating Agency</i>	<i>Support Agencies</i>
EDUCATION	A8	Support each municipality in their efforts for training and education of local government officials regarding the NFIP. (2012 Project 1.1.2).	7	Every 2 years	Ongoing	Up to \$2,500 per outreach effort for the creation of materials, renting training space, etc.	PDM Local funding	Local Floodplain Coordinators	BHJ
	A9	Partner with agencies throughout the region in support of mitigation and preparedness measures, to include but not be limited to the NextGen project, continued maintenance of this plan, etc. (2012 Project 2.1.2).	6	Ongoing	Ongoing	N/A	N/A	County Emergency Managers Jurisdictional Officials	Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ) Weirton Area Port Authority

TABLE 3.5 BROOKE COUNTY PROJECTS

Goal	Project #	Projects	Priority	Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	B1	Create and maintain a database of frequently flooded roadways and share the information with WVDOH used to develop mitigation strategies for flooding and accessibility. (Revised) (2012 Project 9C.2.1).	8	Annually	Ongoing	N/A	N/A	BCEMA	Brooke county Floodplain Coordinator WVDOH
	B2	Collect pertinent data and maps on flooding for annual distribution to appropriate units of local government. (2012 Project 10C.1.4).	15	Annually	Ongoing	Up to \$25,000 if consultant is used	EMPG SHSP HMEP Local Funding	BCEMA	Brooke County LEPC Brooke County Planning Commission
	B3	Ensure all lifeline agencies or departments have a comprehensive understanding of flood hazard risks and are coordinating efforts with other flood mitigation activities. (2012 Project 10C.2.1).	9	Annually	Ongoing	N/A	N/A	Brooke County Floodplain Coordinator	BCEMA
	B4	Continue to participate in acquisition / demolition, relocation, mitigation reconstruction, and elevation. (2012 Project 10C.1.3).	10	Unknown	Ongoing	Unknown	Unknown	Brooke County	All Municipalities County Commission
MASS MOVEMENTS	No county projects were identified for this goal; see regional and municipal projects.								
HAZMAT	B5	Contact commercial rail lines to ensure that measures are being taken to address hazard risks. (2012 Project 9C.2.2).	12	Every 6 months	Ongoing	N/A	N/A	Brooke County LEPC	BCEMA
	B6	Identify strategies to mitigate risks from the transportation and/or storage of hazardous materials in Brooke County in the Hazmat Plan. (2012 Project 9C.3.1).	3	Every 6 months	Ongoing	Included in cost of LEPC primary mission	HMEP SERC Local Funding	Brooke County LEPC	BCEMA

TABLE 3.5 BROOKE COUNTY PROJECTS

Goal	Project #	Projects	Priority	Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
	B7	Review the extent of damage of fall-out areas that would be affected by hazmat incidents. (2012 Project 9C.6.1).	5	Annually	Ongoing	N/A	N/A	BCEMA	Beaver Valley NPS Hancock County OEM WVDHSEM
EDUCATION	B8	Utilize the media for the distribution and publication of hazard information to encourage participation by including public notices in newspapers and involve the mass media of the area as well as hold a series of public meetings yearly, after every annual evaluation from the planning committee. (2012 Consolidated Projects 5C.1.3, 4C.2.1, 4C.3).	1	As needed	Ongoing	N/A	N/A	BCEMA	BCLEPC
	B9	Conduct annual tabletop disaster exercises with local law enforcement, emergency managers, city and county officials, and other disaster response agencies. (2012 Project 5C.4.3).	2	Annually	Ongoing	Up to \$5,000 per exercise	SHSP EMPG HMEP Local Funding	BCEMA	Local emergency services agencies
	B10	Provide information about local, regional, state, and federal training opportunities to fire departments, Emergency Medical Services (EMS), ambulance services, and other emergency responders. (5C.4.4).	5	As information is available	Ongoing	N/A	N/A	BCEMA	N/A
	B11	Secure additional training and education for local land use planners, zoning administrators, and related officials for proper floodplain management techniques, NFIP requirements, and other flood prevention activities. (2012 Consolidated Projects 6C.1.2, 6C.2.1).	3	Ongoing	Ongoing	Unknown	N/A	BC Floodplain Coordinator	Municipal floodplain coordinators WVDHSEM FEMA



TABLE 3.5 BROOKE COUNTY PROJECTS

Goal	Project #	Projects	Priority	Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
	B12	Encourage all local governments to adopt and enforce building codes and other regulations which require new construction activities to conform to applicable snow load specifications. (2012 Project 6C.3.1)	12	Ongoing	Ongoing	N/A	N/A	BC Planning Commission	N/A
	B13	Conduct drills, exercises, and other training events to ensure that the county's emergency response forces are properly trained for hazard events. (2012 Project 7C.3.1)	5	Twice a year	Ongoing	Up to \$10,000 per exercise	SHSP EMPG HMEP Local Funding	BCEMA	Local emergency services agencies BCLEPC
	B14	Maintain meetings with local critical facilities to ensure they develop and maintain response plans for all hazards that are compatible with the county's EOP. (2012 Project 9C.4.1)	10	Every 6 months	Ongoing	Included in cost of LEPC primary mission	HMEP SERC Local Funding	BCLEPC	BCEMA Facility representatives
	B15	Develop a public outreach all-hazards program to reach residents, students, NGOs and tourists in Brooke County using methods such as holding town hall meetings, distributing information, creating pamphlets, integrating education into school curriculum and participating in community events. (2012 Consolidated projects 5C.1.1, 5C.1.2, 5C.1.4, 5C.1.6, 5C.1.7).	12	As needed	Ongoing	Up to \$2,500 for the creation of materials	PDM EMPG SHSP Local Funding	BCEMA	Ohio Valley Business Convention and Visitors Bureau BCLEPC WV Community College BC Board of Education

TABLE 3.6 HANCOCK COUNTY PROJECTS

Goal	Project #	Projects	Priority	Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	C1	Determine if citizens are eligible for flood insurance and ensure participation. (2012 Project 3F.1.2).	1	Ongoing	Ongoing	N/A	N/A	Hancock County Floodplain Coordinator	N/A
	C2	Continue to participate in acquisition / demolition, relocation, mitigation reconstruction, and elevation. (2012 Project 3F.2.4).	5	As funding becomes available	Ongoing	Up to \$84,700 per property	HMPG	Hancock County Floodplain Coordinator	Hancock County Commission Hancock County OEM
MASS MOVEMENTS	No county projects were identified for this goal; see regional and municipal projects.								
HAZMAT	C3	Update the Hancock County Hazmat plan.	4	1 year	New	\$5,000	HMEP	Hancock County OEM	LEPC County Emergency Response Agencies
EDUCATION	C4	Include Storm Ready in public outreach campaigns. Identify funding sources and cost.	2	3 years	New	Unknown	Unknown	Hancock County OEM	LEPC County Commission
	C5	Update shelter location database and educate public through mailers. (2012 Project 5F.1.1) (Revised).	2	1 year	Ongoing	N/A	N/A	Hancock County OEM	N/A

TABLE 3.7 BEECH BOTTOM PROJECTS

Goal	Project #	Project	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	D1	Replace and/or upgrade the current storm sewer pipe that traverses the village.	5	As funding becomes available	New	500,000	Not identified	Village of Beech Bottom	WVDOH DEP BHJ
	D2	Continue to participate in acquisition / demolition, relocation, mitigation reconstruction, and elevation.	6	5 years	New	N/A	N/A	Village of Beech Bottom	Floodplain Manager
MASS MOVEMENTS	D3	Implement Phase II of the sidewalk replacement project at the Hill Street and 4th street location.	1	2 years	New	180K total, village needs to pay 20%	Transportation Enhancement Grants	Village of Beech Bottom	N/A
HAZMAT	D4	Update and maintain emergency contacts for hazardous materials facilities in the area.	2	1 year	New	None	None	Village of Beech Bottom	Brooke County EMA
EDUCATION	D5	Integrate hazard awareness training into current school programs to educate students.	2	2 years	New	None	None	Village of Beech Bottom	Brooke County EMA Brooke County Department of Education
	D6	Create a social media page to feed information to the public about events and alerts in the community.	2	1 year	New	None	None	Village of Beech Bottom	N/A

TABLE 3.8 BETHANY PROJECTS

Goal	Project #	Projects	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	E1	Identify possibilities of addressing flooding near the community center and Bethany College baseball field.	2	5 years	New	Unknown	Unknown	Town of Bethany	Unknown
	E2	Continue to participate in acquisition / demolition, relocation, mitigation reconstruction, and elevation.	3	5 years	New	N/A	N/A	Town of Bethany	Floodplain Manager
MASS MOVEMENTS	No municipal projects were identified for this goal; see other municipal projects.								
HAZMAT	No municipal projects were identified for this goal; see other municipal projects.								
EDUCATION	E3	Identify and implement a public notification system that sends information regarding emergencies at the schools and weather, security, and health related hazards within the municipality.	1	5 years	New	Unknown	Unknown	Town of Bethany	Unknown

**TABLE 3.9 CHESTER PROJECTS**

Goal	Project #	Projects (Original Description)	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	F1	Determine if citizens are eligible for flood insurance and ensure participation. (2012 Project 1D.1.1).	4	4 years	Ongoing	N/A	N/A	Chester Floodplain Coordinator	Hancock County Floodplain Coordinator
	F2	Continue to participate in acquisition / demolition, relocation, mitigation reconstruction, and elevation. (2012 Project 1D.1.2).	3	5 years	Ongoing	N/A	N/A	Chester City Council	Hancock County Floodplain Coordinator
	F3	Clean and remove debris from Meadow Run Creek that causes flooding.	1	3 years	New	25k	State Grants Federal Funds	Hancock County OEM	Unknown
	F4	Repair and maintain sewage pump stations that back-up due to heavy rains.	2	1 year	New	Unknown	Unknown	City of Chester	Unknown
MASS MOVEMENTS	No municipal projects were identified for this goal; see other municipal projects.								
HAZMAT	No municipal projects were identified for this goal; see other municipal projects.								
EDUCATION	No municipal projects were identified for this goal; see other municipal projects.								

TABLE 3.10 FOLLANSBEE PROJECTS

Goal	Project #	Projects	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	G1	Reduce flooding in downtown Follansbee by cleaning out the sediment pond and removing trees and brush from Allegheny Creek. Reconstruct sanitary sewer line and repair and replace collapsed gabion wall.	1	2 years	New	\$495,408	Need to identify funding source	City of Follansbee	DNR, Soil conservation, Division of Agriculture, WVDOH
	G2	Continue to participate in acquisition / demolition, relocation, mitigation reconstruction, and elevation of previously identified residences.	2	6 months	New	Minimal	N/A	City of Follansbee	
	G3	Replace box culvert under Route 2 at the intersection of Main Street and Allegheny Street.	7	2 years	New	N/A	WVDOH	WVDOH	City of Follansbee
	G4	Replace four catch basins at the intersection of Raymond and Virginia with larger catch basins and replace existing 12" inlet pipe with a 60" pipe.		2 years	New	N/A	HMGP	WVDOH	City of Follansbee
	G5	Separate sanitary and storm water piping at Broad street to State and Duane to State. and Raymond Street to Mill Alley	3	5 years	New	N/A	Infrastructure Jobs Development council, ARC.	BHJ	City of Follansbee
	G6	Identify different cost effective options for acquiring and demolishing and rebuilding the firehouse in a different location and addressing the wall collapse into Alleghany Creek.	3	1 year	New	Minimal	HMGP	City of Follansbee	BHJ
MASS MOVEMENTS	G7	Identify different cost effective solutions to fixing land subsidence at City Park which affects Parkview subdivision.	7	1 year	New	N/A	N/A	City of Follansbee	BHJ

TABLE 3.10 FOLLANSBEE PROJECTS

Goal	Project #	Projects	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
HAZMAT	No municipal projects were identified for this goal; see other municipal projects.								
EDUCATION	G8	Create a website and social media page to feed information to the public about events and alerts in the community.	3	6 months	New	Minimal. Less than \$3000	City General Fund	City of Follansbee	N/A

**TABLE 3.11 NEW CUMBERLAND PROJECTS**

Goal	Project #	Projects	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	H1	Continue to participate in acquisition / demolition, relocation, mitigation reconstruction, and elevation. (2012 Project 1G.2.1).	4	As funding becomes available	Ongoing	Up to \$84,700 per property	HMPG	New Cumberland Floodplain Coordinator	New Cumberland Municipal Council
	H2	Identify the location for relocation of fire and EMS services outside of the floodplain zone. (2012 Project 1G.2.2) (Revised).	3	5 years	Ongoing	Minimal	N/A	Hancock County OEM	City of New Cumberland Floodplain Coordinator New Cumberland Municipal Council
MASS MOVEMENTS	No municipal projects were identified for this goal; see other municipal projects.								
HAZMAT	No municipal projects were identified for this goal; see other municipal projects.								
EDUCATION	H3	Identify partners for implementation of public education and awareness about availability and cost of flood insurance for their homes.	2	2 years	New	Minimal	In-kind donations	City of New Cumberland	Insurance Companies NFIP
	H4	Create a social media page to feed information to the public about events and alerts in the community.	1	2 years	New	N/A	N/A	City of New Cumberland	Hancock County OEM



TABLE 3.12 WEIRTON PROJECTS

Goal	Project #	Projects	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	I1	Continue to participate in acquisition / demolition, relocation, mitigation reconstruction, and elevation. (2012 Project 4H.1.4).	3	1-2 years	Ongoing	N/A	N/A	City of Weirton	Planning Department
	I2	Establish zoning districts and land use regulations that will allow only appropriate activities and uses in the village's floodplain and flood prone areas. (2012 Project 3H.2.1).	4	6 months - 1 year	Ongoing	\$45-50K	City Budget	City of Weirton	N/A
MASS MOVEMENTS	I3	Work with the West Virginia Division of Highways (WVDOH) to identify areas of frequent roadway flooding and develop mitigation strategies. (2012 Project 5H.1.1).	6	Ongoing	Ongoing	N/A	N/A	City of Weirton	DOH
HAZMAT	No municipal projects were identified for this goal; see other municipal projects.								
EDUCATION	I4	Review all existing regulations, capital improvements, and comprehensive plans to ensure that infrastructure improvements are not directed towards hazardous areas. (2012 Consolidated Projects 3H.1.1, 3H.1.2, 3H.1.3, 3H.2.2) (Revised).	5	As needed	Ongoing	N/A	N/A	Weirton Water Board	City of Weirton
	I5	Establish a Community Emergency Response Team (CERT) to increase the number of trained citizen emergency responders. (2012 Projects 2H.3.1, 2H.3.2).	7	1-3 years	Ongoing	N/A	N/A	Weirton Fire	City of Weirton

TABLE 3.12 WEIRTON PROJECTS

<i>Goal</i>	<i>Project #</i>	<i>Projects</i>	<i>Priority</i>	<i>Project Time Frame</i>	<i>Status</i>	<i>Cost Estimate</i>	<i>Funding Source</i>	<i>Coordinating Agency</i>	<i>Support Agencies</i>
	16	Create a social media page to feed information to the public about events and alerts in the community.	1	Within 6 months	New	N/A	N/A	City of Weirton	N/A
	17	Develop an all-hazard information system in the Mayor's Office to provide public information on disasters to citizens. (2012 Project 2H.1.1).	1	Within 6 months	New	N/A	N/A	City of Weirton	N/A

TABLE 3.13 WELLSBURG PROJECTS

Goal	Project #	Projects	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	J1	Continue to address storm water flooding caused by 14 tributaries in the area by working with an engineering firm on a 6 phase project.	3	1 year	New	Unknown	WVDEP Storm Water Management	City of Wellsburg Water and Sewer Department	N/A
	J2	Identify measures to reduce and control the floodplain	5	10 years	New	Unknown	Unknown	City of Wellsburg	N/A
	J3	Continue to participate in acquisition / demolition, relocation, mitigation reconstruction, and elevation.	6	5 years	New	N/A	N/A	City of Wellsburg	Floodplain Manager
MASS MOVEMENT	No municipal projects were identified for this goal; see other municipal projects.								
HAZMAT	No municipal projects were identified for this goal; see other municipal projects.								
EDUCATION	J4	Increase the number of trained citizen emergency responders. (2012 Project 21.3.2).	4	Ongoing	Ongoing	Unknown	USDHS	BCEMA	Wellsburg Municipal Council
	J5	Educate the public on storm water management through postings on the city website, town hall meetings, etc.	2	2 years	New	Unknown	Storm water Management Plan	City of Wellsburg	
	J6	Create a social media page to feed information to the public about events and hazard alerts in the community.	1	1 year	New	N/A	N/A	City of Wellsburg	Brooke County EMA

TABLE 3.14 WINDSOR HEIGHTS PROJECTS

Goal	Project #	Projects	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	K1	Continue to participate in acquisition / demolition, relocation, mitigation reconstruction, and elevation.	5	5 years	New	N/A	N/A	Windsor Heights	Floodplain Manager
	K2	Consider participation in the National Flood Insurance Program at the municipal level	4	5 years	Ongoing	N/A	N/A	Windsor Heights	Floodplain Manager
MASS MOVEMENTS	K3	Repair roadway damage due to land subsidence to ensure continued accessibility to the town.	3	5 Years	New	Unknown	State or federal	Windsor Heights	DOT
	K4	Consider upgrades such as widening roads to allow better access by large emergency vehicles	2	5 Years	New	Unknown	State or federal	Windsor Heights	DOT
HAZMAT	No municipal projects were identified for this goal: see other municipal projects.								
EDUCATION	K5	Create a website and social media page to feed information to the public about events and alerts in the community. Provide public information on disasters to citizens (2012 Project 2J.1.1, Revised)	1	1 Year	New	None	N/A	Windsor Heights	N/A

## 4.0 PLAN MAINTENANCE PROCESS

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

### 4.1 Monitoring, Evaluating, and Updating the Plan

The Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ) and the steering committee have established a method for the systematic and periodic review of this document. BHJ, as the custodial agency, assumes responsibility for scheduling committee meetings and also serves as the point of contact for the committee and WVDHSEM during the 5-year period.

The formal updating process will consist of a series of meetings to review mitigation projects, the risk assessment, and to compare the two. Region 11 will convene the steering committee annually (for a total of three meetings between formal updating processes).



BHJ feels it is most beneficial to link the annual mitigation review with other recurring planning efforts. The council must also update its comprehensive economic development strategy (CEDS) document annually. As such, BHJ will ensure completion of the CEDS and mitigation annual reviews simultaneously. The CEDS meetings are scheduled quarterly and hazard mitigation plan updates will be added to the meeting agenda every summer quarter.

Topics for discussion at annual meetings include determining the effectiveness of any implemented mitigation strategies as well as evaluating the on-going performance of the plan based on several criteria. Within the risk assessment, the committee will evaluate how accurately the hazard profile and development trends sections predicted impact areas and losses (contingent on hazard occurrences).

Additionally, the steering committee will update one another on any completed or underway mitigation projects. Each project listed in this plan includes resources that may aid in implementation; such resources may include potential funding sources. Many of these funding sources require stringent project administration tasks (including performance measures and close-out procedures), all of which would be followed by the jurisdiction implementing a project. Adherence to these requirements will ensure the successful implementation of projects funded by such programs. For projects funded locally, existing purchasing policies will be followed, including competitive bidding, maintenance of invoice copies, regular departmental budget reviews, etc. All files associated with purchasing at the local level are maintained. This procedure has been successful while implementing mitigation projects since the original development of this plan and will continue to be followed.

The committee will evaluate the performance of the plan based on several criteria. For instance, the committee should consider revising mitigation strategies if it appears that the plan is failing according to one of the following measures.

- **Cost Effectiveness:** Is sufficient funding available to implement the project at a cost manageable by the local government? If not, is funding available? Will the costs of implementing the project be significantly less than the cumulative future costs potentially incurred by an un-corrected situation?
- **Property Protection:** How significant will the action be at eliminating or reducing damage to structures and infrastructure?
- **Life Safety:** How effectively will the action protect lives and prevent injuries?
- **Environmental Impacts:** Will implementing the project adversely affect the environment in any way? Will implementing the project actually benefit the environment?
- **Social Impacts:** Will the public perceive the project as positively lessening hazard-related losses? Will implementing the project adversely affect any segment of the population?
- **Legal Impacts:** Do your governmental organizations and/or partner agencies have the authority to implement the actions?
- **Political Impacts:** Will implementing the project create negative political issues?
- **Overall Feasibility:** Do local policies and capabilities currently allow for the implementation of the project? Are programs available to assist in funding the

implementation of the project? Do local leaders generally agree that implementing the project will be beneficial to the community?

#### **4.2 Planning Addendums**

Addendums to this plan may become necessary during its life cycle as programs and priorities change. Addendums that are requested and approved at the local level may be passed through the Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ) to the West Virginia Division of Homeland Security and Emergency Management (WVDHSEM) and to FEMA Region 11.

#### **4.3 Implementation through Existing Programs / Capabilities Assessment**

The members of the committee are leaders within the communities and agencies that they represent. They are often involved in the overall community, economic development, and capital improvements planning efforts of their jurisdictions. As members of the mitigation planning team, these individuals will carry mitigation concepts into other planning areas.

To date, local policies have not hindered hazard mitigation efforts. The jurisdictions participating in this planning process have used a variety of funding to complete mitigation projects in the past, including the Hazard Mitigation Grant Program, Homeland Security Grant Program, Emergency Management Performance Grant, Community Development Block Grant, and local funding. Local government policies and programs have supported the use of this funding and, thus, the implementation of mitigation projects. Further, all participating government jurisdictions have demonstrated a capability to successfully implement and administer mitigation projects.

Opportunities for hazard mitigation plan integration with other plans and ordinances within Region 11 can include the plans outlined in [Table 4.1](#). The method or opportunity for each type of plan's integration with the hazard mitigation plan is described in the second column.

TABLE 4.1 OTHER PLAN INTEGRATION WITH HAZARD MITIGATION	
<i>Plan</i>	<i>Integration with HMP</i>
Comprehensive Plans	<ul style="list-style-type: none"> <li>• Hazard mapping comparison with maps of targeted development areas</li> <li>• Hazard profiles inform risks at development areas</li> <li>• Plan development outside high risk hazard areas and redirect to low hazard areas</li> <li>• Support mitigation strategies for assets and events</li> </ul>
Emergency Operations Plans	<ul style="list-style-type: none"> <li>• Identify and plan for operations in hazard areas</li> <li>• Hazard mapping informs high risk areas</li> </ul>
Transportation Planning	<ul style="list-style-type: none"> <li>• Identification of high risk hazard areas that affect transportation</li> <li>• Encourage sustainable and resilient construction</li> </ul>
Floodplain Management	<ul style="list-style-type: none"> <li>• Identification of floodplains and at-risk buildings</li> <li>• Directing development to non-flood hazard areas</li> <li>• Encouraging protection of green spaces</li> <li>• Minimize impacts of flooding from rivers and streams</li> </ul>
Infrastructure Development Plans	<ul style="list-style-type: none"> <li>• Guide development away from hazard areas</li> <li>• Improve infrastructure affected by hazards</li> <li>• Encourage sustainable and resilient construction</li> </ul>
Commercial and Economic Development	<ul style="list-style-type: none"> <li>• Identify suitable development or redevelopment areas</li> <li>• Encourage responsible land use according to area hazards</li> </ul>
Storm Water Management	<ul style="list-style-type: none"> <li>• Identify hazards relating to storm water management</li> <li>• Minimize impacts of flooding due to storm water</li> </ul>

#### 4.4 Continued Public Involvement

The Region 11 committee understands that the general public must be involved in the initial planning process, as well as the updates to the completed plan. As such, BJH and the committee will invite the public to participate as the plan is updated through a variety of formats including:

- commission and other pre-planned public meetings,
- social media update posts,
- jurisdictions' websites,
- CEDS,
- schools education and mailings, and
- online surveys.

Further, as the updated plan is adopted, the public will be given the chance to comment on the updated plan prior to its adoption by passage resolution or ordinance.

BHJ, at a minimum, will maintain file copies of the Hazard Mitigation Plan that are available for review and inspection during routine business hours. BHJ intends to log all comments received regarding the mitigation plan. Members of the public are invited to



contact BHJ with comments regarding hazard events, etc. Local officials are also invited to review the plan's effectiveness at determining hazard susceptibility based on data from hazard events as they occur.

## 5.0 APPENDICES

The following is a list of appendices included in the Region 11 hazard mitigation plan.

- **Appendix 1:** Meeting Documentation
- **Appendix 2:** Survey Data
- **Appendix 3:** Citations
- **Appendix 4:** Inactive Projects
- **Appendix 5:** Hazmat and Health
- **Appendix 6:** NFIP Surveys
- **Appendix 7:** Adopting Resolutions (to be included following plan approval)

## APPENDIX 1

### MEETING DOCUMENTATION

#### Committee Involvement

- Brooke-Hancock Regional Council Members
- Regional Council minutes for meeting on November 9, 2016
- Regional Council minutes for meeting on May 3, 2017
- Email from BHJ MPC to counties and jurisdictions
- Signed letters of interest from jurisdictions
- Steering committee meeting attendance
- Steering committee email log
- Steering committee phone log

#### Meeting 1

- Meeting 1 sign in sheet
- Meeting 1 agenda
- Meeting 1 presentation
- Risk assessment matrix exercise

#### Meeting 2

- Meeting 2 sign in sheet
- Meeting 2 agenda
- Meeting 2 presentation
- Hazards perception exercise
- Setting goals
- Project updates
- New projects

#### Meeting 3

- Meeting 3 sign in sheet
- Meeting 3 agenda
- Meeting 3 presentation
- Project prioritization matrix exercise
- Hazards mapping exercise

#### Meeting 4

- Meeting 4 sign in sheet
- Meeting 4 agenda
- Project review and approval
- Asset review and approval
- Jurisdictional capabilities exercise

#### Public meeting

- Public meeting advertisement invoice
- Public meeting sign in sheet
- Public meeting presentation
- Public participation in meetings

**Hancock County LEPC meeting**

- January 11, 2017 meeting announcement
- January 11, 2017 meeting minutes

BROOKE-HANCOCK REGIONAL COUNCIL MEMBERS

TABLE 5.1 BROOKE-HANCOCK REGIONAL COUNCIL		
Name	Position	Organization
Jim Andreozzi	Commissioner	Brooke County Commission
Joe Barnabei	Commissioner	Hancock County Commission
Travis Blosser	City Manager	Weirton
Jim Brockman		
James Bush	Program Manager	Appalachian Regional Commission
Hampton Cokeley	Representative	Senator Capito's Office
Jeff Davis	Commissioner	Hancock County Commission
John DeStefano	City Manager	Follansbee
Phil Diserio	Delegate	Brooke County
Tim Ennis		
Ryan Ferns	Senator	
Pat Ford	Executive Director	Business Development Corporation
Dan Greathouse		
Mary Jo Guidi	Representative	Joe Manchin's Office
Mark Henne		Weirton Transit Corp.
Dennis Jones		
Pat Kirby	Director	Northern WV Brownfields Assistance Center
Larry Forsythe	Mayor	Chester
Steve Maguschak	City Manager	Wellsburg
Pat McGeehan	Delegate	Hancock County
Linda McNeil	Mayor	New Cumberland
Bubba Miller		
Brenda Mull		Weirton Chamber of Commerce
Libby Reasbeck		
Richard Rekowski	Director	Mary H Weir Public Library
Norm Schwertfeger		WVU Extension Office
Eric Sherrard	Project Engineer	Thrasher Engineers
Sue Simonetti	Mayor	Wellsburg
Marvin Six	Assistant Director	Business Development Corporation
Jim Smith	Mayor	Windsor Heights
Pat Sutherland	Mayor	Bethany
Rebecca Uhly	Mayor	Beech Bottom
David Velegol	Mayor	Follansbee
Michael Wehr		
Ryan Weld	Assistant Prosecutor	Brooke County
Stacey Wise		
Mark Zatezalo	Delegate	Hancock County
Barb Zimnox		BHJ-MPC

## Un-Adopted Minutes

### Brooke-Hancock Regional Planning and Development Council

November 9, 2016

Present were:

Mark Henne, Weirton Transit Corporation  
Mike Paprocki, Region XI PDC  
Barb Zimnox, Region XI PDC  
Sue Simonetti, Mayor, City of Wellsburg  
Linda McNeil, Mayor, City of New Cumberland  
Marvin Six, BDC  
James Smith, Mayor, Windsor Heights  
Gary Pitcock, Weirton Transit Corporation  
Rik Rekowski, Mary H. Weir Public Library  
Steve Maguschak, Wellsburg City Manager  
Patrick Sutherland, Mayor, Town of Bethany  
W. Duane Heck, Route 2/168 Authority  
Jeffrey Wargo, Weirton Transit Corporation  
Eric Sherrard, The Thrasher Group

Mark Henne called the meeting to order at 4:30 pm. He asked for a motion to adopt the minutes of the August 10<sup>th</sup> meeting. Sue made the motion. Steve seconded. Motion carried.

Mark also asked for a motion to adopt the 2017 meeting schedule which was provided by Mike Paprocki (attached). Linda McNeil made the motion. Sue seconded. Motion carried. The next meeting will be February 1, 2017.

Mark asked for volunteers to be on the committee for new officers for the next calendar year. Committee members are Pat Sutherland, Jim Smith and Sue Simonetti. Mike will set up a meeting with them sometime, probably after the holidays.

Mark then asked Mike for his director's report. Mike listed several meetings and conversations that he had recently been a part of, including the TAC and full commission meetings at BHJ, conversations with Tracey Rowan of US EDA regarding Youngstown State University's POWER grant application and a potential project in Beech Bottom, and conversations with Gus Sewaid regarding the traffic light at Birch Drive and Freedom Way and redesigning of that intersection. Mike also told the group that he is still looking for a student intern for BHJ.

Mark thanked WV DOT for the repair work on Route 22 through Weirton. He also discussed Pennsylvania Avenue and the need to get it repaired as soon as possible.

He also talked about how disappointed he was with this year's political candidates. None of them made much of an effort to come to the northern panhandle to talk to any of our community groups. He stated that we need an effective voice in Charleston, which he feels we do not have at present. Discussed was a roundtable meeting with our elected officials in Charleston with local officials. We need to prioritize our projects and make the officials in Charleston aware of what we need. Mike was asked to reach out to these legislators to set up the roundtable no later than mid January.

Duane Heck from the Route 2/68 Authority gave an update on his group and what they've accomplished since its beginning in 1997. He also discussed the New Ohio River Bridge and the fact that it will land on a 2 lane road in Wellsburg, and that needs to be upgraded to a 4 lane road. This project needs to be placed on the TIP. The 4 lane will add to the safety for traffic coming off the bridge and for usage by the oil and gas industry. He also stated that the Authority had received no funding for this current fiscal year.

Rik Rekowski informed the group that the Mary H. Weir Public Library was able to help get projects off the ground by being an excellent resource of Census Data, and for their business data base in the northern panhandle. This information will be useful for grant submittals for project funding.

Mike told the group that a bridge update would be presented at the next MPO meeting. He also addressed the need by every municipality and county for a full ADA transition plan. The State is looking for everyone to have one. He also addressed the CEDS update; to make sure that all the needed projects are on the plan and that an update is required mid 2017.

Marvin gave an update on what is going on with the BDC. He informed the group that we have procured a contractor for the \$600,000 EPA assessment grant, and work should begin on it in the first quarter of next year. The Phase II in part of the Beech Bottom site is almost complete and will receive a certificate of completion after some minimal cleanup. They have awarded a bid to demo a building and are completing an RFQ for the hazardous substances in the ground. They also have completed an RFQ for demo of part of the building and for hazardous material at the Brooke Glass site. They recently purchased the Follansbee Steel Plant. They will do a Phase II on the site and start the cleanup process. The Lodge at Williams Country Club and the Jimmy Carey Stadium are each completing an RFQ for remediation. The Newell Porcelain site has a local buyer. The BDC is coordinating the assessment and cleanup and redevelopment of the site. The TS&T building is under construction, and the riverbank remediation has been completed. The BDC will soon receive a certificate of completion for the site.

Barb gave an update on the Community Development projects to the group. She told them that the Hazard Mitigation Plan update will begin soon. Everyone needs to be involved in this. The State will look at these documents when FEMA funds are

requested for disaster relief. If the municipality/ county didn't participate, it might be more difficult to receive funding.

With no further business to bring before the group, Mark asked for a motion to adjourn the meeting. Jim made the motion. Sue seconded. Motion carried. The meeting was adjourned at 5:40 pm.

Submitted by Barb Zimnox, recorder.



Un-Adopted Minutes  
Brooke-Hancock Regional and Development Council  
May 3, 2017

Present were:

Mark Henne, Weirton Transit Corp.

Linda Mcneil, Mayor of New Cumberland

Barb Zimnox, Region XI PDC

Adrienne Ward, BHJ

Mike Paprocki, Executive Director, BHJ

Mary Jo Guidi, Representative of Senator Joe Manchin's Office

Patrick Sutherland, Mayor of Bethany

Sue Simonetti, Mayor of Wellsburg

Hampton Cokeley, Senator Capito's Office

Jessicah Cross, Senator Capito's Office

Rick Rekowski, City of Weirton- Mary H. Weir Library

Mark Henne called the meeting to order at 4:40 PM. He asked for a motion to adopt the minutes of the February 1, 2017 meeting. Sue made a motion. Linda seconded. Motion carried.

Pat Sutherland gave his report on the town of Bethany. He gave a handout to everyone and he asked if everyone would take time to look it over. He said they are trying to enhance safety and making some progress on pedestrian crossing. He brought some infrastructure improvements to show everyone what is happening on campus.

Mike then gave his Director's Report. He said May 8 Dave and Mike will go to Open House at ODOT. May 9 contractors for Wellsburg Bridge will be having a meeting at BHJ office. May 11 Mike said he will be going up to Regional Freight Conference in Cranberry Township, PA. May 15-17 he will be at the West Virginia Association of Regional Planning & Development Councils Annual Conference in Vienna, WV. May 17 BHJ TAC and Full Commission Meeting at BHJ. June 5 Executive Meeting at BHJ then on June 14 Brownfield Task Force Meeting at BHJ.

Mark then gave the Chairman's Report he started out by saying it was unfortunate that we lost the legislators back to Charleston at this time due to them trying to get a budget. He also wanted to welcome Rick back to the meetings.

Next Mike went over the (CEDS) report. He said we did pick up some more projects. Over next 18 months more projects will be coming. Rick then talked about comprehensive plan for the city of Weirton. They came up with four goals and the objectives under each of them and they will be having another meeting May 11.

Transportation update, Linda McNeil said they had a failure on a part route 2 that goes through New Cumberland. She said WV DOT did respond quickly and it was poorly done and she said they are going to smooth it out. She said the latest communication with the new secretary that an environmental study is being done and it should take two years but she said they don't have two years. She said federally these environmental studies have to be done on all 5 plans. Mike said in Follansbee they have the project program. Mark then gave his update and said the traffic is getting worse in Follansbee due to this project. He and Mike talked about this and maybe they should take on a comprehensive study of route 2 and pursue through DOH to get these dollars. Sue gave her Wellsburg update and said she talked to some people about getting box on poles getting fixed. Then Linda talked about weigh limits for trucks passing through and if they could do random checks to check weight limit. US/22 Weirton joint pavement repairs Main St. to PA state line.

Mike went over the Brownfields Task Force Newsletter thanked Adrienne for writing it. NARC put out feeler for Brownfields Development values and he sent the newsletter and that led the lady from NARC to get in touch with Pat Ford to get some info on projects to send to Congressmen Ranking members in those communities. Then Mike said he got to attend a meeting with McKinley and he is rewriting the authorization for Brownfields. Mike then mentioned the National Brownfields Conference in Pittsburgh and how they will be doing a lounge presentation for the task force.

Barb gave her update on spending. Mary Jo then gave an update on senator Manchin and mentioned that major committees proportions good for WV. May 22-26 commonsense connections week and mentioned the upcoming job fairs they will be attending around the state.

Hampton then introduced Jessicah Cross, she will be taking over his job at the end of the June.

Barb then gave her update and status report which was enclosed in the packet. She mentioned the New Cumberland water/sewer project and then Hazard Mitigation Meeting on May 4<sup>th</sup> in the Blue Room at Milsop Community Center. She mentioned that this is the last meeting and then they will send draft to the state for review. She was pleased with the participation with the counties. She said if anyone had any questions they can contact her.

The next meeting is scheduled for August 2, 2017 at 4:30 PM.

With no further business to bring before the group Mark asked for a motion to adjourn the meeting. Sue approved and the meeting was adjourned at 5:37 PM.

## COMMITTEE INVOLVEMENT

Barb Zimnox, BHJ MPC representative for the Region 11 PDC sent the following email to invite counties and jurisdictions to participate in the Hazard Mitigation Plan Update.

**From:** Barb Zimnox [<mailto:bzimnox@bhjmpc.org>]  
**Sent:** Thursday, September 15, 2016 10:22 AM  
**To:** Jim Andreozzi ([jandreozzi58@gmail.com](mailto:jandreozzi58@gmail.com)); Travis Blosser; Sutherland, Pat; 'Sue Simonetti'; 'Barnabei, Joe'; 'Davis, Jeff'; 'DeStefano, John'; 'Larry Forsythe'; 'McNeil, Linda'; 'Miller, Bubba'; 'Swartzmiller, Michael'; 'Uhly, Rebecca'; 'Wise, Stacey'; 'Maguschak, Steve'; James Smith ([Snuffy319@aol.com](mailto:Snuffy319@aol.com))  
**Cc:** 'Michael Paprocki'  
**Subject:** Hazard Mitigation Plan Update

All,

Our State required Regional Hazard Mitigation Plan done in 2012 is due to be updated this year. I am in the process of submitting the grant application to Homeland Security to get the funds to do the mandated update. Region XI has contracted with Jeff Harvey to do the update. This is the consultant that did the original plan. As part of the application process, I need each entity to submit a letter stating that you plan to participate in the hazard mitigation plan update. I'm attaching the letters to this email. Please print out the letter specific to your community on your letterhead, sign it, and either scan and send it back to me, or fax it to me at the number below. There will be no cost to anyone for this update. WV Division of Homeland Security is providing funding. This plan is necessary for each community to be eligible to receive FEMA assistance in certain instances, so please plan to participate.

If you have any questions regarding the letter or the plan update, please let me know. We will be scheduling meetings with everyone who participates to collect information and inform the public in the near future.

Thank you all for your attention to this matter,

*Barb Zimnox  
Community Development Specialist  
WV Region XI Planning & Development Council  
P.O. Box 82  
Weirton, WV 26062  
Ph: (304) 797-9666 ext. 204  
Fax: (740) 282-1821*

*Physical Address: 124 North 4<sup>th</sup> Street, 2<sup>nd</sup> Floor  
Steubenville, OH 43952*

**Statement of Interest in Multi-Hazard Mitigation Planning**

As a potential participant in the Hazard Mitigation Assistance Program, the **Town of Bethany**, Brooke County, West Virginia hereby states their interest in participating in the multi-jurisdictional Region XI PDC Natural Hazard Mitigation Plan.

After Federal Emergency Management Agency approval and during the implementation, the **Town of Bethany** agrees to actively participate in the hazard mitigation planning process.

As signed, we understand this is a voluntary program and our participation may benefit our jurisdiction by identifying hazards and prioritizing potential projects to mitigate the effects of natural hazards.

Patricia J. Scharlach, BETHANY Mayor      NOVEMBER 9, 2016  
Signature of Authorized Community Representative      Date

Michael J. Papenke      11-14-2016  
PDC Region XI Executive Director      Date

# CITY OF NEW CUMBERLAND



P.O. Box 505 • New Cumberland, West Virginia 26047 • (304) 564-3383 • FAX (304) 564-3777

## Statement of Interest in Multi-Hazard Mitigation Planning

As a potential participant in the Hazard Mitigation Assistance Program, the **City of New Cumberland**, Hancock County, West Virginia hereby states their interest in participating in the multi-jurisdictional Region XI PDC Natural Hazard Mitigation Plan.

After Federal Emergency Management Agency approval and during the implementation, the **City of New Cumberland** agrees to actively participate in the hazard mitigation planning process.

As signed, we understand this is a voluntary program and our participation may benefit our jurisdiction by identifying hazards and prioritizing potential projects to mitigate the effects of natural hazards.

*Donald S. McLeod Mayas*  
Signature of Authorized Community Representative

09/15/2016  
Date

*Michael Z. Popeski*  
PDC Region XI Executive Director


11.14.2016  
Date

**Statement of Interest in Multi-Hazard Mitigation Planning**

As a potential participant in the Hazard Mitigation Assistance Program, the **City of Weirton**, Brooke and Hancock County, West Virginia hereby states their interest in participating in the multi-jurisdictional Region XI PDC Natural Hazard Mitigation Plan.

After Federal Emergency Management Agency approval and during the implementation, the **City of Weirton** agrees to actively participate in the hazard mitigation planning process.

As signed, we understand this is a voluntary program and our participation may benefit our jurisdiction by identifying hazards and prioritizing potential projects to mitigate the effects of natural hazards.

  
\_\_\_\_\_  
Travis L Blosser - City Manager  
Signature of Authorized Community Representative  
10-17-16  
Date

  
\_\_\_\_\_  
Michael Lapuch  
PDC Region XI Executive Director  
11-14-2016  
Date

### Statement of Interest in Multi-Hazard Mitigation Planning

As a potential participant in the Hazard Mitigation Assistance Program, the **City of Follansbee**, Brooke County, West Virginia hereby states their interest in participating in the multi-jurisdictional Region XI PDC Natural Hazard Mitigation Plan.

After Federal Emergency Management Agency approval and during the implementation, the **City of Follansbee** agrees to actively participate in the hazard mitigation planning process.

As signed, we understand this is a voluntary program and our participation may benefit our jurisdiction by identifying hazards and prioritizing potential projects to mitigate the effects of natural hazards.

  
\_\_\_\_\_  
Signature of Authorized Community Representative

10/17/2016  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
PDC Region XI Executive Director

11-14-2016  
\_\_\_\_\_  
Date

**Statement of Interest in Multi-Hazard Mitigation Planning**

As a potential participant in the Hazard Mitigation Assistance Program, the **City of Wellsburg**, Brooke County, West Virginia hereby states their interest in participating in the multi-jurisdictional Region XI PDC Natural Hazard Mitigation Plan.

After Federal Emergency Management Agency approval and during the implementation, the **City of Wellsburg** agrees to actively participate in the hazard mitigation planning process.

As signed, we understand this is a voluntary program and our participation may benefit our jurisdiction by identifying hazards and prioritizing potential projects to mitigate the effects of natural hazards.

Steph Amundson, City Mgr.

Signature of Authorized Community Representative

9/15/2016

Date

Michael Zaporucha

PDC Region XI Executive Director

11.14.16

Date



Letter to Bank  
3

**Statement of Interest in Multi-Hazard Mitigation Planning**

As a potential participant in the Hazard Mitigation Assistance Program, the **Village of Beech Bottom**, Brooke County, West Virginia hereby states their interest in participating in the multi-jurisdictional Region XI PDC Natural Hazard Mitigation Plan.

After Federal Emergency Management Agency approval and during the implementation, the **Village of Beech Bottom** agrees to actively participate in the hazard mitigation planning process.

As signed, we understand this is a voluntary program and our participation may benefit our jurisdiction by identifying hazards and prioritizing potential projects to mitigate the effects of natural hazards.

Rebecca L. Ulrich  
Signature of Authorized Community Representative

10-24-16  
Date

Michael Sperbeck  
PDC Region XI Executive Director

11-14-2016  
Date

**RECEIVED**  
NOV , 2 2016



### Statement of Interest in Multi-Hazard Mitigation Planning

As a potential participant in the Hazard Mitigation Assistance Program, the Hancock County Commission, Hancock County, West Virginia hereby states their interest in participating in the multi-jurisdictional Region XI PDC Natural Hazard Mitigation Plan.

After Federal Emergency Management Agency approval and during the implementation, the Hancock County Commission agrees to actively participate in the hazard mitigation planning process.

As signed, we understand this is a voluntary program and our participation may benefit our jurisdiction by identifying hazards and prioritizing potential projects to mitigate the effects of natural hazards.

  
\_\_\_\_\_  
Signature of Authorized Community Representative

11-14-16  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
PDC Region XI Executive Director

11.14.2016  
\_\_\_\_\_  
Date

**Statement of Interest in Multi-Hazard Mitigation Planning**

As a potential participant in the Hazard Mitigation Assistance Program, the **Brooke County Commission**, Brooke County, West Virginia hereby states their interest in participating in the multi-jurisdictional Region XI PDC Natural Hazard Mitigation Plan.

After Federal Emergency Management Agency approval and during the implementation, the **Brooke County Commission** agrees to actively participate in the hazard mitigation planning process.

As signed, we understand this is a voluntary program and our participation may benefit our jurisdiction by identifying hazards and prioritizing potential projects to mitigate the effects of natural hazards.

Stacey Wise - Commissioner 9-30-16  
Signature of Authorized Community Representative Date

Michael J. Popovich 11-14-2016  
PDC Region XI Executive Director Date

## Statement of Interest in Multi-Hazard Mitigation Planning

As a potential participant in the Hazard Mitigation Assistance Program, the **Village of Windsor Heights**, Brooke County, West Virginia hereby states their interest in participating in the multi-jurisdictional Region XI PDC Natural Hazard Mitigation Plan.

After Federal Emergency Management Agency approval and during the implementation, the **Village of Windsor Heights** agrees to actively participate in the hazard mitigation planning process.

As signed, we understand this is a voluntary program and our participation may benefit our jurisdiction by identifying hazards and prioritizing potential projects to mitigate the effects of natural hazards.

---

Signature of Authorized Community Representative

Date 11-9-16

*James A. Smith*

---

*Michael J. Pappas*

PDC Region XI Executive Director

11-14-2016

Date

**TABLE 5.2 STEERING COMMITTEE MEMBER MEETING ATTENDANCE**

<i>Contact Name</i>	<i>Agency</i>	<i>Position</i>	<i>Attended 30 Nov 2016 Meeting</i>	<i>Attended 19 Dec 2016 Meeting</i>	<i>Attended 06 Feb 2017 Meeting</i>	<i>Attended 04 May 2017 Meeting</i>	<i>Committee Meetings Attended</i>	<i>04 May 2017 Public Meeting</i>	<i>Total Meetings Attended</i>
Blackwell, Richard	New Cumberland	Floodplain Manager	Yes	Yes	Yes	Yes	4	No	4
DeStefano, John	Follansbee	City Manager	Yes	Yes	Yes	No	3	No	3
Forsythe, Larry	Chester	Mayor	No	No	No	No	0	No	0
Fowler, Robert	Brooke County EMA	EM Director	Yes	No	No	No	1	No	1
Hoffman, Cindy	Bethany	Recorder	No	No	Yes	No	1	No	1
Maguschak, Steve	Wellsburg	City Manager	Yes	Yes	Yes	No	3	No	3
Miller, Mark	Weirton	Planning Director	No	No	Yes	Yes	2	Yes	3
Nickerson, Andy	Brooke County EMA	Deputy Director	Yes	No	No	Yes	2	No	2
Ober, Jeremy	Hancock County EMA	EM Director	Yes	Yes	Yes	Yes	4	No	4
Paprocki, Mike	BHJ Region 11	Region 11 Director	Yes	No	No	No	1	No	1
Sadler, Robert	Beech Bottom	Vice-Mayor	No	Yes	Yes	No	2	No	2
Smith, James	Windsor Heights	Mayor	No	Yes	No	No	1	No	1
Uhly, Becky	Beech Bottom	Mayor	No	Yes	Yes	No	2	No	2
Vidas, Bob	Hancock County	Director Tech & Comm	Yes	Yes	Yes	Yes	4	No	4
Zimnox, Barb	BHJ Region 11	Region 11 Planner	Yes	Yes	Yes	Yes	4	Yes	5

**TABLE 5.3 STEERING COMMITTEE EMAIL LOG FOR HAZARD MITIGATION PLAN**

Contact Name	Agency	Position	Date	JHC Sent/Received	Subject	Outcome/Status
<i>Meeting 1 - 30 Nov 2016</i>						
Barb Zimnox	BHJ Region 11	Region 11 Planner	12/12/2016	Sent	Public survey link to distribute to committee members	N/A
Jeremy Ober	Hancock County EMA	EM Director	12/14/2016	Received	Project and asset list review	Phone call 12/16/2016 @10:30 am
Barb Zimnox	BHJ Region 11	Region 11 Planner	12/14/2017	Received	Received Follansbee Assets list	N/A
Bob Vidas	Hancock County	Director Tech.	12/14/2017	Received	Questions about asset list	Replied 12/14/2016
Barb Zimnox	BHJ Region 11	Region 11 Planner	12/15/2016	Received	Asset list for Region 11	N/A
<i>Meeting 2 - 19 Dec 2016</i>						
<b>To All members</b>			1/21/2016	Sent	1st Attempt to set up phone call for project list	Five members responded - need second attempt to schedule
Barb Zimnox	BHJ Region 11	Region 11 Planner	1/21/2016	Received	1st Attempt to set up phone call for project list	Scheduled phone call
Jeremy Ober	Hancock County EMA	EM Director	1/21/2016	Received	1st Attempt to set up phone call for project list	Scheduled phone call
Richard Blackwell	New Cumberland	City Mayor	1/21/2016	Received	1st Attempt to set up phone call for project list	Scheduled phone call
Steve Mabuschak	Wellsburg	City Manager	1/21/2016	Received	1st Attempt to set up phone call for project list	Scheduled phone call
Cindy Hoffman	Bethany	Recorder	1/21/2016	Received	1st Attempt to set up phone call for project list	Called 1/21/16 at 9am - needs info on homework
Cindy Hoffman	Bethany	Recorder	1/21/2016	Sent	Committee Homework instructions	N/A
Becky Uhly	Beech Bottom	Mayor	1/10/2017	Sent	2nd Attempt to set up phone call for project list	Replied 1/18/2017. New email contact, phone call set up
John DeStefano	Follansbee	City Manager	1/10/2017	Sent	2nd Attempt to set up phone call for project list	No response as of 1/20/2017
Robert Fowler	Brooke County EMA	EM Director	1/10/2017	Sent	2nd Attempt to set up phone call for project list	No response as of 1/20/2017
James Smith	Windsor Heights	Mayor	1/10/2017	Sent	2nd Attempt to set up phone call for project list	No response as of 1/20/2017
Larry Forsythe	Chester	Mayor	1/10/2017	Sent	2nd Attempt to set up phone call for project list	No response as of 1/20/2017
John DeStefano	Follansbee	City Manager	1/20/2017	Sent	Will call 1/23/2017 @ 10:00 am	No response as of 1/23/2017
Robert Fowler	Brooke County EMA	EM Director	1/20/2017	Sent	Will call 1/23/2017 @ 11:00 am	No response as of 1/23/17
James Smith	Windsor Heights	Mayor	1/20/2017	Sent	Will call 1/23/2017 @ 3:00pm	No response as of 1/23/17
Larry Forsythe	Chester	Mayor	1/20/2017	Sent	Will call 1/23/2017 @ 4:00pm	Called back 1/21/2017 @2:30pm
Mark Miller	Weirton	Planning Director	1/20/2017	Sent	1st Attempt to set up phone call for project list	No response as of 1/31/17
James Smith	Windsor Heights	Mayor	1/23/2017	Sent	Need contact phone number - not in service	No response as of 2/2/17
Andy Nickerson	Brooke County EMA	Deputy Director	2/1/2017	Sent	Will call 2/1/2017 @3:00pm	Requested phone call on 2/2/2017
Mark Miller	Weirton	Planning Director	2/2/2017	Sent	Will call 2/2/2017 @ 2:pm	No response required
Cindy Hoffman	Bethany	Recorder	2/2/2017	Sent	Will call 2/2/2017 @ 1:15pm	No response required
James Smith	Windsor Heights	Mayor	2/2/2017	Sent	Will call 2/2/2017 @ 3pm	No response
<i>Meeting 3 - 6 Feb 2017</i>						
Jeremy Ober	Hancock County EMA	EM Director	3/8/2017	Sent	Tier II facility information request	Received Tier II info 3/17/2017
Andy Nickerson	Brooke County EMA	Deputy Director	3/8/2017	Sent	Tier II facility information request	Received Tier II info 3/17/2018
Mark Miller	Weirton	Planning Director	3/9/2017	Sent	Project Lists and Asset List	Received projects and assets list 3/16/2017
<b>To All members</b>			3/17/2017	Sent	Jurisdictional capabilities	All but two members responded - will distribute next meeting
Andy Nickerson	Brooke County EMA	Deputy Director	3/20/2017	Received	Responded to jurisdictional capabilities request	N/A
Richard Blackwell	New Cumberland	City Mayor	3/20/2017	Received	Responded to jurisdictional capabilities request	N/A
Barb Zimnox	BHJ Region 11	Region 11 Planner	3/27/2017	Sent	Sent profiles for distribution and review	N/A
<b>To All members</b>			4/6/2017	Sent	Reminder of hazard review request	All but three members responded - approved
Barb Zimnox	BHJ Region 11	Region 11 Planner	4/6/2017	Sent	Request for 4th committee and public mtgs.	Called to set date of 5/4/2017
Becky Uhly	Beech Bottom	Mayor	4/6/2017	Received	Received scanned pictures of land subsidence	N/A
Jeremy Ober	Hancock County EMA	EM Director	4/7/2017	Received	Responded to hazard profile review - nothing to add	N/A

**TABLE 5.3 STEERING COMMITTEE EMAIL LOG FOR HAZARD MITIGATION PLAN**

Contact Name	Agency	Position	Date	JHC Sent/Received	Subject	Outcome/Status
Steve Mabuschak	Wellsburg	City Manager	4/7/2017	Received	Responded to hazard profile review - nothing to add	N/A
<i>Meeting 4 - 4 May 2017</i>						
John DeStefano	Follansbee	City Manager	5/4/2017	Received	Allegheny Creek Report received	N/A
Jeremy Ober	Hancock County EMA	EM Director	5/24/2017	Sent	Request LEPC agenda and minutes	Received LEPC agenda minutes
Andy Nickerson	Brooke County EMA	Deputy Director	6/5/2017	Sent	Project prioritization - respond by 6/8	No response - approved
Larry Forsythe	Chester	Mayor	6/5/2017	Sent	Project prioritization - respond by 6/9	No response - approved
James Smith	Windsor Heights	Mayor	6/5/2017	Sent	Project prioritization - respond by 6/10	No response - approved
<b>FEMA Review</b>						
<b>To All members</b>			9/1/2017	Sent	FEMA review and revision requirements	N/A
Bob Vidas	Hancock County	Director Tech.	9/1/2017	Received	Would be best to talk to Jeremy	N/A
Jeremy Ober	Hancock County EMA	EM Director	9/5/2017	Received	A call on Friday would work best	Called, left message on Friday 9/8. Spoke on 9/12
Cindy Hoffman	Bethany	Recorder	9/6/2017	Received	A call on Friday would work best	Spoke to her on Friday
Becky Uhly	Beech Bottom	Mayor	9/6/2017	Received	A call on Friday would work best	Spoke to her on Friday
Becky Uhly	Beech Bottom	Mayor	9/12/2017	Received	NFIP Survey	N/A
Jeremy Ober	Hancock County EMA	EM Director	9/18/2017	Received	NFIP Survey	N/A
Andy Nickerson	Brooke County EMA	Deputy Director	9/19/2017	Sent	Complete NFIP survey and return	No response as of 9/25
Robert Fowler	Brooke County EMA	EM Director	9/19/2017	Sent	Complete NFIP survey and return	No response as of 9/25
Larry Forsythe	Chester	Mayor	9/19/2017	Sent	Complete NFIP survey and return	No response as of 9/25
John DeStefano	Follansbee	City Manager	9/19/2017	Sent	Complete NFIP survey and return	No response as of 9/25
Richard Blackwell	New Cumberland	Floodplain Manager	9/19/2017	Sent	Complete NFIP survey and return	No response as of 9/25
Steve Maguschak	Wellsburg	City Manager	9/19/2017	Sent	Complete NFIP survey and return	No response as of 9/25
James Smith	Windsor Heights	Mayor	9/19/2017	Sent	Complete NFIP survey and return	No response as of 9/25
Mark Miller	Weirton	Planning Director	9/19/2017	Sent	Complete NFIP survey and return	No response as of 9/25
Andy Nickerson	Brooke County EMA	Deputy Director	9/25/2017	Sent	Complete NFIP Survey	
Larry Forsythe	Chester	Mayor	9/25/2017	Sent	Complete NFIP Survey	
John DeStefano	Follansbee	City Manager	9/25/2017	Sent	Complete NFIP Survey	
Richard Blackwell	New Cumberland	Floodplain Manager	9/25/2017	Sent	Complete NFIP Survey	Returned via fax 9/25
Steve Maguschak	Wellsburg	City Manager	9/25/2017	Sent	Complete NFIP Survey	Returned via fax 9/26
James Smith	Windsor Heights	Mayor	9/25/2017	Sent	Complete NFIP Survey	
Mark Miller	Weirton	Planning Director	9/25/2017	Sent	Complete NFIP Survey	
Richard Blackwell	New Cumberland	Floodplain Manager	9/25/2017	Received	Faxed completed survey	
Steve Maguschak	Wellsburg	City Manager	9/26/2017	Received	Faxed completed survey	
John DeStefano	Follansbee	City Manager	10/5/2017	Received	Has questions about NFIP survey	Called office and left message to help
Larry Forsythe	Chester	Mayor	10/10/2017	In-person	NFIP Survey	Dropped off NFIP survey at the office, he was not there. New phone #
Mark Miller	Weirton	Planning Director	10/10/2017	In-person	NFIP Survey	Delivered completed NFIP survey
John DeStefano	Follansbee	City Manager	10/10/2017	In-person	NFIP Survey	Dropped off NFIP survey at the office, he was not there.
Andy Nickerson	Brooke County EMA	Deputy Director	10/10/2017	In-person	NFIP Survey	Attempted to locate office, courthouse and police did not know location
John DeStefano	Follansbee	City Manager	10/11/2017	Received	NFIP Survey, has questions about survey	Called him on 10/11 to clarify and complete survey
John DeStefano	Follansbee	City Manager	10/11/2017	Sent	Updated projects according to phone conversation.	
Larry Forsythe	Chester	Mayor	10/19/2017	Received	Completed NFIP Survey photos	
Andy Nickerson	Brooke County EMA	Deputy Director	10/23/2017	Sent	Complete NFIP Survey and return by 10/27	

**TABLE 5.3 STEERING COMMITTEE EMAIL LOG FOR HAZARD MITIGATION PLAN**

<i>Contact Name</i>	<i>Agency</i>	<i>Position</i>	<i>Date</i>	<i>JHC Sent/Received</i>	<i>Subject</i>	<i>Outcome/Status</i>
Robert Fowler	Brooke County EMA	EM Director	10/23/2017	Sent	Complete NFIP Survey and return by 10/27	
James Smith	Windsor Heights	Mayor	10/23/2017	Sent	Complete NFIP Survey and return by 10/27	
Grace Davis	Windsor Heights	Mayor	10/25/2017	Sent	Complete NFIP survey and info on HMP	
Andy Nickerson	Brooke County EMA	Deputy Director	10/27/2017	Received	Sent NFIP survey completed	
Grace Davis	Windsor Heights	Mayor	11/15/2017	Sent	Reminder of NFIP survey	



TABLE 5.4 STEERING COMMITTEE PHONE LOG				
Contact Name	Agency	Position	Date	Subject
Jeremy Ober	Hancock County EMA	EM Director	12/16/2016	Reviewed hazards
Cindy Hoffman	Bethany	Recorder	12/21/2016	Went over homework from previous meetings
Barb Zimnox	BHJ Region 11	Region 11 Planner	1/4/2017	Reviewed hazards and project list
Richard Blackwell	New Cumberland	City Mayor	1/4/2017	Called, left message
Richard Blackwell	New Cumberland	City Mayor	1/5/2017	Reviewed hazards and project list
Jeremy Ober	Hancock County EMA	EM Director	1/6/2017	Reviewed project list
Steve Mabuschak	Wellsburg	City Manager	1/10/2017	Reviewed hazards and project list
Becky Uhly	Beech Bottom	Mayor	1/19/2017	Reviewed hazards and project list
Larry Forsythe	Chester	Mayor	1/20/2017	Reviewed project list and discussed projects. Unable to make it to the meetings. Provided new projects.
John DeStefano	Follansbee	City Manager	1/23/2017	Called, left message
Robert Fowler	Brooke County EMA	EM Director	1/23/2017	Called, left message
James Smith	Windsor Heights	Mayor	1/23/2017	Phone number is not in service
John DeStefano	Follansbee	City Manager	2/1/2017	Reviewed hazards and project list
Andy Nickerson	Brooke County EMA	Deputy Director	2/2/2017	Reviewed hazards and project list
Cindy Hoffman	Bethany	Recorder	2/2/2017	Phone number is incorrect
Cindy Hoffman	Bethany	Recorder	2/2/2017	She called, reviewed project list
Mark Miller	Weirton	Planning Director	2/2/2017	Called, left message
James Smith	Windsor Heights	Mayor	2/2/2017	Called, no answer
Mark Miller	Weirton	Planning Director	2/2/2017	He called, talked about identifying hazards, needs help
Barb Zimnox	BHJ Region 11	Region 11 Planner	4/14/2017	Called, left message - Planning a public meeting
Mark Miller	Weirton	Planning Director	5/25/2017	Weirton Comprehensive Plan and development
Jeremy Ober	Hancock County EMA	EM Director	9/8/2017	Left message
Becky Uhly	Beech Bottom	Mayor	9/8/2017	Talked about FEMA updates and sent NFIP survey
Cindy Hoffman	Bethany	Recorder	9/8/2017	Talked about FEMA updates and filled out NFIP survey
Jeremy Ober	Hancock County EMA	EM Director	9/12/2017	Talked about FEMA updates and sent NFIP survey
John DeStefano	Follansbee	City Manager	10/5/2017	Called, left message. Help with NFIP survey
Andy Nickerson	Brooke County EMA	Deputy Director	10/5/2017	Called, left message. Need NFIP survey returned
Larry Forsythe	Chester	Mayor	10/5/2017	Called, left message. Need NFIP survey returned
James Smith	Windsor Heights	Mayor	10/5/2017	Called, no answer. Can't leave message.
Mark Miller	Weirton	Planning Director	10/5/2017	Called, left message. Need NFIP survey returned
John DeStefano	Follansbee	City Manager	10/11/2017	Talked about and completed NFIP survey. Updated projects
Andy Nickerson	Brooke County EMA	Deputy Director	10/18/2017	Called, left message about NFIP survey needed
Larry Forsythe	Chester	Mayor	10/18/2017	Called, left message about NFIP survey needed
Larry Forsythe	Chester	Mayor	10/18/2017	Called to talk about NFIP, scheduled phone call for 10/20

## **MEETING 1**

**November 30, 2016**

# REGION 11 HAZARD MITIGATION PLAN

## Multi-Jurisdictional All-Hazard Mitigation Plan Update – Steering Committee Meeting #1

11/30/2016 ~ 12:00 p.m.

### Sign In Sheet

	Name	Agency	Email
1.	Richard Blackwell	city of New Cumberland	blackwell.r@comcast.net
2.	Amy Heimberger	JHC	aheimberger@jhcpreparedness.com
3.	Andy Nickerson	Brooke County EMA	anickerson@brookecountyma.com
4.	Jeremy Ober	Hancock County HSEM	jober@hanwvsem.org
5.	JOHN DESTEFANO	CITY OF FOLLANSBEE	follansbeecitymgr@comcast.net
6.	K. Robin Fowl	Brooke CD EMIA	BFowlen (A) Brooke County EMA.com
7.	MICHAEL PAPROCKI	BHJ MPC	mikepap@bhjmpc.org
8.	BOB VIDAS	HANCOCK COUNTY	bvidas@HANCOCKCOUNTYWV.ORG
9.	Taylor Jones	JHC	Tjones@jhcpreparedness.com
10.	RIK REKOWSKI	MARY H WEIR PUB LIBRARY	REKOWSKIEWEIRTON.LIB.WV.US
11.	Steve Mabuschar	City of Wellsburg	wellsburgcitymgr@comcast.net
12.	Barb Zimiox	BHJ (Region XI)	bzimiox@bhjmpc.org
13.			
14.			
15.			
16.			

**REGION 11 PLANNING & DEVELOPMENT COUNCIL  
MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN  
STEERING COMMITTEE #1 MEETING**


**AGENDA**

Date: November 30, 2016  
Time: 12:00 p.m.  
Estimated Duration: 90-120 minutes  
Location: Mary H. Weir Public Library

1. Welcome & Introductions
2. Brief Overview of Process
  - Mitigation Planning Process
  - CRS Additions?
  - Steering Committee Roles & Responsibilities
  - Steering Committee Meeting Schedule
3. Hazard Review
  - Hazards in the Existing Plan
  - Hazards to Add?
  - Committee Member Homework!
4. Asset Inventorying
  - Review of Existing List
  - Parameters for Updates
5. Survey for Public Involvement
6. Mitigation Reconstruction Amendment to Existing Plan
7. Questions & Answers
8. Adjournment


# Region 11 Hazard Mitigation Plan

2016 Update  
Planning Meeting #1  
November 30th, 2016 ~ 12:00 p.m.



## Hazard Mitigation Planning Process

<b>TASK 1</b> Determine the Planning Area and Resources	<b>TASK 4</b> Review Community Capabilities	<b>TASK 9</b> Create a Safe and Resilient Community
<b>TASK 2</b> Build the Planning Team	<b>TASK 5</b> Conduct a Risk Assessment	
<b>TASK 3</b> Create an Outreach Strategy	<b>TASK 6</b> Develop a Mitigation Strategy	
	<b>TASK 7</b> Keep the Plan Current	
	<b>TASK 8</b> Review and Adopt the Plan	



## Hazard Review: Acts of Violence

- Active Assailant
- Domestic & International Terrorism
- School Violence



### SOURCES:

- National consortium for the Study of Terrorism and Responses to Terrorism (START)



## Hazard Review: Dam Failure

- 14 dams in the region:
  - 9 in Brooke County
  - 4 in Hancock County
  - 1 in Beaver County, PA
- All classified as either 'High' or 'Significant' hazard dams
- No incidents

### SOURCES:

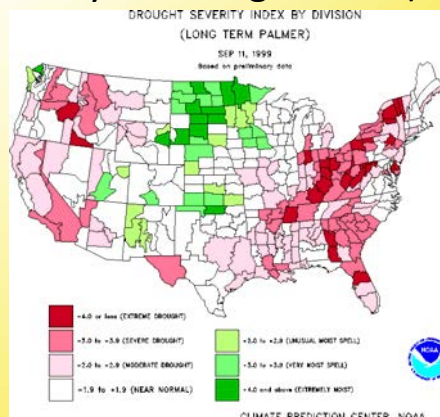
- Stanford University National Performance of Dams Program
- National Inventory of Dams (USACE)



# Hazard Review: Drought

1999 - 2016

- 2 events listed by NOAA NCEI (in reality, one single event) :
  - August 01-31, 1999
  - September 01-30, 1999



SOURCES:

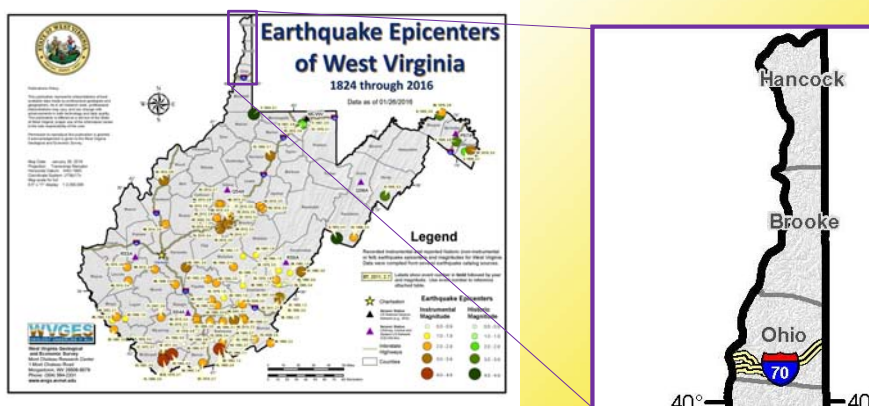
- NOAA National Centers for Environmental Information



# Hazard Review: Earthquake

1925 - 2016

- No epicenters identified in Region 11



SOURCES:

- WV Geological and Economic Survey
- NOAA National Centers for Environmental Information



## Hazard Review: Extreme Temperatures

2009 - 2016

- Heat & Cold
- 7 events listed by NOAA NCEI:
  - 0 hot
  - 7 cold

SOURCES:

- NOAA National Centers for Environmental Information



## Hazard Review: Flooding

- Historical events:
  - 1936 “The Big One”
  - 1985 “Election Day Floods”
  - 2016 Follansbee Flood

<i>County</i>	<i>Flash Floods</i>	<i>Floods</i>	<i>Totals</i>
Brooke	16	12	28
Hancock	10	12	22
Totals	26	24	50
1996 - 2016			

SOURCES:

- NOAA National Centers for Environmental Information





## Hazard Review: HazMat

- Type of information included in HazMat analysis:
  - Tier II reporting facilities
  - Commodity Flow Studies (CFSs)
  - Fracking
  - Pipelines
- Incidents: 209 (sheens, spills, leaks, discharges, etc.)

SOURCES:

- Pipeline and Hazardous Materials Safety Administration
- Fracktracker Alliance
- USCG National Response Center



## Hazard Review: Land Subsidence

1950 - 2016

- No incidents recorded

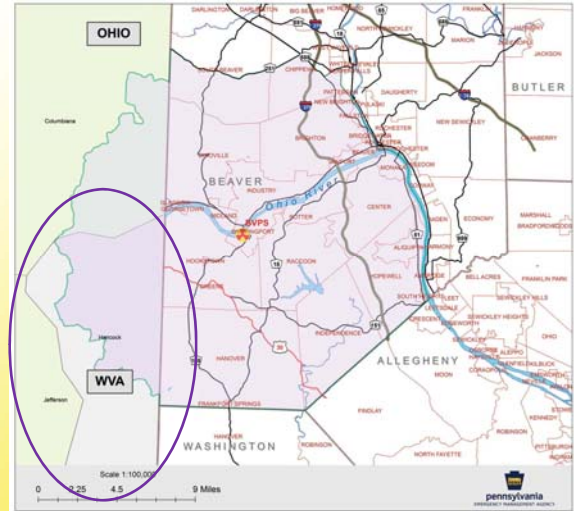
SOURCES:

- NOAA National Centers for Environmental Information



## Hazard Review: Radiological

- No nuclear power plants located within Region 11, but the Beaver Valley Nuclear Power Station is located in Shippingport, PA.
- No incidents



- SOURCES:
- First Energy
  - Beaver County EMA



## Hazard Review: Severe Weather

- The term ‘Severe Weather’ shall include the following conditions:

- Severe Thunderstorms
  - Hailstorms
  - Lightning
  - Tornadoes
  - Wind
- Winter Storms
  - Blizzards
  - Ice Storms

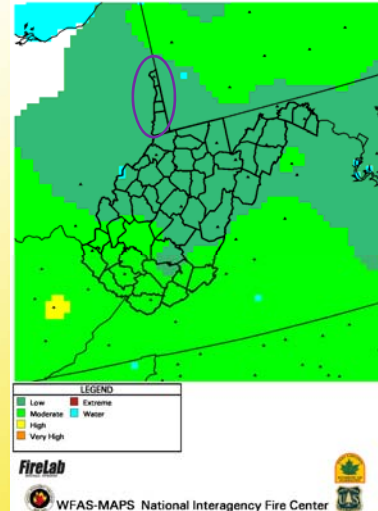
Event	SEVERE WEATHER		Total Occurrences	Timeframe
	Occurrences Brooke County	Occurrences Hancock County		
Blizzard	6	7	13	1999-2016
Hailstorm	13	28	41	1980-2016
Ice Storm	8	6	14	1997-2016
Lightning	0	2	2	1996-2016
Thunderstorm	84	85	169	1957-2016
Tornado	0	0	0	1950-2016
Wind	12	13	25	1999-2016
<b>Totals</b>	<b>123</b>	<b>141</b>	<b>264</b>	

- SOURCES:
- NOAA National Centers for Environmental Information



## Hazard Review: Wildfire

- Low hazard probability
- No incidents



### SOURCES:

- NOAA National Centers for Environmental Information
- WV Division of Forestry



## Hazard Additions

- Based on your knowledge of the area, is there a hazard that we should consider adding?



## Hazard Exercises

- Risk Assessment Matrix

- Acts of Violence
- Dam Failure
- Drought
- Earthquake
- Extreme Temperatures
- Flood
- Land Subsidence
- Radiological
- Severe Weather
- Wildfire
- Other...

IMPACT		PROBABILITY				
		<i>Frequent</i>	<i>Probable</i>	<i>Occasional</i>	<i>Remote</i>	<i>Improbable</i>
SEVERITY	<i>Catastrophic</i>	High	High	High	Moderate	Moderate
	<i>Critical</i>	High	High	Moderate	Moderate	Moderate
	<i>Marginal</i>	Moderate	Moderate	Moderate	Moderate	Low
	<i>Negligible</i>	Moderate	Moderate	Low	Low	Low

- Hazard Perceptions



## Committee Member Homework!

- Asset Inventory Pages
  - Confirm
  - Add
  - Delete
- Project Discussions
  - Lists will be emailed
  - Note projects for:
    - Completion (Specify what was done, how it was completed)
    - Deletion (If deleting, reason?)



Region 11 Hazard Mitigation Plan Update  
 November 30<sup>th</sup>, 2016 Steering Committee Meeting  
 Risk Assessment Matrix Exercise

Name: Steve MAGISCHAK

Agency/Municipality/Other: City of Wellsbury

Please fill out the Risk Assessment Matrix below using the definitions on the next page. Write in where you think each hazard discussed falls in the matrix based on the definitions. More than one hazard may be located in one box.

HAZARD SEVERITY	PROBABILITY				
	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic					
Critical			Flood. Low Substandard	Acts of Violence Severe Weather	DAM Failure Radio / alarm
Marginal					
Negligible					Drought Earthquake Extreme Temp. Wildfire

Region 11 Hazard Mitigation Plan Update  
 November 30<sup>th</sup>, 2016 Steering Committee Meeting  
 Risk Assessment Matrix Exercise

Name: Barb Zimiox

Agency/Municipality/Other: BHS

Please fill out the Risk Assessment Matrix below using the definitions on the next page. Write in where you think each hazard discussed falls in the matrix based on the definitions. More than one hazard may be located in one box.

HAZARD SEVERITY	PROBABILITY				
	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic					
Critical		Flooding over the Region			
Marginal	Land Subsidence	Spills, leaks etc over the region Severe weather storms		<del>Spill</del>	
Negligible				Violence Bombs Earthquakes Nuclear Plant	<del>Wildfires</del> <del>...</del> <del>...</del> <del>...</del>

Region 11 Hazard Mitigation Plan Update  
 November 30<sup>th</sup>, 2016 Steering Committee Meeting  
 Risk Assessment Matrix Exercise

Name: Richard Blackwell

Agency/Municipality/Other: City of New Cumberland

Please fill out the Risk Assessment Matrix below using the definitions on the next page. Write in where you think each hazard discussed falls in the matrix based on the definitions. More than one hazard may be located in one box.

HAZARD SEVERITY	PROBABILITY				
	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic				<del>Acts of Violence</del> Dam Failure	
Critical		severe weather Extreme Temps H2O mist	Flood	Acts of Violence	
Marginal				Earthquake	
Negligible				Wild Fire Radiological	

Region 11 Hazard Mitigation Plan Update  
 November 30<sup>th</sup>, 2016 Steering Committee Meeting  
 Risk Assessment Matrix Exercise

Name: JOHN DE STEFANO

Agency/Municipality/Other: FOLLANSBEE

Please fill out the Risk Assessment Matrix below using the definitions on the next page. Write in where you think each hazard discussed falls in the matrix based on the definitions. More than one hazard may be located in one box.

HAZARD SEVERITY	PROBABILITY				
	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic			FLOOD IF NOTHING GETS CORRECTED WILL BECOME PROBABLE	<del>DROUGHT</del> EARTHQUAKE	<del>DAM FAILURE</del> <del>WILDFIRE</del>
Critical		SEVERE WEATHER EXTREME TEMPS SPILLS (OTHER)	<del>SEVERE</del> ,	ACT OF VIOLENCE INCL. WATER SUPPLY	
Marginal			LAND SUBSIDENCE	RADIOLOGICAL	
Negligible				DROUGHT EARTHQUAKE	DAM FAILURE WILDFIRE



Region 11 Hazard Mitigation Plan Update  
 November 30<sup>th</sup>, 2016 Steering Committee Meeting  
 Risk Assessment Matrix Exercise

Name: Andy Nickerson

Agency/Municipality/Other: Brooke County EMA

Please fill out the Risk Assessment Matrix below using the definitions on the next page. Write in where you think each hazard discussed falls in the matrix based on the definitions. More than one hazard may be located in one box.

HAZARD SEVERITY	PROBABILITY				
	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic			FLOODING		
Critical		Flooding		DAM FAILURE	
Marginal	LAND SLIDES SEVERE WEATHER	EXTREME TEMP HAZ-MAT		EARTHQUAKE	
Negligible			DROUGHT		

Region 11 Hazard Mitigation Plan Update  
 November 30<sup>th</sup>, 2016 Steering Committee Meeting  
 Risk Assessment Matrix Exercise

Name: Bob Fowler

Agency/Municipality/Other: Brooke CO EMA - EMS

Please fill out the Risk Assessment Matrix below using the definitions on the next page. Write in where you think each hazard discussed falls in the matrix based on the definitions. More than one hazard may be located in one box.



HAZARD SEVERITY	PROBABILITY				
	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic	HAZMAT Release Spill	Flood		Dam Fail Product	Earthquake Radiological
Critical		Severe Weather			
Marginal			Land Subs Wild Fire	Extreme Heat	
Negligible			HAZMAT Spills		Violence

Region 11 Hazard Mitigation Plan Update  
 November 30<sup>th</sup>, 2016 Steering Committee Meeting  
 Risk Assessment Matrix Exercise

Name: MICHAEL PAPROCKI

Agency/Municipality/Other: BHS MPC

Please fill out the Risk Assessment Matrix below using the definitions on the next page. Write in where you think each hazard discussed falls in the matrix based on the definitions. More than one hazard may be located in one box.

HAZARD SEVERITY	PROBABILITY				
	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic	SEVERE WEATHER		FLOOD	RADIOLOGICAL DAM FAILURE	
Critical	ACTS OF VIOLENCE	 EXTREME TEMPERATURE	HAZMAT		
Marginal		DROUGHT LAND SUBSIDENCE		WILDFIRE	
Negligible					EARTHQUAKE

Region 11 Hazard Mitigation Plan Update  
 November 30<sup>th</sup>, 2016 Steering Committee Meeting  
 Risk Assessment Matrix Exercise

Name: Jeremy Ober

Agency/Municipality/Other: Hancock County HSEM

Please fill out the Risk Assessment Matrix below using the definitions on the next page. Write in where you think each hazard discussed falls in the matrix based on the definitions. More than one hazard may be located in one box.

HAZARD SEVERITY	PROBABILITY				
	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic		Flood		Radiological Dam failure Acts of Violence	
Critical	Severe ↑ weather		wildfire (Earth quake)		
Marginal		Extreme Temperatures	Land subsidence DROUGHT		
Negligible					

Region 11 Hazard Mitigation Plan Update  
 November 30<sup>th</sup>, 2016 Steering Committee Meeting  
 Risk Assessment Matrix Exercise

Name: Bob VIDAS

Agency/Municipality/Other: HANCOCK COUNTY

Please fill out the Risk Assessment Matrix below using the definitions on the next page. Write in where you think each hazard discussed falls in the matrix based on the definitions. More than one hazard may be located in one box.

HAZARD SEVERITY	PROBABILITY				
	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic				RADIOLOGICAL	
Critical	FLOODING		LAND SUBSIDENCE	DAM FAILURE	
Marginal		HAZMAT	DROUGHT	Acts of Violence	
Negligible	EXTREME TEMPS	SEVERE WEATHER	WILDFIRE		EARTHQUAKE

Region 11 Hazard Mitigation Plan Update  
 November 30<sup>th</sup>, 2016 Steering Committee Meeting  
 Risk Assessment Matrix Exercise

Name: RIK REKOWSKI

Agency/Municipality/Other: MARY H WEIR PUBLIC LIBRARY

Please fill out the Risk Assessment Matrix below using the definitions on the next page. Write in where you think each hazard discussed falls in the matrix based on the definitions. More than one hazard may be located in one box.

HAZARD SEVERITY	PROBABILITY				
	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic					
Critical		LAMM ALLIANCE FLOODS VEHICLE ACCESS RIVER NAVIGATION CONCERN		DATA COMMUNICATIONS PUBLIC LINE PUBLIC LIBRARY BROAD BAND	
Marginal			Drought	auto guidance Radiological or remote EMFS	
Negligible				WILD FIRE Dam Failure	earthquake

## **MEETING 2**

**December 19, 2016**

# REGION 11 HAZARD MITIGATION PLAN

Multi-Jurisdictional All-Hazard Mitigation Plan Update – Steering Committee Meeting #2

12/19/2016 ~ 12:00 p.m.

Sign In Sheet

	Name	Agency	Email
1.	JEFFERY HARVEY	JH CONSULTING, LLC	jharvey@jhpreparedness.com
2.	Robert Sadler	Village of Beech Bottom	bobsadler@hotmail.com
3.	JAMES A SMITH	Windsor Hgts	smuffy319@aol.com
4.	Becky VHLly	Village of B.B.	buhlly311@yahoo.com
5.	Richard Blackwell	New Cumberland WV	blackwell.r@comcast.net
6.	Barb Zimmox	Region XI	bzimmox@bhjmpc.org
7.	Amy Heimberger	JH Consulting	ahaimberger@jhpreparedness.com
8.	Steve Mauschek	City of Wellsburg	wellsburgcitymgr@comcast.net
9.	Jeremy Ober	Hancock County OEM	jober@hanwv.oem.org
10.	BOB VIDAS	Hancock County	bvidas@hancockcountywv.org
11.	JOHN DESTEFANO	CITY OF FOLLANSBEE	follansbeecitymgr@comcast.net
12.	Paula Rogers	Citizen	
13.	Henry McDonald	JH Consulting	hmcDonald@jhpreparedness.com
14.			
15.			
16.			



**REGION 11 PLANNING & DEVELOPMENT COUNCIL  
MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN  
STEERING COMMITTEE #2 MEETING**

**AGENDA**

Date: December 19th, 2016  
Time: 12:00 p.m.  
Estimated Duration: 90-120 minutes  
Location: Mary H. Weir Public Library

1. Welcome & introductions
2. Survey for public involvement
3. Hazard perceptions - individual exercise
4. Hazard mitigation and goal definition
5. Hazard mitigation goals - group exercise
  - Set regional goals
  - Prioritize goals
6. Hazard mitigation projects - individual exercise
7. Questions & Answers
8. Adjournment

# Region 11 Hazard Mitigation Plan

2017 Update  
Planning Meeting #2  
December 19, 2016 ~ 12:00 p.m.



## Public Involvement Survey

<https://www.surveymonkey.com/r/Region11HazardMitigation>

- Share by posting on governmental/agency websites, social media pages, including in newsletters, press releases, work with utilities to include in mailings, creating fact sheets for distribution in schools, etc...
- Encourage coworker, friend, family, and community participation



## Hazard Perception Exercise

- List of hazards for Region 11:
  - Acts of Violence
  - Dam Failure
  - Drought
  - Earthquake
  - Extreme Temperatures
  - Flood
  - HazMat
  - Land Subsidence
  - Radiological
  - Severe Weather
  - Wildfire



## Asset List Review

- As accurate as possible
- Additions & Deletions
- Deliver to Amy via email



## Mitigation

“Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. In order for mitigation to be effective we need to take action now—before the next disaster—to reduce human and financial consequences later (analyzing risk, reducing risk, and insuring against risk)”.

[www.FEMA.gov](http://www.FEMA.gov)



## Goals

A goal is the end toward which projects are directed – the reason for doing something. These should relate to the hazards discussed for the plan.

Example Goal:

Minimize velociraptor-human interaction in Region 11.



## Region 11 Goals Exercise

- Create 2 groups
- In each group, discuss and record 6 goals for Region 11
- Create unified list of top 5 goals
- Rate the goals in order of priority

- ★ High
- ★ Medium
- ★ Low



## Jurisdictional Projects Exercise

Projects relate back to the goals set forth by the committee and should be S.M.A.R.T.:

- S...specific
- M...measurable
- A...achievable
- R...realistic
- T...time sensitive

### Example Project:

- Create a velociraptor refuge in the New Manchester area within the next year.

Primary agency: Hancock County Animal Control  
Funding: ASPCA Endangered Species Protection Block Grant



## Questions & Answers

THANK YOU!

Contact:

Amy Heimberger

[aheimberger@jhcreparedness.com](mailto:aheimberger@jhcreparedness.com)

304-473-1009



REGION 11 HAZARD MITIGATION PLAN UPDATE  
 DECEMBER 19TH, 2016 STEERING COMMITTEE MEETING  
 HAZARD PERCEPTIONS EXERCISE

Name: JOHN DESTEFANO

Agency: FOLLANSBEE

HAZARDS	PERCEPTIONS				COMMENTS
	Not at All Concerned	Somewhat Concerned	Concerned	Very Concerned	
Acts of Violence			X		We have 2 water plants + 8 storage tanks
Dam Failure		X			None in city but a failure outside can harm us
Drought	X				
Earthquake	X				
Extreme Temperatures <sup>P</sup>			X		Mainly water lines + trees on electric lines
Floods				X	CREEK + RUN OFF AREAS
HazMat			X		
Land Subsidence			X		
Radiological		X			
Severe Weather			X		
Wildfires		X			

Feel free to use the reverse side for additional comments.

REGION 11 HAZARD MITIGATION PLAN UPDATE  
 DECEMBER 19TH, 2016 STEERING COMMITTEE MEETING  
 HAZARD PERCEPTIONS EXERCISE

Name: Jeremy Ober

Agency: Hancock County DEM

HAZARDS	PERCEPTIONS				COMMENTS
	Not at All Concerned	Somewhat Concerned	Concerned	Very Concerned	
Acts of Violence			X		
Dam Failure			X		
Drought		X			
Earthquake		X			
Extreme Temperatures		X			
Floods				X	Based on history - tends to be more frequent & costly
HazMat				X	Abundance of facilities + transport <sup>Road</sup> <sup>River</sup> <sup>Rail</sup>
Land Subsidence		X			
Radiological			X		Possible but not as likely
Severe Weather				X	Prob with greatest threat based on frequency + somewhat cost
Wildfires	X				

*Feel free to use the reverse side for additional comments.*



REGION 11 HAZARD MITIGATION PLAN UPDATE  
 DECEMBER 19TH, 2016 STEERING COMMITTEE MEETING  
 HAZARD PERCEPTIONS EXERCISE

Name: Barb Zimnox  
 Agency: Region XI PDC

HAZARDS	PERCEPTIONS				COMMENTS
	Not at All Concerned	Somewhat Concerned	Concerned	Very Concerned	
Acts of Violence		✓			
Dam Failure					
Drought		✓			
Earthquake	✓				
Extreme Temperatures			✓		
Floods				✓	Much of the area lies in a flood plain. Historically, several floods
HazMat			✓		
Land Subsidence			✓		
Radiological		✓			
Severe Weather			✓		
Wildfires		✓			

*Feel free to use the reverse side for additional comments.*

REGION 11 HAZARD MITIGATION PLAN UPDATE  
 DECEMBER 19TH, 2016 STEERING COMMITTEE MEETING  
 HAZARD PERCEPTIONS EXERCISE

Name: Richard Blackwell

Agency: City of New Cumberland WV

HAZARDS	PERCEPTIONS				COMMENTS
	Not at All Concerned	Somewhat Concerned	Concerned	Very Concerned	
Acts of Violence	✓				
Dam Failure		✓			
Drought	✓				
Earthquake	✓				
Extreme Temperatures			✓		
Floods			✓		
HazMat			✓		
Land Subsidence		✓			
Radiological		✓			
Severe Weather		✓			
Wildfires		✓			

*Feel free to use the reverse side for additional comments.*

REGION 11 HAZARD MITIGATION PLAN UPDATE  
 DECEMBER 19TH, 2016 STEERING COMMITTEE MEETING  
 HAZARD PERCEPTIONS EXERCISE

Name: BOB VIDAS

Agency: HANCOCK COUNTY

HAZARDS	PERCEPTIONS				COMMENTS
	Not at All Concerned	Somewhat Concerned	Concerned	Very Concerned	
Acts of Violence				✓	RECENT ATTACKS ON FIRST RESPONDERS AS CLOSE AS YARINGTON
Dam Failure				✓	
Drought			✓		
Earthquake		✓			
Extreme Temperatures	✓				
Floods				✓	
HazMat				✓	
Land Subsidence			✓		
Radiological				✓	
Severe Weather		✓			
Wildfires		✓			

*Feel free to use the reverse side for additional comments.*

REGION 11 HAZARD MITIGATION PLAN UPDATE  
 DECEMBER 19TH, 2016 STEERING COMMITTEE MEETING  
 HAZARD PERCEPTIONS EXERCISE

Name: JAMES H Smith

Agency: Windsor Heights Wra

HAZARDS	PERCEPTIONS				COMMENTS
	Not at All Concerned	Somewhat Concerned	Concerned	Very Concerned	
Acts of Violence		✓			NOT much violence in my village
Dam Failure	✓				
Drought	✓				
Earthquake	✓				
Extreme Temperatures	✓				
Floods	✓				
HazMat		✓			
Land Subsidence		✓			
Radiological	✓				
Severe Weather		✓			
Wildfires	✓				

Feel free to use the reverse side for additional comments.

REGION 11 HAZARD MITIGATION PLAN UPDATE  
 DECEMBER 19TH, 2016 STEERING COMMITTEE MEETING  
 HAZARD PERCEPTIONS EXERCISE

Name: Steve Mouschek

Agency: City of Wellsville

HAZARDS	PERCEPTIONS				COMMENTS
	Not at All Concerned	Somewhat Concerned	Concerned	Very Concerned	
Acts of Violence		X			
Dam Failure	X				
Drought	X				
Earthquake	X				
Extreme Temperatures		X			
Floods			X		
HazMat		X			
Land Subsidence	X				
Radiological		X			
Severe Weather			X		
Wildfires		X			

*Feel free to use the reverse side for additional comments.*

REGION 11 HAZARD MITIGATION PLAN UPDATE  
 DECEMBER 19TH, 2016 STEERING COMMITTEE MEETING  
 HAZARD PERCEPTIONS EXERCISE

Name: Becky Unky  
 Agency: Beech Bottom

HAZARDS	PERCEPTIONS				COMMENTS
	Not at All Concerned	Somewhat Concerned	Concerned	Very Concerned	
Acts of Violence				✓	
Dam Failure	✓				none in sur area
Drought		✓			
Earthquake	✓				
Extreme Temperatures		✓			
Floods			✓		
HazMat			✓		
Land Subsidence			✓		
Radiological		✓			
Severe Weather			✓		
Wildfires		✓			

*Feel free to use the reverse side for additional comments.*

REGION 11 HAZARD MITIGATION PLAN UPDATE  
 DECEMBER 19TH, 2016 STEERING COMMITTEE MEETING  
 HAZARD PERCEPTIONS EXERCISE

Name: Robert Sadler

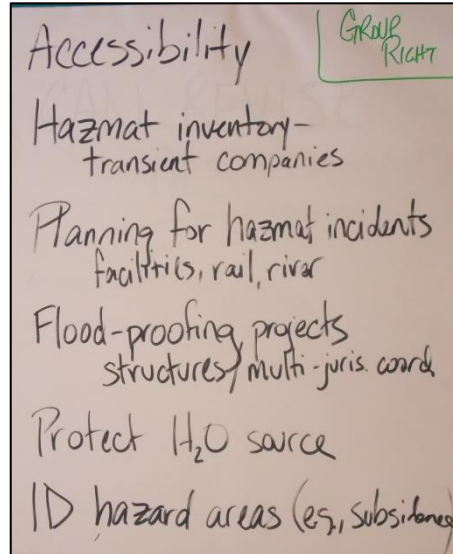
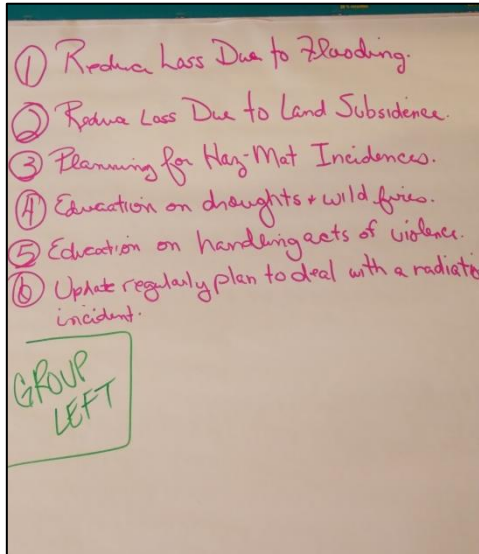
Agency: Village of Beech Bottom W.Va.

HAZARDS	PERCEPTIONS				COMMENTS
	Not at All Concerned	Somewhat Concerned	Concerned	Very Concerned	
Acts of Violence			/		
Dam Failure			/		
Drought				✓	
Earthquake				✓	
Extreme Temperatures			/		
Floods			✓	.	
HazMat				✓	
Land Subsidence			/		
Radiological				✓	
Severe Weather				/	
Wildfires			✓	✓	

*Feel free to use the reverse side for additional comments.*

## MEETING 2, SETTING GOALS

During the meeting on December 19, 2016, the committee participated in an activity to set the goals for the Region 11 HMP update. There were two groups in which members identified the goals they would focus on for the plan update.



After each group came up with their own goals, they agreed upon six primary goals.





PROJECT 3.1.1: Undertake Brownfields projects to lessen on-going contamination at former industrial sites.	New				
PROJECT 4.1.1: Coordinate, as appropriate, with partners throughout the region to identify the location of privately-owned dams as well as contact information for the owners of those structures.	New		Deferred		

Region 11

**BEECH BOTTOM**

Projects	2012 Status	What is the Updated Status?
PROJECT 1A.2.1: Work with the Brooke County Emergency Management Agency (BCEMA) and critical facilities to create revised listings of critical facilities within municipal boundaries. <i>support</i>	On-going ✓	
PROJECT 2A.1.1: Develop an all-hazard information system in the Mayor's Office to provide public information on disasters to citizens.	On-going ✓	
PROJECT 2A.2.1: Ensure that all current shelters have adequate resources for use as a Mass Care Shelter. <i>support EMA</i>	On-going ✓	
PROJECT 2A.2.2: Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter, the BCEMA, and local emergency responders. <i>support EMA</i>	On-going ✓	
PROJECT 2A.3.1: Establish a Community Emergency Response Team (CERT). <i>support EMA</i>	On-going ✓	
PROJECT 2A.3.2: Increase the number of trained citizen emergency responders. <i>support EMA</i>	On-going ✓	
PROJECT 2A.3.3: Conduct National Weather Service Storm Spotter classes.	On-going ✓	?
PROJECT 3A.1.1: Review existing regulations to ensure adequacy in reducing the amount of future development in identified hazard areas.	On-going ✓	<i>well head protection?</i>
PROJECT 3A.1.2: Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.	On-going ✓	
PROJECT 3A.1.3: Review all capital improvements plans to ensure that infrastructure improvements are not directed towards hazardous areas.	On-going ✓	
PROJECT 3A.2.1: Establish zoning districts and land use regulations that will allow only appropriate activities and uses in the village's floodplain and flood prone areas.	On-going ✓	

# Beech Bottom

PROJECT 3A.2.2: Review existing comprehensive plans, land use plans, and planning and zoning ordinances to determine if any revisions are necessary to better protect against hazard damage.	On-going ✓	
PROJECT 5A.1.1: Work with the West Virginia Division of Highways (WVDOH) to identify areas of frequent roadway flooding and develop mitigation strategies.	On-going ✓	
PROJECT 5A.1.2: Conduct a Hazardous Materials Survey to better understand the nature and extent of hazardous materials risks throughout the village.	On-going ✓	
PROJECT 5A.1.3: Implement the National Fire Protection Agency (NFPA) 704 M System to identify all facilities that store hazardous materials.	On-going ✓	

### FOLLANSBEE PROJECT LIST

Projects	2012 Status	What is the Updated Status?	If Completed, When and How? If Deferred or Deleted, Why?	Can You Contribute Funds and/or In-Kind Services To This Project?	Who Will Do This Project?
PROJECT 1E.2.1: Work with BCEMA and critical facilities to create revised listings of critical facilities within municipal boundaries.	On-going	ADDED Electrical connections so portable generator can be used	done Dec 29 6		
PROJECT 2E.1.1: Develop an all-hazard information system in the Mayor's Office to provide public information on disasters to citizens.	On-going	UPGRADING WEBSITE			
PROJECT 2E.2.1: Ensure that all current shelters have adequate resources for use as a Mass Care Shelter	On-going	ongoing			
PROJECT 2E.2.2: Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter, the BCEMA, and local emergency responders.	On-going	ongoing			
PROJECT 2E.3.1: Establish a Community Emergency Response Team (CERT).	On-going	ongoing	We do have a CERT		
PROJECT 2E.3.2: Increase the number of trained citizen emergency responders.	On-going	ongoing			
PROJECT 2E.3.3: Conduct National Weather Service Storm Spotter classes.	On-going				
PROJECT 3E.1.1: Review existing regulations to ensure adequacy in reducing the amount of future development in identified hazard areas.	On-going	ongoing			
PROJECT 3E.1.2: Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.	On-going				
PROJECT 3E.1.3: Review all capital improvements plans to ensure that infrastructure improvements are not directed towards hazardous areas.	On-going				

Follansbee

PROJECT 3E.2.1: Establish zoning districts and land use regulations that will allow only appropriate activities and uses in the village's floodplain and flood prone areas.	On-going				
PROJECT 3E.2.2: Review existing comprehensive plans, land use plans, and planning and zoning ordinances to determine if any revisions are necessary to better protect against hazard damage.	On-going				
PROJECT 5E.1.1: Work with the West Virginia Division of Highways (WVDOH) to identify areas of frequent roadway flooding and develop mitigation strategies.	On-going	ongoing			
PROJECT 5E.1.2: Conduct a Hazardous Materials Survey to better understand the nature and extent of hazardous materials risks throughout the village.	On-going (5 years)				
PROJECT 5E.1.3: Implement the National Fire Protection Agency (NFPA) 704 M System to identify all facilities that store hazardous materials.	On-going				

NEW CUMBERLAND									
Goals	Objective	Projects	Status	Priority	Cost Estimate	Funding	Coordinating Agency	Support Agencies	Mitigation Type
GOAL 1G: Keep floodwaters out of the City of New Cumberland.	OBJECTIVE 1G.2: Remove homes from the flood area through "buy outs", elevations, or relocations. Get critical facilities out of hazard areas.	PROJECT 1F.2.1: Secure funding for "buy outs" (i.e., acquisition) and consider elevations or identify a relocation site.	On-going	2	Up to \$84,700 per property	HMPG	New Cumberland Floodplain Coordinator	New Cumberland Municipal Council	Prevention
		PROJECT 1G.2.2: Fire department personnel and city government needs to <u>move to other areas</u> , as State Route (SR) 2 becomes blocked with high water. Fire department and ambulances currently have a hard time reaching victims.	On-going	1	Little to no additional funding	SHSP Local Funding	New Cumberland Municipal Council	New Cumberland Volunteer Fire Department <u>Hancock County OEM</u>	Prevention <i>moved 5-2016</i>

*moved 2005*

WELLSBURG PROJECT LIST

Projects	Status	What is the Updated Status?	If Completed, When and How? If Deferred or Deleted, Why?	Can You Contribute Funds and/or In-Kind Services To This Project?	Who Will Do This Project?
PROJECT 11.2.1: Work with BCEMA and critical facilities to create revised listings of critical facilities within municipal boundaries.	On-going				
PROJECT 21.1.1: Develop an all-hazard information system in the Mayor's Office to provide public information on disasters to citizens.	<del>On-going</del>	EMA			
PROJECT 21.2.1: Ensure that all current shelters have adequate resources for use as a Mass Care Shelter.	<del>On-going</del>	EMA			
PROJECT 21.2.2: Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter, the BCEMA, and the local emergency responders.	<del>On-going</del>	EMA			
PROJECT 21.3.1: Establish a Community Emergency Response Team (CERT).	<del>On-going</del>	EMA	Underway Fire		
PROJECT 21.3.2: Increase the number of trained citizen emergency responders.	On-going				
PROJECT 21.3.3: Conduct National Weather Service Storm Spotter classes.	<del>On-going</del>	JONE			
PROJECT 31.1.1: Review existing regulations to ensure adequacy in reducing the amount of future development in identified hazard areas.	On-going				
PROJECT 31.1.2: Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.	On-going				
PROJECT 31.1.3: Review all capital improvements plans to ensure that infrastructure improvements are not directed towards hazardous areas.	On-going				
PROJECT 31.2.1: Establish zoning districts and land use regulations that will allow only appropriate activities and uses in the village's floodplain and flood prone areas.	On-going				
PROJECT 31.2.2: Review existing comprehensive plans, land use plans, and planning and zoning ordinances to determine if any revisions are necessary to better protect against hazard damage.	On-going				
PROJECT 41.1.2: Develop a database of information on all repetitive loss properties including maps.	On-going				
PROJECT 41.1.4: Continue to research mitigation projects in the Kings Creek area.	<del>New</del>	NOT OURS			
PROJECT 41.1.5: Complete the requirements necessary for participation in the CRS.	New				
PROJECT 51.1.1: Work with the West Virginia Division of Highways (WVDOT) to identify areas of frequent roadway flooding and develop mitigation strategies.	On-going				

PROJECT 51.1.2: Conduct a Hazardous Materials Survey to better understand the nature and extent of hazardous materials risks throughout the village.	On-going (5 years)				
PROJECT 51.1.3: Implement the National Fire Protection Agency (NFPA) 704 M System to identify all facilities that store hazardous materials.	On-going				

*Wellsburg*



**REGION 11 HAZARD MITIGATION PLAN UPDATE  
NEW PROJECTS WORKSHEET**

Name: JAMES A Smith

Jurisdiction: Winson Heights WMA

S...smart  
M...measurable  
A...achievable  
R...realistic  
T...time sensitive

NEW PROJECTS					
Project	What Goal does it Relate to?	Timeframe	How will the project be funded?	Can You Contribute Funds and/or In-Kind Services To This Project?	Who Will Do This Project?
<del>ACCESSIBILITY</del> GETTING ROADS FIXED	ACCESSIBILITY LAND SUBSIDANCE	_____	STATE OR FED	NO	_____

**REGION 11 HAZARD MITIGATION PLAN UPDATE  
NEW PROJECTS WORKSHEET**

Name: Steve Naguschak

Jurisdiction: City of Wellsburg

S...smart  
M...measurable  
A...achievable  
R...realistic  
T...time sensitive

NEW PROJECTS					
Project	What Goal does it Relate to?	Timeframe	How will the project be funded?	Can You Contribute Funds and/or In-Kind Services To This Project?	Who Will Do This Project?
Stormwater control and maintenance of tributaries	Flooding	2 yrs	MS 4 Funding	yes	—
Review and control flood plain	Flooding	10 yrs	—	yes	—

**REGION 11 HAZARD MITIGATION PLAN UPDATE  
NEW PROJECTS WORKSHEET**

Name: Barb Zimmon

Jurisdiction: Region XI PDC

S...smart  
M...measurable  
A...achievable  
R...realistic  
T...time sensitive

NEW PROJECTS					
Project	What Goal does it Relate to?	Timeframe	How will the project be funded?	Can You Contribute Funds and/or In-Kind Services To This Project?	Who Will Do This Project?
Do water source protection projects as funding becomes available	Water protection	Started → on-going as funding becomes available	Homeland Security + BPH	In-kind	Each municipality or PSD
Work with WV DOT & each municipality for accessibility issues	Accessibility	On-going as funding is available	WV DOT Federal Highways	MPO resources	Each municie / County in coordination with Region

**REGION 11 HAZARD MITIGATION PLAN UPDATE  
NEW PROJECTS WORKSHEET**

Name: Becky UHly

Jurisdiction: Village of Beech Bottom, W.Va

S...smart  
M...measurable  
A...achievable  
R...realistic  
T...time sensitive

NEW PROJECTS					
Project	What Goal does it Relate to?	Timeframe	How will the project be funded?	Can You Contribute Funds and/or In-Kind Services To This Project?	Who Will Do This Project?
Replace 48" storm sewer which transverse thru Village	Safety Flooding	ASAP	?	yes	
Phase II sidewalk project	Safety Accessibility	2017	GRANT	yes	

**REGION 11 HAZARD MITIGATION PLAN UPDATE  
NEW PROJECTS WORKSHEET**

Name: JOHN DESTEPANO

Jurisdiction: FOLLANSBEE

S...smart  
M...measurable  
A...achievable  
R...realistic  
T...time sensitive

NEW PROJECTS					
Project	What Goal does it Relate to?	Timeframe	How will the project be funded?	Can You Contribute Funds and/or In-Kind Services To This Project?	Who Will Do This Project?
need to Address Allegheny Creek and Run off areas that originate outside city limits - cause flooding downtown	FLOODING	needs addressed immediately	STATE owned CREEK + RUN OFF AREAS	maybe in-kind services	
There are homes on Allegheny Creek that would sell to FEMA	FLOODING		FEMA	NO	
Land subsidence in city park	Land subsidence			We have removed picnic shelter + installed survey pins have had them surveyed 5 times - all ok costs	
This will affect road to Parkview subdivision					

**REGION 11 HAZARD MITIGATION PLAN UPDATE  
NEW PROJECTS WORKSHEET**

Name: Jeremy Ober

Jurisdiction: Hancock Co ODEM

S...smart  
M...measurable  
A...achievable  
R...realistic  
T...time sensitive

NEW PROJECTS					
Project	What Goal does it Relate to?	Timeframe	How will the project be funded?	Can You Contribute Funds and/or In-Kind Services To This Project?	Who Will Do This Project?
Update County Hazard Plan within two years	Hazard	Two years	Unknown HMAF	N/A	HC ODEM HC LGPC
<del>Provide</del> develop a public outreach/education program for flood/storm awareness	weather floods	Unknown	Unknown	N/A	HC ODEM

**REGION 11 HAZARD MITIGATION PLAN UPDATE  
NEW PROJECTS WORKSHEET**

Name: Richard Blackwell

Jurisdiction: City of New Cumberland

S...smart  
M...measurable  
A...achievable  
R...realistic  
T...time sensitive

NEW PROJECTS					
Project	What Goal does it Relate to?	Timeframe	How will the project be funded?	Can You Contribute Funds and/or In-Kind Services To This Project?	Who Will Do This Project?
Lessen Flood Damage IN New Cumberland 1.G	Goal 1G	ON GOING	HMPG		
1.G	1G2.2	ON GOING	Little to NO Funding		

## **MEETING 3**

**February 6, 2017**



# REGION 11 HAZARD MITIGATION PLAN

Multi-Jurisdictional All-Hazard Mitigation Plan Update – Steering Committee Meeting #3

06/02/2017 ~ 12:00 p.m.  
Sign In Sheet

	Name	Agency	Email
1.	Mark Miller	City of Weirton	mmiller@cityofweirton.com
2.	Barb Zimnox	Region XI PDC	bzimnox@bhjmc.org
3.	Cindy Hoffman	Town of Bethany	sdturnercooper2@frontier.com
4.	Steve Mageschak	City of Wellsburg	wellsburgcitymgr@comcast.net
5.	Bob Sadler	Village of Beech Bottom	bobsadler@hotmail.com
6.	Becky Uhly	" " " "	buhly311@yahoo.com
7.	Jeremy Ober	Hancock County OEM	jober@hanwvoem.org
8.	Bob Vidas	HANCOCK COUNTY	BVIDAS@HANWV.ORG
9.	Amy Heimberger	JHC	aheimberger@jnppreparedness.com
10.	JOHN DESTEFANO	CITY OF FOLLANSBEE	follansbeecitymgr@comcast.net
11.	Richard Blackwell	City of New Cumberland	blackwell.r@comcast.net
12.			
13.			
14.			
15.			
16.			

**REGION 11 PLANNING & DEVELOPMENT COUNCIL  
MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN  
STEERING COMMITTEE #3 MEETING**

**AGENDA**

Date: February 6<sup>th</sup>, 2017  
Time: 12:30 p.m.  
Estimated Duration: 90-120 minutes  
Location: Mary H. Weir Public Library

1. Welcome & introductions
2. Survey for public involvement
3. Hazard mitigation goals and projects
  - Review goals
  - Review projects
  - Prioritize projects
4. Mapping exercise
5. Questions & Answers
6. Adjournment

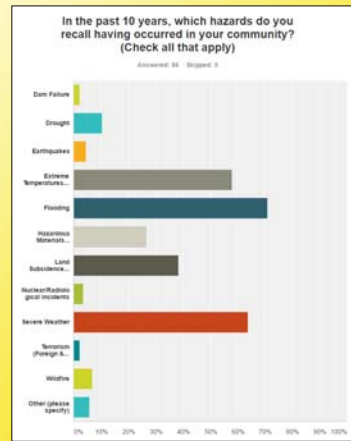
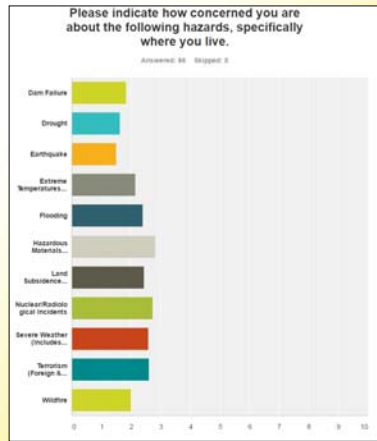
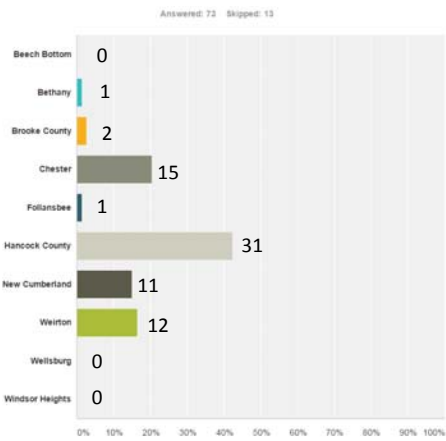
# Region 11 Hazard Mitigation Plan

2017 Update  
Planning Meeting #3  
February 6, 2017~ 12:30 p.m.



## Public Involvement Survey

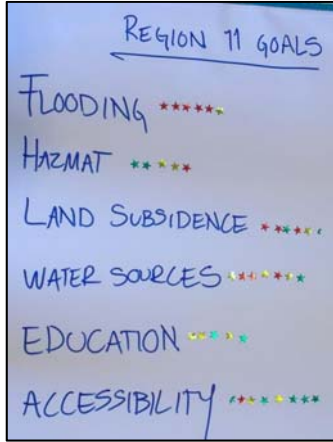
<https://www.surveymonkey.com/r/Region11HazardMitigation>



Results as of Thursday, February 2<sup>nd</sup>, 2017 at 4:00pm



## Hazard Mitigation Goals



These were the topics for the goals set by the committee in meeting #2.

By vote, the priority is as follows:

1. Flooding 17 points
2. Water sources 14 points
3. Accessibility 11 points
4. Land subsidence 10 points
5. HazMat & Education 8 points (tie)

★ High - 3      ☆ Medium - 2      ☆ Low - 1



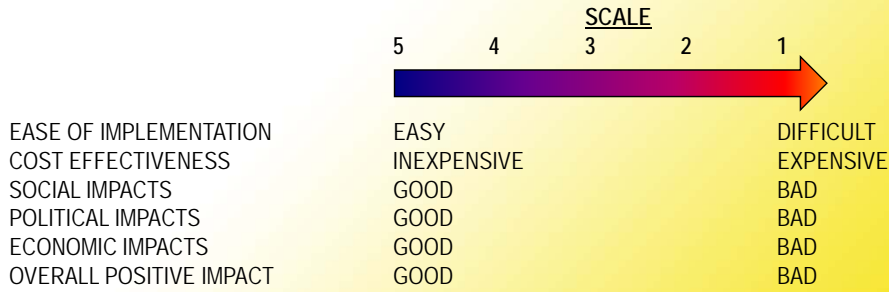
## Hazard Mitigation Goals

- GOAL 1 Mitigate effects of flooding and flash flooding in Region 11 by reducing costs and loss of property.
- GOAL 2\* Protect and secure water sources within Region 11.
- GOAL 3 Promote safety by increasing public road accessibility in Region 11.
- GOAL 4 Minimize occurrences of land subsidence and property loss.
- GOAL 5 Reduce impact of Hazardous Materials on the environment through awareness and planning.
- GOAL 6 Minimize effects of all hazards affecting Region 11 by increasing awareness and preparation through education and notification.



## Hazard Mitigation Projects

- Review your projects
- Prioritization exercise



## Mapping Exercise

- Divide into 2 groups
- Use the maps on the tables to identify problem areas relating to the following hazards in your jurisdiction.

- Drought
- HazMat
- Land Subsidence
- Severe Weather

Use colors

Make notes



## Questions & Answers

THANK YOU!

Contact:  
Amy Heimberger  
aheimberger@jhcreparedness.com  
304-473-1009



## REGION 11 HAZARD MITIGATION PLAN UPDATE

### Prioritization Matrix Instructions

- 1 List your projects across the top row of the matrix.  
On a scale of 1 to 5 (5 being the best), score each project according to the criteria in the left-hand column. Score each project according to your opinion of its merit. No comparison is made during the initial scoring.
- 2 Tally the score for each project by adding the numbers in the column under the project. Place the answer in the same column of the "Total" row.
- 3 The highest score is the highest-priority project. (NOTE: Multiple projects may have the same ranking.)
- 4
- 5 Definition of Scoring Criteria:

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

REGION 11 HAZARD MITIGATION PLAN UPDATE

PROJECT PRIORITIZATION MATRIX

REGION 11

PROJECT →	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	A <sub>6</sub>	A <sub>7</sub>	A <sub>8</sub>				
CRITERIA ↓	NFIP	BUYOUTS	RL	WATER SOURCE PROT.	ACCESS w/ WINDOT	BROWN-FIELD	<del>HAZARDOUS</del> NFIP	NEXT GEN				
Ease of Implementation	3	1	2	2	1	4	2	2				
Cost Effectiveness	4	1	2	2	1	3	2	1				
Social Impact	4	2	2	4	5	4	3	3				
Political Impact	4	4	2	4	5	4	2	3				
Economic Impact	4	3	2	4	5	5	3	3				
Overall Positive Impact	4	3	3	5	5	5	3	4				
TOTAL	23	14	13	21	22	25	15	16				



REGION 11 HAZARD MITIGATION PLAN UPDATE

HANCOCK

PROJECT PRIORITIZATION MATRIX

PROJECT →	C1	C2	C3	C4	C5							
CRITERIA ↓	FLOOD INSURANCE	BOYD	HAZMAT PLAN	STORM READY	SHELTER DATABASE							
Ease of Implementation	3	1	4	5	5							
Cost Effectiveness	5	1	5	5	5							
Social Impact	5	5	3	5	5							
Political Impact	5	3	3	3	3							
Economic Impact	5	3	3	3	3							
Overall Positive Impact	5	3	4	4	4							
TOTAL	28	16	22	25	25							

REGION 11 HAZARD MITIGATION PLAN UPDATE

PROJECT PRIORITIZATION MATRIX

BEECH BOTTOM

PROJECT →	D1	<del>D2</del> D2	D3	D4	D5							
CRITERIA ↓	48" PIPE	PHASE II SIDEWALK	HAZMAT CONTACTS	SCHOOL PROGRAMS	SOCIAL MEDIA							
Ease of Implementation	1	4	4	2	4							
Cost Effectiveness	2	4	4	4	4							
Social Impact	3	5	3	4	4							
Political Impact	4	4	4	4	4							
Economic Impact	3	3	4	1	3							
Overall Positive Impact	1	5	4	4	4							
TOTAL	14	25	23	23	23							

REGION 11 HAZARD MITIGATION PLAN UPDATE

PROJECT PRIORITIZATION MATRIX

BETHANY

PROJECT →	K1	K2										
CRITERIA ↓	FLOODING NEAR COMMUNITY CENTER	PUBLIC NOTIFICATION										
Ease of Implementation	1	2										
Cost Effectiveness	1	3										
Social Impact	3	3										
Political Impact												
Economic Impact	5	5										
Overall Positive Impact	5	5										
<b>TOTAL</b>	<b>15</b>	<b>18</b>										

REGION 11 HAZARD MITIGATION PLAN UPDATE

FOLLANSBEE

PROJECT PRIORITIZATION MATRIX

PROJECT →	G1 ALLEGHAN CREEK	G2 BWS	G3 CULVERT	G4 SANITARY/STORM PIPE	G5 FIRE HOUSE PARKING	G6 PARKVIEW	G7 SOCIAL MEDIA					
CRITERIA ↓												
Ease of Implementation	5	5	3	3	4	3	4					
Cost Effectiveness	2	3	2	2	3	1	4					
Social Impact	5	3	2	4	3	4	4					
Political Impact	5	5	5	5	5	5	4					
Economic Impact	4	4	4	3	3	2	2					
Overall Positive Impact	5	5	4	5	4	5	4					
<b>TOTAL</b>	<b>26</b>	<b>25</b>	<b>20</b>	<b>22</b>	<b>22</b>	<b>20</b>	<b>22</b>					

REGION 11 HAZARD MITIGATION PLAN UPDATE

NEW COMBERLAND

PROJECT PRIORITIZATION MATRIX

PROJECT →	H1	H2	H3	H4								
CRITERIA ↓	BUY OUTS	EMS RELOCATION	PARTNERS FLOOD INSURANCE	SOCIAL MEDIA								
Ease of Implementation	1	2	3	4								
Cost Effectiveness	1	4	4	4								
Social Impact	4	3	4	4								
Political Impact	4	3	4	4								
Economic Impact	3	3	3	4								
Overall Positive Impact	5	4	4	5								
TOTAL												

REGION 11 HAZARD MITIGATION PLAN UPDATE

PROJECT PRIORITIZATION MATRIX

WELLSBURG

PROJECT →	J1	J2	J3	J4	J5							
CRITERIA ↓	TRIBUTARY FLOODING	FLOODPLAIN	CITIZEN EMERGENCY RESPONDERS	PUBLIC EDUCATION	SOCIAL MEDIA							
Ease of Implementation	2	1	2	5	5							
Cost Effectiveness	4	1	1	5	5							
Social Impact	3	3	2	3	4							
Political Impact	4	3	3	3	5							
Economic Impact	4	1	3	4	5							
Overall Positive Impact	4	5	4	4	6							
TOTAL												

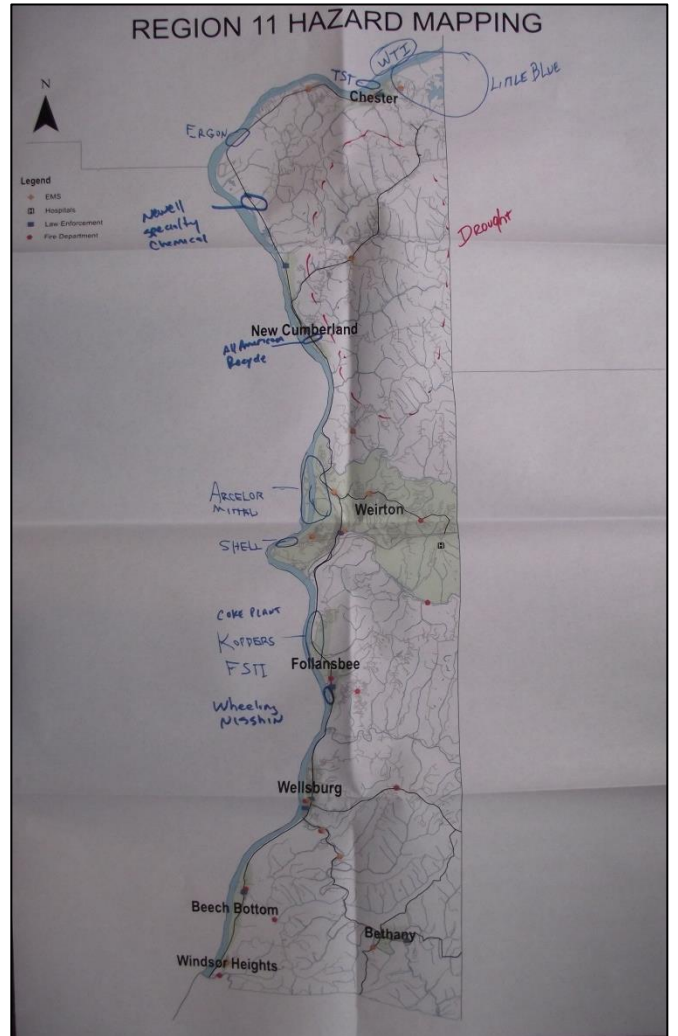
REGION 11 HAZARD MITIGATION PLAN UPDATE

PROJECT PRIORITIZATION MATRIX

PROJECT →	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12
CRITERIA ↓												
Ease of Implementation	4	4	3	4	2	2	5	5	4	4	4	4
Cost Effectiveness	4	4	2	4	3	3	5	5	4	4	4	4
Social Impact	3	4	2	3	2	2	4	4	2	2	2	2
Political Impact	4	3	3	3	2	2	4	4	2	2	2	2
Economic Impact	4	3	3	2	2	2	2	2	4	4	<del>4</del> 4	4
Overall Positive Impact	4	3	3	3	4	4	4	4	4	4	4	4
TOTAL	23	21	16	19	15	15	24	24	20	20	20	20

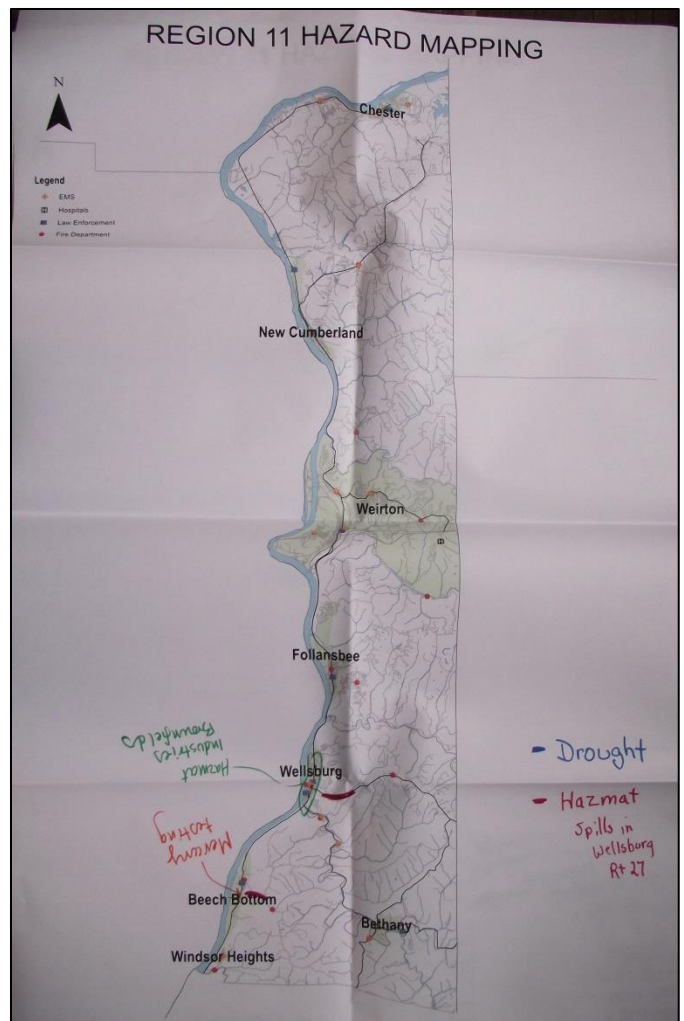
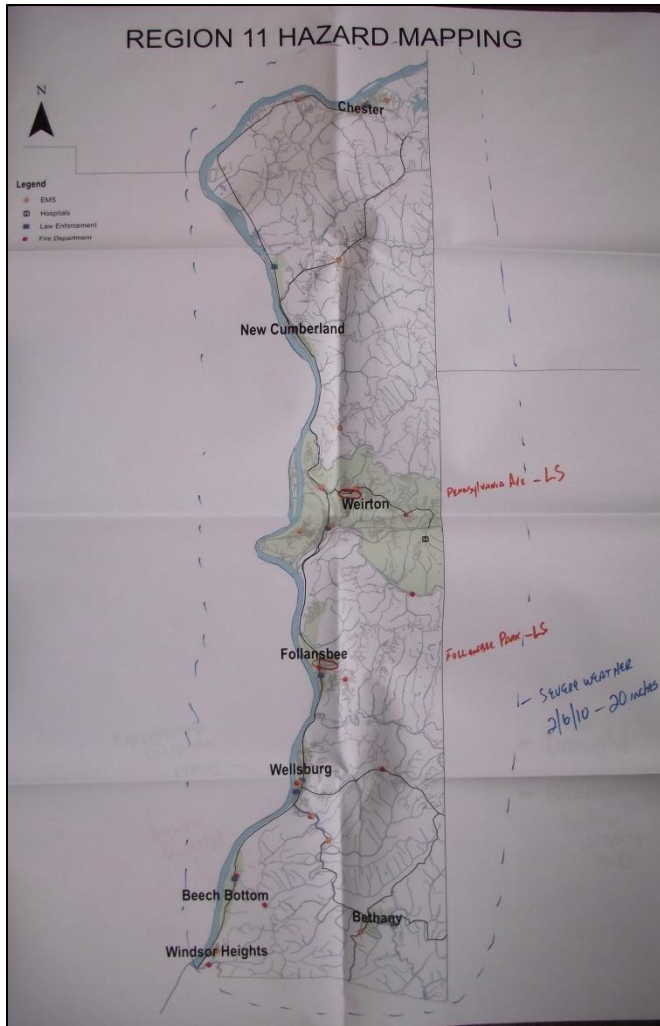
# MEETING 3, HAZARDS MAPPING

During the meeting on February 6, 2017, the committee participated in an activity to map the hazards in the region. There were two groups in which members identified four hazards on maps provided: land subsidence, drought, hazardous materials incidents, and severe weather.





Hazard mapping (continued).



## **MEETING 4**

**May 4, 2017**

# REGION 11 HAZARD MITIGATION PLAN

Hazard Mitigation Plan Update – Steering Committee Meeting #4

04 May 2017 ~ 5:30 p.m.

Sign In Sheet

	Name	Agency	Email
1.	Mark Miller	City of Weirton	mmiller@cityofweirton.com
2.	Barb Zimnox	BHJ	bzimnox@bhj.mpe.org
3.	Richard Blackwell	City of New Cumberland	blackwell.r@comcast.net
4.	Linda McNeil	City of New Cumberland	lindamcnei1352@hotmail.com
5.	BOB VIDAS	HANCOCK COUNTY	BVidas@HANWV.ORG
6.	Larry Rec	Follansbee	chief@follansbeefire.com
7.	Andy Nickerson	Brooke Co.	anickerson@brookecountyeia.com
8.	Amy Heimberger	JH Consulting	aheimberger@gmail.com
9.	Jeremy Ober	Hancock	Jobser@hanwvDEM.org
10.			
11.			
12.			
13.			
14.			
15.			
16.			

**REGION 11 PLANNING & DEVELOPMENT COUNCIL  
MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN  
STEERING COMMITTEE #4 MEETING**

**AGENDA**

Date: May 4, 2017  
Time: 5:30 p.m.  
Estimated Duration: 45-60 minutes  
Location: Weirton Millsop Community Center

1. Welcome & overview
2. Project review and approval
3. Assets review and approval
4. Jurisdictional capabilities
5. Plan Maintenance
  - Strategy for plan maintenance
  - Integration through existing programs
  - Continued public involvement
6. Questions & Answers
7. Adjournment

**TABLE X. WEIRTON PROJECTS**

Goal	Project #	Projects	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	11	Identify properties for buyout and/or relocation/elevation projects to lessen the number of repetitive loss properties in the city.		1-2 yrs	new	N/A	N/A	COW	Planning & Dev.
	12	Establish zoning districts and land use regulations that will allow only appropriate activities and uses in the village's floodplain and flood prone areas.		6 mo-1 yr	new	45-50K	city budget	COW	N/A
ACCESSIBILITY	13	Work with the West Virginia Division of Highways (WVDOH) to identify areas of frequent roadway flooding and develop mitigation strategies.		ongoing	ongoing	N/A	N/A	COW	DOH
MASS MOVEMENTS	No municipal projects were identified for this goal; see other municipal projects.								
HAZMAT	14	Review all capital improvements plans to ensure that infrastructure improvements are not directed towards hazardous areas.		as needed	new	N/A	N/A	Weirton Water Board	COW

			TIMEFRAME	STATUS	COST ESTIMATE	FUNDING	COORDINATING AGENCY	SUPPORT AGENCY
EDUCATION	15	Establish a Community Emergency Response Team (CERT).	1-3 yrs	new	N/A	N/A	Weirton Fire	COW
	16	Increase the number of trained citizen emergency responders.	"	new	\$ ?	city	"	COW
	17	Create a social media page to feed information to the public about events and alerts in the community.	w/in 6 months	new	N/A	N/A	COW	
	18	Develop an all-hazard information system in the Mayor's Office to provide public information on disasters to citizens.	"	"	N/A	N/A	COW	
	19	Review existing regulations to ensure adequacy in reducing the amount of future development in identified hazard areas.	current	→	"	city budgeted	COW	
	110	Review all capital improvements plans to ensure that infrastructure improvements are not directed towards hazardous areas.	ongoing	→	"	city budgeted	COW	N/A
	111	Review existing comprehensive plans, land use plans, and planning and zoning ordinances to determine if any revisions are necessary to better protect against hazard damage.	current	→	"	"	COW	N/A
	112	Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.	ongoing	→	"	"	COW	N/A

\*currently updating

**TABLE X. NEW CUMBERLAND PROJECTS**

Goal	Project #	Projects	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	H1	Secure funding for buy outs and consider elevations or identify a relocation site		As funding becomes available	On-going	Up to \$84,700 per property	HMPG	New Cumberland Floodplain Coordinator	New Cumberland Municipal Council
	H2	Identify the location for relocation of fire and EMS services outside of the floodplain zone.		5 years	Ongoing	Minimal	N/A	Hancock County OEM	City of New Cumberland Floodplain Coordinator New Cumberland Municipal Council
ACCESSIBILITY	No municipal projects were identified for this goal; see other municipal projects.								
MASS MOVEMENTS	No municipal projects were identified for this goal; see other municipal projects.								
HAZMAT	No municipal projects were identified for this goal; see other municipal projects.								
EDUCATION	H3	Identify partners for implementation of public education and awareness about availability and cost of flood insurance for their homes.		2 years	New	Minimal	In-kind donations	City of New Cumberland	Insurance Companies NFIP
	H4	Create a social media page to feed information to the public about events and alerts in the community.		2 years	New	N/A	N/A	City of New Cumberland	Hancock County OEM

*Richard Blackwell*

*of approved*

**TABLE X. FOLLANSBEE PROJECTS**

Goal	Project #	Projects	Priority	Project Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	G1	Reduce flooding in downtown Follansbee by cleaning out the sediment pond and removing trees and brush from Allegheny Creek. Reconstruct sanitary sewer line and repair and replace collapsed gabion wall.		2 years	New	\$495,408	Need to identify funding source	City of Follansbee	DNR, Soil conservation, Division of Agriculture, WVDOH
	G2	Identify houses for mitigation reconstruction, purchase, or relocation along Alleghany Creek		6 months	New	Minimal	N/A	City of Follansbee	
	G3	Replace box culvert under Route 2 at the intersection of Main Street and Allegheny Street.		2 years	New	N/A	WVDOH	WVDOH	City of Follansbee
	G4	Separate sanitary and storm water piping at Broad street to State and Ducane to State. and Raymond Street to Mill Alley		5 years	New	N/A	Infrastructure Jobs Development council, ARC.	BHJ	City of Follansbee
	G5	Identify different cost effective options for firehouse parking lot and wall collapse into Alleghany Creek.		1 year	New	Minimal	N/A	City of Follansbee	BHJ
ACCESSIBILITY	No municipal projects were identified for this goal; see other municipal projects.								
MASS MOVEMENTS	G6	Identify different cost effective solutions to fixing land subsidence at City Park which affects Parkview subdivision.		1 year	New	N/A	N/A	City of Follansbee	BHJ



HAZMAT	No municipal projects were identified for this goal; see other municipal projects.								
EDUCATION	G7	Create a website and social media page to feed information to the public about events and alerts in the community.		6 months	New	Minimal. Less than \$3000	City General Fund	City of Follansbee	N/A

**TABLE X. HANCOCK COUNTY PROJECTS**

Goal	Project #	Projects	Priority	Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	C1	Determine if citizens are eligible for flood insurance and ensure participation.		Ongoing	On-going	N/A	N/A	Hancock County Floodplain Coordinator	N/A
	C2	Undertake buyout and/or relocation/elevation projects to lessen the numbers of repeatedly-flooded structures in the county.		As funding becomes available	On-going	Up to \$84,700 per property	HMPG	Hancock County Floodplain Coordinator	Hancock County Commission Hancock County OEM
ACCESSIBILITY	No county projects were identified for this goal; see regional and municipal projects.								
MASS MOVEMENTS	No county projects were identified for this goal; see regional and municipal projects.								
HAZMAT	C3	Update the Hancock County HazMat plan		1 year	New	\$5,000	HMEP	Hancock County OEM	LEPC County Emergency Response Agencies
EDUCATION	C4	Include Storm Ready in public outreach campaigns. Identify funding sources and cost		3 years	New	Unknown	Unknown	Hancock County OEM	LEPC County Commission
	C5	Update shelter location database and educate public through mailers		1 year	On-going	N/A	N/A	Hancock County OEM	N/A

*approved*

**TABLE X. REGION 11 PROJECTS**

Goal	Project #	Projects	Priority	Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
FLOODING	A1	Engage each municipality within Region 11 to continue to support NFIP "discount on insurance" support Community Rating System		Review every 2 years	On-going	N/A		County Floodplain Coordinators	Municipal Floodplain Coordinators
	A2	Undertake buy-outs, elevation projects, and/or relocate flooded structures if and when funding is available.		10 years	On-going	Approx. \$84,450 per purchased structure	HMGP	Local Floodplain Coordinators	Local government WV DHSEM FEMA
	A3	Create a Repetitive Loss (RL) database from the ongoing collection of information of properties to aid in municipal flooding project implementation and refining of a strategy to address RL areas.		3 years	On-going	N/A	N/A	Local Floodplain Coordinators	WVDHSEM
ACCESSIBILITY	A4	Work with WVDOT and each municipality for accessibility issues		Ongoing as funding becomes available	New	Varies according to project	Federal and state transportation money.	BHJ	WVDOT, federal highways, each municipality
MASS MOVEMENTS	No regional projects identified for this goal; see county and municipal projects.								
HAZMAT	A5	Identify specific brownfield locations for clean-up due to contamination at formal industrial sites. Do assessments of sites		3 years	On-going	Up to \$1,000,000 per site	EPA brownfields assessments grant	Business development Corporation	BHJ, WVDEP, Jefferson County port authority,
	A6	Partner with municipalities to identify potential water source protection issues and support project development.		Ongoing	New	Varies according to entity	Bureau of Health	BHJ	Each municipality

**TABLE X. REGION 11 PROJECTS**

Goal	Project #	Projects	Priority	Time Frame	Status	Cost Estimate	Funding Source	Coordinating Agency	Support Agencies
EDUCATION	A7	Support each municipality in their efforts for training and education of local government officials regarding the NFIP		Every 2 years	Ongoing	Up to \$2,500 per outreach effort for the creation of materials, renting training space, etc.	PDM Local funding	Local Floodplain Coordinators	N/A
	A8	Partner with agencies throughout the region in support of mitigation and preparedness measures, to include but not be limited to the NextGen project, continued maintenance of this plan, etc.		Ongoing	Ongoing	N/A	N/A	County Emergency Managers Jurisdictional Officials	Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ) Weirton Area Port Authority

LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Beech Bottom Primary School	Education		X	Please provide address on High Street	Beech Bottom	WV	26030	Brooke	
Beech Bottom Volunteer Fire Department	Emergency Services - Fire	X		13 3rd Street	Beech Bottom	WV	26030	Brooke	
Beech Bottom Volunteer Fire Department Station 9	Emergency Services - Fire	X		Please provide address on 3rd Street	Beech Bottom	WV	26030	Brooke	
Beech Bottom Police Department	Emergency Services - Police	X		11 3rd Street	Beech Bottom	WV	26030	Brooke	
Beech Bottom Village Office	Government	X		11 3rd Street	Beech Bottom	WV	26030	Brooke	
Beech Bottom Post Office	Government			15 3rd Street	Beech Bottom	WV	26030	Brooke	
Beech Bottom Community Church	Religious Assembly			Please provide address on 2nd Street	Beech Bottom	WV	26030	Brooke	
Village of Beech Bottom	Water Treatment and Distribution			11 3rd Street	Beech Bottom	WV	26030	Brooke	
Bethany College	Education		X	31 S Loop Campus Drive	Bethany	WV	26032	Brooke	
Bethany Volunteer Fire Department	Emergency Services - Fire	X		11 WV 88	Bethany	WV	26032	Brooke	
Bethany Police Department	Emergency Services - Police	X		Please provide address	Bethany	WV	26032	Brooke	
Bethany Post Office	Government			1 Ross Street	Bethany	WV	26032	Brooke	
Bethany Historic District	Historical Landmark			Please provide address on WV 67	Bethany	WV	26032	Brooke	
Alexander Campbell Mansion	Historical Landmark			Please provide address on WV 67	Bethany	WV	26032	Brooke	
Delta Tau Delta Founders Home	Historical Landmark			211 Main Street	Bethany	WV	26032	Brooke	
Old Main, Bethany College	Historical Landmark		X	31 S Loop Campus Drive	Bethany	WV	26032	Brooke	

LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Pendleton Heights	Historical Landmark			Please provide address	Bethany	WV	26032	Brooke	
Old Bethany Church	Religious Assembly			Main and Church Street	Bethany	WV	26032	Brooke	
Castleman Run Church	Religious Assembly			Please provide address on Castleman Run Road	Bethany	WV	26032	Brooke	
Bethany Memorial Christian Church	Religious Assembly			Please provide address on Main Street	Bethany	WV	26032	Brooke	
St. John Fisher Catholic Church	Religious Assembly			201 Richardson Street	Bethany	WV	26032	Brooke	
Orchards at Foxcrest	Assisted Living Facility		X	125 Fox Lane	Chester	WV	26034	Hancock	
A.T. Allison Elementary	Education	X	X	605 Railroad Street	Chester	WV	26034	Hancock	
Chester Volunteer Fire Department	Emergency Services - Fire	X		371 Carolina Avenue	Chester	WV	26034	Hancock	
Lawrenceville Volunteer Fire Department	Emergency Services - Fire	X		616 Pyramys Street	Chester	WV	26034	Hancock	
Chester Police Department	Emergency Services - Police	X		600 Indiana Avenue	Chester	WV	26034	Hancock	
City of Chester	Government	X		600 Indiana Avenue	Chester	WV	26034	Hancock	
Chester Post Office	Government	X		323 Carolina Avenue	Chester	WV	26034	Hancock	
Chester City Hall	Government	X		600 Indiana Avenue	Chester	WV	26034	Hancock	
James F Murray House a.k.a. Murray-Abrams House	Historical Landmark			530 Louisiana Avenue	Chester	WV	26034	Hancock	
Lynn Murray Memorial Library	Library			601 Railroad Avenue	Chester	WV	26034	Hancock	
Church of Christ	Religious Assembly			Please provide address on 2nd Street	Chester	WV	26034	Hancock	

LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Chester Church of the Nazarene	Religious Assembly			205 3rd Street	Chester	WV	26034	Hancock	
First Christian Church	Religious Assembly			330 Indiana Avenue	Chester	WV	26034	Hancock	
Sacred Heart Catholic Church	Religious Assembly			418 4th Street	Chester	WV	26034	Hancock	
Westminster Presbyterian Church	Religious Assembly			Please provide address on 5th Street	Chester	WV	26034	Hancock	
Emmanuel Mission church	Religious Assembly			Please provide address on Fairview Road	Chester	WV	26034	Hancock	
Chester Sewage Treatment Plant	Utility - Waste Water	X		Please provide address on Louella Avenue	Chester	WV	26034	Hancock	
Chester City Pump House	Utility - Water	X		Please provide address on Collins Memorial Drive	Chester	WV	26034	Hancock	
Chester Water Tank	Utility - Water	X		Please provide address on Liberty Avenue	Chester	WV	26034	Hancock	
Sunoco	Industry	X		800 Caroline Avenue	Chester	WV	26034	Hancock	
Colliers Volunteer Fire Department - Ladies Aux Inc	Emergency Services - Fire	X		341 Pennsylvania Avenue	Colliers	WV	26035	Brooke	
Colliers Primary School	Education		X	270 Pennsylvania Avenue	Colliers	WV	26035	Hancock	
Colliers Post Office	Government	X		327 Pennsylvania Avenue	Colliers	WV	26035	Hancock	
Olde St. John's Episcopal Church	Religious Assembly			Please provide address on Eldersville Road	Colliers	WV	26035	Hancock	
Open Door Baptist Church	Religious Assembly			Please provide address on Eldersville Road	Colliers	WV	26035	Hancock	
Promise of Victory Church of God	Religious Assembly			47 Dennis Ridge Road	Colliers	WV	26035	Hancock	
Cross Creek United Presbyterian Church	Religious Assembly			3831 Tent Church Road	Colliers	WV	26035	Hancock	

LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Follansbee Church of Christ	Religious Assembly			833 Archer Hill Road	Colliers	WV	26035	Brooke	
BP	Industry	X		1522 Main Street	Follansbee	WV	26037	Brooke	
Brooke County EMS	Emergency Services - Medical	X		1960 Main Street	Follansbee	WV	26037	Brooke	
Christian Assembly Church	Religious Assembly			1002 Virginia Avenue	Follansbee	WV	26037	Brooke	
City of Follansbee	Government	X		872 Main Street	Follansbee	WV	26037	Brooke	
Downtown Water Plant	Utility - Water	X		Washington Street	Follansbee	WV	26037	Brooke	
First Church of the Nazarene	Religious Assembly			114 Mahan Lane	Follansbee	WV	26037	Brooke	
First Energy sub station (Mon Power)	Utility - Power	X		Please provide address on WV 2	Follansbee	WV	26037	Brooke	
Follansbe Water Plant	Utility - Water	X		807 Lee Road	Follansbee	WV	26037	Brooke	
Follansbee Library	Library			844 Main Street	Follansbee	WV	26037	Brooke	
Follansbee Middle School	Education		X	1440 Main Street	Follansbee	WV	26070	Brooke	
Follansbee Police Department	Emergency Services - Police	X		872 Main Street	Follansbee	WV	26037	Brooke	
Follansbee Post Office	Government			1005 Main Street	Follansbee	WV	26037	Brooke	
Follansbee United Methodist Church	Religious Assembly			Please provide address on Virginia Avenue	Follansbee	WV	26037	Brooke	
Follansbee Volunteer Fire Department	Emergency Services - Fire	X		1061 Main Street	Follansbee	WV	26037	Brooke	
Follansbee Waste Water Plant	Utility - Water	X		Please provide address on Riverview Avenue	Follansbee	WV	26037	Brooke	



LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
FSTI	Industry	X		800 Veterans Drive	Follansbee	WV	26037	Brooke	
Goodwill Church	Religious Assembly			2514 Eldersville Road	Follansbee	WV	26037	Brooke	
Hooverson Heights Primary School	Education		X	200 Rockdale Road	Follansbee	WV	26037	Brooke	
Hooverson Heights Volunteer Fire Department	Emergency Services - Fire	X		116 May Road	Follansbee	WV	26037	Brooke	
Hooverson Heights Volunteer Fire Department (garage)	Emergency Services - Fire	X		2518 Eldersville Road	Follansbee	WV	26037	Brooke	
Jefferson Primary School	Education		X	1098 Jefferson Street	Follansbee	WV	26037	Brooke	
Koppers Chemical	Industry	X		100 Koppers Road	Follansbee	WV	26037	Brooke	
Lombardi Development Company	Industry			649 Virginia Avenue	Follansbee	WV	26037	Brooke	
Mount Zion Church	Religious Assembly			635 Virginia Avenue	Follansbee	WV	26037	Brooke	
Mountain State Carbon	Utility - Power	X		Please provide address on WV 2	Follansbee	WV	26037	Brooke	
Murphy Consolidated Industries	Industry	X		575 Veterans Drive	Follansbee	WV	26037	Brooke	
Sheetz	Industry	X		1525 Main Street	Follansbee	WV	26037	Brooke	
Sierra Chemicals	Industry	X		200 Archer Hill Road	Follansbee	WV	26037	Brooke	
Spectra Energy	Industry			600 Veterans Drive	Follansbee	WV	26037	Brooke	
St. Anthony Church	Religious Assembly			1017 Jefferson Street	Follansbee	WV	26037	Brooke	
Sunoco	Industry	X		1405 Main Street	Follansbee	WV	26037	Brooke	

LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
United Presbyterian Church	Religious Assembly			1254 Main Street	Follansbee	WV	26037	Brooke	
Wheeling-Nisshin Inc.	Industry	x		400 Penn Street	Follansbee	WV	26037	Brooke	
Herron Airport	Transportation			Please provide address	Grant	WV	26047	Hancock	
Lafarge	Industry			28 Quarry Drive	New Cumberland	WV	26047	Brooke	
City of New Cumberland Fire Department	Emergency Services - Fire	X		303 N Chester Street	New Cumberland	WV	26047	Hancock	
New Cumberland Ambulance Services	Emergency Services - Medical	X		205 N Chester Street	New Cumberland	WV	26047	Hancock	
Hancock County Sheriff's Department	Emergency Services - Police	X		104 N Court Street	New Cumberland	WV	26047	Hancock	
City of New Cumberland Police Department	Emergency Services - Police	X		104 N Court Street	New Cumberland	WV	26047	Hancock	
West Virginia State Police	Emergency Services - Police	X		32 County Highway 66/1	New Cumberland	WV	26047	Hancock	
Hancock County	Government	X		102 N Court	New Cumberland	WV	26047	Hancock	
City of New Cumberland	Government	X		104 N Court Street	New Cumberland	WV	26047	Hancock	
Hancock County Courthouse	Government	X		102 N Court	New Cumberland	WV	26047	Hancock	
New Cumberland Post Office	Government			504 Ridge Avenue	New Cumberland	WV	26047	Hancock	
First National Bank - Graham Building	Historical Landmark			100 N Chester Street	New Cumberland	WV	26047	Hancock	
Marchall House a.k.a. McNeil House	Historical Landmark			1008 Ridge Avenue	New Cumberland	WV	26047	Hancock	
New Cumberland Church of the Nazarene	Religious Assembly			49 Nazarene Lane	New Cumberland	WV	26047	Hancock	

LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Hancock County Solid Waste Authority	Utility - Waste			831 Gas Valley Road	New Cumberland	WV	26047	Hancock	
N C Sanitation Inc.	Utility - Waste			292 Gas Valley Road	New Cumberland	WV	26047	Hancock	
Hancock County Psd	Utility - Waste Water			1530 N Chester Street	New Cumberland	WV	26047	Hancock	
New Cumberland Water Tank (3)	Utility - Water			Rolling Acres Road	New Cumberland	WV	26047	Hancock	
New Cumberland Waste Water Treatment Plant	Utility - Waste Water			South Chestnut Street	New Cumberland	WV	26047	Hancock	
New Cumberland Water Wells	Utility - Water			Adams Street	New Cumberland	WV	26047	Hancock	
New Cumberland Vac Station	Utility - Water			Adams Street	New Cumberland	WV	26047	Hancock	
Fryers Auto Service	Industry	X		657 Ohio River Boulevard	New Cumberland	WV	26047	Hancock	
Smith Oil Company	Industry	X		306 S Chester Street	New Cumberland	WV	26047	Hancock	
New Manchester Elementary School	Education	X	X	128 Frankfort Road	New Manchester	WV	26047	Hancock	
New Manchester Volunteer Fire Department	Emergency Services - Fire	X		193 Main Street	New Manchester	WV	26056	Hancock	
New Manchester Post Office	Government			290 High Street	New Manchester	WV	26056	Hancock	
Old Courthouse	Historical Landmark			Please provide address on High and Elm Street	New Manchester	WV	26056	Hancock	
Fairview Presbyterian	Religious Assembly			99 Market Street	New Manchester	WV	26056	Hancock	
New Manchester Christian Church	Religious Assembly			172 High Street	New Manchester	WV	26056	Hancock	
Oak Glen Middle School	Education	X	X	39 Golden Bear Drive	New Manchester	WV	26047	Hancock	

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Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Oak Glen High School	Education	X	X	195 Golden Bear Drive	New Manchester	WV	26047	Hancock	
Newell Volunteer Fire Department	Emergency Services - Fire	X		542 Washington Street	Newell	WV	26050	Hancock	
Baker's Bottom Historic District	Historical Landmark			Please provide address on WV 2	Newell	WV	26050	Hancock	
Baker's Fort Massacre Site	Historical Landmark			Please provide address	Newell	WV	26050	Hancock	
Nathan Hellings Apple Barn	Historical Landmark			Please provide address on WV 2	Newell	WV	26050	Hancock	
Mountaineer Racetrack and Gaming Resort	Historical Landmark			Please provide address	Newell	WV	26050	Hancock	
William E. Wells House	Historical Landmark			372 Virginia Terrace	Newell	WV	26050	Hancock	
First Presbyterian Church	Religious Assembly			Please provide address on Grant Street	Newell	WV	26050	Hancock	
First Methodist Episcopal Church	Religious Assembly			Please provide address on 4th and Grant Street	Newell	WV	26050	Hancock	
Newell United Methodist Church	Religious Assembly			318 Grant Street	Newell	WV	26050	Hancock	
Ergon West Virginia, Inc	Utility - Oil			9995 Ohio River Boulevard	Newell	WV	26050	Hancock	
Newell Water Tank	Utility - Water			Please provide address on Wells Avenue	Newell	WV	26050	Hancock	
Sunoco	Industry	X		600 Washington Street	Newell	WV	26050	Hancock	
Short Creek Volunteer Fire Department	Emergency Services - Fire	X		Please provide address on Short Creek Road	Short Creek	WV	26058	Brooke	No longer Exist.
Short Creek Post Office	Government			1 Short Creek Road	Short Creek	WV	26058	Brooke	
The Wyngate Senior Living Community	Assisted Living Facility		X	100 Wyngate Drive	Weirton	WV	26062	Brooke	

LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Weirton Madonna High School	Education		X	150 Michael Way	Weirton	WV	26062	Brooke	
Lauretta B Millsop Primary School	Education		X	Please provide address on Barone Drive and Legion Road	Weirton	WV	26062	Brooke	
Wellsburg Primary School	Education		X	Please provide address on Main and 15th Street	Weirton Wellsburg	WV	<del>26062</del> 26070	Brooke	
Weirton Medical Center	Hospital	X	X	601 Colliers Way	Weirton	WV	26062	Brooke	
Ball Metal Food and Household Products	Industry			3010 Birch Drive	Weirton	WV	26062	Brooke	
Neo Industries	Industry	X		3025 Birch Drive	Weirton	WV	26062	Brooke	
SAL Chemical	Industry	X		3036 Birch Drive	Weirton	WV	26062	Brooke	
Feroletto Steel Company	Industry			Please provide address on Half Moon Industrial Park	Weirton	WV	26062	Brooke	
Walmart	Industry		X	400 Three Springs Drive	Weirton	WV	26062	Brooke	
St. Nicholas Orthodox Church	Religious Assembly			608 Colliers Way	Weirton	WV	26062	Brooke	
Mazzare Church	Religious Assembly			415 Old Colliers Way	Weirton	WV	26062	Brooke	
Seventh Day Adventist Church	Religious Assembly			600 Colliers Way	Weirton	WV	26062	Brooke	
Weirton Water Treatment Plant	Utility - Water			5000 Freedom Way	Weirton	WV	26062	Brooke	
Weirton Elementary School	Education	X	X	3428 Pennsylvania Avenue	Weirton	WV	26062	Hancock	
Weir Middle School	Education	X	X	125 Sinclair Avenue	Weirton	WV	26062	Hancock	
Lauretta B Millsop School	Education		X	Please provide address	Weirton	WV	26062	Hancock	

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Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
St. Paul School	Education		X	140 Walnut Street	Weirton	WV	26062	Hancock	
West Virginia Northern Community College	Education		X	150 Michael Way	Weirton	WV	26062	Hancock	
Weirton High School	Education	X	X	100 Red Rider Road	Weirton	WV	26062	Hancock	
Weirton Heights Elementary School	Education	X	X	160 S 12th Street	Weirton	WV	26062	Hancock	
Westbrook University	Education		X	3185 Wylie Ridge Road	Weirton	WV	26062	Hancock	
Weirton Area Ambulance	Emergency Services - Medical	X		1305 Pennsylvania Avenue	Weirton	WV	26062	Hancock	
Weirton Police Department	Emergency Services - Police	X		200 Municipal Plaza	Weirton	WV	26062	Hancock	
Weirton Police Department	Emergency Services - Police	X		200 Municipal Plaza	Weirton	WV	26062	Hancock	
City of Weirton	Government	X		200 Municipal Plaza	Weirton	WV	26062	Hancock	
US Army Reserve Training Center	Government	X		Please provide address on Front Street	Weirton	WV	26062	Hancock	
Johnston-Truax House	Historical Landmark			209 Seneca Street	Weirton	WV	26062	Hancock	
Marland Heights Park and Mansion Weir Memorial Pool	Historical Landmark			Please provide address on Williams Drive and Riverview Drive	Weirton	WV	26062	Hancock	
People's Bank	Historical Landmark			3383 Main Street	Weirton	WV	26062	Hancock	
Dr. George Rigas House	Historical Landmark			3412 West Street	Weirton	WV	26062	Hancock	
Peter Tarr Furnace Site	Historical Landmark			Please provide address	Weirton	WV	26062	Hancock	
MedExpress Urgent Care	Hospital	X	X	218 Three Springs Drive	Weirton	WV	26062	Hancock	

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Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Acelor Mittal Weirton Inc.	Industry	X		100 Pennsylvania Avenue	Weirton	WV	26062	Hancock	
Weirton Steel Corporation	Industry	X		400 Three springs Drive	Weirton	WV	26062	Hancock	
Mary H Weir Public Library	Library			3442 Main Street	Weirton	WV	26062	Hancock	
Voice of Pentecost	Religious Assembly			106 Mendenhall Street	Weirton	WV	26062	Hancock	
Salvation Army	Religious Assembly			794 Cove Road	Weirton	WV	26062	Hancock	
Sacred Heart of Mary Church	Religious Assembly			200 Preston Avenue	Weirton	WV	26062	Hancock	
Mercy Baptist Church	Religious Assembly			3474 Pennsylvania Avenue	Weirton	WV	26062	Hancock	
Christ United Methodist	Religious Assembly			3598 Pennsylvania Avenue	Weirton	WV	26062	Hancock	
Pleasant Valley Methodist Church	Religious Assembly			Please provide address on Lisa Court	Weirton	WV	26062	Hancock	
Kings Creek Union Chapel	Religious Assembly			2883 Kings Creek Road	Weirton	WV	26062	Hancock	
Oakland Church	Religious Assembly			Please provide address on Swearingen Road	Weirton	WV	26062	Hancock	
New Hope Baptist Church	Religious Assembly			2682 Wylie Ridge Road	Weirton	WV	26062	Hancock	
Oakland United Presbyterian	Religious Assembly			253 Laurel Heights	Weirton	WV	26062	Hancock	
Point Pleasant Methodist	Religious Assembly			Please provide address on Wylie Ridge Road and Standish Hill Road	Weirton	WV	26062	Hancock	
St. Joseph The Worker Church	Religious Assembly			229 California Avenue	Weirton	WV	26062	Hancock	
Weirton Water Tank	Utility - Water	X		3712 Wylie Ridge Road	Weirton	WV	26062	Hancock	

LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Weirton Heights Water Tank	Utility - Water	X		Please provide address on E Velleview Drive	Weirton	WV	26062	Hancock	
Sunoco	Industry	X		1228 Pennsylvania Avenue	Weirton	WV	26062	Hancock	
A&M Quick Market Corporation	Industry	X		201 S 11th Street	Weirton	WV	26062	Hancock	
Marathon Gas	Industry	X		2820 Pennsylvania Avenue	Weirton	WV	26062	Hancock	
Sunoco	Industry	X		3009 Pennsylvania Avenue	Weirton	WV	26062	Hancock	
Marathon Gas	Industry	X		3128 Pennsylvania Avenue	Weirton	WV	26062	Hancock	
Sunoco	Industry	X		101 Three Springs Drive	Weirton	WV	26062	Hancock	
Sheetz	Industry	X		239 Three springs Drive	Weirton	WV	26062	Hancock	
Kroger Gas Station	Industry	X		100 St. Thomas Drive	Weirton	WV	26062	Hancock	
Marathon Gas	Industry	X		3700 Pennsylvania Avenue	Weirton	WV	26062	Hancock	
BP	Industry	X		128 American Way	Weirton	WV	26062	Hancock	
Weirton Main Gas Station	Industry	X		3775 Main Street	Weirton	WV	26062	Hancock	
Marathon Gas	Industry	X		4139 Freedom Way	Weirton	WV	26062	Brooke	
Weirton Madonna High School	Education		X	150 Michael Way	Weirton	WV	26062	Hancock	
St. Joseph The Worker School	Education		X	151 Michael Way	Weirton	WV	26062	Hancock	
Ann's Country Retreat	Assisted Living Facility		X	1439 Washington Pike	Wellsburg	WV	26070	Brooke	



LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Blue Ridge Manor	Assisted Living Facility		X	400 Blue Ridge Manor Drive	Wellsburg	WV	26070	Brooke	
Brooke High School	Education		X	Please provide address on Bruin Drive	Wellsburg	WV	26070	Brooke	
Wellsburg Middle School	Education		X	1447 Main Street	Wellsburg	WV	26070	Brooke	
Franklin Primary School	Education		X	1305 Washington Pike	Wellsburg	WV	26070	Brooke	
Bethany Pike Volunteer Fire Department	Emergency Services - Fire	X		Please provide address	Wellsburg	WV	26070	Brooke	
Franklin Community Volunteer Fire Department	Emergency Services - Fire	X		960 Washington Pike	Wellsburg	WV	26070	Brooke	
McKinleyville Volunteer Fire Department	Emergency Services - Fire	X		237 Cherry Street	Wellsburg	WV	26070	Brooke	
Wellsburg Volunteer Fire Department	Emergency Services - Fire	X		Please provide address on 12th Street	Wellsburg	WV	26070	Brooke	
Brooke County EMS	Emergency Services - Medical	X		632 Main street	Wellsburg	WV	26070	Brooke	
Brooke County Sheriff's Department	Emergency Services - Police	X		632 Main Street	Wellsburg	WV	26070	Brooke	
Wellsbug Police Department	Emergency Services - Police	X		70 7th Street	Wellsburg	WV	26070	Brooke	
Brooke County Courthouse	Government	X		632 Main Street	Wellsburg	WV	26070	Brooke	
City of Wellsburg	Government	X		70 Town Square	Wellsburg	WV	26070	Brooke	
Beallmore a.k.a. Booher, William T. Jr., and June, House	Historical Landmark			1500 Pleasant Avenue	Wellsburg	WV	26070	Brooke	
Brooke Cemetery	Historical Landmark			2200 Pleasant Avenue	Wellsburg	WV	26070	Brooke	
Danforth Brown House a.k.a. Old Worrell Farm	Historical Landmark			555 Washington Pike (US 27)	Wellsburg	WV	26070	Brooke	

LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Gen. I. H. Duval Mansion	Historical Landmark			1222 Pleasant Avenue	Wellsburg	WV	26070	Brooke	
Elmhurst a.k.a. William Lynn and Carol House	Historical Landmark			1606 Pleasant Avenue	Wellsburg	WV	26070	Brooke	
David Flemming and Lucy Tarr Mansion a.k.a. Oxtoby Mansion	Historical Landmark			2000 Pleasant Avenue	Wellsburg	WV	26070	Brooke	
Lewis Hall Mansion a.k.a. Charles Beall III and Sue House	Historical Landmark			1300 Pleasant Avenue	Wellsburg	WV	26070	Brooke	
Inn at Fowlerstown a.k.a. Drover's Inn	Historical Landmark			1001 Washington Pike (WV 27)	Wellsburg	WV	26070	Brooke	
Kirker House a.k.a. Daniel Finell and Donna House	Historical Landmark			1520 Grand Avenue	Wellsburg	WV	26070	Brooke	
Miller's Tavern a.k.a. Brooke County Historical Museum	Historical Landmark			Please provide address on 6th and Main Street	Wellsburg	WV	26070	Brooke	
Nicholls House and Woolen Mill Site	Historical Landmark			Please provide address on WV 67	Wellsburg	WV	26070	Brooke	
Paull, Harry and Louisiana Beall Mansion a.k.a. Morningside	Historical Landmark			1312 Pleasant Avenue	Wellsburg	WV	26070	Brooke	
John C. Reeves House	Historical Landmark			100 Reeves Drive	Wellsburg	WV	26070	Brooke	
Lucy Tarr Mansion a.k.a. Highland Place	Historical Landmark			1456 Pleasant Avenue	Wellsburg	WV	26070	Brooke	
Vancroft	Historical Landmark			Please provide address on Brinker Road	Wellsburg	WV	26070	Brooke	
Wellsburg Historic District	Historical Landmark			Please provide address on WV 2	Wellsburg	WV	26070	Brooke	
Wellsburg Wharf	Historical Landmark			Please provide address on 6th and Main Street	Wellsburg	WV	26070	Brooke	
Eagle Manufacturing Company	Industry			2400 Charles street	Wellsburg	WV	26070	Brooke	
Mazzella Welding and Fabrication	Industry			3 Bethany Pike	Wellsburg	WV	26070	Brooke	

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Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Windsor Mine	Industry			Please provide address	Wellsburg	WV	26070	Brooke	
Brooke County Public Library	Library			945 Main Street	Wellsburg	WV	26070	Brooke	
Brooke Hills Park	Recreation			140 Gist Lane	Wellsburg	WV	26070	Brooke	
Apostolic Faith Assembly Church	Religious Assembly			Please provide address on Main and 6th Street	Wellsburg	WV	26070	Brooke	
Brooke Hills Free Methodist Church	Religious Assembly			1340 Washington Pike	Wellsburg	WV	26070	Brooke	
Franklin United Methodist Church	Religious Assembly			Please provide address on Washington Pike	Wellsburg	WV	26070	Brooke	
Chapel Hill Church	Religious Assembly			Please provide address on Apple Pie Ridge	Wellsburg	WV	26070	Brooke	
Christ Episcopal Church	Religious Assembly			1014 Main Street	Wellsburg	WV	26070	Brooke	
Wellsburg Church of Christ	Religious Assembly			92 Rose Cottage Lane	Wellsburg	WV	26070	Brooke	
Salvation Army Corps	Religious Assembly			401 Commerce Street	Wellsburg	WV	26070	Brooke	
St. John the Evangelist Roman Catholic Church	Religious Assembly			1300 Charles Street	Wellsburg	WV	26070	Brooke	
First Baptist Church of Wellsburg	Religious Assembly			1803 Charles Street	Wellsburg	WV	26070	Brooke	
Church of Christ of Latter-day Saints	Religious Assembly			84 26th Street	Wellsburg	WV	26070	Brooke	
Wellsburg Church of the Nazarene	Religious Assembly			835 Washington Pike	Wellsburg	WV	26070	Brooke	
Episcopal Church of the Good Shepherd	Religious Assembly			Please provide address on Neville Street	Wellsburg	WV	26037	Brooke	
First Presbyterian Church of Wellsburg	Religious Assembly			901 Charles Street	Wellsburg	WV	26070	Brooke	

LIST OF ASSETS FOR REGION 11

Asset Name	Type	Critical Facility	Vulnerable population	Address	City	State	Zip	County	Comments
Henderson Chapel African Methodist Episcopal Church	Religious Assembly			Please provide address on 9th Street	Wellsburg	WV	26070	Brooke	
Kadesh Chapel	Religious Assembly			Please provide address on Apple Pie Ridge	Wellsburg	WV	26070	Brooke	
Stone Chapel Church	Religious Assembly			Please provide address on Pierce Run Road	Wellsburg	WV	26070	Brooke	
Wellsburg Christian Church	Religious Assembly			Please provide address on Charles Street	Wellsburg	WV	26070	Brooke	
Wellsburg Seaplane Base	Transportation			Please provide address	Wellsburg	WV	26070	Brooke	
Washington Pike Public Service District	Utility - Water	X		890 Washington Pike	Wellsburg	WV	26070	Brooke	
Brooke County Public Service District	Water Treatment and Collection	X		711 Charles Street	Wellsburg	WV	26070	Brooke	
City of Wellsburg	Water Treatment and Distribution	X		70 Town Square	Wellsburg	WV	26070	Brooke	
Hammond Public Service District	Water Treatment and Distribution	X		Please provide address	Wellsburg	WV	26070	Brooke	
Kroger Fuel Center	Industry	X		91 27th Street	Wellsburg	WV	26070	Brooke	
Marathon Gas	Industry	X		725 Commerce Street	Wellsburg	WV	26070	Brooke	
Exxon	Industry	X		601 Commerce Street	Wellsburg	WV	26070	Brooke	
Big D Oil Co,	Industry	X		16 3rd Street	Wellsburg	WV	26070	Brooke	
Clark Gas Station	Industry	X		601 Commerce Street	Wellsburg	WV	26070	Brooke	
Smith Oil Company	Industry	X		Please provide address on WV Rt. 2	Wellsburg	WV	26070	Brooke	
Wheeling Ohio County Airport	Transportation	X		30 Point Road	Wheeling	WV	26003	Brooke	

LIST OF ASSETS FOR REGION 11

<i>Asset Name</i>	<i>Type</i>	<i>Critical Facility</i>	<i>Vulnerable population</i>	<i>Address</i>	<i>City</i>	<i>State</i>	<i>Zip</i>	<i>County</i>	<i>Comments</i>
Windsor Heights Volunteer Fire Department	Emergency Services - Fire	X		841 Main Street	Windsor Heights	WV	26075	Brooke	
Windsor Heights Post Office	Government			728 Windy Hill Road	Windsor Heights	WV	26075	Brooke	
Windsor Heights Church of God	Religious Assembly			Please provide address on Main Street	Windsor Heights	WV	26075	Brooke	

### JURISDICTIONAL CAPABILITIES

Jurisdiction	Planning Commission	Emergency Operations Plan	COOP	Radiological Emergency Plan	SARA Title III Emergency Response Plan	Floodplain Regulations	Building Codes	Zoning Ordinances	Capital Improvements Plan	Historic Preservation Plan	Community Rating System	Disaster Recovery Plan	Storm water Management Plan	Floodplain Management Plan	Capital Budget	Public Works Budget
Brooke	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	NO	YES		
Hancock																
Beech Bottom																
Bethany																
Follansbee	YES	YES	YES	YES	YES	YES	NO	YES	YES	NO	2	YES	YES	YES	YES	YES
Weirton																
Wellsburg																
Windsor Heights																
Chester																
New Cumberland						YES								YES		
Weirton																

Mark Miller - City of Weirton  
*Mark Miller*

JURISDICTIONAL CAPABILITIES																	
Jurisdiction	Planning Commission	Emergency Operations Plan	COOP	Radiological Emergency Plan	SARA Title III Emergency Response Plan	Floodplain Regulations	Building Codes	Zoning Ordinances	Capital Improvements Plan	Historic Preservation Plan	Community Rating System	Disaster Recovery Plan	Storm water Management Plan	Floodplain Management Plan	Capital Budget	Public Works Budget	
Brooke	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	NO	YES			
Hancock																	
Beech Bottom																	
Bethany																	
Follansbee																	
<i>OK</i> Weirton	<b>YES</b>					<b>YES</b>	<b>YES</b>	<b>YES</b>					<b>YES</b>	<b>YES</b>	<b>YES</b>		<b>YES</b>
Wellsburg																	
Windsor Heights																	
Chester																	
New Cumberland						YES								YES			
Weirton																	

*Comprehensive Plan*

### JURISDICTIONAL CAPABILITIES

Jurisdiction	Planning Commission	Emergency Operations Plan	COOP	Radiological Emergency Plan	SARA Title III Emergency Response Plan	Floodplain Regulations	Building Codes	Zoning Ordinances	Capital Improvements Plan	Historic Preservation Plan	Community Rating System	Disaster Recovery Plan	Storm water Management Plan	Floodplain Management Plan	Capital Budget	Public Works Budget
Brooke	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	NO	YES		
Hancock																
Beech Bottom	?	YES	?	YES		YES	?	?	?	?	?	YES		YES		
Bethany	?	YES	?	YES		YES	?	?	?	?	?	YES		YES		
Follansbee	?	YES	?	YES		YES	?	?	?	?	?	YES		YES		
Weirton	?					YES			?							
Wellsburg	?	YES	?	YES			?	?	?	YES	?	YES		YES		
Windsor Heights	?	YES	?	YES		YES	?	?	?	?	?	YES		YES		
Chester																
New Cumberland						YES								YES		
<del>Weirton</del>																



### JURISDICTIONAL CAPABILITIES

Jurisdiction	Planning Commission	Emergency Operations Plan	COOP	Radiological Emergency Plan	SARA Title III Emergency Response Plan	Floodplain Regulations	Building Codes	Zoning Ordinances	Capital Improvements Plan	Historic Preservation Plan	Community Rating System	Disaster Recovery Plan	Storm water Management Plan	Floodplain Management Plan	Capital Budget	Public Works Budget
Brooke	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	NO	YES		
Hancock	✓	✓	✓	✓	?	✓	State	✓	N	State	N	✓	N	✓		
Beech Bottom																
Bethany																
Follansbee																
Weirton																
Wellsburg																
Windsor Heights																
Chester																
New Cumberland						YES								YES		
<del>Weirton</del>																

### JURISDICTIONAL CAPABILITIES

Jurisdiction	Planning Commission	Emergency Operations Plan	COOP	Radiological Emergency Plan	SARA Title III Emergency Response Plan	Floodplain Regulations	Building Codes	Zoning Ordinances	Capital Improvements Plan	Historic Preservation Plan	Community Rating System	Disaster Recovery Plan	Storm water Management Plan	Floodplain Management Plan	Capital Budget	Public Works Budget
Brooke	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	NO	YES		
Hancock																
Beech Bottom																
Bethany																
Follansbee																
Weirton																
Wellsburg																
Windsor Heights																
Chester																
New Cumberland						YES								YES		
Weirton																

*Richard Blackwell*

### JURISDICTIONAL CAPABILITIES

Jurisdiction	Planning Commission	Emergency Operations Plan	COOP	Radiological Emergency Plan	SARA Title III Emergency Response Plan	Floodplain Regulations	Building Codes	Zoning Ordinances	Capital Improvements Plan	Historic Preservation Plan	Community Rating System	Disaster Recovery Plan	Storm water Management Plan	Floodplain Management Plan	Capital Budget	Public Works Budget
Brooke	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	NO	YES		
Hancock																
Beech Bottom																
Bethany																
Follansbee																
Weirton																
Wellsburg																
Windsor Heights																
Chester																
New Cumberland						YES								YES		
Weirton																

Comprehensive Economic Development Strategy (CEDSS)

## **PUBLIC MEETING**

**May 4, 2017**

**Classified/Legal Advertising Invoice**  
**Herald Star/Weirton Daily Times Legal Ads**

401 Herald Square

Steubenville, OH  
 43952  
 (740) 283-4711

**WV REGION XI PLAN. & DEVEL.COUNCIL**  
**P.O. BOX 82**

**WEIRTON, WV**

**26062**

04/18/2017 1:47:35PM

**No: 178918**

**Phone: 304 797-9666**

Ad No <b>178918</b>	Customer No: <b>L01674</b>	Start Date <b>04-20-2017</b>	Stop Date <b>04-27-2017</b>	Category: <b>Special Stuff</b>		Classification: <b>W.Va. Legals</b>				
Order No	Rate: <b>WL</b>	Lines: <b>32</b>	Words: <b>163</b>	Inches: <b>3.21</b>		Cost <b>40.30</b>	Payments <b>.00</b>	Balance <b>40.30</b>		
Publications ... Runs <b>WV Legals ... 2</b>		Solicitor: <b>24</b>	Origin: <b>73</b>	Sales Rep: <b>0</b>	Credit Card	Credit Card Number	Card Expire			
		<table border="1"> <tr> <th align="center">Identifier</th> </tr> <tr> <td>           NOTICE OF PUBLIC MEETING            The Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ), as part of the Region 11 Hazard Mitigation Planning Committee,         </td> </tr> </table>							Identifier	NOTICE OF PUBLIC MEETING The Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ), as part of the Region 11 Hazard Mitigation Planning Committee,
Identifier										
NOTICE OF PUBLIC MEETING The Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ), as part of the Region 11 Hazard Mitigation Planning Committee,										
		<div style="text-align: right; font-style: italic; font-size: 1.2em;">             110 per copy           </div>								
		*=Extend Expiration Date								

**STATE OF WEST VIRGINIA  
COUNTY OF HANCOCK**

I, LISA L. VARGO, bookkeeper for the publisher of THE WEIRTON DAILY TIMES a newspaper in the City of Weirton, State of West Virginia, hereby certify that the annexed publication was inserted in said newspaper on the following dates:

Dates: 4-20,27, 2017

Given under my hand this 27th day of April, 2017

*Lisa L. Vargo*

////////////////////////////////////

Sworn to and subscribed before me on this 27th day of April, 2017 of, in and for HANCOCK COUNTY, WEST VIRGINIA

AMOUNT: \$40.30  
ACCT. # L01674

NOTARY:



*Patricia J. Scheel*

**NOTICE OF PUBLIC MEETING**  
The Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJ), as part of the Region 11 Hazard Mitigation Planning Committee, will hold a public meeting on Thursday, May 4, 2017 in the Blue Room at the Millsop Community Center, 3420 Main St., Weirton, WV at 6:30 p.m.  
The purpose of the meeting is to review updates to the region's hazard mitigation plan. Members of the public will be given the opportunity to comment on the natural and man-made hazards most affecting them. As part of this plan update, BHJ intends to discuss region-specific risks and potential mitigation projects. Those with a concern about risks from hazards (landslides, flooding, hazardous materials, etc.) in the local area are encouraged to attend.  
The Region 11 Multi-Jurisdictional Hazard Mitigation Plan was last updated in 2012 per federal requirements in Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000.  
4-20,27, 2017 Adv.

Brooke County Review, LLC  
 55- 7th Street  
 Towne Square  
 Wellsburg, WV 26070  
 Phone - 304-737-0946  
 Fax - 304-737-0297

RECEIVED

MAY 01 2017

INVOICE  
 2584

B.H.J. PLANNING COMMISSION

BHJ Metropolitan Planning Comm.  
 124 N. Fourth Street  
 Second Floor  
 Steubenville, OH 43952  
 ATTN: Barb Zimnox

Deliver To:  
 124 N. Fourth Street  
 Second Floor  
 Steubenville, OH 43952  
 ATTN: Barb Zimnox

Date: 04/28/2017      Number: 2584      Account Number: 6  
 Payment Terms: Net 30 Days  
 Reference:

Product#	Rate/Quan.	Product Description / Comments	Unit Price	T	Extended Price
Lg_WD2	224.25 1.00	Notice of Public Meeting Dates: 04/21 - 04/28/17	0.202 0.00	N Y	45.30 0.00

*1100 per B/M*

Paid Amount: \$0.00

Total: \$45.30  
 0.000% Sales Tax: \$0.00  
 Grand Total: \$45.30  
 Balance Due: \$45.30

Thanks for Your Patronage  
 We Appreciate Your Business  
 We Accept All Major Credit Cards

Total Account Balance: 45.30  
 Current: 45.30      31-60: 0.00      61-90: 0.00      Over 90: 0.00

**CERTIFICATE  
OF  
PUBLICATION**

**The Brooke County Review**  
Brooke County  
Wellsburg, West Virginia

I, Jonathan M. McGoldrick, editor of the Brooke County Review, a newspaper of general circulation in Brooke County, West Virginia, published in Wellsburg, hereby Certify that the attached advertisement was duly published in said Newspaper for 2 successive week(s) in issues of

4/21 & 4/28/17

Given under my hand this 28<sup>th</sup> day of April 2017

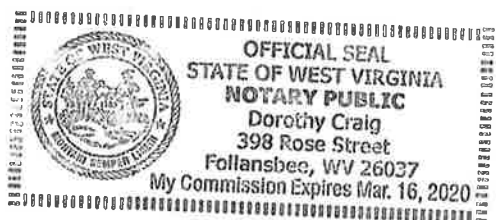
Jonathan M. McGoldrick  
Editor of the Brooke County Review

Printer's Fee \$ 45.30

Invoice # 2584

Subscribed and sworn to this 28<sup>th</sup> day of \_\_\_\_\_, 2017

Dorothy Craig  
Notary Public



My commission expires 3-16-2020

**NOTICE OF PUBLIC MEETING**

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BCR 04/21 - 04/28/17



# REGION 11 HAZARD MITIGATION PLAN

## Hazard Mitigation Plan Update – Public Meeting

04 May 2017 ~ 6:30 p.m.

### Sign In Sheet

	Name	Community Represented	Contact Info (Email/Phone)
1.	Barb Zimnox	Region XI	304-797-9666 ext. 204 bzimnox@bhjimpc.org
2.	Mark Miller	City of Weirton	mmiller@cityofweirton.com
3.	Amy Heimbarger	JHC	aheimbarger@jhcpreparedness.com
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			

# Region 11 Hazard Mitigation Plan

2017 Update  
Public Meetings – Weirton, WV  
04 May 2017



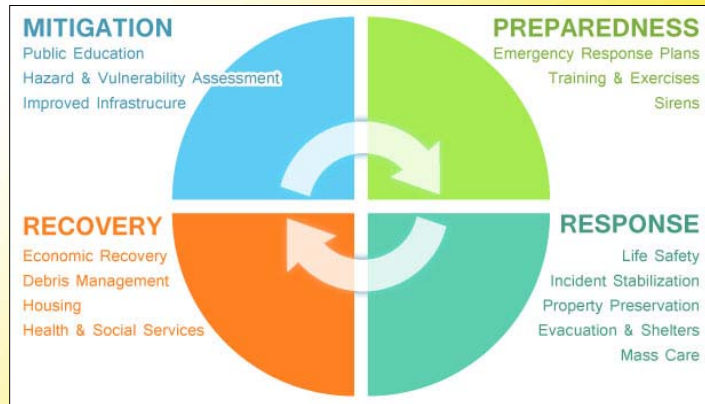
## Agenda

- 'Hazard Mitigation' Overview
- Risk vs. Vulnerability
- The Flood Risk
- Region 11 Hazard Mitigation Plan Overview
- Discussion



# 'Hazard Mitigation' Overview

- Hazard mitigation is the effort to reduce loss of life and property by lessening the impact of disasters.



# Risk vs. Vulnerability

RISK	VULNERABILITY
Exposure to danger, harm, or loss	The <u>quality or state</u> of being exposed to the possibility of danger, harm, or loss

*With hazard mitigation, we assess risk.*

*We also identify projects that can lessen vulnerability.*



# The Flood Risk

- A flood is a general and temporary condition where two or more acres of normally dry land or two or more properties are inundated by water or mudflow.
- Causes of Flooding
  - Dams and levees
  - New development
  - Flood after fire
  - Heavy rains
  - Winter flooding
- Flash Flooding vs. Flooding



Call toll free: 1-888-379-9531 or have us call you

Search FloodSmart.gov

**FloodSmart.gov**  
The official site of the NFIP

HOME  
FLOOD RISKS  
UNDERSTANDING FLOOD MAPS  
RESIDENTIAL COVERAGE  
COMMERCIAL COVERAGE  
POLICYHOLDER RESOURCES  
PARTNER RESOURCES  
INSURANCE AGENT RESOURCES  
ABOUT THE NFIP

**Don't Get Caught Unprepared**  
September is National Preparedness Month. Learn how to keep your family safe and how to protect what matters with flood insurance.  
[LEARN ABOUT EMERGENCY PREPAREDNESS](#)

Hurricane Season National Preparedness Month Get the FEMA App Protect What Matters About Flood Maps

**WHAT'S MY FLOOD RISK**  
Visit FEMA's Flood Map Service Center to locate your flood map to help determine your flood risk.

**FIND FLOOD INSURANCE AGENTS IN YOUR AREA**  
Before you can protect your home, you'll need to find an agent who lives near it.  
[FIND AN AGENT](#)

**LATEST NEWS**  
Learn what you can do to keep your family and property safe before, during, and after a flood.

Typically, there's a 30-day waiting period from date of purchase before your policy goes into effect.

## FLOOD RISKS

- What Causes Flooding
- Coastal Flooding
- Understanding Your Risk
- Undergoing a Map Change
- Real Flood Stories
- The Levee Simulator

# Region 11 Hazard Mitigation Plan

- Purpose of the Hazard Mitigation Plan
  - Assess risks and vulnerabilities
  - Increase awareness around threats, hazards, and vulnerabilities
  - Build partnerships for risk reduction
  - Identify broad, long-term strategies for risk reduction
  - Align risk reduction with other community objectives
  - Identify implementation approaches
- **Jurisdictions:** Brooke and Hancock Counties (including municipalities)
- **Scope:** All hazard



## Discussion



TABLE 5.5 PUBLIC ATTENDANCE AT MEETINGS

<i>Contact Name</i>	<i>Agency</i>	<i>Position</i>	<i>Email</i>	<i>Meeting Attended</i>
Rik Rekowski	Mary H Weir Public Library	Director	<a href="mailto:rekowski@weirton.lib.wv.us">rekowski@weirton.lib.wv.us</a>	11/30/2016
Paula Rogers	Citizen			12/19/2016
Linda McNeil	New Cumberland	Mayor	<a href="mailto:linda.mcneil352@hotmail.com">linda.mcneil352@hotmail.com</a>	5/4/2017
Larry Rea	Follansbee	Fire Chief	<a href="mailto:chief@follansbeefire.com">chief@follansbeefire.com</a>	5/4/2017

## HANCOCK COUNTY LEPC MEETING

January 11, 2017

# Hancock County

## Local Emergency Planning Commission Meeting

**When:** Wednesday, January 11<sup>th</sup>, 2017 @ 1:15pm

**Where:** Hancock County 911 Facility

### Agenda

Call Meeting to Order

Approval of Minutes

Financial Report

Bills and Receipts

✧ Standing Committees

✧ Special Committees

✧ Hazard Mitigation Plan Update

Public Comments

Old Business

New Business

Motion to Adjourn

2017





1.11.17

Hancock County LEPC Meeting Notes

Motion to accept meeting minutes from November 2016 meeting was made by Jackie Huff, seconded by Sam Paletta. Unanimously approved.

Tier II reporting on line has been slightly delayed according to Jeremy Ober. Perhaps a new upgraded format to the current reporting program is the culprit. Reporting deadline remains March 31 and the County still requires electronic submission. Jeremy is still researching the storage requirements of submitted reports per Weirton Fire Chief Jerry Shumate's request.

The \$5,000 - 2017 HMEP Grant was awarded to the LEPC. The project entails updating the County's Hazardous Materials Emergency Plan. Since the last update in 2013, a number of new federal and state guidelines have been released concerning preparedness planning. Chief among these are the updated state emergency operations plan and the National Response Framework which may detail different levels of assistance than currently depicted in our plan. In addition, several other projects have been undertaken by the LEPC including an updated commodity flow study, updated vulnerability analysis and a revamped resource manual. These documents outline new risks and capabilities, none of which would be included in the existing plan. Deadline to complete this grant is November of 2017.

Jeremy Ober was checking with Charleston to make sure the monies attached to the \$5,000 2016 HMEP Grant were released.

The supplementary HMEP Grant that was submitted for in November, 2016, an additional \$5,000, has yet to be approved. This project addresses Waterway Commodity Flow. This supplementary grant must be completed by July, 2017.

Amy Heimberger from JH Consulting advised the Planning Committee she is currently gathering information from Region 11 LEPCs regarding hazards in the area and encouraged public participation. To try to stimulate this participation, Jeremy Ober will be sending out a survey to help develop target projects to address these findings. Dusty Bowers from Acuity Specialty asked about using these results as a base foundation for her plans she is writing in conjunction with local hospitals.

Jeremy Ober announced that Stephanie Fryer has been named New Deputy Director as of December 1<sup>st</sup>, 2016, for Hancock County Office of Emergency Management and Homeland Security.

Jeremy Ober advised that The Office of Emergency Management is preparing to complete a Threat and Hazard Identification and Risk Assessment (THIRA). In preparation of this, we have put together a short survey for public safety, hospitals, industry, etc., and ask for the LEPC's assistance in starting this project. Paper copies have been provided and we will email a digital copy to those in attendance.

Next Meeting Scheduled for April 12<sup>th</sup>, 2017 at 1:15 at the Hancock County 911 Center.

Motion to adjourn made by Jason Mattern, seconded by Sam Paletta. Unanimously approved.

## APPENDIX 2 PUBLIC SURVEY

This appendix contains evidence of public participation initiatives by including announcements that jurisdictions have posted on social media or published on their website or by any other method.

- Beech Bottom newsletter
- Beech Bottom website
- Hancock County Facebook post
- Hancock County website

Following the survey announcements are the raw data results from the survey as printed directly from the Survey Monkey website.



## *Village of Beech Bottom,* West Virginia



### VILLAGE OF BEECH BOTTOM, WV

Office: 304-394-5545

Police: 304- 394-4771

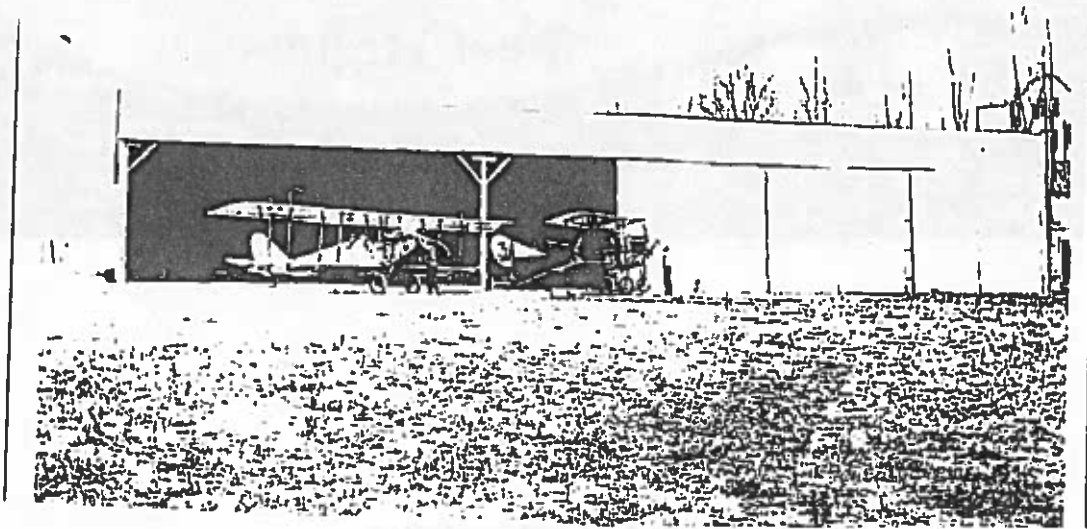
February 2017 Newsletter

January has passed and we are now about to begin a new month of snow and cold weather. There is not much news to report at this time so we have elected to bring you a few ideas that the Village Council has been contemplating for the upcoming year. The annual spring Make It Shine Day has been scheduled for Saturday April 8, 2017. Details to follow. Mark your calendars for this important project. We will be having The Annual Community Picnic, Corn Hole Tournament, a Sundae on Sunday, Back to School Bash, Halloween Hot Spot and of course the Christmas Party. If you have any other activities that you would like to see in our community, please let us know. We hope to have the free lunch program for the children during the summer at the 3rd Street Playground.

The steel mill began construction of homes for its employees in Beech Bottom in 1917. In honor of this 100 year anniversary, the Village Council is planning to bury a time capsule. If you have any suggestions as to what should be included or anything to donate to this capsule, please notify the Village Office. The phone number is 304-394-5545.

Also, 1917 saw the establishment of the West Virginia Flying Corps. This unit's headquarters were in Wheeling, WV. However, Beech Bottom was the site of their airfield. This was the first military airfield established in the State of WV. The Village is working with the State of WV to commemorate this 100<sup>th</sup> anniversary.

(West Virginia Flying Corps hangar and aircraft at Beech Bottom)



The Village of Beech Bottom is part of a committee of the Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJMPC) for Hazard Mitigation. The Committee is conducting a survey of all the residents of this region asking for their input as to what they consider to be hazards for their community. These individual responses will be anonymous. The link for this public survey on hazards for Region 11 is listed below and will be listed on the Beech Bottom website.


<https://www.surveymonkey.com/r/Region11HazardMitigation>

Thank you for your participation.

#### Important Phone Numbers

Police: 304-394-4771  
Urgent Issues; 304- 737- 3660  
Emergency : 911  
Office: 304-394-5545 (10 am-3pm Monday-Friday)  
Fax: 304-394-4772  
Email: [villageofbeechbottom@frontier.com](mailto:villageofbeechbottom@frontier.com)  
Website: [beechbottomwv.org](http://beechbottomwv.org)

# BEECH BOTTOM WEBSITE SURVEY ANNOUNCEMENT



## Village of Beech Bottom, West Virginia

- home
- history
- maps
- government
- police department
- fire department
- events & projects
- news
- information for new businesses
- business directory
- donations
- links

# Home


**Community ❖ Cooperation ❖ Growth**  
*The Village of Beech Bottom is a peaceful community we are proud to call home. We treasure our rich history, cherish our present, and are devoted to cooperating as a community toward future progress & growth.*

**COMMUNITY SURVEY**  
Please help us provide the Brooke-Hancock-Jefferson Regional Planning Commission with YOUR thoughts regarding hazard mitigation in your community. Click the link to complete the survey.  
\*This link will take you out of the Village's Website. [CLICK HERE FOR SURVEY](#)

Welcome to our website! The Village of Beech Bottom is a warm & welcoming, close-knit community nestled along the Ohio River in the Northern Panhandle of West Virginia in Brooke County. Our size gives us the intimacy, privacy, safety, security, and the many other advantages of a small village, while our location allows us quick and convenient access to a number of closely surrounding metropolitan areas.

The local government, consisting of the Mayor and Village Council, are committed to preserving and enhancing the general well-being and quality of life of its citizens. They are constantly taking steps toward the betterment of the community by opening up new opportunities, increasing services, creating better communication solutions, and executing various maintenance and improvement projects in the area. Members and visitors of the community appreciate and enjoy the beautiful settings, safe environment, business opportunities, social and family events, and recreational and leisure time activities that are found in the Village of Beech Bottom.

This website was designed to improve communication in the Village and to make information about the Village more readily available to area



# HANCOCK COUNTY HOMELAND SECURITY & EMERGENCY MANAGEMENT FACEBOOK SURVEY ANNOUNCEMENT

Like Follow Share More

**Hancock County Homeland Security & Emergency Management**  
January 9 at 9:26am · 🌐

Hancock County, as part of the Brooke Hancock Jefferson Metropolitan Planning Commission, is updating the Region 11 Hazard Mitigation Plan. We ask you to take a short survey to better help us update this plan. Please click on the link below.  
<https://www.surveymonkey.com/r/Region11HazardMitigation>

**Region 11 Hazard Mitigation Survey**  
Web survey powered by SurveyMonkey.com. Create your own online survey now with SurveyMonkey's expert certified FREE templates.  
SURVEYMONKEY.COM

Like Comment Share

**Hancock County Homeland Security & Emergency Management** shared Hancock County Sheriff's Office's post.  
December 8, 2016 · 🌐

FYI

**Hancock County Sheriff's Office**  
December 8, 2016 · 🌐

We have received multiple calls today from individuals stating they were contacted by a man, with a southern accent, representing himself as Detective Norton fr...

See More

1

Like Comment Share

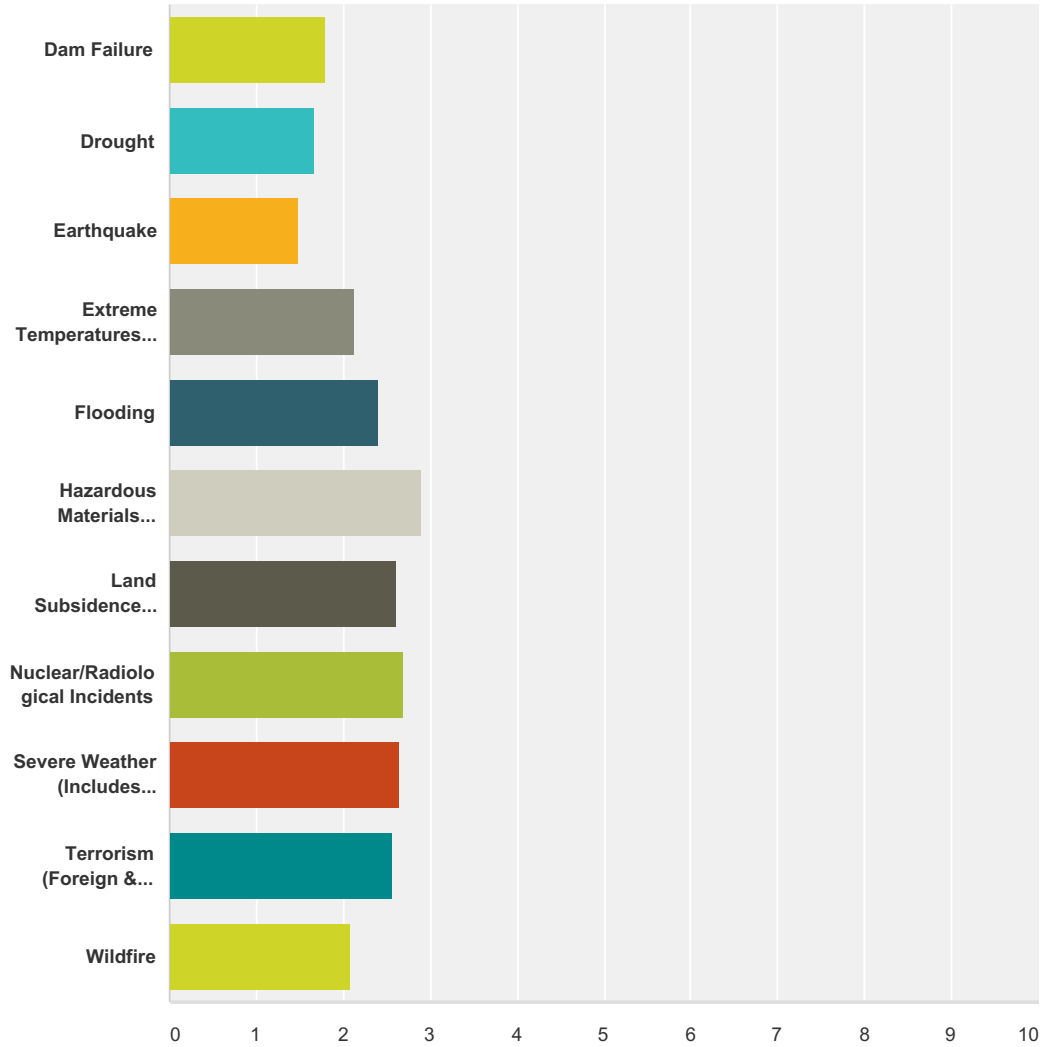
See All

# HANCOCK COUNTY WEBSITE SURVEY ANNOUNCEMENT

The image shows a screenshot of the Hancock County website homepage. At the top, a browser address bar displays "hancockcountywv.org/index.html". Below the address bar, a navigation menu includes links for "Apps", "502-EP-HM", "504-HMP-RC1-Resou", "Hazards-Resources", "GIS", and "Articles". A prominent announcement banner, outlined with a red dashed border, reads: "Hancock County, as part of the BHJMPC, is updating the Region 11 Hazard Mitigation Plan. Please take this short survey [HERE](#) to better help us update this plan." Below the banner is a scenic background image of a forested mountain landscape. On the left side of the image is the Hancock County logo, which features a stylized "H" and "C" and the text "WEST VIRGINIA WE'RE ON TOP OF THE STATE". On the right side of the image is a search bar with a magnifying glass icon and the word "SEARCH". Below the background image is a dark blue navigation bar with the following menu items: "I WANT TO...", "DEPARTMENTS", "COMMUNITIES", "BUSINESS", "VISITORS", "PARKS", "EDUCATION", "HEALTH", and "LINKS". Below the navigation bar is a large banner image of a stone marker that reads "HANCOCK COUNTY Formed in 1848 from Brooke." At the bottom of the page, there are icons for accessibility (T, T, T, +) and a "Report a problem" link with an upward-pointing arrow.

**Q1 Please indicate how concerned you are about the following hazards, specifically where you live.**

Answered: 120 Skipped: 0



	Not at all concerned	Somewhat concerned	Concerned	Very concerned	Total	Weighted Average
Dam Failure	46.15% 54	33.33% 39	16.24% 19	4.27% 5	117	1.79
Drought	50.00% 58	35.34% 41	12.93% 15	1.72% 2	116	1.66
Earthquake	61.61% 69	28.57% 32	8.93% 10	0.89% 1	112	1.49
Extreme Temperatures (Hot & Cold)	27.35% 32	37.61% 44	29.91% 35	5.13% 6	117	2.13
Flooding	22.03% 26	30.51% 36	32.20% 38	15.25% 18	118	2.41



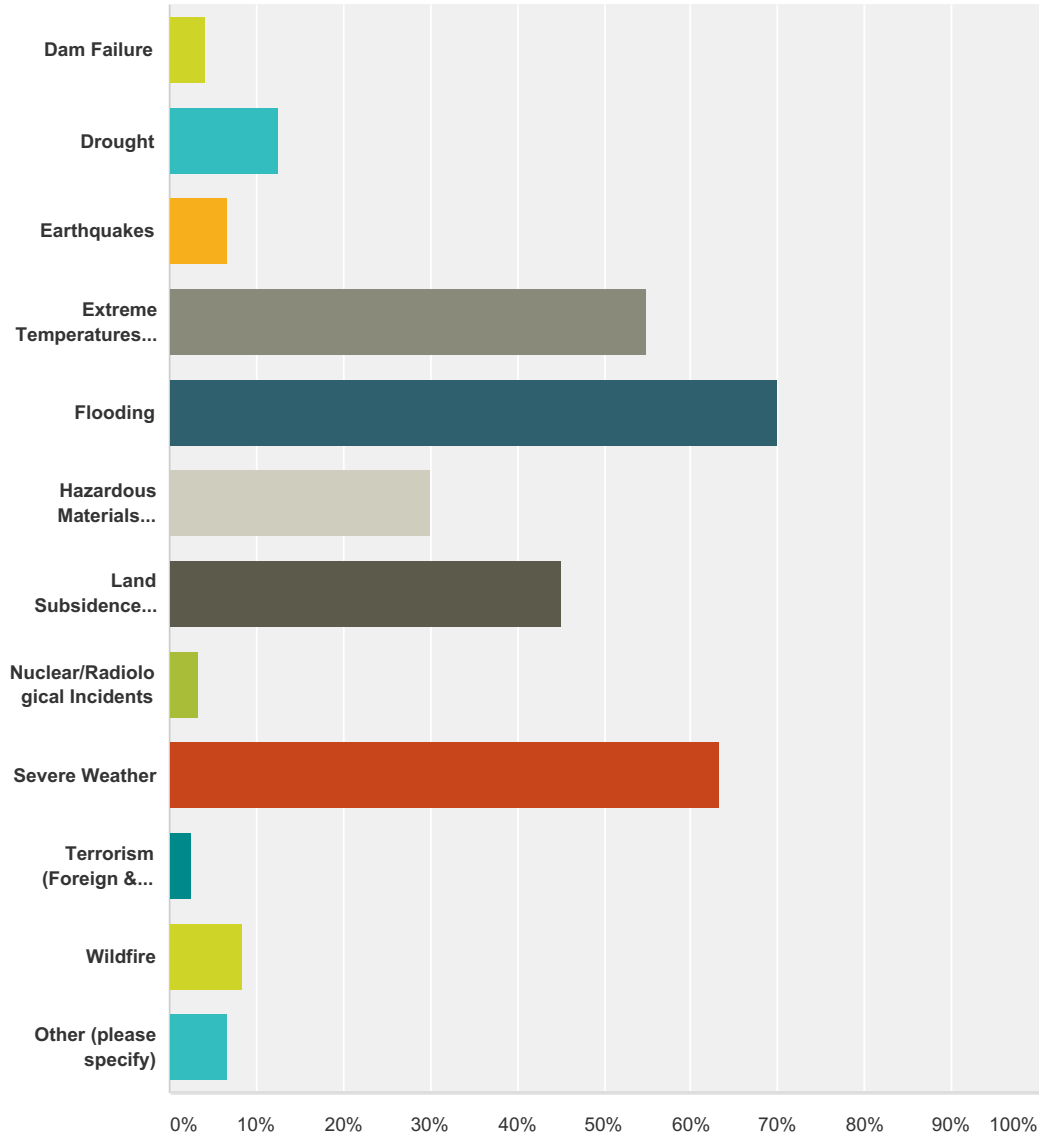
## Region 11 Hazard Mitigation Survey

Hazardous Materials Incidents	<b>7.69%</b> 9	<b>25.64%</b> 30	<b>35.04%</b> 41	<b>31.62%</b> 37	117	2.91
Land Subsidence (Landslides, Sinkholes, etc.)	<b>11.97%</b> 14	<b>35.90%</b> 42	<b>31.62%</b> 37	<b>20.51%</b> 24	117	2.61
Nuclear/Radiological Incidents	<b>15.97%</b> 19	<b>26.89%</b> 32	<b>29.41%</b> 35	<b>27.73%</b> 33	119	2.69
Severe Weather (Includes thunderstorms, tornadoes, winter storms, etc.)	<b>7.63%</b> 9	<b>34.75%</b> 41	<b>42.37%</b> 50	<b>15.25%</b> 18	118	2.65
Terrorism (Foreign & Domestic)	<b>15.13%</b> 18	<b>33.61%</b> 40	<b>31.09%</b> 37	<b>20.17%</b> 24	119	2.56
Wildfire	<b>26.96%</b> 31	<b>46.09%</b> 53	<b>19.13%</b> 22	<b>7.83%</b> 9	115	2.08

#	Please add any comments here, or list any hazards that you are concerned about that are not included on the list.	Date
1	Hancock County WV has a huge heroin problem that no one is completely and honestly will to address and the problem will only continue to get worse. You cannot have people involve in the problem in positions trying to solve the problem.	3/19/2017 3:58 AM
2	Abandoned mines and sinkholes	2/8/2017 11:34 AM
3	Terrorism specifically at the nuke plant and how it would affect us	1/11/2017 3:15 AM

**Q2 In the past 10 years, which hazards do you recall having occurred in your community? (Check all that apply)**

Answered: 120 Skipped: 0



Answer Choices	Responses
Dam Failure	4.17% 5
Drought	12.50% 15
Earthquakes	6.67% 8
Extreme Temperatures (Hot & Cold)	55.00% 66
Flooding	70.00% 84
Hazardous Materials Incidents	30.00% 36

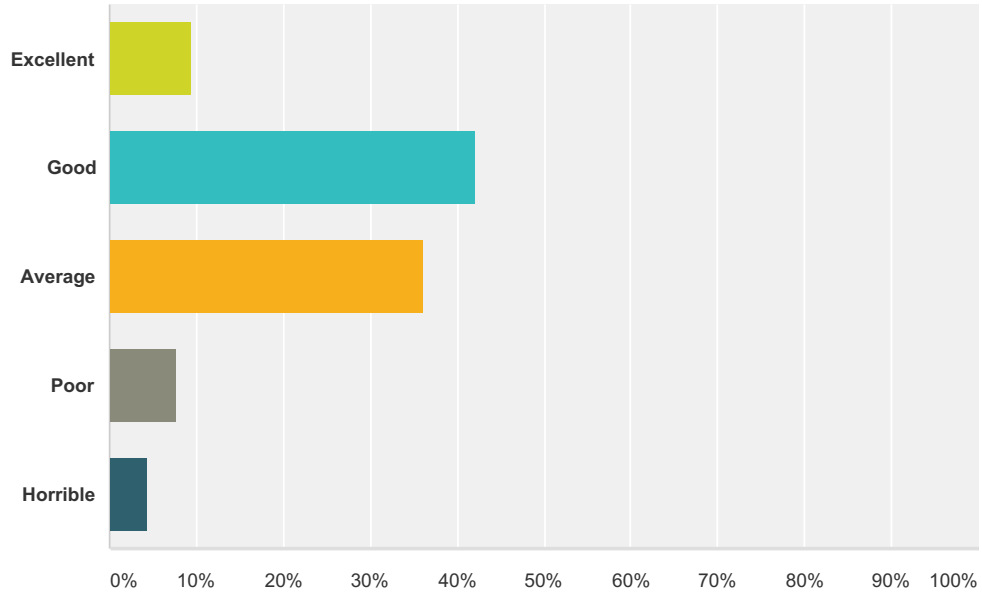
## Region 11 Hazard Mitigation Survey

Land Subsidence (Landslides, Sink holes, etc)	<b>45.00%</b>	54
Nuclear/Radiological Incidents	<b>3.33%</b>	4
Severe Weather	<b>63.33%</b>	76
Terrorism (Foreign & Domestic)	<b>2.50%</b>	3
Wildfire	<b>8.33%</b>	10
Other (please specify)	<b>6.67%</b>	8
<b>Total Respondents: 120</b>		

#	Other (please specify)	Date
1	litter :(	4/6/2017 12:32 AM
2	Heroin and opioid epidemic	3/19/2017 3:58 AM
3	incompetence in Public office, mismanagement of Public assets, causing a large part of the above experiences	3/18/2017 11:59 PM
4	Water crisis	1/30/2017 6:05 AM
5	Power Loss	1/22/2017 5:52 AM
6	I believe we just felt the tremor of an earthquake.	1/19/2017 6:02 AM
7	Only heavy snows and ice storms	1/18/2017 7:13 AM
8	none	1/18/2017 5:58 AM

**Q3 Think back to a recent hazard occurrence (any from questions 1 or 2.) How would you rate your community's ability to handle the hazard event?**

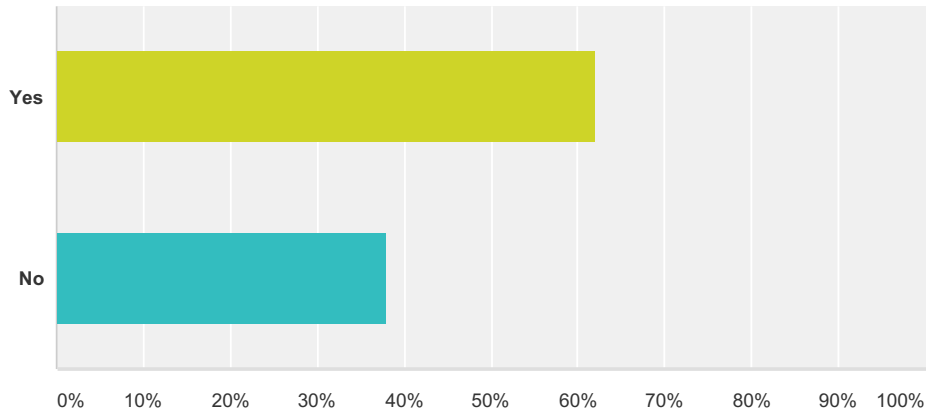
Answered: 116 Skipped: 4



Answer Choices	Responses
Excellent	9.48% 11
Good	42.24% 49
Average	36.21% 42
Poor	7.76% 9
Horrible	4.31% 5
<b>Total</b>	<b>116</b>

**Q4 During this event did you receive information or warnings from local media (TV, Radio, Text) or social media (Facebook/Twitter) that was either from or forwarded from your local public officials / emergency management officials?**

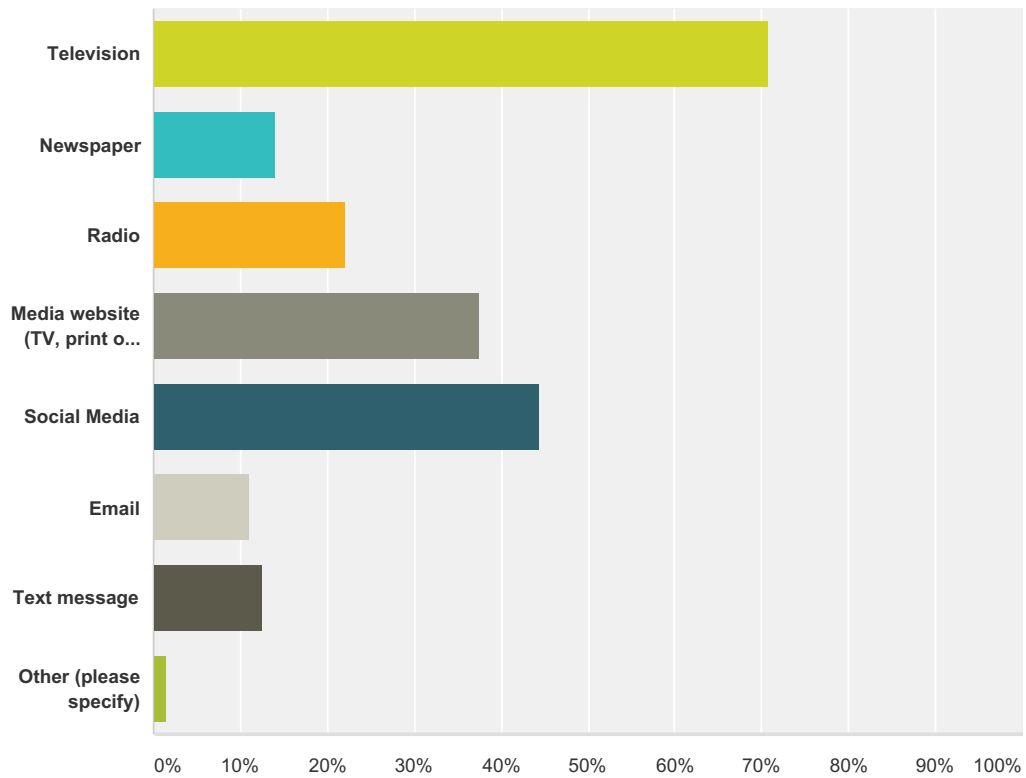
Answered: 116 Skipped: 4



Answer Choices	Responses
Yes	62.07% 72
No	37.93% 44
<b>Total</b>	<b>116</b>

### Q5 How did you receive this information?

Answered: 72 Skipped: 48

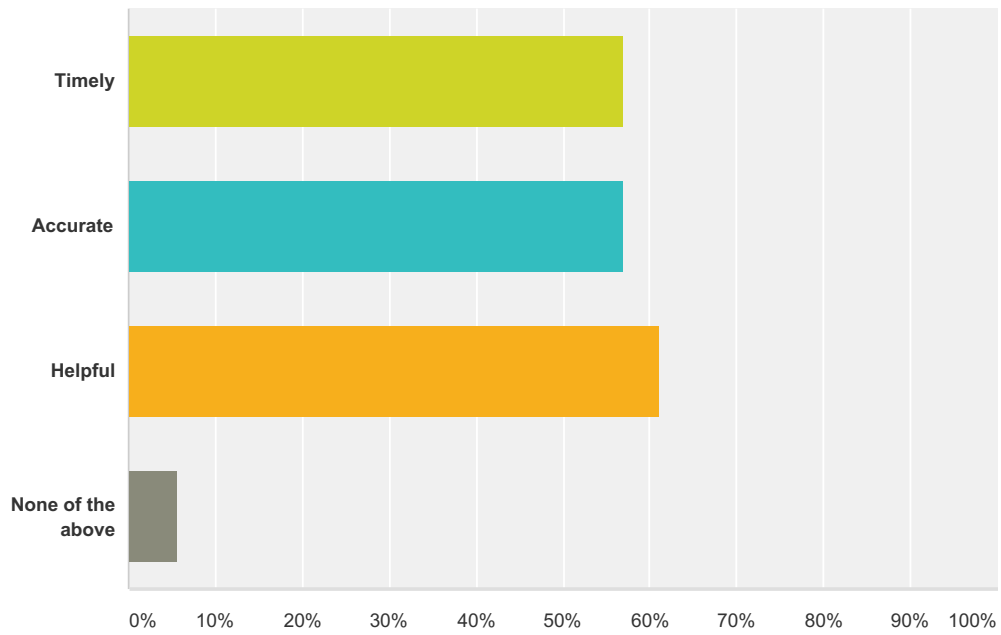


Answer Choices	Responses
Television	70.83% 51
Newspaper	13.89% 10
Radio	22.22% 16
Media website (TV, print or radio)	37.50% 27
Social Media	44.44% 32
Email	11.11% 8
Text message	12.50% 9
Other (please specify)	1.39% 1
<b>Total Respondents: 72</b>	

#	Other (please specify)	Date
1	Fire dispatch	1/12/2017 1:45 AM

**Q6 Was this information timely, accurate and helpful? (choose as many as apply)**

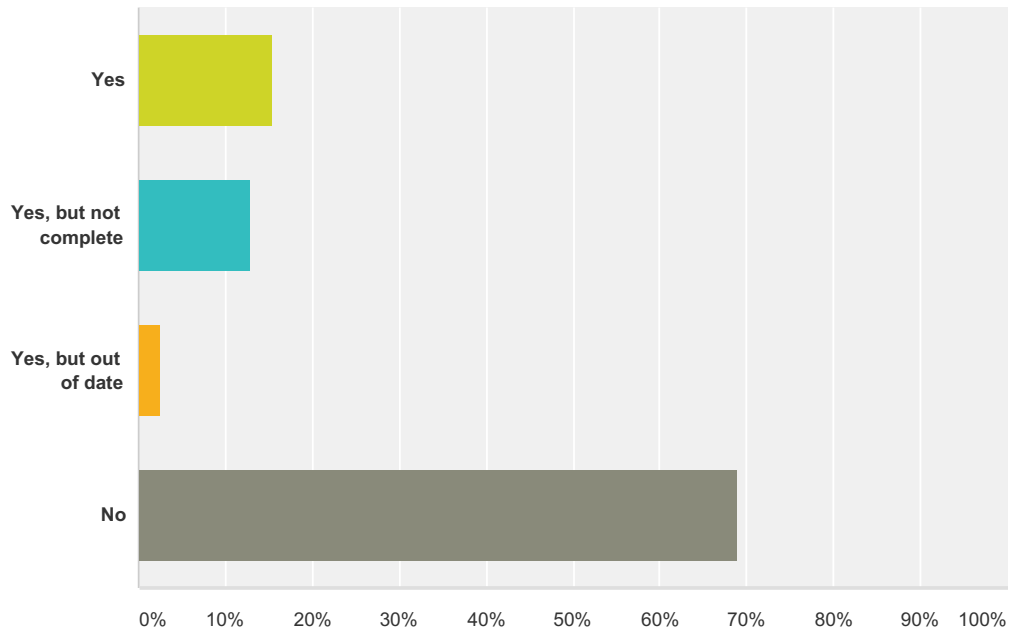
Answered: 72 Skipped: 48



Answer Choices	Responses
Timely	56.94% 41
Accurate	56.94% 41
Helpful	61.11% 44
None of the above	5.56% 4
<b>Total Respondents: 72</b>	

**Q7 Do you / does your household have a 72-hour kit? (<http://www.ready.gov/build-a-kit> )**

Answered: 116 Skipped: 4

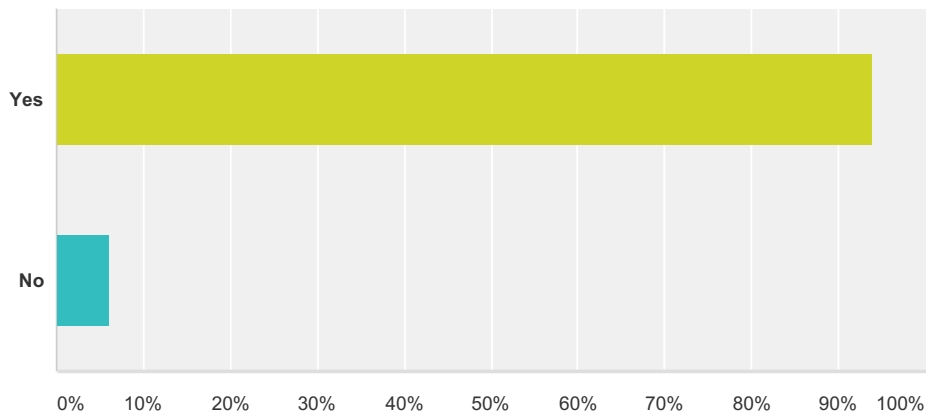


Answer Choices	Responses	
Yes	15.52%	18
Yes, but not complete	12.93%	15
Yes, but out of date	2.59%	3
No	68.97%	80
<b>Total</b>		<b>116</b>



### Q8 Do you have homeowners/renters insurance?

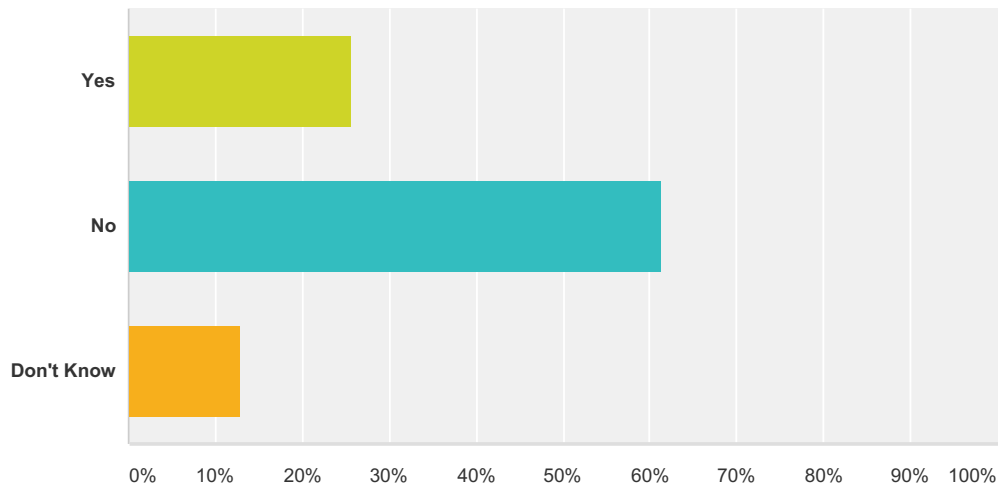
Answered: 116 Skipped: 4



Answer Choices	Responses
Yes	93.97% 109
No	6.03% 7
<b>Total</b>	<b>116</b>

### Q9 Does your homeowner/renters insurance include flood insurance?

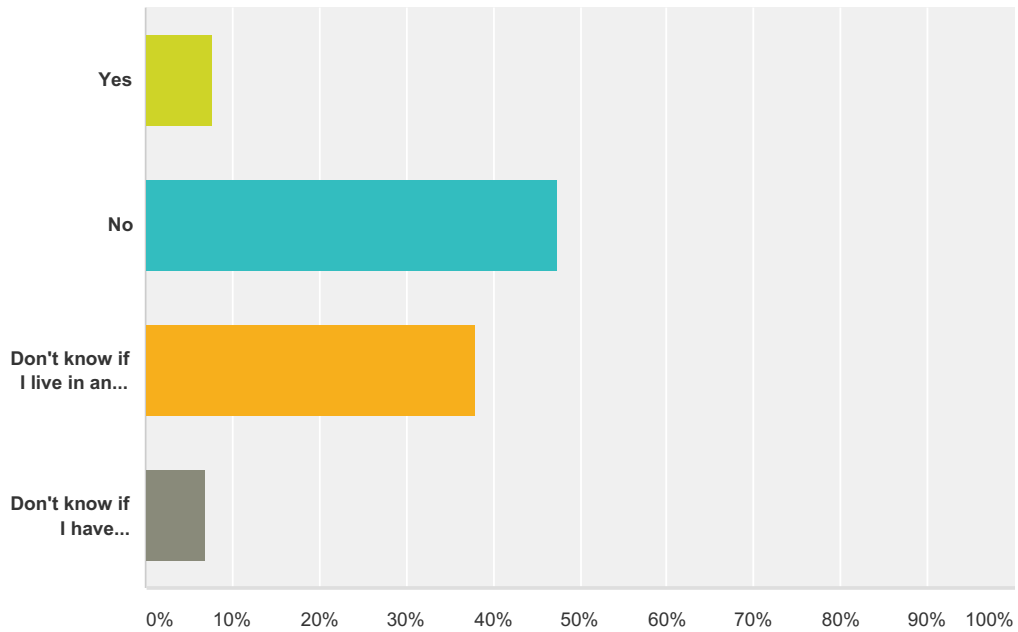
Answered: 109 Skipped: 11



Answer Choices	Responses
Yes	25.69% 28
No	61.47% 67
Don't Know	12.84% 14
<b>Total</b>	<b>109</b>

### Q10 If you live in a Special Flood Hazard Area (SFHA), do you have floodplain insurance?

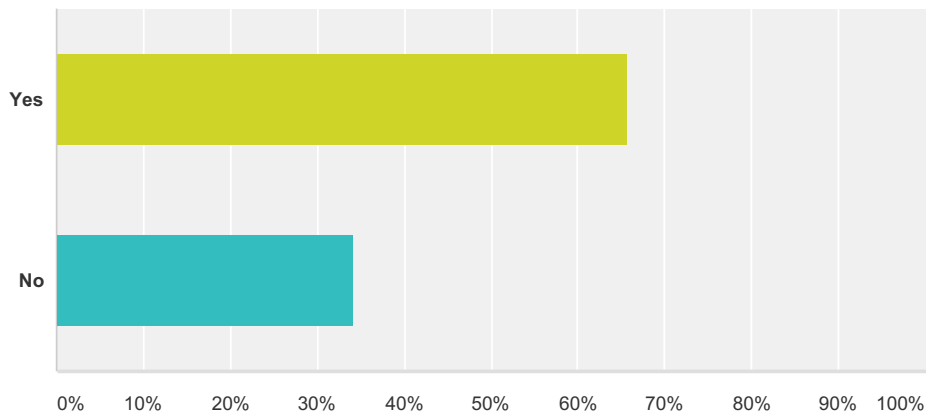
Answered: 116 Skipped: 4



Answer Choices	Responses
Yes	7.76% 9
No	47.41% 55
Don't know if I live in an SFHA	37.93% 44
Don't know if I have floodplain insurance	6.90% 8
<b>Total</b>	<b>116</b>

### Q11 Are you willing to spend your money on mitigation activities for your home?

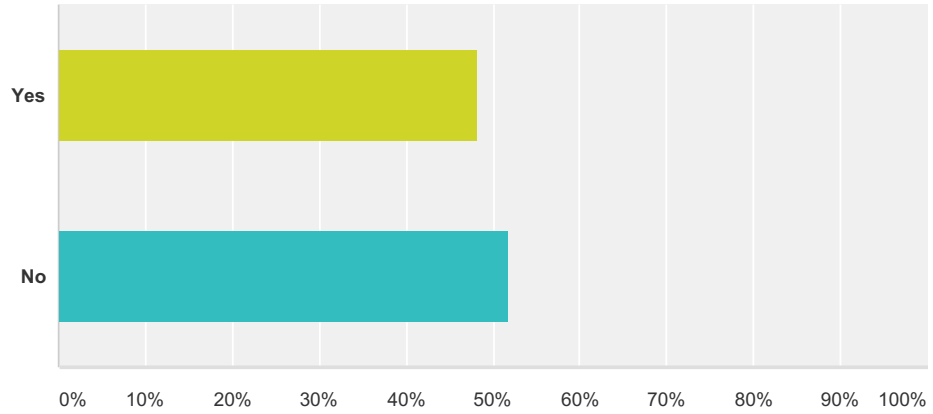
Answered: 114 Skipped: 6



Answer Choices	Responses	
Yes	65.79%	75
No	34.21%	39
<b>Total</b>		<b>114</b>

**Q12 Have you performed any improvements to your home to reduce your risk from a hazard?**

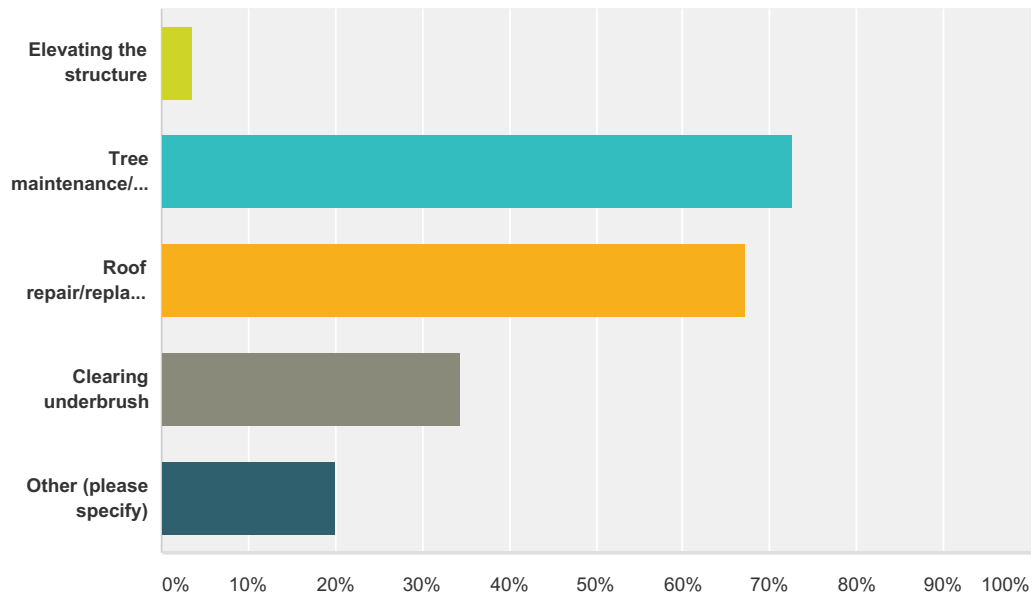
Answered: 114 Skipped: 6



Answer Choices	Responses	
Yes	48.25%	55
No	51.75%	59
<b>Total</b>		<b>114</b>

### Q13 Please indicate what improvements you have made:

Answered: 55 Skipped: 65

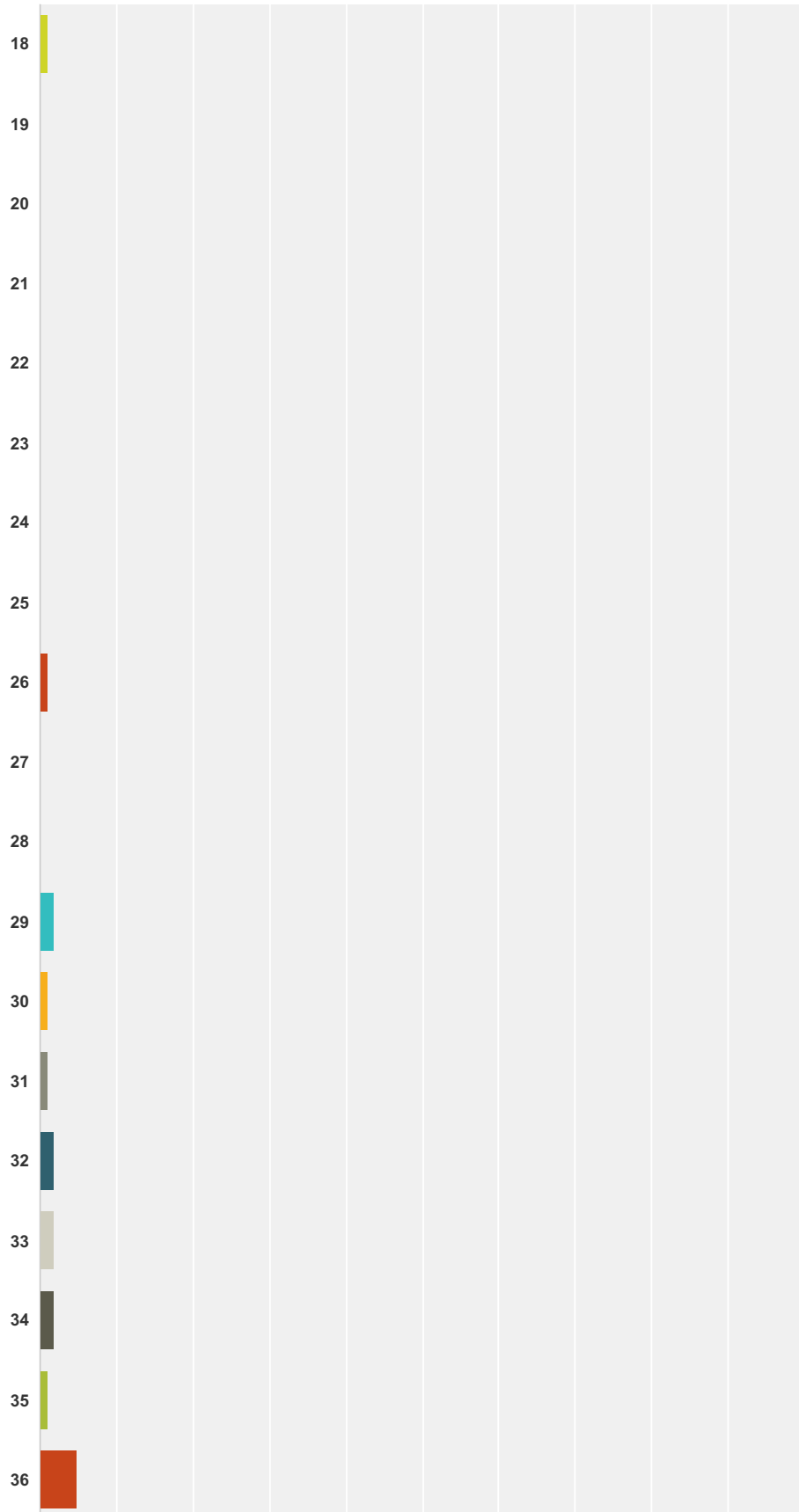


Answer Choices	Responses
Elevating the structure	3.64% 2
Tree maintenance/removal	72.73% 40
Roof repair/replacement	67.27% 37
Clearing underbrush	34.55% 19
Other (please specify)	20.00% 11
<b>Total Respondents: 55</b>	

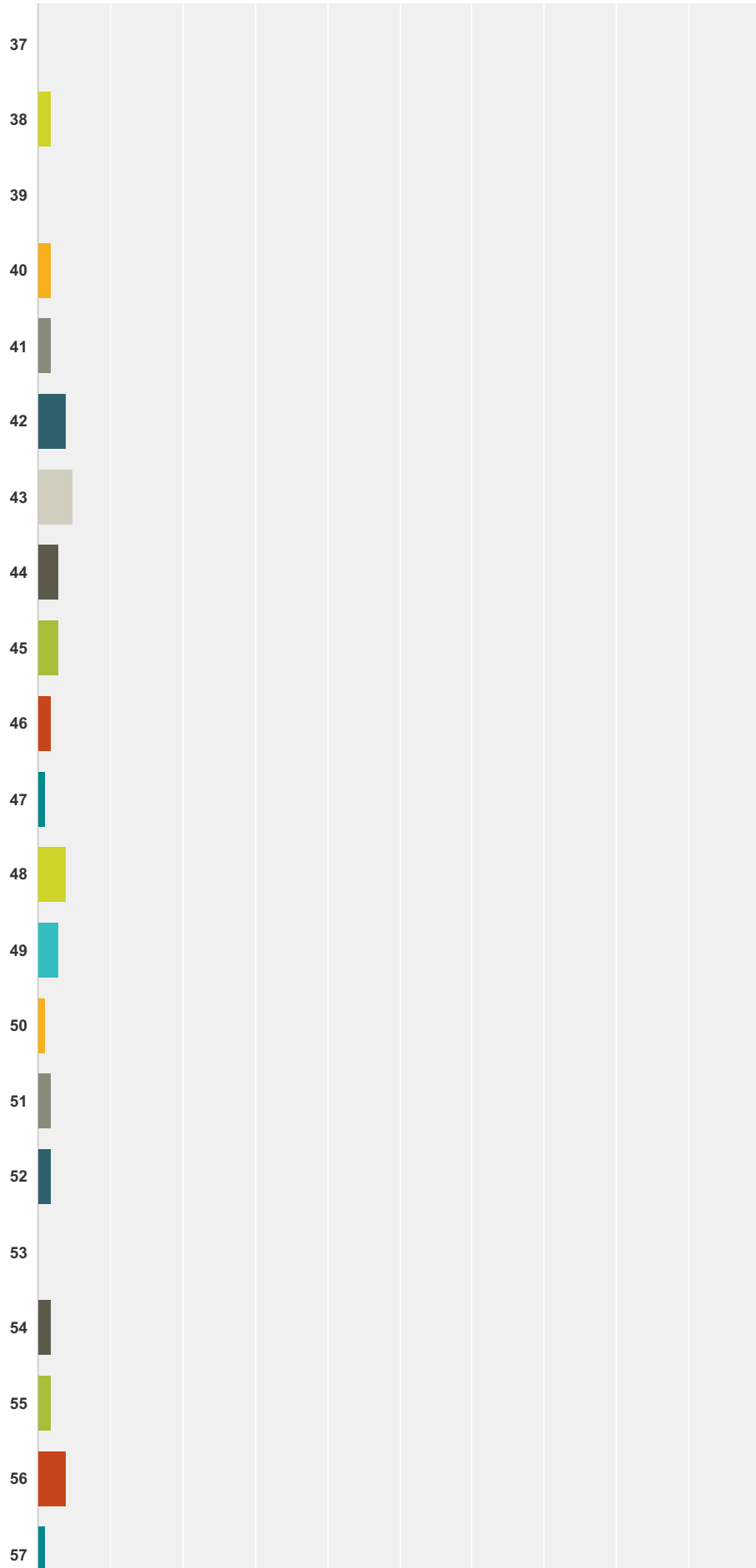
#	Other (please specify)	Date
1	drainage on property	4/6/2017 12:35 AM
2	reducing all dependency on Public and/or Government support. Failed miserably over the last 20 years, utilities have degraded to beyond repair in many areas, public officials hiding most of the problems from us	3/19/2017 12:01 AM
3	Strengthened the foundation.	2/11/2017 9:35 AM
4	Using spring water.	2/9/2017 6:06 AM
5	insulation, fire extinguishers, smoke detectors, outside fuel storage	1/20/2017 12:21 AM
6	made my house safe for the elderly	1/19/2017 10:35 PM
7	Sump Pumps	1/19/2017 12:43 AM
8	Sewer Line cleanup and raised materials in basement for flooding	1/18/2017 10:59 PM
9	Firearm	1/18/2017 5:58 AM
10	bought generator	1/16/2017 4:16 PM
11	Basement drainage/sump pumps, about 15 years ago	1/11/2017 6:31 AM

### Q14 Please provide your age

Answered: 103 Skipped: 17

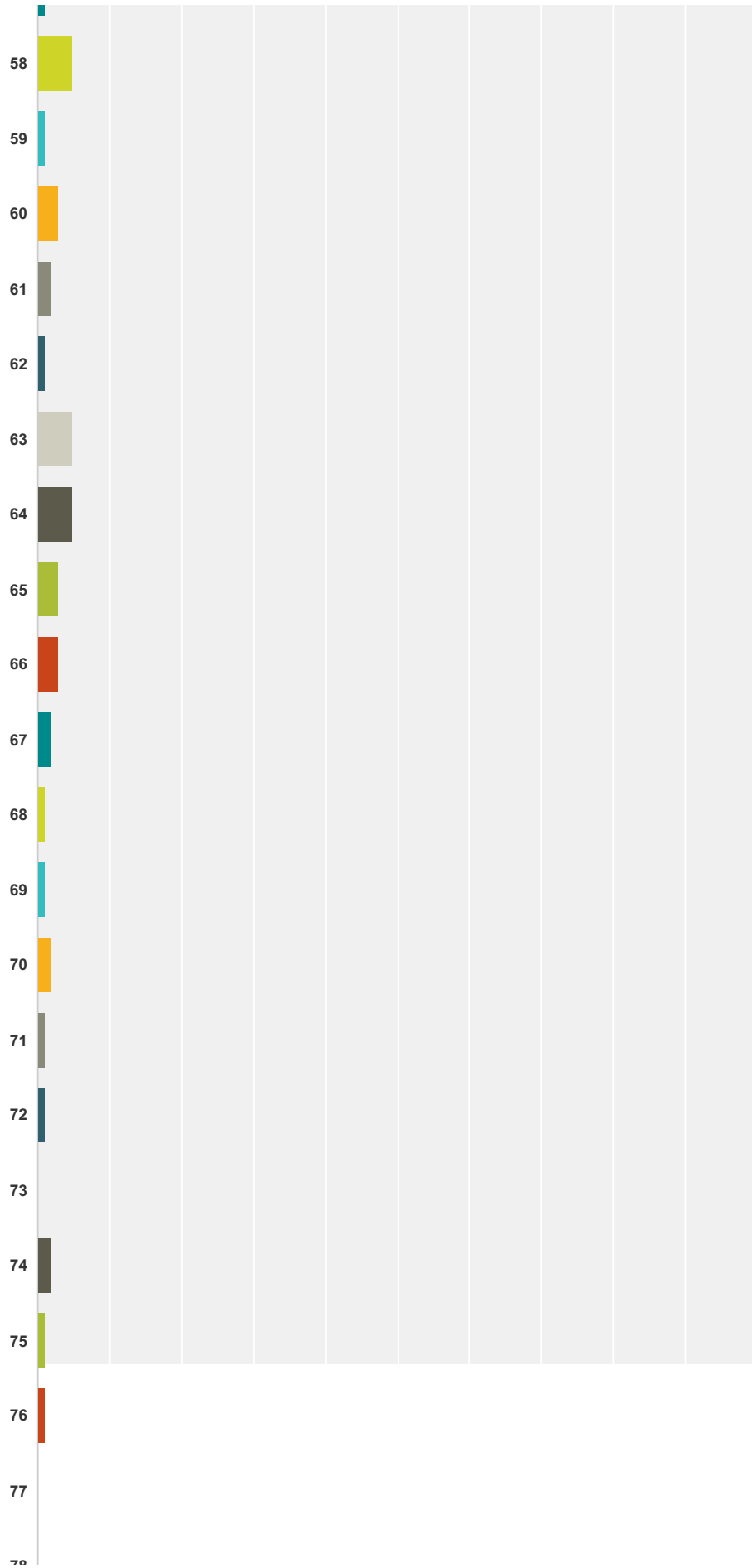


# Region 11 Hazard Mitigation Survey





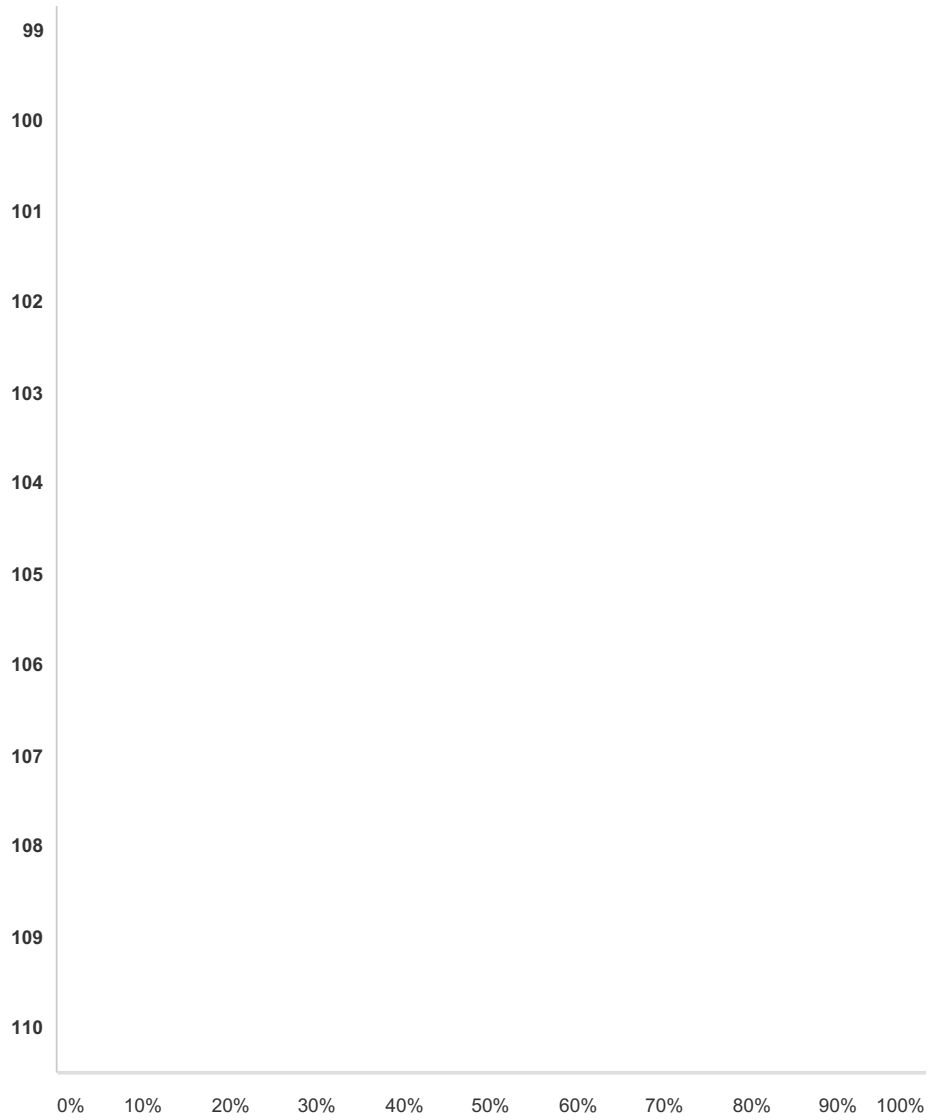
# Region 11 Hazard Mitigation Survey



# Region 11 Hazard Mitigation Survey

78  
79  
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98

# Region 11 Hazard Mitigation Survey



Answer Choices	Responses	
18	0.97%	1
19	0.00%	0
20	0.00%	0
21	0.00%	0
22	0.00%	0
23	0.00%	0
24	0.00%	0
25	0.00%	0
26	0.97%	1
27	0.00%	0
28	0.00%	0
29	1.94%	2

## Region 11 Hazard Mitigation Survey

30	0.97%	1
31	0.97%	1
32	1.94%	2
33	1.94%	2
34	1.94%	2
35	0.97%	1
36	4.85%	5
37	0.00%	0
38	1.94%	2
39	0.00%	0
40	1.94%	2
41	1.94%	2
42	3.88%	4
43	4.85%	5
44	2.91%	3
45	2.91%	3
46	1.94%	2
47	0.97%	1
48	3.88%	4
49	2.91%	3
50	0.97%	1
51	1.94%	2
52	1.94%	2
53	0.00%	0
54	1.94%	2
55	1.94%	2
56	3.88%	4
57	0.97%	1
58	4.85%	5
59	0.97%	1
60	2.91%	3
61	1.94%	2
62	0.97%	1
63	4.85%	5

## Region 11 Hazard Mitigation Survey

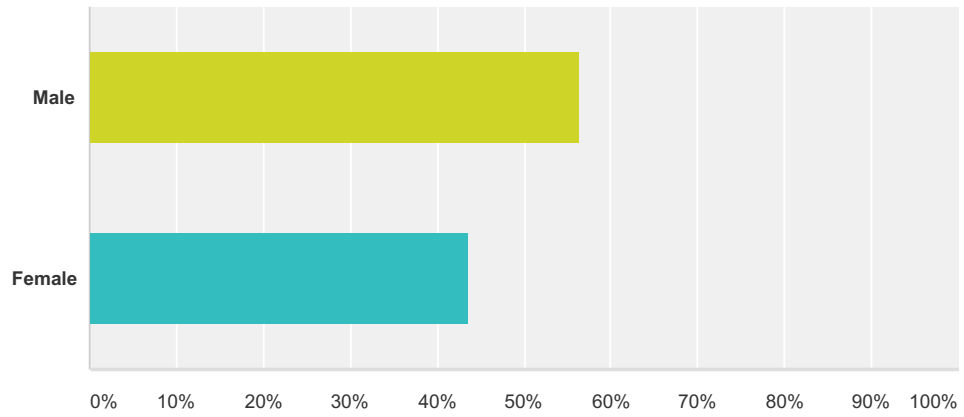
64	4.85%	5
65	2.91%	3
66	2.91%	3
67	1.94%	2
68	0.97%	1
69	0.97%	1
70	1.94%	2
71	0.97%	1
72	0.97%	1
73	0.00%	0
74	1.94%	2
75	0.97%	1
76	0.97%	1
77	0.00%	0
78	0.00%	0
79	0.00%	0
80	0.00%	0
81	0.00%	0
82	0.00%	0
83	0.00%	0
84	0.00%	0
85	0.00%	0
86	0.00%	0
87	0.00%	0
88	0.00%	0
89	0.00%	0
90	0.00%	0
91	0.00%	0
92	0.00%	0
93	0.00%	0
94	0.00%	0
95	0.00%	0
96	0.00%	0
97	0.00%	0
98	0.00%	0

## Region 11 Hazard Mitigation Survey

99	0.00%	0
100	0.00%	0
101	0.00%	0
102	0.00%	0
103	0.00%	0
104	0.00%	0
105	0.00%	0
106	0.00%	0
107	0.00%	0
108	0.00%	0
109	0.00%	0
110	0.00%	0
<b>Total</b>		<b>103</b>

### Q15 Gender

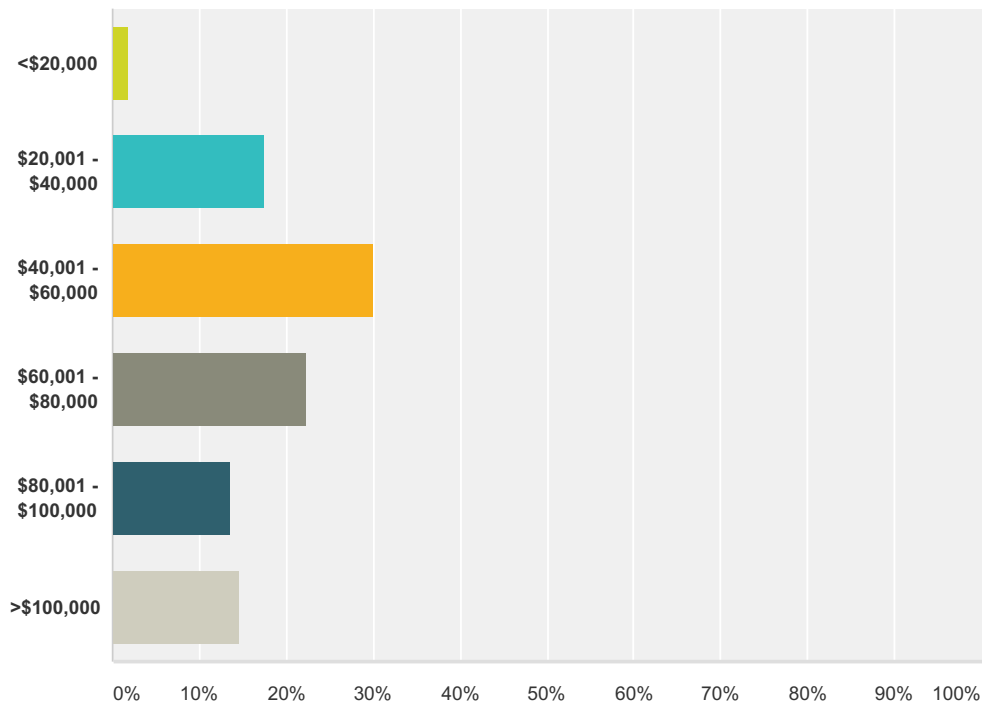
Answered: 103 Skipped: 17



Answer Choices	Responses
Male	56.31% 58
Female	43.69% 45
<b>Total</b>	<b>103</b>

### Q16 Please indicate your household income:

Answered: 103 Skipped: 17

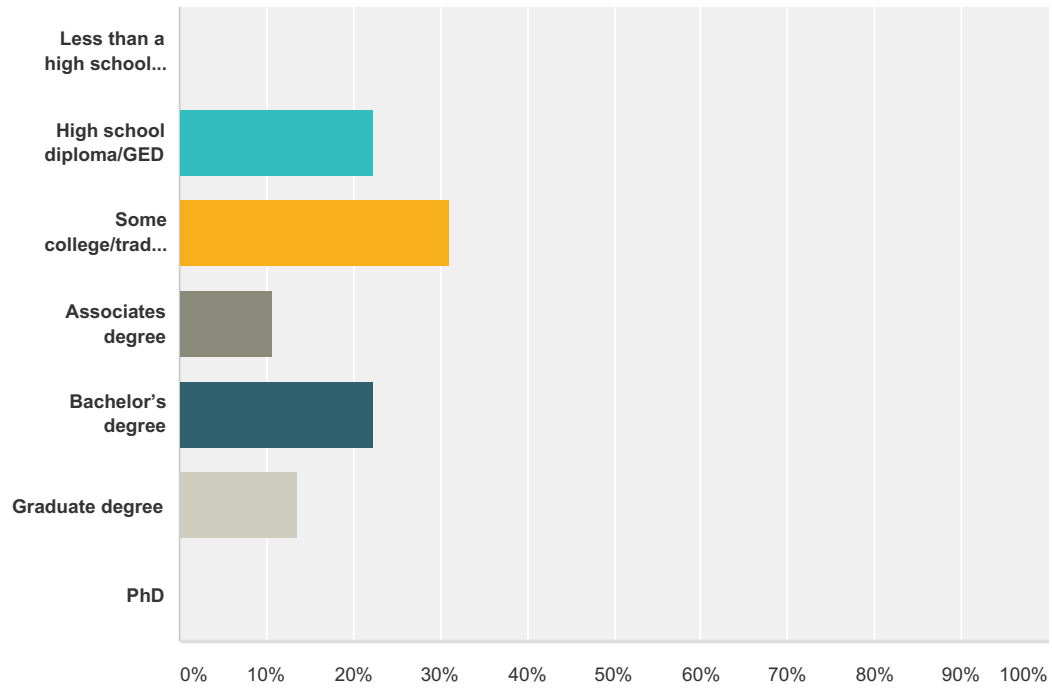


Answer Choices	Responses	
<\$20,000	1.94%	2
\$20,001 - \$40,000	17.48%	18
\$40,001 - \$60,000	30.10%	31
\$60,001 - \$80,000	22.33%	23
\$80,001 - \$100,000	13.59%	14
>\$100,000	14.56%	15
<b>Total</b>		<b>103</b>



### Q17 Please indicate your level of education

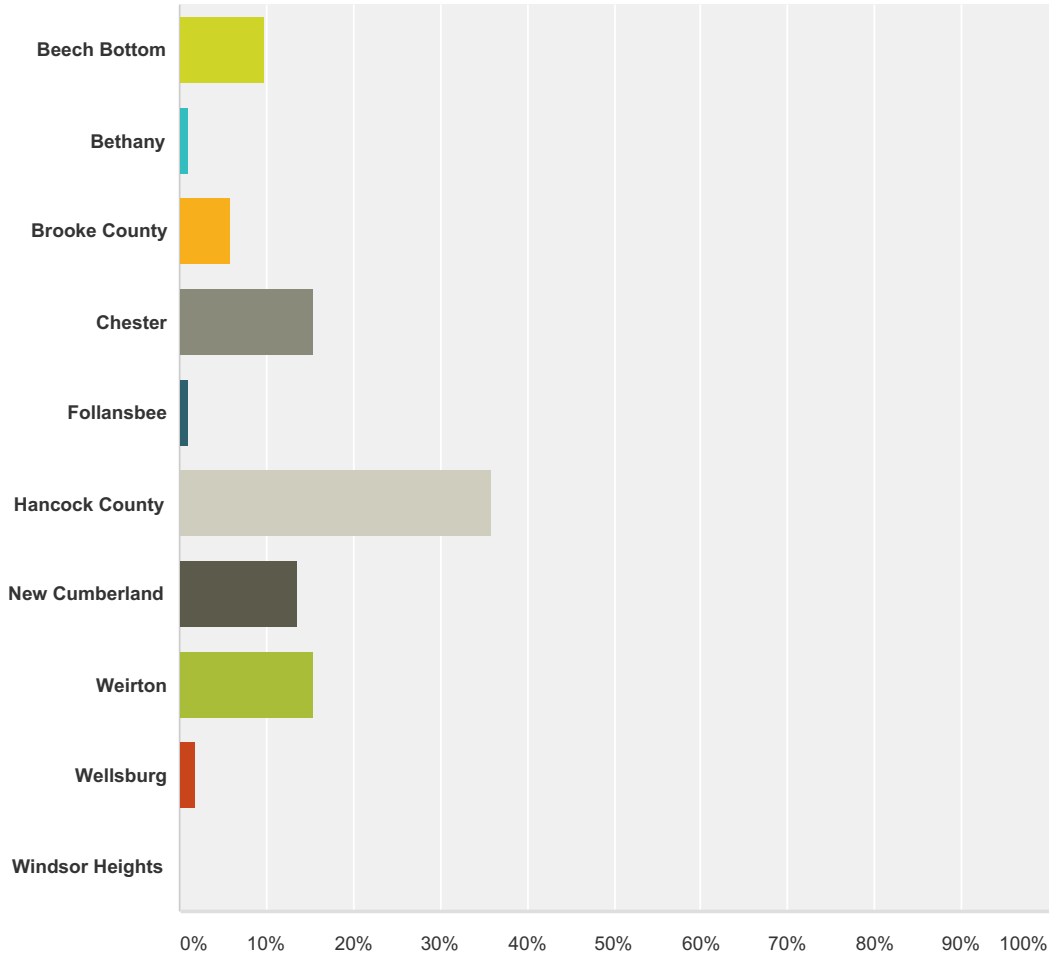
Answered: 103 Skipped: 17



Answer Choices	Responses
Less than a high school diploma	0.00% 0
High school diploma/GED	22.33% 23
Some college/trade school	31.07% 32
Associates degree	10.68% 11
Bachelor's degree	22.33% 23
Graduate degree	13.59% 14
PhD	0.00% 0
<b>Total</b>	<b>103</b>

**Q18 Which municipality do you reside in? (If you live outside of municipal limits, please select the county you reside in)**

Answered: 103 Skipped: 17



Answer Choices	Responses
Beech Bottom	9.71% 10
Bethany	0.97% 1
Brooke County	5.83% 6
Chester	15.53% 16
Follansbee	0.97% 1
Hancock County	35.92% 37
New Cumberland	13.59% 14
Weirton	15.53% 16
Wellsburg	1.94% 2
Windsor Heights	0.00% 0

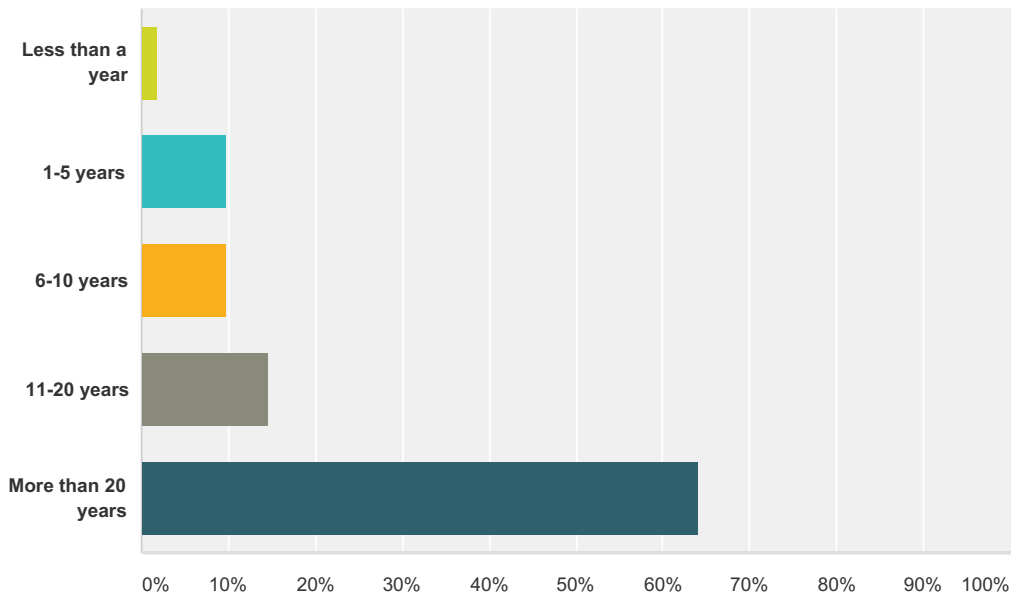
# Region 11 Hazard Mitigation Survey

Total

103

### Q19 How long have you resided in your community?

Answered: 103 Skipped: 17



Answer Choices	Responses
Less than a year	1.94% 2
1-5 years	9.71% 10
6-10 years	9.71% 10
11-20 years	14.56% 15
More than 20 years	64.08% 66
<b>Total</b>	<b>103</b>

## Region 11 Hazard Mitigation Survey

### Q20 Please share any other comments you have

Answered: 12 Skipped: 108

#	Responses	Date
1	Just the litter. It's gotta stop.	4/6/2017 12:35 AM
2	Elected officials only spend tax money for their own personal gain and enrichment.	3/19/2017 4:02 AM
3	Complete collapse of Government, no honesty to us, no transparency, terrible management of the public money, infrastructure, small groups controlling everything for personal gain	3/19/2017 12:14 AM
4	Question 8 was poorly written. There should have been an N/A choice for those that are NOT in a flood plain and know that fact.	3/7/2017 12:57 PM
5	We must keep our drinking water safe.	2/9/2017 6:07 AM
6	There is an area that has a reoccurring sinkhole in the alley by Beech Bottom Church.	2/8/2017 11:39 AM
7	Very concerned about old culvert in the alley on 2nd street. It runs under my church and runs down and runs under Route 2. It has sunk before. Water from old coal mines from 49 hill is running through the culvert. This culvert was laid by masonry men back 100 years ago before this village was established.	2/8/2017 11:39 AM
8	Beech Bottom council and members of this small community are always willing to help!	2/7/2017 2:07 PM
9	I live in Ohio and work in Newell	2/6/2017 11:11 PM
10	I work in Hancock County but live in Columbiana County, OH	1/18/2017 7:17 AM
11	what happened to the "heads up Hancock" app	1/16/2017 4:18 PM
12	Downtown Follansbee flooded about 6 months ago. No advance warning to my knowledge. I don't live in the flood area of Follansbee so I wasn't directly affected.	1/11/2017 3:08 AM

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## APPENDIX 4

### INACTIVE PROJECTS

This appendix contains all jurisdictions' inactive (completed, deleted or deferred) projects from the 2012 Hazard Mitigation Plan.

- If the project was completed or deleted in 2012, in 2017 the project was removed.
- Some jurisdictions' 2017 status description of a project is "under Brooke/Hancock County" which means that the county is responsible for these types of projects as part of regular activities and therefore is deleted as a jurisdictional project, but not added to county projects.
- Projects that are "Complete with 2017 update" mean that the update of this hazard mitigation plan will render the project completed.
- Many projects listed in this section have become part of normal day-to-day agency mitigation activities and therefore have been deleted as a one-time project. These are noted as "Deleted – Ongoing responsibility".

**TABLE 5.6 REGION 11 INACTIVE PROJECTS**

		<b>TABLE 5.6 REGION 11 INACTIVE PROJECTS</b>		
		<i>2012 Completed, Deferred, or Deleted Project</i>	<i>2017 Updated Status</i>	
<i>Goals</i>	<i>Objective</i>	<i>Projects</i>	<i>2012 Status</i>	<i>2017 Status</i>
GOAL 2: Enhance mitigation efforts through public education and engaging in cooperative preparedness efforts	OBJECTIVE 2.1: Educate the public on hazard mitigation and preparedness	PROJECT 2.1.1: Prepare public information campaigns regarding risks and family preparedness for such hazards as thunderstorms, high winds, hailstorms, earthquakes, and winter storms.	New	Deferred
GOAL 4: Better identify hazard areas and the vulnerabilities within them	OBJECTIVE 4.1: Fully identify risk areas with respect to the dam failure hazard	PROJECT 4.1.1: Coordinate, as appropriate, with partners throughout the region to identify the location of privately-owned dams as well as contact information for the owners of those structures.	New	Deferred

**TABLE 5.7 BROOKE COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project		2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status	
GOAL 1C: Develop and implement a hazard mitigation planning committee.	OBJECTIVE 1C.1: Involve all stakeholders, governmental organizations, and emergency management personnel in the planning process.	PROJECT 1C.1.1: Identify planning team involved in every aspect of the planning process, in all future endeavors.	Ongoing	Completed	
	OBJECTIVE 1C.2: Achieve multi-jurisdictional participation.	PROJECT 1C.2.1: Organize cooperation between the participating municipalities in Brooke County.	Ongoing	Completed	
	OBJECTIVE 1C.3: Establish a core team.		Completed	Deleted – Project purpose unclear.	
	OBJECTIVE 1C.4: Review current Brooke County Hazard Mitigation Plan	PROJECT 1C.4.1: Review risk assessment, and update accordingly	Ongoing	Complete with 2017 update	
		PROJECT 1C.4.2: Review risk rankings and update accordingly	Ongoing	Complete with 2017 update	
	OBJECTIVE 1C.5: Perform comprehensive loss estimate calculations.	PROJECT 1C.5.1: Obtain current property value estimates from the Brooke County Assessor	Completed	Deleted	
		PROJECT 1C.5.2: Create geospatial databases that can be used to calculate an accurate loss estimate for future revisions of this plan.	Deferred	Deleted - Ongoing responsibility	
		PROJECT 1C.5.3: Generate property value estimates from non-residential (commercial, governmental, etc.) structures in the county.	Completed	Deleted	
		PROJECT 1C.5.4: With obtained data from above, provide losses for each specific hazard.	Ongoing	Complete with 2017 update	
	OBJECTIVE 1C.6: Update critical facilities listing and mapping (See GOAL 7 for mapping objectives).	PROJECT 1C.6.1: Work with critical facilities and local entities to create revised listings of critical facilities within the county on a regular basis.	Ongoing	Completed	
	OBJECTIVE 1C.7: Update asset inventory with input from various local governments and private companies.	PROJECT 1C.7.1: Work with all stakeholders to develop comprehensive listings of all assets potentially affected by each hazard.	Ongoing	Complete with 2017 update	

**TABLE 5.7 BROOKE COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project		2017 Updated Status
Goals	Objective	Projects	2012 Status	2017 Status
Continued	OBJECTIVE 1C.8: Update the capabilities assessment.	PROJECT 1C.8.1: Obtain data to support both countywide and local mitigation plans and programs.	Ongoing	Delete - not relevant
		PROJECT 1C.8.2: Reassess the rating system provided and update, if needed.	On-going	Delete - not relevant
GOAL 2C: Obtain mitigation strategies from each of the participating local governments.	OBJECTIVE 2C.1: Encourage participation from each jurisdiction in Brooke County.		Ongoing	Deleted - Ongoing responsibility
	OBJECTIVE 2C.2: Provide guidance about the preparation of mitigation plans.		Ongoing	Deleted - Ongoing responsibility
GOAL 3C: Develop an implementation strategy.	OBJECTIVE 3C.1: Identify responsible parties, funding sources, and cost estimates.	PROJECT 3C.1.1: Include parties responsible for the monitoring and evaluation of mitigation and other projects in an "after-Action Review" (AAR) process to include an Improvement Plan (IP) with a schedule for implementation and completion.	Ongoing	Complete
	OBJECTIVE 3C.2: Develop schedule and timeframe for strategy.		Ongoing	Delete - project unclear
GOAL 4C: Develop a public outreach program.	OBJECTIVE 4C.1: Prepare an exhaustive list of potential stakeholders.	PROJECT 4C.1.1: Make list available to public, via email and letter.	Ongoing	Complete
GOAL 5C: Improve upon the protection of citizens of Brooke County from all natural and man-made hazards.	OBJECTIVE 5C.1: Develop and distribute public awareness materials about natural hazard risks, preparedness, and mitigation.	PROJECT 5C.1.3: Utilize the media for the distribution and publication of hazard information.	Ongoing	Complete
		PROJECT 5C.1.5: Ensure that the American Red Cross "Citizens' Disaster course" is held on a frequent basis.	Deleted	Deleted

**TABLE 5.7 BROOKE COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project		2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status	
Continued	Continued	PROJECT 5C.1.8: Develop an Emergency Public Information (EPI) program that will provide critical information to the general public in the event of an emergency, particularly as it relates to flooding.	Ongoing	Complete, using Facebook, website, app	
	OBJECTIVE 5C.2: Target owners of properties within identified hazard areas for additional outreach regarding mitigation and disaster preparedness.	PROJECT 5C.2.1: Distribute letters to all property owners in the county regarding potential flood hazards as required for participation in the Community Rating System (CRS).	Deferred	Deleted - Ongoing responsibility	
		PROJECT 5C.2.2: Hold a local course on the National Flood Insurance Program (NFIP) for realtors, bankers, insurance professionals, and homeowners.	Deferred	Deleted - Ongoing responsibility	
		PROJECT 5C.2.3: Make the most current Flood Insurance Rate Map (FIRM) data and information available to the general public on an open and accessible basis.	Completed	Deleted	
	OBJECTIVE 5C.3: Evaluate existing shelters to determine adequacy for current and future populations.	PROJECT 5C.3.1: Ensure that all shelters have adequate emergency power resources.	Ongoing	Complete	
		PROJECT 5C.3.2: Develop adequate emergency shelter and evacuation plans for animals (domestic pets, livestock, and wildlife).	Ongoing	Complete	
	OBJECTIVE 5C.4: Ensure adequate training and resources for emergency organizations and personnel.	PROJECT 5C.4.1: Teach Community Emergency Response Team (CERT) classes in Brooke County	Completed	Deleted	
		PROJECT 5C.4.2: Increase the number of trained citizen emergency responders.	Completed	Deleted	
	GOAL 6C: Reduce the current and future risks from hazards in Brooke County	OBJECTIVE 6C.1: Evaluate and update existing floodplain ordinances to meet or exceed the NFIP standards.	PROJECT 6C.1.1: Work with the municipalities to update all floodplain ordinances adopted prior to 1987.	Completed	Deleted – ongoing responsibility

**TABLE 5.7 BROOKE COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project		2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status	
GOAL 7C: Improve emergency preparedness in Brooke County and its incorporated municipalities by implementing comprehensive emergency management activities.	OBJECTIVE 7C.1: Improve coordination and communication among disaster response organizations, local, and county governments.	PROJECT 7C.1.1: Utilize the Brooke County Emergency Management Agency (BCEMA) to facilitate communication and coordination between emergency teams in the county.	Completed	Deleted	
	OBJECTIVE 7C.2: Regularly update the Emergency Operations Plan (EOP) for Brooke County.	PROJECT 7C.2.1: Redefine roles, responsibilities, and tasks of emergency response agencies and other tasked organizations, if needed	Ongoing	Complete	
GOAL 8C: Reduce the potential impact of natural and man-made disasters on private property.	OBJECTIVE 8C.1: Encourage participation in the National Flood Insurance Program (NFIP).	PROJECT 8C.1.1: All local units of government will continue to maintain their membership in the NFIP	Combined with Objective 6C.1	Deleted – ongoing responsibility	
		PROJECT 8C.1.2: Obtain updated information on the number of NFIP policyholders in Brooke County and its municipalities	Combined with Objective 6C.1	Deleted – ongoing responsibility	
		PROJECT 8C.1.3: Conduct outreach efforts to educate the public about the NFIP and its requirements	Combined with Objective 6C.1	Deleted – ongoing responsibility	
	OBJECTIVE 8C.2: Identify all repetitive loss structures throughout the county.	PROJECT 8C.2.1: Collect updated information of the number and location of all repetitive loss properties throughout the county and the municipalities	Completed	Deleted – ongoing responsibility	
		PROJECT 8C.2.2: Develop a database of information on all repetitive loss properties including maps.	Completed	Deleted – ongoing responsibility	
		PROJECT 8C.2.3: Identify owners of repetitive loss properties that may be willing to participate in future property acquisition and relocation projects.	On-going	Deleted - Ongoing responsibility	



**TABLE 5.7 BROOKE COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project		2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status	
GOAL 9C: Develop better hazard data for Brooke County and the municipalities.	OBJECTIVE 9C.1: Update flood hazard mapping.	PROJECT 9C.1.1: Work with the Federal Emergency Management Agency (FEMA) and West Virginia Division of Homeland Security and Emergency Management (WVDHSEM) on the Map Modernization Program to improve FIRMs.	Completed	Deleted – ongoing responsibility	
		PROJECT 9C.1.2: Local planning organizations should delineate the 100-year (base) floodplain on all planning and zoning maps.	Completed	Deleted – ongoing responsibility	
	OBJECTIVE 9C.5: Improve knowledge of landslide hazard areas and understanding of vulnerability and risk to life and property in these hazard-prone areas.	PROJECT 9C.5.1: Encourage construction and subdivision design that can be applied to steep slopes to reduce the potential adverse impacts from development	Deferred	Deleted – ongoing responsibility	
	OBJECTIVE 9C.7: Prepare comprehensive listing of special needs populations in Brooke County		Ongoing	Complete with 2017 update	
GOAL 10C: Reduce flood damages to flood-prone properties and protect the safety of people by encouraging the implementation of flood protection activities.	OBJECTIVE 10C.1: Identify and map all areas and structures located within the 100-year floodplain according to the most recent FIRM data.	PROJECT 10C.1.1: Identify specific structures that are prime subjects for either acquisition or relocation.	Deferred	Deleted – ongoing responsibility	
		PROJECT 10C.1.2: Segregate all such properties between commercial, residential, industrial, agricultural, recreational, and lther uses.	Deferred	Deleted - Ongoing responsibility	
		PROJECT 10C.1.5: Develop cost estimates and project budgets for all of the identified properties and the selected strategies.	Ongoing	Deleted - Ongoing responsibility	
		PROJECT 10C.1.6: Prioritize all acquisition and/or relocation mitigation projects for implementation.	Ongoing	Deleted - Ongoing responsibility	

**TABLE 5.7 BROOKE COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status		
GOAL 11C: Pursue natural resource protection measures to protect the environment and its people from hazardous events.	OBJECTIVE 11C.1: Encourage all units of local government to enact and enforce appropriate regulations to control erosion and sedimentation.		Deleted	Deleted		
	OBJECTIVE 11C.2: Prepare local wetland and identification maps using information from the National Wetlands Inventory.	PROJECT 11C.2.1: Integrate data into Brooke County's Wetland Inventory.	Deleted	Deleted		

**TABLE 5.8 HANCOCK COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status		
GOAL 1F: Identify strategies to mitigate the negative effects of droughts.	OBJECTIVE 1F.1: Provide water to drought areas.	PROJECT 1F.1.1: procure water buffalos for drinking water for humans	Deleted	Deleted		
		PROJECT 1F.1.2: Procure water buffalos for drinking water for animals.	Deleted	Deleted		
		PROJECT 1F.1.3: Work with local fire departments to obtain water.	Completed	Deleted		
		PROJECT 1F.1.4: Install additional waterlines as long-term strategy.	Ongoing	Deleted – no specific information, project unclear.		
	OBJECTIVE 1F.2: Provide water to drought areas for crops.	PROJECT 1F.2.1: Procure water buffalos for crops.	Deleted	Deleted		
	OBJECTIVE 1F.3: Prevent and identify contamination of water systems.	PROJECT 1F.3.1: Identify funding and cost associated with buying water-testing equipment	Deleted	Deleted		
		PROJECT 1F.3.2: Identify and work with water treatment facilities in the county to implement testing	Completed	Deleted		
		PROJECT 1F.3.3: Make list of the people who may be able to assist in the prevention of contamination.	Completed	Deleted		
	OBJECTIVE 1F.4: Correlate capital improvement projects for municipal water departments and Public Service Districts (PSDs)	PROJECT 1F.4.1: Assist with funding the cost of water improvement and new construction with water lines and plants.	Deleted	Deleted		
		PROJECT 1F.4.2: Reduce the costs of new water projects.	Deleted	Deleted		
	OBJECTIVE 1F.4: Correlate capital improvement projects for municipal water departments and Public Service Districts (PSDs)	PROJECT 1F.4.3: Reduce costs for the water customer.	On-going	Deleted - Ongoing responsibility		
		PROJECT 1F.4.4: Identify grants for federal funding.	On-going	Complete with 2017 update		

**TABLE 5.8 HANCOCK COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status		
Continued	OBJECTIVE 1F.5: Connect water departments to allow water to be moved from one jurisdiction to another.	PROJECT 1F.5.1: Identify funding sources to support connectivity.	On-going	Deleted - Ongoing responsibility		
GOAL 2F: Reduce the loss of life and property during an earthquake by determining probability and evaluating buildings and building codes.	OBJECTIVE 2F.1: Determine the probability of an earthquake.	PROJECT 2F.1.1: Examine the effects of the earthquake in Sharon, PA (5.2 on the Richter Scale)	Completed	Deleted		
		PROJECT 2F.1.2: Provide public education via a handout concerning earthquake unpredictability.	On-going	Complete with social media and website updates		
	OBJECTIVE 2F.2: Evaluate buildings and building codes.	PROJECT 2F.2.1: Identify critical facilities throughout the county.	On-going	Complete with 2017 update		
		PROJECT 2F.2.2: Work with other counties and cities to look at establishing responsibilities for building codes.	Deferred	Deleted - Ongoing responsibility		
		PROJECT 2F.2.3: Involve the state government in a lead agency role to draft laws to force builders to develop contractor and homeowner rules for construction.	Deferred	Deleted - Ongoing responsibility		
GOAL 3F: Mitigate, to the extent possible, the negative effects of flooding.	OBJECTIVE 3F.1: Reduce the potential loss of life and property due to flooding.	PROJECT 3F.1.1: Evacuate citizens.	On-going	Delete - project unclear		
	OBJECTIVE 3F.2: Prevent an increase in the depth of floodwater.	PROJECT 3F.2.1: Coordinate with partners to establish up-stream monitoring points.	Completed	Deleted		
		PROJECT 3F.2.2: Conduct an engineering study to see if flood control can be placed on the Ohio River and small streams.	Deferred	Deferred		
		PROJECT 3F.2.3: Identify funding sources for a warning system.	Deferred	Deleted - Ongoing responsibility		
	OBJECTIVE 3F.3: Clearly identify the 100-year floodplains in Hancock County.	PROJECT 3F.3.1: Partner with the Boy Scouts of America (BSA) to mark the 100-year floodplain.	Deleted	Deleted		

**TABLE 5.8 HANCOCK COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status		
Continued	Continued	PROJECT 3F.3.2: Educate local developers in Hancock County through maps and flyers developed by the planning committee.	Deferred	Deleted - Ongoing responsibility		
GOAL 4F: Lessen the negative effects of land subsidence.	OBJECTIVE 4F.1: Prevent landslides.	PROJECT 4F.1.1: Develop long-term funding for a new road versus road maintenance. For example, in a 12-month period, Hancock County could spend \$100,000 a month cleaning up landslides (\$1M annually in road maintenance vs. a new road at \$3M). In three (3) years' time, Hancock County could spend the same amount of money and solve the problem.	Deferred	Deleted - Ongoing responsibility		
		PROJECT 4F.1.2: In the short-term, identify ways to re-open roadways after a landslide as quickly as possible.	Deferred	Deleted - Ongoing responsibility		
		PROJECT 4F.1.3: Collect additional information on loggers, including having them post a cash bond.	Deleted	Deleted		
		PROJECT 4F.1.4: Solicit on-going input from the WV Department of Natural Resources (WVDNR) so that after the loggers start a project, if a problem comes up (e.g., water runoff causing road damage), someone may be able to fix the problem before the trees are cut or sold off.	Deferred	Deleted - Ongoing responsibility		
		PROJECT 4F.1.5: Access the WVDHSEM or WVDOH funding and/or plans.	Deferred	Deleted - Ongoing responsibility		
		PROJECT 4F.1.6: Identify water paths based on the rain water table.	Deferred	Deleted - Ongoing responsibility		
		PROJECT 4F.1.7: Plant vegetation and trees in areas that are prone to landslide problems.	Deleted	Deleted		
		PROJECT 4F.1.8: Construct steel barricades to prevent landslides.	Deferred	Deferred		

**TABLE 5.8 HANCOCK COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status		
Continued	Continued	PROJECT 4F.1.9: New road and paving projects need to be correlated between the WVDOH and WVDNR.	Deferred	Deleted - Ongoing responsibility		
	OBJECTIVE 4F.2 Develop a map of detours to use in case of an emergency and inform the public of the alternate routes.	PROJECT 4F.2.1: Work with the WVDOH to install signs on the roadways.	On-going	Deleted - Ongoing responsibility		
		PROJECT 4F.2.2: Use law enforcement to alleviate the problem on roadway "pinch points".	On-going	Deleted – ongoing responsibility		
GOAL 5F: Reduce losses from winter storms.	OBJECTIVE 5F.1: Institute policies to protect life and property when telephones are out of service.  Continued	PROJECT 5F.1.2: Estimate cost for a mobile command unit.	Completed	Delete		
		PROJECT 5F.1.3: Identify funding for necessary equipment.	On-going	Deleted - using alternative methods of communications		
	OBJECTIVE 5F.2: Reduce injuries and property damage to the public during winter storms.	PROJECT 5F.2.1: Examine traffic studies that have already been completed to identify if there is a section of roadway that has more snow and ice than any other.	Deleted	Deleted		
		PROJECT 5F.2.2: Assess roadside hazards such as stop signs, telephone poles, sidewalks, etc.	Deleted	Deleted		
		PROJECT 5F.2.3: Be pre-involved in planning new highways throughout the county	Deleted	Deleted		
	OBJECTIVE 5F.3: Assess road snow plow conditions (years of service, replacement, enough equipment, etc.)	PROJECT 5F.3.1: Check with the WVDOH for projected replacement of snow plow equipment.	Completed	Deleted		
		PROJECT 5F.3.2: Upgrade communications between the WVDOH and 911.	Completed	Deleted		
	OBJECTIVE 5F.4: Evaluate and update shelters in the county.	PROJECT 5F.4.1: Update shelters with pet rooms and power heat operated on emergency power systems.	Completed	Deleted		

**TABLE 5.8 HANCOCK COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status		
GOAL 6F: Mitigate the negative effects of severe wind and/or tornadoes.	OBJECTIVE 6F.1: Educate and provide early warning to the public.	PROJECT 6F.1.1: Evaluate if additional publications beyond the "Getting Ready" booklet is necessary.	On-going	Deleted – using social media for public education		
		PROJECT 6F.1.2: Request an inventory list of the power plant's equipment and available human resources.	Deferred	Deleted - Ongoing responsibility		
		PROJECT 6F.1.3: Update the power companies' emergency plans.	Deferred	Deleted - Ongoing responsibility		
		PROJECT 6F.1.4: Identify funding for and replacement of sirens and radios.	Deleted	Deleted		
		PROJECT 6F.1.5: Designate the Hancock County Office of Emergency Management (HCOEM) as the responsible agency for sirens.	Deleted	Deleted		
		PROJECT 6F.1.6: Utilize early warning devices, such as radios, to update citizens for early warning.	Completed	Deleted		
		PROJECT 6F.1.7: Check electrical companies' plans and equipment. Promote the use of underground cables where possible.	Deferred	Deleted - Ongoing responsibility		
	OBJECTIVE 6F.2: Improve construction standards to include tornado resistance.	PROJECT 6F.2.1: Evaluate building codes and the use of different building materials, including wood frame versus brick construction, basement versus no basement, and the construction of safe rooms.	Deferred	Deleted - Ongoing responsibility		
		PROJECT 6F.2.2: Ensure building inspectors are on hand to inspect buildings.	Deferred	Deleted - Ongoing responsibility		
	OBJECTIVE 6F.3: Look at the past history of wind storms in the county.	PROJECT 6F.3.1: Coordinate with the National Weather Service (NWS) regarding access to records of historical wind events.	Deferred	Deleted - Ongoing responsibility		
PROJECT 6F.3.2: Mon Power has information available for first responders and the public on problems with high winds.		Deferred	Deleted - no project stated			

**TABLE 5.8 HANCOCK COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project		2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status	
GOAL 7F: Reduce losses from wildfires.	OBJECTIVE 7F.1: Prevent wildfires.	PROJECT 7F.1.1: Examine wildfires as a weather-related condition.	On-going	Complete with 2017 update	
		PROJECT 7F.1.2: Provide public information about campfires.	On-going	Deleted - Ongoing responsibility	
		PROJECT 7F.1.3: Identify ways to get firefighters in wildfire areas to extinguish the fire as quickly as possible.	Deferred	Deleted - Ongoing responsibility	
	OBJECTIVE 7F.2: Inventory wildfire equipment and replace outdated equipment.	PROJECT 7F.2.1: The HCOEM should send out for an inventory list from the county.	Completed	Deleted	
		PROJECT 7F.2.2: Examine human resources versus existing equipment.	On-going	Deleted - Ongoing responsibility	
	OBJECTIVE 7F.3: Install flags at fire departments and/or courthouses to inform the public of wildfire conditions.	PROJECT 7F.3.1: Identify funding resources for the flags and training for the public on their use.	On-going	Deleted - Ongoing responsibility	
	OBJECTIVE 7F.4: Evaluate the cost of human resources required to fight wildfires.	PROJECT 7F.4.1: Obtain records from the fire departments on wildfires.	Deferred	Deleted	
		PROJECT 7F.4.2: Study the labor saved versus the labor cost, wildfire and livestock.	Deferred	Deleted - not a priority	
	OBJECTIVE 7F.5: Review the history of past wildfires in Hancock County to predict, if possible, the areas that are at risk.	PROJECT 7F.5.1: Predict what may happen if wildfires occur in Hancock County.	Deferred	Deleted - Ongoing responsibility	
		PROJECT 7F.5.2: Tomlinson Run Park Ranger will help with conditions on ground cover.	Deferred	Deleted - no project stated	
PROJECT 7F.5.3: The NWS can help with weather coverage information regarding the amount of humidity.		Deferred	Deleted - no project stated		
GOAL 8F: Undertake general mitigation projects.	OBJECTIVE 8F.1: Improve assistance to special populations in Hancock County.	PROJECT 8F.1.1: Identify funding sources to include Weirton in the "special needs card" program.	Completed	Deleted	



**TABLE 5.8 HANCOCK COUNTY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project		2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status	
Continued	OBJECTIVE 8F.2: Improve loss estimation capabilities.	PROJECT 8F.2.1: Improve mapping capabilities.	Completed	Deleted	
		PROJECT 8F.2.2: Determine which assets are located in hazard areas.	On-going	Complete with 2017 update	
		PROJECT 8F.2.3: Collect content and operational values for critical facilities.	On-going	Deferred	
		PROJECT 8F.2.4: Calculate loss estimates based on the formula provided in FEMA's "how-to" guides.	On-going	Complete with 2017 update	
	OBJECTIVE 8F.3: Develop mitigation goals, objectives, and strategies that address dam failures, extreme heat, hailstorms, and technological hazards/hazardous materials.	PROJECT 8F.3.1: Hold additional meetings of the core planning team.	Completed	Deleted	
		PROJECT 8F.3.2: Consider the inclusion of additional agencies in future planning efforts.	Completed	Deleted	

**TABLE 5.9 BEECH BOTTOM INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status		
GOAL 1A: Review and comment on the Brooke County Hazard Mitigation Plan	OBJECTIVE 1A.1: Work with Brooke County Hazard Mitigation Planning Committee to periodically update the plan.		On-going	Complete with 2017 update		
	OBJECTIVE 1A.2: Provide input into mitigation goals of the county, including review of risk rankings, calculation of loss estimates, and production of critical facilities listing.	PROJECT 1A.2.1: Work with the Brooke County Emergency Management Agency (BCEMA) and critical facilities to create revised listings of critical facilities within municipal boundaries.	On-going	Deleted – ongoing responsibility		
GOAL 2A: Improve upon the protection of the citizens of Beech Bottom from all natural and man-made hazards.	OBJECTIVE 2A.1: Develop and distribute public awareness materials about natural hazard risks, preparedness, and mitigation.	PROJECT 2A.1.1: Develop an all-hazard information system in the Mayor's Office to provide public information on disasters to citizens.	On-going	Deleted – ongoing responsibility		
	OBJECTIVE 2A.2: Evaluate existing shelters to determine adequacy for current and future populations.	PROJECT 2A.2.1: Ensure that all current shelters have adequate resources for use as a Mass Care Shelter.	On-going	Deleted – ongoing responsibility		
	Continued	PROJECT 2A.2.2: Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter, the BCEMA, and local emergency responders.	On-going	Deleted - Under Brooke County		
	OBJECTIVE 2A.3: Ensure adequate training and resources for emergency organizations and personnel.	PROJECT 2A.3.1: Establish a Community Emergency Response Team (CERT).	On-going	Deleted - Under Brooke County		
		PROJECT 2A.3.2: Increase the number of trained citizen emergency responders.	On-going	Deleted – Under Brooke County		
		PROJECT 2A.3.3: Conduct National Weather Service Storm Spotter classes.	On-going	Deleted - Under Brooke County		

**TABLE 5.9 BEECH BOTTOM INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status		
GOAL 3A: Reduce the current and future risks from hazards in Beech Bottom	OBJECTIVE 3A.1: Direct new development away from high hazard areas.	PROJECT 3A.1.1: Review existing regulations to ensure adequacy in reducing the amount of future development in identified hazard areas.	On-going	Deleted – ongoing responsibility		
		PROJECT 3A.1.2: Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.	On-going	Deleted – ongoing responsibility		
		PROJECT 3A.1.3: Review all capital improvements plans to ensure that infrastructure improvements are not directed towards hazardous areas.	On-going	Deleted – ongoing responsibility		
	OBJECTIVE 3A.2: Establish proper land development legislation.	PROJECT 3A.2.1: Establish zoning districts and land use regulations that will allow only appropriate activities and uses in the village's floodplain and flood prone areas.	On-going	Deleted – ongoing responsibility		
		PROJECT 3A.2.2: Review existing comprehensive plans, land use plans, and planning and zoning ordinances to determine if any revisions are necessary to better protect against hazard damage.	On-going	Deleted – ongoing responsibility		
GOAL 4A: Reduce the potential impact of natural and man-made disasters on private property.	OBJECTIVE 4A.1: Identify all repetitive loss structures throughout the county.	PROJECT 4A.1.1: Collect updated information on the number and location of all repetitive loss properties throughout the village.	Completed	Deleted		
		PROJECT 4A.1.2: Develop a database of information on all repetitive loss properties including maps.	Deleted	Deleted		
		PROJECT 4A.1.3: Identify owners of repetitive loss properties that may be willing to participate in future property acquisitions and relocation projects.	Deleted	Deleted		

**TABLE 5.9 BEECH BOTTOM INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status		
GOAL 5A: Develop better hazard data for Beech Bottom.	OBJECTIVE 5A.1: Assess vulnerability of transportation systems and assets located in hazard areas.	PROJECT 5A.1.1: Work with the West Virginia Division of Highways (WVDOH) to identify areas of frequent roadway flooding and develop mitigation strategies.	On-going	Deleted – ongoing responsibility		
		PROJECT 5A.1.2: Conduct a Hazardous Materials Survey to better understand the nature and extent of hazardous materials risks throughout the village.	On-going	Deleted - Under Brooke County		
		PROJECT 5A.1.3: Implement the National Fire Protection Agency (NFPA) 704 M System to identify all facilities that store hazardous materials.	On-going	Deleted - Under Brooke County		
GOAL 6A: Develop and implement a local hazard mitigation plan.	OBJECTIVE 6A.1: Form a local Hazard Mitigation Planning Committee.	PROJECT 6A.1.1: Contact local stakeholders, including the general public, for input and assistance in developing the local plan.	Completed	Deleted		
	OBJECTIVE 6A.2: Distribute local plans countywide.		Completed	Deleted		

**TABLE 5.10 BETHANY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project		2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status	
GOAL 1B: Review and comment on the Brooke County Hazard Mitigation Plan.	OBJECTIVE 1B.1: Work with Brooke County Hazard Mitigation Planning Committee to periodically update plan.		On-going	Completed with 2017 update	
	OBJECTIVE 1B.2: Provide input into mitigation goals of the county, including review of risk rankings, calculation of loss estimates, and production of critical facilities listing.	PROJECT 1B.2.1: Work with BCEMA and critical facilities to create revised listings of critical facilities within municipal boundaries.	On-going	Deleted – ongoing responsibility	
GOAL 2B: Improve upon the protection of the citizens of Bethany from all natural and man-made hazards.	OBJECTIVE 2B.1: Develop and distribute public awareness materials about natural hazard risks, preparedness, and mitigation.	PROJECT 2B.1.1: Develop an all-hazard information system in the Mayor's Office to provide public information on disasters to citizens.	On-going	Deleted – ongoing responsibility	
	OBJECTIVE 2B.2: Evaluate existing shelters to determine adequacy for current and future populations.	PROJECT 2B.2.1: Ensure that all current shelters have adequate resources for use as a Mass Care Shelter.	On-going	Deleted – ongoing responsibility	
		PROJECT 2B.2.2: Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter, the BCEMA, and the local emergency responders.	On-going	Deleted - Under Brooke County	
	OBJECTIVE 2B.3: Ensure adequate training and resources for emergency organizations and personnel.	PROJECT 2B.3.1: Establish a Community Emergency Response Team (CERT).	On-going	Deleted - Under Brooke County	
		PROJECT 2B.3.2: Increase the number of trained citizen emergency responders.	On-going	Deleted - Under Brooke County	
		PROJECT 2B.3.3: Conduct National Weather Service Storm Spotter classes.	On-going	Deleted - Under Brooke County	
GOAL 3B: Reduce the current and future risks from hazards in Bethany.	OBJECTIVE 3B.1: Direct new development away from high hazard areas.	PROJECT 3B.1.1: Review existing regulations to ensure adequacy in reducing the amount of future development in identified hazard areas.	On-going	Deleted – ongoing responsibility	
		PROJECT 3B.1.2: Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.	On-going	Deleted – ongoing responsibility	

**TABLE 5.10 BETHANY INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project		2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status	
Continued	Continued	PROJECT 3B.1.3: Review all capital improvements plans to ensure that infrastructure improvements are not directed towards hazardous areas.	On-going	Deleted – ongoing responsibility	
	OBJECTIVE 3B.2: Establish proper land development legislation.	PROJECT 3B.2.1: Establish zoning districts and land use regulations that will allow only appropriate activities and uses in the village's floodplain and flood prone areas.	On-going	Deleted - Under Brooke County	
		PROJECT 3B.2.2: Review existing comprehensive plans, land use plans, and planning and zoning ordinances to determine if any revisions are necessary to better protect against hazard damage.	On-going	Deleted – ongoing responsibility	
GOAL 4B: Reduce the potential impact of natural and man-made disasters on private property.	OBJECTIVE 4B.1: Identify all repetitive loss structures throughout the county.	PROJECT 4B.1.1: Collect updated information on the number and location of all repetitive loss properties throughout the village.	Completed	Deleted	
		PROJECT 4B.1.2: Develop a database of information on all repetitive loss properties including maps.	Completed	Deleted	
		PROJECT 4B.1.3: Identify owners of repetitive loss properties that may be willing to participate in future property acquisitions and relocation projects.	Completed	Deleted	
GOAL 5B: Develop better hazard data for Bethany.	OBJECTIVE 5B.1: Assess vulnerability of transportation systems and assets located in hazard areas.	PROJECT 5B.1.1: Work with the West Virginia Division of Highways (WVDOH) to identify areas of frequent roadway flooding and develop mitigation strategies.	On-going	Deleted – ongoing responsibility	
		PROJECT 5B.1.2: Conduct a Hazardous Materials Survey to better understand the nature and extent of hazardous materials risks throughout the village.	On-going (5 years)	Deleted - Under Brooke County	

TABLE 5.10 BETHANY INACTIVE PROJECTS				
	2012 Completed, Deferred, or Deleted Project			2017 Updated Status
Goals	Objective	Projects	2012 Status	2017 Status
Continued	Continued	PROJECT 5B.1.3: Implement the National Fire Protection Agency (NFPA) 704 M System to identify all facilities that store hazardous materials.	On-going	Deleted - Under Brooke County
GOAL 6B: Develop and implement a local hazard mitigation plan.	OBJECTIVE 6B.1: Form a local Hazard Mitigation Planning Committee.	PROJECT 6B.1.1: Contact local stakeholders, including the general public, for input and assistance in developing the local plan.	Completed	Deleted
	OBJECTIVE 6B.2: Distribute local plans countywide.		Completed	Deleted

<b>TABLE 5.11 FOLLANSBEE INACTIVE PROJECTS</b>				
	<i>2012 Completed, Deferred, or Deleted Project</i>			<i>2017 Updated Status</i>
<i>Goals</i>	<i>Objective</i>	<i>Projects</i>	<i>2012 Status</i>	<i>2017 Status</i>
GOAL 1E: Review and comment on the Brooke County Hazard Mitigation Plan.	OBJECTIVE 1E.1: Work with Brooke County Hazard Mitigation Planning Committee to periodically update plan.		On-going	Complete with 2017 Update
	OBJECTIVE 1E.2: Provide input into mitigation goals of the county, including review of risk rankings, calculation of loss estimates, and production of critical facilities listing.	PROJECT 1E.2.1: Work with BCEMA and critical facilities to create revised listings of critical facilities within municipal boundaries.	On-going	Completed December 2016
GOAL 2E: Improve upon the protection of the citizens of Follansbee from all natural and man-made hazards.	OBJECTIVE 2E.1: Develop and distribute public awareness materials about natural hazard risks, preparedness, and mitigation.	PROJECT 2E.1.1: Develop an all-hazard information system in the Mayor's Office to provide public information on disasters to citizens.	On-going	Deleted – ongoing responsibility
	OBJECTIVE 2E.2 Evaluate existing shelters to determine adequacy for current and future populations.	PROJECT 2E.2.1: Ensure that all current shelters have adequate resources for use as a Mass Care Shelter	On-going	Deleted – ongoing responsibility, added electrical connection for portable generator
		PROJECT 2E.2.2: Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter, the BCEMA, and local emergency responders.	On-going	Deleted - Under Brooke County
	OBJECTIVE 2E.3: Ensure adequate training and resources for emergency organizations and personnel.	PROJECT 2E.3.1: Establish a Community Emergency Response Team (CERT).	On-going	Completed. CERT has been established
		PROJECT 2E.3.2: Increase the number of trained citizen emergency responders.	Ongoing	Completed – CERT program was established.
		PROJECT 2E.3.3: Conduct National Weather Service Storm Spotter classes.	On-going	Deleted - Under Brooke County
GOAL 3E: Reduce the current and future risks from hazards in Follansbee	OBJECTIVE 3E.1: Direct new development away from high hazard areas.	PROJECT 3E.1.1: Review existing regulations to ensure adequacy in reducing the amount of future development in identified hazard areas.	On-going	Deleted – ongoing responsibility



TABLE 5.11 FOLLANSBEE INACTIVE PROJECTS				
	2012 Completed, Deferred, or Deleted Project			2017 Updated Status
Goals	Objective	Projects	2012 Status	2017 Status
Continued	Continued	PROJECT 3E.1.2: Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.	On-going	Deleted – ongoing responsibility
		PROJECT 3E.1.3: Review all capital improvements plans to ensure that infrastructure improvements are not directed towards hazardous areas.	On-going	Deleted – ongoing responsibility
	OBJECTIVE 3E.2: Establish proper land development legislation.	PROJECT 3E.2.1: Establish zoning districts and land use regulations that will allow only appropriate activities and uses in the village's floodplain and flood prone areas.	On-going	Deleted - Under Brooke County
		PROJECT 3E.2.2: Review existing comprehensive plans, land use plans, and planning and zoning ordinances to determine if any revisions are necessary to better protect against hazard damage.	On-going	Deleted – ongoing responsibility
GOAL 4E: Reduce the potential impact of natural and man-made disasters on private property.	OBJECTIVE 4E.1: Identify all repetitive loss structures throughout the county.	PROJECT 4E.1.1: Collect updated information on the number and location of all repetitive loss properties throughout the village.	Completed	Deleted
		PROJECT 4E.1.2: Develop a database of information on all repetitive loss properties including maps.	Completed	Deleted
		PROJECT 4E.1.3: Identify owners of repetitive loss properties that may be willing to participate in future property acquisitions and relocation projects.	Completed	Deleted
GOAL 5E: Develop better hazard data for Follansbee	OBJECTIVE 5E.1: Assess vulnerability of transportation systems and assets located in hazard areas.	PROJECT 5E.1.1: Work with the West Virginia Division of Highways (WVDOH) to identify areas of frequent roadway flooding and develop mitigation strategies.	On-going	Deleted – ongoing responsibility

**TABLE 5.11 FOLLANSBEE INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status		
Continued	Continued	PROJECT 5E.1.2: Conduct a Hazardous Materials Survey to better understand the nature and extent of hazardous materials risks throughout the village.	On-going (5 years)	Deleted - Under Brooke County		
		PROJECT 5E.1.3: Implement the National Fire Protection Agency (NFPA) 704 M System to identify all facilities that store hazardous materials.	On-going	Deleted - Under Brooke County		
GOAL 6E: Develop and implement a local hazard mitigation plan.	OBJECTIVE 6E.1: Form a local Hazard Mitigation Planning Committee.	PROJECT 6E.1.1: Contact local stakeholders, including the general public, for input and assistance in developing the local plan.	Completed	Deleted		
	OBJECTIVE 6E.2: Distribute local plans countywide.		Completed	Deleted		

<b>TABLE 5.12 NEW CUMBERLAND INACTIVE PROJECTS</b>				
	<i>2012 Completed, Deferred, or Deleted Project</i>			<i>2017 Updated Status</i>
<i>Goals</i>	<i>Objective</i>	<i>Projects</i>	<i>2012 Status</i>	<i>2017 Status</i>
GOAL 1G: Keep floodwaters out of the City of New Cumberland.	OBJECTIVE 1G.1: Install a floodwall.	PROJECT 1G.1.1: Determine if floodwalls are an acceptable strategy in West Virginia.	Deleted	Deleted
		PROJECT 1G.1.2: Assess the cost of building floodwalls.	Deleted	Deleted
	OBJECTIVE 1G.2: Remove homes from the flood area through "buy outs", elevations, or relocations. Get critical facilities out of hazard areas.	PROJECT 1G.2.2: Fire department personnel and city government needs to move to other areas, as State Route (SR) 2 becomes blocked with high water. Fire department and ambulances currently have a hard time reaching victims.	On-going	Completed. Moved May 2016 and Revised for current update
	OBJECTIVE 1G.3: Identify an evacuation route out of New Cumberland.	PROJECT 1G.3.1: Explore potential cost sharing between departments for floodplain relocation and the relocation of houses due to the construction of a four (4) lane highway.	Deferred	Deleted - not a priority
		PROJECT 1G.3.2: Map and identify evacuation routes and develop maps to detour traffic around the flooded area.	Completed	Deleted

**TABLE 5.13 WEIRTON INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status
Goals	Objective	Projects	2012 Status	2017 Status	
GOAL 1H: Review and comment on the Brooke County Hazard Mitigation Plan	OBJECTIVE 1H.1: Work with Brooke County Hazard Mitigation Planning Committee to periodically update plan.		On-going	Completed with 2017 update	
	OBJECTIVE 1H.2: Provide input into mitigation goals of the county, including review of risk rankings, calculation of loss estimates, and production of critical facilities listing.	PROJECT 1H.2.1: Work with BCEMA and critical facilities to create revised listings of critical facilities within municipal boundaries.	On-going	Deleted – ongoing responsibility	
GOAL 2H: Improve upon the protection of the citizens of Weirton from all natural and man-made hazards.	OBJECTIVE 2H.1: Develop and distribute public awareness materials about natural hazards, risks, preparedness, and mitigation.	PROJECT 2H.2.2: Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter, the BCEMA, and the local emergency responders.	On-going	Deleted - Under Brooke County	
	OBJECTIVE 2H.2: Evaluate existing shelters to determine adequacy for current and future populations.	PROJECT 2H.2.1: Ensure that all current shelters have adequate resources for use as a Mass Care Shelter.	On-going	Deleted – ongoing responsibility	
		PROJECT 2H.2.2: Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter, the BCEMA, and the local emergency responders.	On-going	Deleted - Under Brooke County	
	OBJECTIVE 2H.3: Ensure adequate training and resources for emergency organizations and personnel.	PROJECT 2H.3.3: Conduct National Weather Service Storm Spotter classes.	On-going	Deleted - Under Brooke County	
GOAL 4H: Reduce the potential impact of natural and man-made disasters on private property.	OBJECTIVE 4H.1: Identify all repetitive loss structures throughout the county.	PROJECT 4H.1.1: Collect updated information on the number and location of all repetitive loss properties throughout the city.	Completed	Deleted	
		PROJECT 4H.1.2: Develop a database of information on all repetitive loss properties including maps.	On-going (5 years)	Deleted – ongoing responsibility	
		PROJECT 4H.1.3: Identify owners of repetitive loss properties that may be willing to participate in future property acquisitions and relocation projects.	Completed	Deleted	

**TABLE 5.13 WEIRTON INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status
Goals	Objective	Projects	2012 Status	2017 Status	
GOAL 5H: Develop better hazard data for Weirton.	OBJECTIVE 5H.1: Assess vulnerability of transportation systems and assets located in hazard areas.	PROJECT 5H.1.2: Conduct a Hazardous Materials Survey to better understand the nature and extent of hazardous materials risks throughout the city.	On-going (5years)	Deleted - Under Brooke County	
		PROJECT 5H.1.3: Implement the National Fire Protection Agency (NFPA) 704 M System to identify all facilities that store hazardous materials.	On-going	Deleted - Under Brooke County	
GOAL 6H: Develop and implement a local hazard mitigation plan.	OBJECTIVE 6H.1: Form a local Hazard Mitigation Planning Committee.	PROJECT 6H.1.1: Contact local stakeholders, including the general public, for input and assistance in developing the local plan.	Completed	Deleted	
	OBJECTIVE 6H.2: Distribute local plans countywide.		Completed	Deleted	

**TABLE 5.14 WELLSBURG INACTIVE PROJECTS**

		2012 Completed, Deferred, or Deleted Project			2017 Updated Status
Goals	Objective	Projects	2012 Status	2017 Status	
GOAL 1I: Review and comment on the Brooke County Hazard Mitigation Plan.	OBJECTIVE 1I.1: Work with Brooke County Hazard Mitigation Planning Committee to periodically update plan.		On-going	Completed with 2017 Update	
	OBJECTIVE 1I.2: Provide input into mitigation goals of the county, including review of risk rankings, calculation of loss estimates, and production of critical facilities listing.	PROJECT 1I.2.1: Work with BCEMA and critical facilities to create revised listings of critical facilities within municipal boundaries.	On-going	Deleted – ongoing responsibility	
GOAL 2I: Improve upon the protection of the citizens of Wellsburg from all natural and man-made hazards.	OBJECTIVE 2I.1: Develop and distribute public awareness materials about natural hazards, risks, preparedness, and mitigation.	PROJECT 2I.1.1: Develop an all-hazard information system in the Mayor's Office to provide public information on disasters to citizens.	On-going	Deleted – ongoing responsibility	
	OBJECTIVE 2I.2: Evaluate existing shelters to determine adequacy for current and future populations.	PROJECT 2I.2.1: Ensure that all current shelters have adequate resources for use as a Mass Care Shelter.	On-going	Deleted – ongoing responsibility	
		PROJECT 2I.2.2: Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter, the BCEMA, and the local emergency responders.	On-going	Deleted - Under Brooke County	
	OBJECTIVE 2I.3: Ensure adequate training and resources for emergency organizations and personnel.	PROJECT 2I.3.1: Establish a Community Emergency Response Team (CERT).	On-going	Deleted - Under Brooke County	
		PROJECT 2I.3.3: Conduct National Weather Service Storm Spotter classes.	On-going	Deleted - Under Brooke County	
GOAL 3I: Reduce the current and future risks from hazards in Wellsburg.	OBJECTIVE 3I.1: Direct new development away from high hazard areas.	PROJECT 3I.1.1: Review existing regulations to ensure adequacy in reducing the amount of future development in identified hazard areas.	On-going	Deleted – ongoing responsibility	
		PROJECT 3I.1.2: Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.	On-going	Deleted – ongoing responsibility	

TABLE 5.14 WELLSBURG INACTIVE PROJECTS					
	2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status	
Continued	Continued	PROJECT 3I.1.3: Review all capital improvements plans to ensure that infrastructure improvements are not directed towards hazardous areas.	On-going	Deleted – ongoing responsibility	
		OBJECTIVE 3I.2: Establish proper land development legislation.	PROJECT 3I.2.1: Establish zoning districts and land use regulations that will allow only appropriate activities and uses in the village's floodplain and flood prone areas.	On-going	Deleted - Under Brooke County
			PROJECT 3I.2.2: Review existing comprehensive plans, land use plans, and planning and zoning ordinances to determine if any revisions are necessary to better protect against hazard damage.	On-going	Deleted – ongoing responsibility
GOAL 4I: Reduce the potential impact of natural and man-made disasters on private property.	OBJECTIVE 4I.1: Identify all repetitive loss structures throughout the county.	PROJECT 4I.1.1: Collect updated information on the number and location of all repetitive loss properties throughout the town.	Completed	Deleted	
		PROJECT 4I.1.2: Develop a database of information on all repetitive loss properties including maps.	On-going	Deleted – ongoing responsibility	
		PROJECT 4I.1.3: Identify owners of repetitive loss properties that may be willing to participate in future property acquisitions and relocation projects.	Completed	Deleted	
		PROJECT 4I.1.4: Continue to research mitigation projects in the Kings Creek area.	New	Deleted - Not in Wellsburg	
		PROJECT 4I.1.5: Complete the requirements necessary for participation in the CRS.	New	Deferred	
GOAL 5I: Develop better hazard data for Wellsburg.	OBJECTIVE 5I.1: Assess vulnerability of transportation systems and assets located in hazard areas.	PROJECT 5I.1.1: Work with the West Virginia Division of Highways (WVDOH) to identify areas of frequent roadway flooding and develop mitigation strategies.	On-going	Deleted – ongoing responsibility	

TABLE 5.14 WELLSBURG INACTIVE PROJECTS				
	2012 Completed, Deferred, or Deleted Project			2017 Updated Status
Goals	Objective	Projects	2012 Status	2017 Status
Continued	Continued	PROJECT 5I.1.2: Conduct a Hazardous Materials Survey to better understand the nature and extent of hazardous materials risks throughout the village.	On-going (5 years)	Deleted - Under Brooke County
		PROJECT 5I.1.3: Implement the National Fire Protection Agency (NFPA) 704 M System to identify all facilities that store hazardous materials.	On-going	Deleted - Under Brooke County
GOAL 6I: Develop and implement a local hazard mitigation plan.	OBJECTIVE 6I.1: Form a local Hazard Mitigation Planning Committee.	PROJECT 6I.1.1: Contact local stakeholders, including the general public, for input and assistance in developing the local plan.	Completed	Deleted
	OBJECTIVE 6I.2: Distribute local plans countywide.		Completed	Deleted



TABLE 5.15 WINDSOR HEIGHTS INACTIVE PROJECTS				
	2012 Completed, Deferred, or Deleted Project			2017 Updated Status
Goals	Objective	Projects	2012 Status	2017 Status
GOAL 1J: Review and comment on the Brooke County Hazard Mitigation Plan.	OBJECTIVE 1J.1: Work with Brooke County Hazard Mitigation Planning Committee to periodically update the plan		Ongoing	Complete with 2017 update
	OBJECTIVE 1J.2: Provide input into mitigation goals of the county, including review of risk rankings, calculation of loss estimates, and production of critical facilities listing.	PROJECT 1J.2.1: Work with BCEMA and critical facilities to create revised listings of critical facilities within municipal boundaries.	Ongoing	Complete with 2017 update
GOAL 2J: Improve upon the protection of citizens of Windsor Heights from all natural and man-made hazards.	OBJECTIVE 2J.2: Evaluate existing shelters to determine adequacy for current and future populations.	PROJECT 2J.1.2: Ensure that all current shelters have adequate resources for use as a Mass Care Shelter.	Ongoing	Deleted – ongoing responsibility
		PROJECT 2J.1.2: Establish a protocol for the sharing of annual shelter survey information between the local Red Cross Chapter, the BCEMA, and local emergency responders.	Ongoing	Deleted – under Brooke County
	OBJECTIVE 2J.3: Ensure adequate training and resources for emergency organizations and personnel.	PROJECT 2J.3.1: Establish a Community Emergency Response Team (CERT).	Ongoing	Deleted – under Brooke County
		PROJECT 2J.3.2: Increase the number of trained citizen emergency responders.	Ongoing	Deleted – under Brooke County
		PROJECT 2J.3.3: Conduct National Weather Service Storm Spotter classes.	Ongoing	Deleted – under Brooke County
GOAL 3J: Reduce the current and future risks from hazards in Windsor Heights.	OBJECTIVE 3J.1: Direct new development away from high hazard areas.	PROJECT 3J.1.1: Review existing regulations to ensure adequacy in reducing the amount of future development in identified hazard areas.	Ongoing	Deleted – ongoing responsibility
		PROJECT 3J.1.2: Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.	Ongoing	Deleted – ongoing responsibility

TABLE 5.15 WINDSOR HEIGHTS INACTIVE PROJECTS					
	2012 Completed, Deferred, or Deleted Project			2017 Updated Status	
Goals	Objective	Projects	2012 Status	2017 Status	
Continued	Continued	PROJECT 3J.1.3: Review all capital improvements plans to ensure that infrastructure improvements are not directed towards hazardous areas.	Ongoing	Deleted – ongoing responsibility	
		OBJECTIVE 3J.2: Establish proper land development legislation.	PROJECT 3J.2.1: Establish zoning districts and land use regulations that will allow only appropriate activities and uses in the village's floodplain and flood prone areas.	Deleted	Deleted
			PROJECT 3J.2.2: Review existing comprehensive plans, land use plans, and planning and zoning ordinances to determine if any revisions are necessary to better protect against hazard damage	Ongoing	Deleted – ongoing responsibility
GOAL 4J: Reduce the potential impact of natural and man-made disasters on private property.	OBJECTIVE 4J.1: Identify all repetitive loss structures throughout the county.	PROJECT 4J.1.1: Collect updated information on the number and location of all repetitive loss properties throughout the village.	Completed	Deleted	
		PROJECT 4J.1.2: Develop a database of information on all repetitive loss properties including maps.	Deleted	Deleted	
		PROJECT 4J.1.3: Identify owners of repetitive loss properties that may be willing to participate in future property acquisitions and relocation projects.	Completed	Deleted	
GOAL 5J: Develop better hazard data for Windsor Heights.	OBJECTIVE 5J.1: Assess vulnerability of transportation systems and assets located in hazard areas	PROJECT 5J.1.1 Work with WVDOH to identify areas of frequent roadway flooding and develop mitigation strategies.	Ongoing	Compete with 2017 update	
		PROJECT 5J.1.2: Conduct a Hazardous Materials Survey to better understand the nature and extent of hazardous materials risks throughout the village.	Ongoing	Deleted – under Brooke County	
		PROJECT 5J.1.3: Implement the National Fire Protection Agency (NFPA) 704 M System to identify all facilities that store hazardous materials.	Ongoing	Deleted – under Brooke County	

TABLE 5.15 WINDSOR HEIGHTS INACTIVE PROJECTS				
	2012 Completed, Deferred, or Deleted Project			2017 Updated Status
Goals	Objective	Projects	2012 Status	2017 Status
GOAL 6J: Develop and implement a local hazard mitigation plan.	OBJECTIVE 6J.1: Form a local Hazard Mitigation Planning Committee.	PROJECT 6J.1.1: Contact local stakeholders, including the general public, for input and assistance in developing the local plan.	Completed	Deleted
	OBJECTIVE 6J.2: Distribute local plans countywide.		Completed	Deleted

## APPENDIX 5 HAZMAT AND HEALTH

<b>TABLE 5.16 INORGANIC CONTAMINANTS FOUND IN GROUNDWATER</b>		
<i>Contaminant</i>	<i>Sources to groundwater</i>	<i>Potential health and other effects</i>
Aluminum	Occurs naturally in some rocks and drainage from mines.	Can precipitate out of water after treatment, causing increased turbidity or discolored water.
Antimony	Enters environment from natural weathering, industrial production, municipal waste disposal, and manufacturing of flame retardants, ceramics, glass, batteries, fireworks, and explosives.	Decreases longevity, alters blood levels of glucose and cholesterol in laboratory animals exposed at high levels over their lifetime.
Arsenic	Enters environment from natural processes, industrial activities, pesticides, and industrial waste, smelting of copper, lead, and zinc ore.	Causes acute and chronic toxicity, liver and kidney damage; decreases blood hemoglobin. A carcinogen.
Barium	Occurs naturally in some limestones, sandstones, and soils in the eastern United States.	Can cause a variety of cardiac, gastrointestinal, and neuromuscular effects. Associated with hypertension and cardiotoxicity in animals.
Beryllium	Occurs naturally in soils, groundwater, and surface water. Often used in electrical industry equipment and components, nuclear power and space industry. Enters the environment from mining operations, processing plants, and improper waste disposal. Found in low concentrations in rocks, coal, and petroleum.	Causes acute and chronic toxicity; can cause damage to lungs and bones. Possible carcinogen.
Cadmium	Found in low concentrations in rocks, coal, and petroleum and enters the groundwater and surface water when dissolved by acidic waters. May enter the environment from industrial discharge, mining waste, metal plating, water pipes, batteries, paints and pigments, plastic stabilizers, and landfill leachate.	Replaces zinc biochemically in the body and causes high blood pressure, liver and kidney damage, and anemia. Destroys testicular tissue and red blood cells. Toxic to aquatic biota.
Chloride	May be associated with the presence of sodium in drinking water when present in high concentrations. Often from saltwater intrusion, mineral dissolution, industrial and domestic waste.	Deteriorates plumbing, water heaters, and municipal water-works equipment at high levels. Above secondary maximum contaminant level, taste becomes noticeable
Chromium	Enters environment from old mining operations runoff and leaching into groundwater, fossil-fuel combustion, cement-plant emissions, mineral leaching, and waste incineration. Used in metal plating and as a cooling-tower water additive.	Chromium III is a nutritionally essential element. Chromium VI is much more toxic than Chromium III and causes liver and kidney damage, internal hemorrhaging, respiratory damage, dermatitis, and ulcers on the skin at high concentrations.

**TABLE 5.16 INORGANIC CONTAMINANTS FOUND IN GROUNDWATER**

<i>Contaminant</i>	<i>Sources to groundwater</i>	<i>Potential health and other effects</i>
Copper	Enters environment from metal plating, industrial and domestic waste, mining, and mineral leaching.	Can cause stomach and intestinal distress, liver and kidney damage, anemia in high doses. Imparts an adverse taste and significant staining to clothes and fixtures. Essential trace element but toxic to plants and algae at moderate levels.
Cyanide	Often used in electroplating, steel processing, plastics, synthetic fabrics, and fertilizer production; also from improper waste disposal.	Poisoning is the result of damage to spleen, brain, and liver.
Dissolved solids	Occur naturally but also enters environment from man-made sources such as landfill leachate, feedlots, or sewage. A measure of the dissolved "salts" or minerals in the water. May also include some dissolved organic compounds.	May have an influence on the acceptability of water in general. May be indicative of the presence of excess concentrations of specific substances not included in the Safe Water Drinking Act, which would make water objectionable. High concentrations of dissolved solids shorten the life of hot water heaters.
Fluoride	Occurs naturally or as an additive to municipal water supplies; widely used in industry.	Decreases incidence of tooth decay but high levels can stain or mottle teeth. Causes crippling bone disorder (calcification of the bones and joints) at very high levels.
Hardness	Result of metallic ions dissolved in the water; reported as concentration of calcium carbonate. Calcium carbonate is derived from dissolved limestone or discharges from operating or abandoned mines.	Decreases the lather formation of soap and increases scale formation in hot-water heaters and low-pressure boilers at high levels.
Iron	Occurs naturally as a mineral from sediment and rocks or from mining, industrial waste, and corroding metal.	Imparts a bitter astringent taste to water and a brownish color to laundered clothing and plumbing fixtures.
Lead	Enters environment from industry, mining, plumbing, gasoline, coal, and as a water additive.	Affects red blood cell chemistry; delays normal physical and mental development in babies and young children. Causes slight deficits in attention span, hearing, and learning in children. Can cause slight increase in blood pressure in some adults. Probable carcinogen.
Manganese	Occurs naturally as a mineral from sediment and rocks or from mining and industrial waste.	Causes aesthetic and economic damage, and imparts brownish stains to laundry. Affects taste of water, and causes dark brown or black stains on plumbing fixtures. Relatively non-toxic to animals but toxic to plants at high levels.
Mercury	Occurs as an inorganic salt and as organic mercury compounds. Enters the environment from industrial waste, mining, pesticides, coal, electrical equipment (batteries, lamps, and switches), smelting, and fossil-fuel combustion.	Causes acute and chronic toxicity. Targets the kidneys and can cause nervous system disorders.
Nickel	Occurs naturally in soils, groundwater, and surface water. Often used in electroplating, stainless steel and alloy products, mining, and refining.	Damages the heart and liver of laboratory animals exposed to large amounts over their lifetime.

**TABLE 5.16 INORGANIC CONTAMINANTS FOUND IN GROUNDWATER**

<i>Contaminant</i>	<i>Sources to groundwater</i>	<i>Potential health and other effects</i>
Nitrate (as nitrogen)	Occurs naturally in mineral deposits, soils, seawater, freshwater systems, the atmosphere, and biota. More stable form of combined nitrogen in oxygenated water. Found in the highest levels in groundwater under extensively developed areas. Enters the environment from fertilizer, feedlots, and sewage.	Toxicity results from the body's natural breakdown of nitrate to nitrite. Causes "bluebaby disease," or methemoglobinemia, which threatens oxygen-carrying capacity of the blood.
Nitrite (combined nitrate/nitrite)	Enters environment from fertilizer, sewage, and human or farm-animal waste.	Toxicity results from the body's natural breakdown of nitrate to nitrite. Causes "bluebaby disease," or methemoglobinemia, which threatens oxygen-carrying capacity of the blood.
Selenium	Enters environment from naturally occurring geologic sources, sulfur, and coal.	Causes acute and chronic toxic effects in animals-- "blind staggers" in cattle. Nutritionally essential element at low doses but toxic at high doses.
Silver	Enters environment from ore mining and processing, product fabrication, and disposal. Often used in photography, electric and electronic equipment, sterling and electroplating, alloy, and solder. Because of great economic value of silver, recovery practices are typically used to minimize loss.	Can cause argyria, a blue-gray coloration of the skin, mucous membranes, eyes, and organs in humans and animals with chronic exposure.
Sodium	Derived geologically from leaching of surface and underground deposits of salt and decomposition of various minerals. Human activities contribute through de-icing and washing products.	Can be a health risk factor for those individuals on a low-sodium diet.
Sulfate	Elevated concentrations may result from saltwater intrusion, mineral dissolution, and domestic or industrial waste.	Forms hard scales on boilers and heat exchangers; can change the taste of water, and has a laxative effect in high doses.
Thallium	Enters environment from soils; used in electronics, pharmaceuticals manufacturing, glass, and alloys.	Damages kidneys, liver, brain, and intestines in laboratory animals when given in high doses over their lifetime.
Zinc	Found naturally in water, most frequently in areas where it is mined. Enters environment from industrial waste, metal plating, and plumbing, and is a major component of sludge.	Aids in the healing of wounds. Causes no ill health effects except in very high doses. Imparts an undesirable taste to water. Toxic to plants at high levels.

<b>TABLE 5.17 ORGANIC CONTAMINANTS FOUND IN GROUNDWATER</b>		
<i>Contaminant</i>	<i>Sources to groundwater</i>	<i>Potential health and other effects</i>
Volatile organic compounds	Enter environment when used to make plastics, dyes, rubbers, polishes, solvents, crude oil, insecticides, inks, varnishes, paints, disinfectants, gasoline products, pharmaceuticals, preservatives, spot removers, paint removers, degreasers, and many more.	Can cause cancer and liver damage, anemia, gastrointestinal disorder, skin irritation, blurred vision, exhaustion, weight loss, damage to the nervous system, and respiratory tract irritation.
Pesticides	Enter environment as herbicides, insecticides, fungicides, rodenticides, and algacides.	Cause poisoning, headaches, dizziness, gastrointestinal disturbance, numbness, weakness, and cancer. Destroys nervous system, thyroid, reproductive system, liver, and kidneys.
Plasticizers, chlorinated solvents, benzo[a]pyrene, and dioxin	Used as sealants, linings, solvents, pesticides, plasticizers, components of gasoline, disinfectant, and wood preservative. Enters the environment from improper waste disposal, leaching runoff, leaking storage tank, and industrial runoff.	Cause cancer. Damages nervous and reproductive systems, kidney, stomach, and liver.

<b>TABLE 5.18 MICROBIOLOGICAL CONTAMINANTS FOUND IN GROUNDWATER</b>		
<i>Contaminant</i>	<i>Sources to groundwater</i>	<i>Potential health and other effects</i>
Coliform bacteria	Occur naturally in the environment from soils and plants and in the intestines of humans and other warm-blooded animals. Used as an indicator for the presence of pathogenic bacteria, viruses, and parasites from domestic sewage, animal waste, or plant or soil material.	Bacteria, viruses, and parasites can cause polio, cholera, typhoid fever, dysentery, and infectious hepatitis.

<b>TABLE 5.19 PHYSICAL CHARACTERISTICS OF GROUNDWATER</b>		
<i>Contaminant</i>	<i>Sources to groundwater</i>	<i>Potential health and other effects</i>
Turbidity	Caused by the presence of suspended matter such as clay, silt, and fine particles of organic and inorganic matter, plankton, and other microscopic organisms. A measure how much light can filter through the water sample.	Objectionable for aesthetic reasons. Indicative of clay or other inert suspended particles in drinking water. May not adversely affect health but may cause need for additional treatment. Following rainfall, variations in groundwater turbidity may be an indicator of surface contamination.
Color	Can be caused by decaying leaves, plants, organic matter, copper, iron, and manganese, which may be objectionable. Indicative of large amounts of organic chemicals, inadequate treatment, and high disinfection demand. Potential for production of excess amounts of disinfection byproducts.	Suggests that treatment is needed. No health concerns. Aesthetically displeasing.

TABLE 5.19 PHYSICAL CHARACTERISTICS OF GROUNDWATER

<i>Contaminant</i>	<i>Sources to groundwater</i>	<i>Potential health and other effects</i>
pH	Indicates, by numerical expression, the degree to which water is alkaline or acidic. Represented on a scale of 0-14 where 0 is the most acidic, 14 is the most alkaline and 7 is neutral.	High pH causes a bitter taste; water pipes and water-using appliances become encrusted; depresses the effectiveness of the disinfection of chlorine, thereby causing the need for additional chlorine when pH is high. Low-pH water will corrode or dissolve metals and other substances.
Odor	Certain odors may be indicative of organic or non-organic contaminants that originate from municipal or industrial waste discharges or from natural sources.	
Taste	Some substances such as certain organic salts produce a taste without an odor and can be evaluated by a taste test. Many other sensations ascribed to the sense of taste actually are odors, even though the sensation is not noticed until the material is taken into the mouth.	

*Source: USGS Contaminants Found in Groundwater. Information available at: <https://water.usgs.gov/edu/groundwater-contaminants.html>*



## PETROLEUM CONSTITUENTS IN GROUNDWATER PUBLIC HEALTH FACT SHEET

People can be exposed to chemicals in petroleum products (ex. Gasoline or diesel fuel) in a number of different ways: through direct skin contact or by breathing, eating or drinking them.

Sources of these chemicals in groundwater can include underground gasoline storage tanks, home heating fuel storage tanks, and improper handling or disposal of gasoline or fuel oil on a property. Private well water can be affected. The Environmental Protection Agency (EPA) has set Maximum Contaminant Levels (MCL) in drinking water for many of these chemicals. Information about some of the chemicals that have been found in groundwater is below:

**TABLE 5.20 PETROLEUM CONSTITUENTS IN GROUNDWATER**

<i>Chemical Name</i>	<i>What is it?</i>	<i>MCL (ppb)*</i>	<i>How can it affect health?</i>
1,2-Dichloroethane	It is a solvent used to remove lead from leaded gasoline. It has also been used to make plastics and vinyl. It has a pleasant smell and sweet taste.	5 ppb	If large amounts are inhaled or swallowed, it can cause nervous system, liver and kidney disease in humans. Longer-term exposure to lower amounts has caused kidney disease in animals. While it has not been shown to cause cancer in humans, animals fed large amounts have developed cancer. It has been determined to be a probable human carcinogen.
Benzene	It is a colorless liquid with a sweet smell. It is made from petroleum and can be found in gasoline. It is used to make other chemicals.	5 ppb	It is not known what health effects might happen after long-term exposure to low levels of benzene in food or water. In laboratory animals, exposure to benzene can cause anemia, depress the immune system and cause cancer. Eating or drinking very high levels of benzene can cause vomiting, stomach irritation, dizziness, sleepiness, seizures, coma or death. People who breathe in high levels of benzene over long periods of time can have problems with their blood and immune systems and are at higher risk for leukemia.
Methyl tertiary butyl ether (MTBE)	It is a gasoline additive intended to reduce gasoline emissions. It has an unpleasant taste and strong turpentine-like odor.	EPA action level is 20 ppb	The EPA has determined that MTBE has a potential to cause hazardous effects in humans. However, there is no scientific evidence to indicate MTBE is a human carcinogen or a serious health threat. Laboratory studies of animals exposed to high doses of MTBE showed stomach irritation, liver and kidney damage, and nervous system effects. Other studies involving rats and mice breathing high levels of MTBE showed an increased risk of kidney and liver cancer.
Naphthalene	It is a white solid found in mothballs, tobacco products, wood and petroleum. It is also used in making plastics.	MDE action level is 10 ppb	Eating large amounts can damage red blood cells, causing a severe anemia. Some people of Mediterranean or African origin may be at higher risk for anemia. In animals, cataracts have developed after exposure to high levels of naphthalene. Cancer developed in some laboratory animals that breathed naphthalene every day of their lives. The EPA has determined that it is a possible human carcinogen.

**TABLE 5.20 PETROLEUM CONSTITUENTS IN GROUNDWATER**

<i>Chemical Name</i>	<i>What is it?</i>	<i>MCL (ppb*)</i>	<i>How can it affect health?</i>
Tetrachloroethene	It is a solvent often used in dry cleaning or degreasing metals. It is also used to make other chemicals. It has a sweet odor.	5 ppb	It is not known what health effects might happen after long-term exposure to low levels of tetrachloroethene in food or water. In animals, exposure at high concentrations can damage the liver and kidney and cause liver and kidney cancers. It has been determined to be a probable human carcinogen. People who breathe in high levels of tetrachloroethene can get dizziness, headache, sleepiness, confusion, nausea, unconsciousness or death.

\*ppb = parts per billion. The EPA has an action level for MTBE. The Maryland Department of the Environment has set an action level for naphthalene.

Source: Agency for Toxic Substances and Disease Registry. Centers for Disease Control and Prevention. Information available at <http://www.atsdr.cdc.gov/toxpro2.html>

EXTREMELY HAZARDOUS SUBSTANCES HEALTH EFFECTS

TABLE 5.21 HEALTH EFFECTS OF EXTREMELY HAZARDOUS SUBSTANCES	
<i>Substance</i>	<i>Health Hazard</i>
Ammonia	Vapors cause irritation of eyes and respiratory tract. Liquid will burn skin and eyes. Poisonous; may be fatal if inhaled. Contact may cause burns to skin and eyes. Contact with liquid may cause frostbite.
Chlorine	Poisonous; may be fatal if inhaled. Contact may cause burns to skin and eyes. Bronchitis or chronic lung conditions
Hydrochloric acid	Inhalation of fumes results in coughing and choking sensation, and irritation of nose and lungs. Liquid causes burns
Hydrogen peroxide	Inhalation, ingestion or contact (skin, eyes) with vapor or substance may cause severe injury, burns or death. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution
Sulfuric acid	Corrosive to all body tissues. Inhalation of vapor may cause serious lung damage. Contact with eyes may result in total loss of vision. Skin contact may produce severe necrosis. Fatal amount for adult: between 1 teaspoonful and one-half ounce of the concentrated chemical. Even a few drops may be fatal if the acid gains access to the trachea. Chronic exposure may cause tracheobronchitis, stomatitis, conjunctivitis, and gastritis. Gastric perforation and peritonitis may occur and may be followed by circulatory collapse. Circulatory shock is often the immediate cause of death. Those with chronic respiratory, gastrointestinal, or nervous diseases and any eye and skin diseases are at greater risk.

Source: CAMEO Chemicals database

## **APPENDIX 6**

### **NFIP SURVEYS**

Each jurisdiction in Region 11 was asked to complete the FEMA National Flood Insurance Program survey. The results of those surveys are included herein.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: Village of Beech Bottom

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	N	
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Y	adopted 10-5-2010 Ordinance 51
c. Does the municipality support request for map updates?	If yes, state how.		none received
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.		none
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	N	
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	N	

2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.		N/A NO RESIDENTS in flood plain
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.		
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.		
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.		
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.		
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	N	

2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	N	

3. FLOOD INSURANCE			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	N	} no residents in flood plain
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	N	
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	N	

via phone call

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: Bethany

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	Yes	
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes	Ordinance # 146 in 2010
c. Does the municipality support request for map updates?	If yes, state how.	Yes	relies on FEMA & Boone County.
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	No	Relies on Boone County, does not have capabilities.
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	will provide information regarding problem areas
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	N/A	Recorder/Mayor's office will maintain records



2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	Yes	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	No	
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.		Unknown - still learning NFIP process & requirements.
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes	No permits issued in problem areas
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Yes	Recorder, office of the Mayor Town of Bethany
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	-Zoning board of appeals. -No permits issued in floodplain.

2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
<p>c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:</p> <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	Yes	Building permits will not be issued to any buildings planned in SFHA.

3. FLOOD INSURANCE			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	Not yet	In the process of becoming educated themselves; will share.
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	Yes	In the process of setting up the forum to inform property owners.
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	Not yet	If anyone asked, the town would strive to give the best information.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

JURISDICTION: \_\_\_\_\_ BROOKE COUNTY \_\_\_\_\_

<b>1. FLOODPLAIN IDENTIFICATION AND MAPPING</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	YES	
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	YES	8-2015
c. Does the municipality support request for map updates?	If yes, state how.	YES	Through The website
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	NO	
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	YES	SITE INSPECTIONS, & WV FLOOD PLAIN TOOLS
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	NO	

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	YES	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	YES	EMA PROVIDES THEM WITH THE PROPER PAPERWORK & DOCUMENTS NEEDED
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	NO	
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	YES	EMERGENCY MANAGEMENT & PUBLIC SERVICE UTILITIES
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	YES	EMERGENCY MANAGEMENT
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	YES	DO REGULAR INSPECTIONS & ADRESS ANY ISSUES

<b>2. FLOODPLAIN MANAGEMENT</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	NO	

<b>3. FLOOD INSURANCE</b>			
<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	YES	THROUGH MEETINGS & SEMINARS
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	NO	
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	NO	



NATIONAL FLOOD INSURANCE PROGRAM SURVEY

NATIONAL FLOOD INSURANCE PROGRAM

MUNICIPALITY: City of Chester.

**1. FLOODPLAIN IDENTIFICATION AND MAPPING**

Requirement	Recommended Action	Yes/No
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	no
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	no
c. Does the municipality support request for map updates?	If yes, state how.	no
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	no
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	no
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	no

2. FLOODPLAIN MANAGEMENT

Requirement	Recommended Action	Yes/No
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	NO
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	NO
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	NO
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	NO
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	NO
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	NO

City of ...

NATIONAL FLOOD INSURANCE PROGRAM SURVEY

**2. FLOODPLAIN MANAGEMENT**

<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	NO

**3. FLOOD INSURANCE**

<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	NO
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	NO
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	NO



NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: Follansbee

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.		HAVE 1 COPY IN OFFICE + UP ON LINE SERVICES
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.		MARCH 8, 2010
c. Does the municipality support request for map updates?	If yes, state how.		WE WOULD IF REQUEST IS MADE
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	NO	WE WOULD BUT HAVE'VE NOT DONE ANY
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.		USE WV FLOOD TOOL MAP
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.		NO, WE DON'T HAVE ANY

2007  
 2008  
 2009  
 2010

2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.		ADOPTED 2010 - MARCH 8
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	YES	CITY MANAGER/COUNCIL IF NEW CONSTRUCTION
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.		NOT APPLICABLE
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	YES	ONLY WAS ONE RECENTLY AND REQUIRED ELEVATION CERTIFICATE + IT WAS BUILT UP AS STAMP FOR HOUSE, 2 HAD UND
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.		RECORDS TO RECORD TO SHOW CITY BUILDING
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.		WHEN APPLICABLE

2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
<p>c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include:</p> <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.		CURRENTLY WORKING w/ FEMA ON USIAS MAPS LOOKS AS PART MITIGATION / REC

3. FLOOD INSURANCE			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.		When asked
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	No	NOT AWARE OF ANY
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	YES	WHEN ASKED I WORK WITH HOMEOWNERS TO GET QUESTIONS ANSWERED

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: Hancock County

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	yes	Courthouse
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	yes	<del>1995 adopted</del> 2010 Amended ?
c. Does the municipality support request for map updates?	If yes, state how.	yes	
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	NO	
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	yes	Available for assistance
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	yes	Hancock County Office of Emergency Management

2. FLOODPLAIN MANAGEMENT				
Requirement	Recommended Action	Yes/No	Comments	
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	Yes	1988 Adopted	2010 Amended
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	Yes	HC	CEM
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	Yes		
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	Yes		
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	Yes		
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	Yes	By	issuing permits

NATIONAL FLOOD INSURANCE PROGRAM SURVEY

**2. FLOODPLAIN MANAGEMENT**

<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	yes	CRS

**3. FLOOD INSURANCE**

<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	NO	
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	NO	
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	yes	Floodplain Manager Assists

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: New Cumberland WV

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	YES	
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	NO	
c. Does the municipality support request for map updates?	If yes, state how.		
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	NO	
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.		
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.		

0001/0003

City of New Cumberland

09/25/2017 08:57 FAX 304 564 3777



NATIONAL FLOOD INSURANCE PROGRAM SURVEY

2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	YES	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	YES	city clerk
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	NO	
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	YES	mayor
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	YES	city clerk
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.		

09/25/2017 08:57 FAX 304 564 3777 City of New Cumberland 0002/0003



NATIONAL FLOOD INSURANCE PROGRAM SURVEY

**2. FLOODPLAIN MANAGEMENT**

<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	NO	

**3. FLOOD INSURANCE**

<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	NO	
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	NO	
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	NO	

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: City of Weirton

1. FLOODPLAIN IDENTIFICATION AND MAPPING			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	No Yes	responsibilities transferred, floodplain manager duties being developed
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	Yes	2010
c. Does the municipality support request for map updates?	If yes, state how.	Yes	The city Reviews Application for amendments.
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	No	
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	Yes	The City's Unified Development Requires a permit Application and Survey showing set elevation
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	Yes	Planning & Development

2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.		
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	yes	Planning & Development
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	yes	Planning & Development
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring, using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	yes	Planning & Development
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	yes	Planning & Development
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	yes	The City has a permitting process with inspections required.

**2. FLOODPLAIN MANAGEMENT**

<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	NO	

**3. FLOOD INSURANCE**

<i>Requirement</i>	<i>Recommended Action</i>	<i>Yes/No</i>	<i>Comments</i>
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	NO	
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	NO	
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	NO	

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SURVEY

MUNICIPALITY: Wellsburg W.V.

1. FLOODPLAIN IDENTIFICATION AND MAPPING

Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality maintain accessible copies of an effective Flood Insurance Rate Map (FIRM)/Digital Flood Insurance Rate Map (DFIRM)? Does the municipality maintain accessible copies of the most recent Flood Insurance Study (FIS)?	Place these documents in the local libraries or make available publicly.	yes	Available on line.
b. Has the municipality adopted the most current DFIRM/FIRM and FIS?	State the date of adoption, if approved.	2010	
c. Does the municipality support request for map updates?	If yes, state how.	yes	No requests
d. Does the municipality share with Federal Emergency Management Agency (FEMA) any new technical or scientific data that could result in map revisions within 6 months of creation or identification of new data?	If yes, specify how.	yes	No data
e. Does the municipality provide assistance with local floodplain determinations?	If yes, specify how.	yes	No requests
f. Does the municipality maintain a record of approved Letters of Map Change?	If yes, specify the responsible office.	yes	Building Inspector

09-26-'17 14:08 FROM- City of Wellsburg 3047373004 T-550 P0002/0004 F-141

2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
a. Has the municipality adopted a compliant floodplain management ordinance that, at a minimum, regulates the following:	If yes, answer questions (1) through (4) below.	yes	
(1) Does the municipality issue permits for all proposed development in the Special Flood Hazard Areas (SFHAs)?	If yes, specify the office responsible.	yes	Building Inspector
(2) Does the municipality obtain, review, and utilize any Base Flood Elevation (BFE) and floodway data, and/or require BFE data for subdivision proposals and other development proposals larger than 50 lots or 5 acres?	If yes, specify the office responsible.	yes	Building Inspector
(3) Does the municipality identify measures to keep all new and substantially improved construction reasonably safe from flooding to or above the BFE, including anchoring; using flood-resistant materials, and designing or locating utilities and service facilities to prevent water damage?	If yes, specify the office responsible.	yes	Building Inspector
(4) Does the municipality document and maintain records of elevation data that document lowest floor elevation for new or substantially improved structures?	If yes, specify the office responsible.	yes	Building Inspector
b. If a compliant floodplain ordinance was adopted, does the municipality enforce the ordinance by monitoring compliance and taking remedial action to correct violations?	If yes, specify how.	yes	Building Inspector

09-26-17 14:08 FROM- City of Wellsbrough 3047373004 T-550 P0003/0004 F-141

2. FLOODPLAIN MANAGEMENT			
Requirement	Recommended Action	Yes/No	Comments
c. Has the municipality considered adopting activities that extend beyond the minimum requirements? Examples include: <ul style="list-style-type: none"> <li>• Participation in the Community Rating System</li> <li>• Prohibition of production or storage of chemicals in SFHA</li> <li>• Prohibition of certain types of structures, such as hospitals, nursing homes, and jails in SFHA</li> <li>• Prohibition of certain types of residential housing (manufactured homes) in SFHA</li> <li>• Floodplain ordinances that prohibit any new residential or nonresidential structures in SFHA</li> </ul>	If yes, specify activities.	NO	

3. FLOOD INSURANCE			
Requirement	Recommended Action	Yes/No	Comments
a. Does the municipality educate community members about the availability and value of flood insurance?	If yes, specify how.	NO	BANKS MAKE OWNERS AWARE
b. Does the municipality inform community property owners about changes to the DFIRM/FIRM that would impact their insurance rates?	If yes, specify how.	NO	"
c. Does the municipality provide general assistance to community members regarding insurance issues?	If yes, specify how.	NO	

T-550 P0004/0004 F-141  
 3047373004  
 09-26-17 14:08 FROM- City of Wellisburgh

**APPENDIX 7**  
**ADOPTING RESOLUTIONS**

Adopting Resolutions will be included following plan approval.