

C. Meeting, Adoption, and Other Participation Documentation

- Appendix C-1 Berkeley County Kick-off Meeting Materials (May 31, 2016)**
- Appendix C-2 Morgan County Kick-off Meeting Materials (May 31, 2016)**
- Appendix C-3 Berkeley County Risk Assessment/Mitigation Workshop Materials (July 25, 2016)**
- Appendix C-4 Morgan County Risk Assessment/Mitigation Workshop Materials (July 25, 2016)**
- Appendix C-5 Paw Paw Town Council Meeting Presentation (September 12, 2016)**
- Appendix C-6 Berkeley County Public Meeting Materials and Comments (Sept 26, 2016)**
- Appendix C-7 Morgan County Public Meeting Materials and Comments (Sept 26, 2016)**
- Appendix C-8 Berkeley County Hazard and Risk Identification Worksheets**
- Appendix C-9 Morgan County Hazard and Risk Identification Worksheets**
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- Appendix C-20 Radio Interview on Eastern Panhandle Talk with Rob and Dave (Aug 15, 2016)**
- Appendix C-21 Radio Interview on Mid Mornings with Hannah (Aug 25, 2016)**
- Appendix C-22 Journal News Article Regarding Addition of Hazards to HMP (June 1, 2016)**
- Appendix C-23 Journal News Article Regarding HMP Meetings and Public Survey (July 27, 2016)**
- Appendix C-24 Morgan Messenger Article Regarding Public Survey (Aug 3, 2016)**
- Appendix C-25 Morgan Messenger Article Regarding Public Survey and Emergency Preparedness (Aug 4, 2016)**

Appendix C-1 Berkeley County Kick-off Meeting Materials (May 31, 2016)

From: Rachel Snavelly <RSnavelly@region9wv.com>
Sent: Monday, April 18, 2016 8:35 AM
To: Michael Thompson; adavis@berkeleywv.org; James Barnhart; mcovell@cityofmartinsburg.org; Mark Baldwin; gkaros@live.com; hwilliams@berkeleywv.org; schristian@developmentauthority.com; mscellpage@msn.com; bcostello@berkeleywv.org; mkackley@berkeleywv.org; egochenour@berkeleywv.org
Cc: Bill Clark; Truax, Troy D
Subject: 2017 Hazard Mitigation Plan Update
Attachments: GANTT.xlsx; Hazard Mitigation Planning FAQ.docx; Scope of Work.docx

Good morning,

If you're receiving this email, you've been tentatively selected to participate on the Hazard Mitigation Plan Committee for Berkeley County. Your selection was based on your agency's participation in the 2012 update or because it was felt that your agency should be represented in the plan.

If you do not wish to actively participate on this committee, or feel another member of your agency would better serve the committee, please contact me so I can update my mailing list. It is expected that this committee will meet 3 times before finalization of the plan update in December of this year, with the kick-off meeting taking place in May. We also ask that you be available to our consultant, Michael Baker, if they need to collect any data from your office for this plan. For reference, the following individuals have been selected for the committee:

- [Berkeley County Council \(James Barnhart\)](#)
- [Berkeley County Administrator \(Alan Davis\)](#)
- [Berkeley County Office of Homeland Security and Emergency Management \(Eddie Gochenour\)](#)
- [Berkeley County Planning Department \(Mike Thompson, Heather Williams\)](#)
- [The Town of Hedgesville \(Mayor Mary Sue Catlett\)](#)
- [The City of Martinsburg \(Mayor George Karos, Mark Baldwin, Michael Covell\)](#)
- [Berkeley County Economic Development Authority \(Stephen Christian\)](#)
- [Berkeley County Ambulance Authority \(W. Brian Costello\)](#)
- [Berkeley County E-911 \(Mary Kackley\)](#)

In the meantime, I've attached an FAQ regarding the plan update, as well as a timeline and the scope of work which indicates what needs to be covered in the plan update. Here is a link to the 2012 plan, for your reference, <http://www.dhsem.wv.gov/MitigationRecovery/Documents/Region%20IX.pdf>
We are also updating Morgan County's plan, but intend to keep the committee meetings separate.

If you have any questions, please feel free to contact me.

Rachel Snavelly
Project Assistant
Region 9: Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
304.263.1743
www.region9wv.com

From: [Rachel Snavelly](#)
To: adavis@berkeleywv.org; bcostello@berkeleywv.org; egochenour@berkeleywv.org; gkaros@live.com; hwilliams@berkeleywv.org; James Barnhart; LT. Jason Hoover; Markbaldwin17@aol.com; msccellpage@msn.com; mcovell@cityofmartinsburg.org; Michael Thompson; mkackley@berkeleywv.org; StephenL.Christian@hotmail.com
Cc: [Truax, Troy D](#)
Subject: \Kick-Off Meeting - May 31 - Hazard Mitigation Committee
Date: Tuesday, May 03, 2016 3:39:56 PM

I apologize for the typo – this meeting IS for the Berkeley County Hazard Mitigation Committee, not Morgan County as indicated in the text!

Rachel Snavelly
Project Assistant
Region 9: Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
304.263.1743
www.region9wv.com

From: Rachel Snavelly
Sent: Tuesday, May 03, 2016 8:18 AM
To: adavis@berkeleywv.org; bcostello@berkeleywv.org; egochenour@berkeleywv.org; George Karos (gkaros@live.com); hwilliams@berkeleywv.org; James Barnhart; LT. Jason Hoover; Mark Baldwin (Markbaldwin17@aol.com); Mary Sue Catlett (msccellpage@msn.com); mcovell@cityofmartinsburg.org; Michael Thompson; mkackley@berkeleywv.org; Stephen L. Christian (schristian@developmentauthority.com)
Subject: Kick-Off Meeting - May 31 - Hazard Mitigation Committee

Good morning,

The kick-off meeting for the Hazard Mitigation Plan Update for **BERKELEY COUNTY** has been scheduled for **May 31, 2016 from 1-3PM**. We will meet at **Shepherd-Martinsburg, located at 261 Aikens Center, Martinsburg, WV 25404**.

This meeting will address roles, responsibilities, administrative procedures, and communication strategies. A Memorandum of Understanding for sharing information and data will be presented to the communities. The consultant will present a map with HAZUS-MH critical facilities plotted to better elicit local information from the Hazard Mitigation Committee.

Please RSVP, and if you are unable to attend, I will forward you a summary of information after the meeting. If you have any questions in the meantime, feel free to email or call me or Bill at the number below. Thank you,

Rachel Snavelly
Project Assistant
Region 9: Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301

Meeting Agenda

**Berkeley County Hazard Mitigation Plan Update
Steering Committee Kick-Off Meeting**

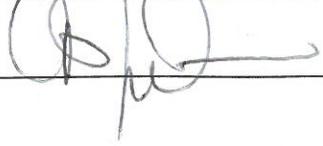
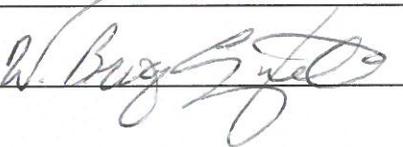
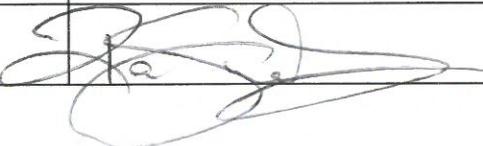
Date	Tuesday, May 31, 2016
Time	1:00 PM – 3:00 PM
Location	Shepherd University’s Martinsburg Center - 261 Aikens Center, Martinsburg, WV

Purpose: Steering Committee Kick-Off Meeting for Berkeley County Hazard Mitigation Plan Update

Topic	Time
1. Attendance Sign-in	➤ 1:00 PM
2. Welcome and Introductions	➤ 1:05 PM
3. Definition of Hazard Mitigation	➤ 1:10 PM
4. Review of Planning Process	➤ 1:15 PM
5. Schedule and Meetings	➤ 1:30 PM
6. Hazard Review Exercises	➤ 1:40 PM
7. Participation <ul style="list-style-type: none"> ○ Municipal Contacts ○ Additional Stakeholders ○ Project Website 	➤ 2:00 PM
8. Relevant Data and Documents	➤ 2:30 PM
9. Next Steps	➤ 2:45 PM

Berkeley County Hazard Mitigation Plan Update Steering Committee Kick-Off Meeting

May 31, 2016 – 1:00 PM

Name	Title	Jurisdiction/ Organization	Telephone	E-Mail Address	Signature
James Barnhart	Council Person	Berkeley County Council	(304) 264-1923	jbarnhart@berkeleywv.org	
Alan Davis	County Administrator	Berkeley County Administrator	(304) 267-5102	adavis@berkeleywv.org	
Eddie Gochenour	OHSEM Director	Berkeley County Office of Homeland Security and Emergency Management	(304) 264-1345	egochenour@berkeleywv.org	
Mike Thompson	Planning Director	Berkeley County Planning Department	(304) 267-5106	mthompson@berkeleywv.org	
Heather Williams	Planner I	Berkeley County Planning Department	(304) 267-5000 Ext. 8165	hwilliams@berkeleywv.org	
Mary Sue Catlett	Mayor	The Town of Hedgesville	(304) 754-4827	mscellpage@msn.com	
George Karos	Mayor	The City of Martinsburg	(304) 264-2140	gkaros@live.com	
Mark Baldwin	City Manager	The City of Martinsburg	(304) 264-2149	Markbaldwin17@aol.com	
Michael Covell	City Engineer/Planning Director	The City of Martinsburg	(304) 264-2131 Ext. 266	mcovell@cityofmartinsburg.org	
Stephen Christian	Executive Director	Berkeley County Economic Development Authority	(304) 267-4144	schristian@developmentauthority.com	
W. Brian Costello	EMS Director	Berkeley County Ambulance Authority	(304) 264-1921	bcostello@berkeleywv.org	
Mary Kackley	Central Dispatch/911 Center Director	Berkeley County E-911		mkackley@berkeleywv.org	
Rachel Snavelly	Project Assistant	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	RSnavely@region9wv.com	

Name	Title	Jurisdiction/ Organization	Telephone	E-Mail Address	Signature
Bill Clark	Executive Director	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	BClark@region9wv.com	
Troy Truax	Technical Manager, Planning Services	Michael Baker International	(717) 213-6241	Troy.Truax@mbakerintl.com	
Angela Welt	Environmental Specialist	Michael Baker International	(717) 221-2040	awelt@mbakerintl.com	
Jason Hoover	Emergency Management Coord.	City of Martinsburg	304-671-1507	Jhoover@martinsburgfire.org	
Ronnie Good	Town Hedgesville		304-886-8618	g5240@aol.com	
Todd Bowman	Reporter	Journal	240-818-9088	tbowman@journal-news.net	
Randy Lilly	Emergency Manager	Berkeley County Homeland Security	304-263-1345	rlilly@berkeleywv.org	
Jim Barnhart	Co Councilman	Co Council	304-671-6002	jbarnhart@berkeleywv.org	
Sandy Hamilton	Int. Exec. Dir.	BCDA	304-267-4444	shamilton@development.com	
Matthew Pennington	Environmental Programs	Region 9	304-707-1920	mpennington@region9wv.com	
Tina Combs	M-Br Chamber		304-267-4841	tina@berkeleycounty.org	
Sam McGovern	Officer	Martinsburg Police	304-261-2100	s_mcgovern@martinsburgpd.org	
Chad Winebrenner	Chief	Berkeley Co. Ambulance Auth	304-671-9801	cwinebrenner@bceca.com	

BERKELEY COUNTY HAZARD MITIGATION PLAN UPDATE PROJECT



May 31, 2016



Agenda

- Attendance Sign-In
 - Introductions
 - Definition of Hazard Mitigation
 - Review of Planning Process
 - Schedule and Meetings
 - Hazard Review Exercise
 - Participation
 - Relevant Data and Documents
 - Next Steps
-

Hazard Mitigation Defined



What is Hazard Mitigation?

- Hazard mitigation is any **sustained** action taken to **reduce or eliminate long-term risk** to people and property from natural and man-made hazards and their effects.



What is a Hazard Mitigation Plan?

- A Hazard Mitigation Plan is a community-driven, living document that communities use to reduce their vulnerability to hazards.
- Counties must have a plan in order to maintain access to mitigation grants. These grants can augment local mitigation activities already being done.



Mitigation Techniques



Local Mitigation Planning Handbook

March 2013



FEMA

- New FEMA mitigation planning guidance identifies four mitigation techniques:
 - Plans and Regulations
 - Structure and Infrastructure Projects
 - Natural Systems Protection
 - Education and Awareness Programs

Planning Process



Hazard Mitigation Plan

Updates

- Every five years (2012, 2017)

Sections

1. Introduction
2. Community Profile
3. Planning Process
4. Risk Assessment
5. Capability Assessment
6. Mitigation Strategy
7. Plan Maintenance
8. Adoption



REGION 9 PLANNING & DEVELOPMENT COUNCIL

Multi-Jurisdictional Hazard Mitigation Plan
for Berkeley and Morgan Counties



Planning Process

- Plan development and participation
- The Planning Team
- Public and other stakeholder participation
- Meetings
 - Meeting #1 (HMC only) – **May**
 - Meeting #2 (HMC and public) – **July**
 - Meeting #3 (HMC and public) – **September**
 - Meeting #4 (HMC and public) – **October**
- Incorporating existing planning mechanisms



Schedule and Meetings



Schedule and Meetings

TASK	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
<i>HMC Meeting #1</i>								
Hazard Identification & Profiling								
<i>HMC Meeting #2</i>								
Vulnerability Assessment								
Estimation of Loss Calculated								
<i>HMC Meeting #3</i>								
Draft Plan								
Committees to Review Plan								
<i>HMC Meeting #4</i>								
Public Comment Period								
Finalize Plan and Submit to WV DHSEM								

Hazard Identification & Evaluation Worksheet

- Instructions:
 - **PART I:** evaluate whether the frequency, magnitude, or geographic area of hazards profiled in your last plan have:
 - I: Increased
 - D: Decreased
 - NC: Not Changed
 - **PART II:** which of the hazards not previously covered are now relevant and should be included in the updated HMP?
 - **PART III:** provide any other relevant comments or information indicating why a hazard should be profiled

Participation



Plan Update Participants

- Steering Committee

- Municipal Corporations – *Need confirmation of contact list.*
- Stakeholders – *Need feedback.*

Berkeley County Council & Planning

Adjacent County Commissioners

The City of Martinsburg

The Town of Hedgesville

Berkeley County Economic
Development Authority

Berkeley County Office of Homeland
Security and Emergency Management

State/National Parks and Forests

Educational Institutions

Berkeley County Ambulance Authority

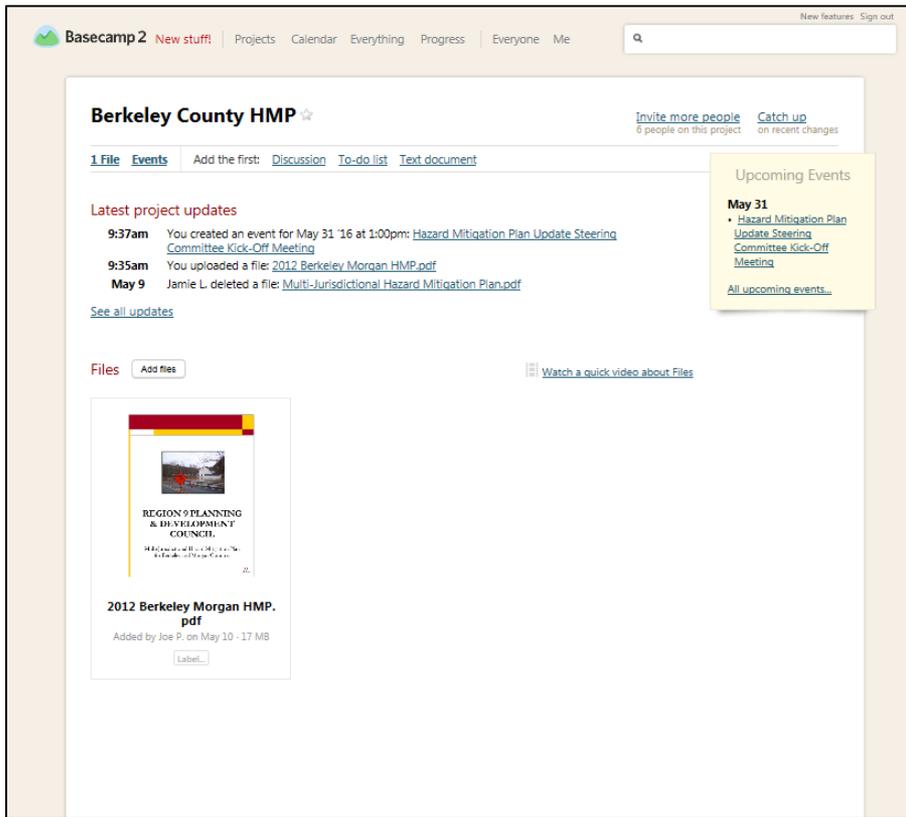
Berkeley County Fire Board

Berkeley County Central Dispatch

Red Cross

- Public

Project Website - Basecamp



The screenshot shows a Basecamp project page for "Berkeley County HMP". The page includes a navigation bar with "New stuff!", "Projects", "Calendar", "Everything", "Progress", "Everyone", and "Me". A search bar is located in the top right. The main content area features a "Latest project updates" section with three entries: a 9:37am update about creating an event for May 31, a 9:35am update about uploading a file named "2012 Berkeley Morgan HMP.pdf", and a May 9 update about deleting a file named "Multi-Jurisdictional Hazard Mitigation Plan.pdf". Below the updates is a "Files" section with an "Add files" button and a link to "Watch a quick video about Files". A file thumbnail is displayed, showing a document cover with the text "REGION 9 PLANNING & DEVELOPMENT COUNCIL" and "2012 Berkeley Morgan HMP.pdf".

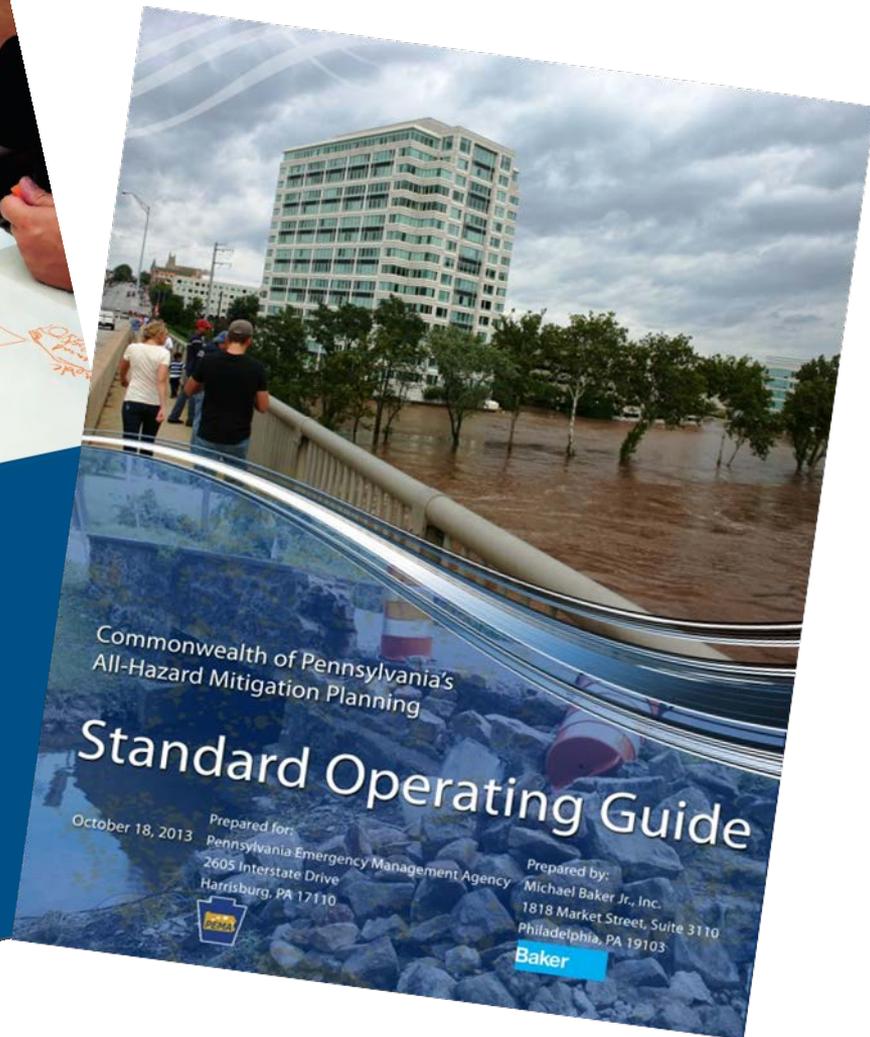
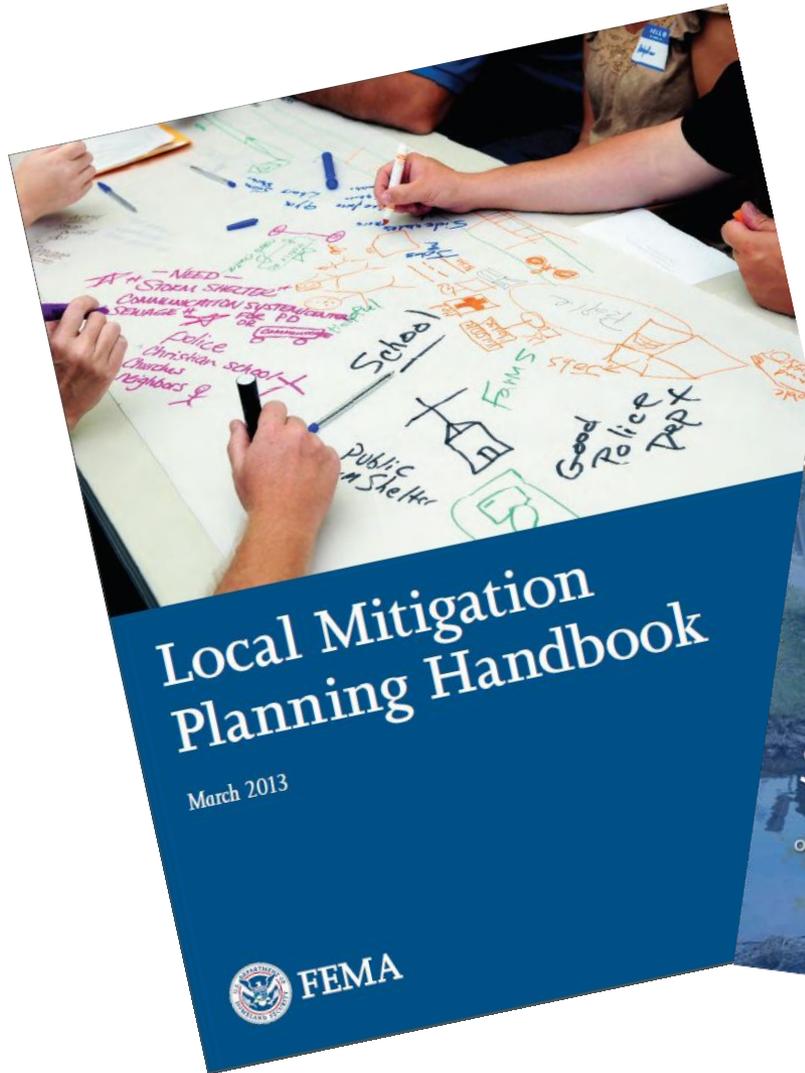
- Project website for each county
- Provides general project information
- Hosts project calendar
- Announcements
- Interactive steering committee involvement
- Not publicly accessible

Other Outreach Activities

(teleconferences, office hours, other)



Relevant Data and Documents



Data and Document Requests

Data and Document Requests

- Emergency Operations Plan
- County GIS point-of-contact and advance notification
- County / Region 9 letterhead (if any hardcopy letters should be sent by Michael Baker)
- Photos or other documentation of past occurrences

Already Located on County / Municipal Websites

- ✓ Comprehensive Plan (BC, CM)
- ✓ Flood Insurance Study (BC)
- ✓ Stormwater Management Ordinance (BC, CM)
- ✓ Floodplain Ordinance (BC, CM)
- ✓ Subdivision Ordinance (BC)
- ✓ Building Code (BC, TH)
- ✓ Water District Drought Contingency Plan (BC)
- ✓ Economic Development Plan (CM)
- ✓ Water Distribution Backflow Prevention Ordinance (CM)
- ✓ Zoning Ordinance (CM)

Next Steps and Action Items

- Distribute meeting summary
- Confirm future HMC meeting dates/times/venues
- Invite HMC members to join the project Basecamp site
- Confirm municipal, stakeholder, and GIS contacts
- Provide Emergency Operations Plan, County / Region 9 letterhead, and photographs



Do you have additional questions or ideas for this project?



Contacts

- Rachel Snavely, Region 9 Point of Contact
304-263-1743, RSnavely@region9wv.com
- Troy Truax, AICP, Michael Baker Point of Contact
717-213-6241, Troy.Truax@mbakerintl.com

THANK YOU!



Steering Committee Kick-Off Meeting

May 31, 2016

1:00 – 3:00 PM

Shepherd University's Martinsburg Center

261 Aikens Center, Martinsburg, WV

Meeting Summary

The following notes are intended to supplement the meeting presentation.

- Michael Baker International (Baker) is updating the plan on behalf of Region 9.
- West Virginia University (WVU) is working on Hazards U.S. (HAZUS) modeling, which will be incorporated into the updated Hazard Mitigation Plan (HMP). WVU has finished the Berkeley County HAZUS but is still working on the Morgan County HAZUS models.
- The updated HMP must be adopted by the county and each community by resolution. A HMP approved by the Federal Emergency Management Agency (FEMA) is a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects.
- There are no zoning ordinances in Berkeley County, but there are zoning ordinances in Hedgesville and Martinsburg. Berkeley County, Hedgesville, and Martinsburg all have Subdivision and Land Development ordinances.
- The 2012 HMP has sections similar to the Standard Operating Guide outline (see PowerPoint slide 9). The main addition will be the Capability Assessment section.
- The goal is to have the revised HMP to the West Virginia Division of Homeland Security and Emergency Management by November/December and on to FEMA by a due date of January 7, 2017.
- In addition to inviting the public to the next three Berkeley County Hazard Mitigation Planning Committee meetings, we will ask local newspapers to issue press releases to solicit public participation. We would like to hear other ideas as well, like including press releases in city newsletters and Facebook pages.
- We will be incorporating existing planning mechanisms into the HMP, like the source water contamination studies and storm water initiatives.
- We will be inviting additional stakeholders to attend meetings and participate in the HMP update.
- We will add some new hazard profiles to the HMP, like source water contamination.
- Please send any local disaster photos and ideas for more stakeholders to add to the contact list.

HAZARD MITIGATION PLANNING FACT SHEET

What is Hazard Mitigation?

Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property resulting from natural and human-caused hazards.

What is a Hazard Mitigation Plan?

A Hazard Mitigation Plan (HMP) is a community-driven, living document that communities and jurisdictions use to reduce their vulnerability to hazards.

Why should my community have a Hazard Mitigation Plan?

Communities must have a Plan to apply for and receive mitigation funding. These grants can augment local mitigation activities already being done. Ultimately, these actions reduce loss of life, property, essential services, critical facilities, and economic hardship and communities are able to recover more quickly from disasters.

What happens if my community doesn't participate in the Plan?

Communities that choose not to participate will not be eligible for certain types of hazard mitigation funding. This means that even if your community is included in a federally-declared disaster, you will not be eligible for Hazard Mitigation Grant Program funding unless you have a FEMA-approved HMP.

What does my community have to do to participate in the Plan?

Municipal representatives are required to attend meetings, provide valuable information, and actively participate in the planning process.

Hazard Mitigation Planning follows a six-step planning process:

- 1. Organize & Build the Planning Team**
- 2. Assess Risk and Vulnerability**
- 3. Assess Capabilities**
- 4. Develop the Mitigation Strategy**
- 5. Determine Plan Maintenance Process**
- 6. Obtain Mitigation Plan Approval and Adoption**

What are some examples of Hazard Mitigation?

Hazard mitigation actions usually fall into one of four different categories:

- *Plans and Regulations* – These actions include authorities, policies, or codes that influence the way land and buildings are developed and built.
- *Structure and Infrastructure* – These actions involve modifying existing structures and infrastructure or constructing new structures to reduce hazard vulnerability.
- *Natural Systems Protection* – These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.
- *Education and Awareness* – These are actions to inform and educate students, officials, and local citizenry about hazards and potential ways to mitigate them.

Mitigation actions may include:

- Enforcement of building codes, floodplain management codes and environmental regulations.
- Public safety measures such as continual maintenance of roadways, culverts and dams.
- Acquisition or relocation of structures, such as purchasing buildings located in a floodplain.
- Acquisition of hazard prone lands in their undeveloped state to ensure they remain so.
- Retrofitting of structures and design of new construction such as elevating a home or building.
- Protecting critical facilities and infrastructure from future hazard events.
- Mitigation, disaster recovery and COOP planning.
- Development and distribution of outreach materials related to hazard mitigation.
- Deployment of warning systems.

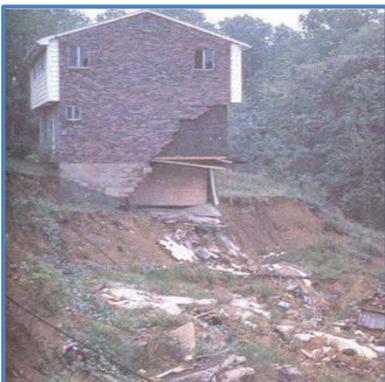
DID YOU KNOW?
Effective Mitigation efforts can break the cycle of disaster damage, reconstruction, and repetitive loss!

Hazard Mitigation Planning FAQ

- 100% managed and administered by Region 9 and its consultant.
- Requires participation and cooperation from communities in collecting necessary data to update plan.
- Must be adopted by each community by resolution.
- FEMA-approved hazard mitigation plan is a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects.
- 100% funded by FEMA and WVDHSEM.

Benefits of plan:

- 1) Increase awareness around threats and vulnerabilities
- 2) Build partnerships for risk reduction
- 3) Identify long-term strategies for risk reduction
- 4) Align risk reduction with state and community objectives
- 5) Identify approaches that focus resources on greatest risk and vulnerabilities; establish priorities



Approved Plan Required to Receive:

- Hazard Mitigation Grants:
Help communities implement hazard mitigation measures following Presidential major disaster declaration; fund plan updates
- Pre-Disaster Mitigation Grants:
Planning and project grants to help communities implement pre-disaster hazard mitigation programs
- Public Assistance Grants:
Provide FEMA assistance to communities so that they can respond to and recover from major disasters
- Fire Management Assistance Grant:
Provides FEMA assistance to communities for the mitigation, management, and control of fires on public/private owned forests
- Flood Insurance/Mitigation:
Required to receive Flood Mitigation Assistance project grants, which assist communities in flood hazard mitigation projects, plan development, and management costs. Required for access to FEMA grants if community has CRS rating for floodplain management – affects flood insurance rates



Hazards profiled in 2012 plan:

- Dam/levee failure
- Drought
- Earthquake
- Epidemic
- Flood
- Hailstorm
- Hazardous material release
- Infestation
- Land subsidence/sinkholes
- Severe winter storm
- Terrorism
- Thunderstorms
- Wildfire
- Windstorm/Tornado

Additional hazards may be profiled in the 2017 HMP update, such as source water contamination.

For more information, please visit:
<http://www.fema.gov/hazard-mitigation-planning>

Evaluation of Identified Hazards and Risk: Berkeley County

Name: _____

Title: _____

Affiliation: _____

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
<i>Drought</i>		
<i>Earthquake</i>		
<i>Epidemic</i>		
<i>Flooding</i>		
<i>Hailstorm</i>		
<i>Infestation</i>		
<i>Land Subsidence</i>		
<i>Thunderstorm, Lightning Strike</i>		
<i>Wildfire</i>		
<i>Wind Storm, Tornado</i>		
<i>Winter Storm</i>		

Identified Hazards <i>2012 HMP</i>	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments <i>(Please provide an explanation for any hazards marked I or D in this column)</i>
Human-made Hazards		
Dam and Levee Failure		
Hazardous Materials		
Terrorism		

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? *(If so, check box)*

Natural

- | | |
|--|--|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input type="checkbox"/> Extreme Temperature | <input type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input type="checkbox"/> Landslide | <input type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|--|
| <input type="checkbox"/> Building or Structure Collapse | <input type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input type="checkbox"/> Source Water Contamination |
| <input type="checkbox"/> Transportation Accidents | <input type="checkbox"/> Urban Fire and Explosion |
| <input type="checkbox"/> Utility Interruption | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Standard List of Hazards

NOTE: Asterisk (*) indicates hazard not reviewed in the 2012 Region 9 Multi-Jurisdictional Hazard Mitigation Plan for Berkeley and Morgan Counties or in the 2013 West Virginia Statewide Standard Hazard Mitigation Plan Update

Natural Hazards

Hazard	Hazard Description
<i>Avalanche/ Glacier*</i>	<p>An avalanche is a mass of snow sliding down a mountainside. It occurs when the stress (from gravity) trying to pull the snow downhill exceeds the strength of bonds that form between snow grains within the snow cover. Temperature, precipitation, wind, depth of snow cover, slope, and vegetation density all influence the frequency and intensity of avalanches (FEMA, 1997).</p> <p>A glacier is a very large mass of ice which may or may not be moving slowly over a land mass, formed from compacted snow in an area where snow accumulation exceeds melting and sublimation. Glaciers exist where, over a period of years, snow remains after summer's end.</p>
<i>Coastal Erosion*</i>	<p>Coastal erosion is a natural coastal process in which sediment outflow exceeds sediment inflow at a particular location. These sediments are typically transported from one location to another by wind, waves, currents, tides, wind-driven water, waterborne ice, runoff of surface waters, or groundwater seepage. Depending on the location and processes in place, coastal erosion can take place very slowly, whereby the shoreline shifts only inches to a foot per year; or more rapidly, whereby changes can exceed ten feet per year. Intense storms and human interference can result in avulsive events where large portions of a beach or dune are washed away by strong currents and large waves (FEMA, 1997).</p>
<i>Drought</i>	<p>Droughts are defined according to meteorological, hydrological, and agricultural criteria. Any significant deficit of precipitation is categorized as meteorological. Hydrological drought is apparent in noticeably reduced river and stream flow and critically low groundwater tables. Agricultural drought indicates an extended dry period that results in crop stress and harvest reduction.</p> <p>The Palmer Drought Severity Index (PDSI) is widely used throughout the United States as a measure of drought and to track moisture conditions. The PDSI is defined as "an interval of time, generally in months or years in duration, during which the actual moisture supply at a given place rather consistently falls short of the climatically expected or climatically appropriate moisture supply". The range of the PDSI is from -4.0 (extremely dry) to +4.0 (excessively wet), with the central half (-2.0 to +2.0) representing normal or near normal conditions.</p>
<i>Dust, Sand Storm*</i>	<p>A dust or sand storm is a severe windstorm that sweeps clouds of dust across an arid region. Drought and wind contribute to the emergence of dust storms, as do poor farming and grazing practices by exposing dust and sand to the wind. Dust and sand storm events can be hazardous to transportation, navigation, and human health. Severe or prolonged dust and sand storms can result in disaster causing extensive economic damage over a wide area and personal injury or death in some cases. Dust and sand storm events occur in the dry regions of the United States, such as Texas, New Mexico, and Arizona (NOAA, 2009).</p>

<i>Hazard</i>	<i>Hazard Description</i>
<i>Earthquake</i>	<p>Earthquakes are the sudden, rapid shaking of the ground. Caused by the shifting and breaking of rock beneath the earth's surface, earthquakes result in three basic phenomena: ground motion, surface faulting, and related ground failures. While most earthquakes tend to occur at the boundaries where tectonic plates meet, some earthquakes do occur in the middle of the plates.</p> <p>The severity of an earthquake's impact is dependent on the amount of energy released from the fault (or epicenter) of the quake. The effects of an earthquake can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and, after just a few seconds, can cause massive damage and extensive casualties. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure.</p>
<i>Epidemic</i>	<p>An epidemic is a disease, usually contagious, that recurs in a community and attacks a large number of people at the same time. The potential impacts of an epidemic are illness or fatalities, disruption or closing of schools, or the forced closure of businesses and industrial operations.</p> <p>An epidemic can affect all parts of the region, but is more probable to occur in densely populated areas, particularly large, multi-unit residential developments. Epidemic situations can also spread rapidly through such congregate facilities as nursing homes and hospitals and even schools and colleges. Epidemics can develop with little or no warning and quickly erode the capacity of local medical care providers. A fast developing epidemic can last several days and extend into several weeks. In some extreme cases, they can last for several months. An epidemic can occur at any time of the year, but the warm summer months, when bacteria and microorganism growth are at their highest, present the greatest risk.</p>
<i>Expansive Soils*</i>	<p>Clay soils have the potential to shrink and swell when they become wetted or dried. Expansive soils do not change size quickly, but over time can result in significant movement that can damage supply lines (e.g. roads, power lines, railways, bridges, etc...) and structures that lack proper design. (Olive et al, 1989).</p>
<i>Extreme Temperature</i>	<p>Extreme heat can be described as temperatures that hover 10°F or more above the average high temperature for a region during the summer months. The medical dangers of extreme heat include heat exhaustion, heat stroke, sunburn, and dehydration. Extreme heat can also be associated with drought conditions.</p> <p>The definition of extreme cold temperature varies according to the normal climate of a region. In areas unaccustomed to winter weather, near freezing temperatures are considered "extreme cold." In West Virginia, extreme cold usually involves temperatures below 0° Fahrenheit. Excessive cold may accompany winter storms, linger after the winter storm event, and occur without storm activity. Extreme cold can lead to hypothermia and frostbite, which are both serious medical conditions.</p>

Hazard	Hazard Description
<i>Flooding</i>	<p>Floods are the most common and widespread natural disasters in the United States. Of the natural hazards facing West Virginia, floods constitute the greatest threat to property and lives. Some terms that are useful in the discussion of this hazard are defined as follows by FEMA:</p> <p>Flood – A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is your property) from overflow of inland or tidal waters, from unusual and rapid accumulation or runoff of surface waters from any source, or from mudflow.</p> <p>Flash Flood – A flood event occurring with little or no warning where water levels rise at an extremely rapid rate.</p> <p>Floodplain – Any land area, including watercourse, susceptible to partial or complete inundation by water from any source.</p> <p>Floodway – The channel of a river or other watercourse and adjacent land areas that must be reserved in order to discharge the 1-percent-annual-chance flood without cumulatively increasing the water surface elevation by more than a designated height.</p> <p>Most communities in the United States can experience some kind of flooding after spring rains, heavy thunderstorms, or winter snow melts. The average annual U.S. flood loss from 2002-11 was more than \$2.9 billion. Flooding is arguably the highest priority hazard in both Berkeley and Morgan counties (as is the case in most of West Virginia). These counties are susceptible to flooding largely due to physical geography, which includes several rivers and creeks as well as varied topography.</p>
<i>Hailstorm</i>	<p>Hailstones are balls of ice caused by water droplets being caught in updrafts and transported to a level in the atmosphere that is below freezing. Hailstones can vary in size from small balls of less than 2 centimeters to hailstones as large as softballs.</p> <p>While thunderstorms with hail and lightning can be found throughout the United States, they are most likely to occur in the central and southern states (FEMA, 1997a). NCDC data indicate that there were 2,212 hail events in West Virginia between 1955 and September 2012, causing 3 injuries but no deaths, and \$180,495 (in 2012 dollars) in crop damage and \$34.16 million (in 2012 dollars) in property damage.</p>

<i>Hazard</i>	<i>Hazard Description</i>
<i>Hurricane, Tropical Storm, Nor'easter</i>	<p>Hurricanes pose a danger from torrential rains, high winds, and storm surges in coastal areas, and pose more of a flooding and occasional gusty wind threat once inland and impacting West Virginia. In order to be classified as a hurricane, the storm must have sustained winds exceeding 74 mph. Although originating over the ocean, a hurricane can move across inland areas and can last for days. Hurricanes can also spawn other severe weather events (e.g., thunderstorms, tornados and flash floods).</p> <p>Hurricanes are classified by their damage potential according to a scale developed in the 1970s by Robert Simpson and Herbert Saffir, and updated slightly by the National Hurricane Center in 2012. The scale is designed to give public officials and the general public usable information on the magnitude of a storm. The classification ranges from a category 1 hurricane that has wind speeds of 75 to 95 mph to a category 5 hurricane that has wind speeds of over 157 mph.</p> <p>By the time a storm classified as a hurricane at the United States coastline arrives in West Virginia, it has most likely weakened into a tropical storm or depression. Tropical storms are defined as tropical cyclones with sustained winds from 39 to 73 mph, and depressions are characterized by sustained winds of less than 39 mph. Both are low-pressure systems formed over tropical oceans and are accompanied by torrential rains. These types of storms pose similar dangers as hurricanes, but with reduced threat from wind speeds.</p>
<i>Infestation</i>	<p>An infestation is characterized by a swarm or the spread of a troublesome or dangerous organism. The effects of an infestation to this region could be quite damaging due to the thousands of acres of agriculture and forested land in the region. The Eastern Panhandle has been identified by the Department of Forestry as being infested with gypsy moths and may possibly encounter an infestation from the Asian long horned beetles, southern pine beetles, and mosquitoes.</p>
<i>Landslide</i>	<p>Landslides are the downward movement of large volumes of surface materials under gravitational influences. The term landslide includes mudflows, mudslides, debris flows, rock falls, rockslides, debris avalanches, debris slides, and earth flows. The types of materials in motion generally consist of fractured or weathered bedrock and loose or unconsolidated soils. Landslide-susceptible terrain includes:</p> <ul style="list-style-type: none"> • Mountainous terrain with very steep slopes • Areas of moderate relief suffering severe land degradation • Areas of heavy precipitation events • Areas covered with thick layers of finely grained soil deposits • Areas subject to earthquake shaking <p>Geologic, physiographic, and climatic factors affect the nature and occurrence of landslides in West Virginia. Geology and physiographic factors affecting the incidence of landslides include folds, fractures, and faults in the underlying geologic formation. Steep areas with poor surface and/or subsurface drainage are particularly susceptible to landslides.</p>

Hazard	Hazard Description
Land Subsidence	<p>Generally, land subsidence can be described as the loss of surface elevation due to the removal of subsurface support. This can range from broad regional lowering of surface land to localized collapse. The term subsidence is commonly used to imply a gradual sinking, but it also can refer to an instantaneous or catastrophic collapse.</p> <p>Land subsidence is vertical earth movement resulting from increased stresses in the soil mass, or loss of shallow soil support. Subsidence can be described as rapid, caused by undermining or failure of the underlying strata, or slow, caused by consolidation. Rapid subsidence, generally referred to as sinkholes, result from small subsurface voids enlarging over time until the thickness of soil/rock at the roof is insufficient to support the applied loads, including its own weight. When the loads exceed the strength of the roof, the roof collapses into the subsurface void forming a sinkhole.</p> <p>Rapid subsidence frequently occurs in areas of abandoned mines, and karst areas underlain by carbonate rocks (limestone and dolomite). Karst is a landscape with topographic depressions caused by the dissolution of carbonate rocks (limestone and dolomite) by moving groundwater.</p>
Thunderstorm, Lightning Strike	<p>The wind gusts associated with thunderstorms pose a threat to life and/or property. Severe thunderstorms also have the potential of producing a tornado with little or no advanced tornado warning. These storms may contain frequent cloud-to-ground lightning and heavy downpours which can lead to localized flooding. Thunderstorms are one of the most frequently-occurring hazards throughout the region (second only to winter storms). NCDC records reflect the most severe of thunderstorms. Storms, however, are common throughout the spring and summer months (although a thunderstorm can occur in any season) that cause downed trees and power lines.</p> <p>Lightning is an electrical discharge that results from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a "bolt." This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning reaches a temperature approaching 50,000° Fahrenheit in a split second. The rapid heating and cooling of air near the lightning causes thunder.</p> <p>In the United States, 75 to 100 Americans are struck and killed each year by lightning. According to a NOAA technical report, from 1959 through 1994, West Virginia experienced 108 deaths attributed to lightning (NOAA, 2003). According to the NCDC, in the period from 1993 through September, 2012, West Virginia had 82 lightning events causing six deaths, 49 injuries, no crop damage, and \$4.8 million in property damage.</p>
Radon Exposure*	<p>Radon is a cancer-causing natural radioactive gas that you can't see, smell, or taste. It is a large component of the natural radiation that humans are exposed to and can pose a serious threat to public health when it accumulates in poorly ventilated residential and occupational settings. According to the USEPA, radon is estimated to cause about 21,000 lung cancer deaths per year, second only to smoking as the leading cause of lung cancer (EPA 402-R-03-003: EPA Assessment..., 2003).</p>
Tsunami*	<p>A tsunami is a series of ocean waves generated by sudden displacements in the sea floor, landslides, or volcanic activity. In the deep ocean, the tsunami wave may only be a few inches high. The tsunami wave may come gently ashore or may increase in height to become a fast moving wall of turbulent water several meters high. Worldwide, unusual wave heights have been known to be over 100 feet high and depending on a number of factors, some low-lying areas could experience severe inland inundation of water and debris of more than 1,000 feet (Dunbar & Weaver, 2007).</p>

Hazard	Hazard Description
Wildfire	<p>This hazard is defined as a highly destructive, uncontrolled fire or any instance of uncontrolled burning. Although a fire may have components of both, fires are generally categorized as one of two types: wildfire or a non-wilderness structural fire. A wildfire is an uncontrolled burning in woodlands, grasslands, or brushlands. These commonly burn in excess of 50 acres.</p> <p>Wildfires commonly begin unnoticed and spread quickly through vegetative fuels. Non-wilderness fires are primarily structural fires in urban areas. Fires in West Virginia have not affected large areas since the early 1960s, so fire as a hazard class is not as apparent a problem unless an unusually large fire occurs or the cumulative effects of many fires are examined.</p>
Wind Storm, Tornado	<p>Wind is the movement of air caused by a difference in pressure from one place to another. Local wind systems are created by the immediate geographic features in a given area, such as mountains, valleys, or large bodies of water. Wind poses a risk to West Virginia in several ways. Tornadoes, high winds, downbursts, wind erosion, and wind chill can harm people and damage property and infrastructure. Wind effects can include blowing debris, interruptions in elevated power and communications utilities, and intensification of the effects of other hazards related to winter weather and severe storms. Based on historical tornado and hurricane data, FEMA has calculated regional maximum wind speeds for design of safe rooms. West Virginia is included in Wind Zone III (200 mph).</p> <p>West Virginia wind events can produce damage often associated with thunderstorms or tornadoes. In some instances, these events have been associated with weakening tropical weather systems, including downgraded tropical and sub-tropical storm systems. Excluding tornadoes, NCDC data indicates 4,135 recorded wind events in West Virginia between 1955 and September 2012, most associated with thunderstorms. The wind events resulted in \$105.5 million (in 2012 dollars) in property damage. The data show that crops have been damaged by wind as well, with \$1.2 million (in 2012 dollars) reported in crop damages.</p> <p>A tornado is “a rapidly rotating vortex or funnel of air extending ground-ward from a cumulonimbus cloud” (FEMA, 1997). They typically spawn from thunderstorms, hurricanes, and wildfires. While roughly 1,000 tornadoes a year are generated by thunderstorms, relatively few touch down. As wind speeds increase, so does the level of destruction.</p>
Winter Storm	<p>West Virginia experiences frequent hazardous winter weather events. Winter weather may include heavy snows, damaging ice, extreme cold, or any combination thereof. A heavy snow is generally defined as having more than 8 inches of accumulation in less than 24 hours. Ice storms result from the accumulation of freezing rain, which is rain that becomes super-cooled and freezes upon impact with cold surfaces. Freezing rain most commonly occurs in a narrow band within a winter storm that is also producing heavy amounts of snow and sleet in other locations.</p> <p>Injuries and deaths related to heavy snow usually occur as a result of vehicle accidents. Casualties also occur due to overexertion while shoveling snow. Snow can also shut down roadways, the weight of snow can cause structural collapse in buildings, and a quick thaw can cause flooding. Ice is a significant hazard if the surface temperature is at or below freezing and a layer of the atmosphere above the surface is warm enough for precipitation to fall as rain rather than snow. The greatest threat from ice storms is to essential utility and transportation systems. When it coats power and communications lines, trees, highways, bridges and other surfaces, the ice-weighted wires, antennae, and support structures can break and collapse.</p>

Hazard	Hazard Description
Volcano*	A volcano is a vent in the earth's crust through which magma, rock fragments, gases, and ash are ejected from the earth's interior. Over time, accumulation of these erupted materials on the earth's surface creates a volcanic mountain. Hazards associated with the eruption of volcanoes endanger people, buildings, and infrastructure. Volcanoes can lie dormant for centuries between eruptions, and the risk posed by volcanic activity is not always apparent (FEMA, 1997).

Human-Made Hazards

Hazard	Hazard Description
Building or Structure Collapse*	Collapse of a building or structure refers to the loss of the load-carrying capacity of a component of the structure or the entire structure itself. The loss of a structure's load-carrying capacity occurs when the loads applied to the structure exceed the structure's load-carrying capacity. This can be a result of improper design, lack of maintenance, events from a structure's load history that have gradually reduced its load-carrying capacity, or sudden and severe hazard events such as severe weather or terrorism. (Ratay, 2000).
Civil Disturbance*	Civil disturbance hazards encompass a set of hazards emanating from a wide range of possible events that cause civil disorder, confusion, strife, and economic hardship. Civil disturbance hazards include the following: <ul style="list-style-type: none"> • Famine; involving a widespread scarcity of food leading to malnutrition and increased mortality (Robson, 1981). • Economic Collapse, Recession; Very slow or negative growth, for example (Economist, 2009). • Misinformation; erroneous information spread unintentionally (Makkai, 1970). • Civil Disturbance, Public Unrest, Mass Hysteria, Riot; group acts of violence against property and individuals, for example (18 U.S.C. § 232, 2008). • Strike, Labor Dispute; controversies related to the terms and conditions of employment, for example (29 U.S.C. § 113, 2008).

Hazard	Hazard Description
<i>Dam and Levee Failure</i>	<p>Dams are barriers constructed to impound water for storage, flood control, power generation, and/or stream navigation. Dams also are constructed to impound hydraulically transported industrial waste including spoil or mine processing waste, or coal combustions waste of fly ash. The structures can vary greatly in size based on their purpose and area topography.</p> <p>Dams can pose a risk to communities if not designed, constructed, operated, and maintained properly. In the event of a catastrophic dam failure, the energy of water released from even a small dam is capable of causing extensive property damage, injury, and potential loss of life. This is especially true in West Virginia where many communities lie along steep (or high) gradient streams and rivers within narrow valleys. Dam failure is often the result of prolonged rainfall or flooding or, during prolonged dry periods, erosion.</p> <p>A levee is a structure, earthen or artificial, with a primary purpose of providing protection from flooding during seasonal high water, storm surges, precipitation and other weather events. Levees are often parallel to a river or along low-lying coastlines. Although their primary function is flood protection, levees may also confine the flow of water, resulting in higher and faster flows. Similar to a dam failure, failure of a levee can result in catastrophic flooding as was seen in New Orleans on August 29, 2005, during Hurricane Katrina when the failure of levees and flood walls flooded over 80% of the city.</p>
<i>Disorientation*</i>	<p>Large numbers of people are attracted to West Virginia’s rural areas for recreational purposes such as hiking, camping, hunting, and fishing. As a result, people can become lost or trapped in remote and rugged wilderness areas. Search and rescue may be required for people who suffer from medical problems or injuries and those who become accidentally or intentionally disoriented. Search and rescue efforts would be focused in and around state forest and state park lands.</p>
<i>Drowning*</i>	<p>Drowning is death from suffocation, typically associated with swimming, fishing, boating or bridge accidents, or suicide. It can be a significant hazard in communities with numerous residential pools or water bodies (e.g. ponds, lakes, rivers, etc...) and extensive outdoor recreational activity. Drowning rates are particularly high for children ages 1-14. The Centers for Disease Control and Prevention estimates that drowning is the second leading cause of injury death (after motor vehicle crashes) among children ages 1-14. (CDC, 2008).</p>
<i>Hazardous Materials</i>	<p>Hazardous materials (Hazmat) are a concern for West Virginia because of the potential for a spontaneous accidental or intentional illegal release that could endanger human health and safety, property and the environment. Hazmat includes explosives, flammable and combustible substances, poisons and radioactive materials. Hazmat incidents can include highway transport, rail transport, fixed facilities, pipelines, radioactive materials, cryogenic tanks, chemical and biological terrorism, and illegal or clandestine drug laboratories. Each type of hazardous materials incident can cause death, serious injury, and long-lasting health effects, along with damage to buildings, homes, and other property.</p>

Hazard	Hazard Description
Mass Food/Animal Feed Contamination*	<p>Mass food or animal feed contamination hazards occur when food or food sources are contaminated with pathogenic bacteria, viruses, or parasites, as well as chemical or natural toxins. They may lead to foodborne illnesses and/or interruptions in the food supply. Contamination may occur due to natural foodborne illnesses and chemical, biological, radiological, or nuclear exposure. Most foodborne illnesses are caused by <i>Campylobacter</i> in poultry; <i>E. Coli</i> in beef, leafy greens, and raw milk; <i>Listeria</i> in deli meats, unpasteurized soft cheeses, and produce; <i>Salmonella</i> in eggs, poultry, meat, and produce; <i>Vibrio</i> in raw oysters; <i>Norovirus</i> in many foods; and <i>Toxoplasma</i> in meats (CDC, 2013). Contamination usually occurs accidentally during the production/preparation process but can also be the result of intentional acts.</p>
Natural Resource Extraction Processes	<ul style="list-style-type: none"> • Coal mining in West Virginia is very important to both the State and the country. However, coal mining, especially the underground mining prevalent in West Virginia, is a relatively hazardous industry. Coal mining hazards include those facing miners working in active operations, as well as residual post-mining hazards, especially those represented by abandoned mines. Coal mining workplace hazards include cave-ins or collapses, flooding, and hazardous and toxic gas accumulations. Active coal mining operations also create certain hazards to surrounding communities. The most significant community hazards posed by active mines are mine waste impoundment dam failures and waste pile landslides. • A procedure called hydraulic fracturing (often called “hydrofracking” or “fracking”) is used to retrieve the natural gas deposits. This process involves the hydraulic fracturing of the shale by pumping water at high pressures into the rock to create vertical fractures in the shale layer, while at the same time introducing sand into the rock to keep the fractures open once the water is removed. Hydraulic fracturing may have negative impacts on the environment and for property owners and communities near the wells. The water that is pumped at high pressures into the well is mixed with a series of chemicals, a few of which include acids, diesel fuels, gelling agents, antibacterial agents, and corrosion inhibitors. A portion of these chemicals may remain trapped in the ground and may leach into groundwater or surface water, and some of them qualify as hazardous materials and known carcinogens.
Nuclear Incident	<p>The Nuclear Regulatory Commission (NRC) emphasizes the integration of safety, security, and emergency preparedness as the basis for the NRC's primary mission of protecting public health and safety. Under the National Response Framework, the NRC will coordinate with other Federal, State, and local emergency organizations in response to various types of domestic events. Radioactive materials, if handled improperly, or radiation accidentally released into the environment, can be dangerous because of the harmful effects of certain types of radiation to the body. The longer a person is exposed to radiation and the closer the person is to the radiation, the greater the risk. Protection in a nuclear emergency comes from distance (the more distance from the radiation the better), shielding (protection using heavy materials that absorb radiation), and time (radiation loses its intensity rapidly). While radiation cannot be distinguished by the human senses (sight, smell, etc.), sophisticated instruments are able to detect even the smallest levels of radiation.</p>

Hazard	Hazard Description
Source Water Contamination*	Source water refers to the surface water and groundwater used to supply water for public drinking water supply systems. This source water becomes contaminated through the addition of any substance or property preventing the use of or reducing the usability of water for ordinary purposes such as drinking, preparing food, bathing, washing, recreation, and cooling. Contamination can pose a serious risk to public health and welfare.
Terrorism	<p>Terrorism is the use of force or violence, including threats of force or violence, against persons or property in violation of the criminal laws of the United States for the purposes of intimidate, coercion, or ransom. Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber attacks (computer-based); and the use of chemical, biological, nuclear and radiological weapons. High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks. Terrorists might also target large public gatherings, water and food supplies, utilities, and corporate centers. Further, terrorists are capable of spreading fear by sending explosives or chemical and biological agents through the mail.</p> <p>Terrorism is not always accomplished on a “grand scale”, as is the case with international terrorists who are attempting to coerce the federal government. Such terrorism, while technically a hazard in throughout Region 9, is more unlikely than what is known as “domestic terrorism” or “homegrown violent extremism”. Domestic terrorism can involve disgruntled employees (in the case of large industrial plants), angry parents (at schools), upset citizens (at government facilities), etc. Domestic terrorists may often only intend to harm a single individual or a small group of individuals, but the threat of their actions can be highly disruptive.</p>
Transportation Accidents*	Transportation accidents can result from any form of air, rail, water, or road travel. It is unlikely that small accidents would significantly impact the larger community. However, certain accidents could have secondary regional impacts such as a hazardous materials release or disruption in critical supply/access routes, especially if vital transportation corridors or junctions are present. (Research and Innovative Technology Administration, 2009). Traffic congestion in certain circumstances can also be hazardous. Traffic congestion is a condition that occurs when traffic demand approaches or exceeds the available capacity of the road network. This hazard should be carefully evaluated during emergency planning since it is a key factor in timely disaster or hazard response, especially in areas with high population density. (Federal Highway Administration, 2009).
Urban Fire and Explosion*	An urban fire involves a structure or property within an urban or developed area. For hazard mitigation purposes, major urban fires involving large buildings and/or multiple properties are of primary concern. The effects of a major urban fire include minor to significant property damage, loss of life, and residential or business displacement. Explosions are extremely rapid releases of energy that usually generate high temperatures and often lead to fires. The risk of severe explosions can be reduced through careful management of flammable and explosive hazardous materials. (FEMA, 1997). Urban fire also includes incidences of arson.

<i>Hazard</i>	<i>Hazard Description</i>
<i>Utility Interruption*</i>	<p>Utility interruption hazards are hazards that impair the functioning of important utilities in the energy, telecommunications, public works, and information network sectors. Utility interruption hazards include the following:</p> <ul style="list-style-type: none"> • Fuel or Resource Shortage; resulting from supply chain breaks or secondary to other hazard events. • Information Technology Failure; due to software bugs, viruses, or improper use (Rainer Jr., et al, 1991). • Ancillary Support Equipment; electrical generating, transmission, system-control, and distribution-system equipment for the energy industry (Hirst & Kirby, 1996). • Telecommunications System Failure; Damage to data transfer, communications, and processing equipment, for example (FEMA, 1997) • Transmission Facility or Linear Utility Accident; liquefied natural gas leakages, explosions, facility problems, for example (US Department of Energy, 2005) • Major Energy, Power, Utility Failure; interruptions of generation and distribution, power outages, for example (US Department of Energy, 2000).
<i>War and Criminal Activity*</i>	<p>War and criminal activity hazards are intentional acts of violence, damage to property, and other criminal activities. This category specifically includes the following hazards:</p> <ul style="list-style-type: none"> • War, Enemy Attack; foreign attack on territory of the United States (50 U.S.C., 2008). • Disinformation, Sabotage; intentionally spread inaccurate information, for example; interfering or impairing an operator’s management or control of an organization (USLegal, Inc., 2008). • Criminal Activity; lawlessness, acts committed for which punishment is imposed upon conviction after due process (USLegal, Inc., 2008). • Physical or Information Security Breach; contravening security and confidentiality laws and procedures; burglary, unreasonable search and seizure, for example (73 Pa. C.S. § 2303, 2006; Network Associates, Inc., 1998). • Workplace, School Violence; some environments are more likely than others to experience violence including occupations involving contact with the public (National Institute for Occupational Safety and Health, 1996). • Harassment; a pattern of conduct that causes substantial emotional distress with no legal purpose (18 U.S.C. § 1514, 2008). • Discrimination; widespread treatment based on class, category, or prejudice rather than merit, applies extensively to civil and labor law (26 U.S.C. § 62, 2008).

Other Hazards

<i>Hazard</i>	<i>Hazard Description</i>
<i>Climate Change*</i>	<p>Climate change refers to a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties. These changes persist for an extended period, typically decades or longer (IPCC, 2007). Climate change can alter the frequency and intensity of hazards such as wildfire, extreme temperature, drought, or flooding, particularly impacting sea level rise and coastal flooding.</p>

Appendix C-2 Morgan County Kick-off Meeting Materials (May 31, 2016)

From: Rachel Snavelly <RSnavelly@region9wv.com>
Sent: Wednesday, April 27, 2016 11:03 AM
To: agorse@morgancountywv.gov; altonwolfe1955@gmail.com;
Bheath@morgancountywv.gov; Commissioner Brad Close;
dmyers@morgancountywv.gov; Jody McClintock; Mayor Scott Merki;
sallemong@morgancountywv.gov; Zachary Caldwell
Cc: Bill Clark; Truax, Troy D
Subject: 2017 Hazard Mitigation Plan Update
Attachments: GANTT.xlsx; Hazard Mitigation Planning FAQ.docx; Scope of Work.docx

Good morning,

If you're receiving this email, you've been tentatively selected to participate on the Hazard Mitigation Plan Committee for Morgan County. Your selection was based on your agency's participation in the 2012 update or because it was felt that your agency should be represented in the plan.

If you do not wish to actively participate on this committee, or feel another member of your agency would better serve the committee, please contact me so I can update my mailing list. It is expected that this committee will meet 3 times before finalization of the plan update in December of this year, with the kick-off meeting taking place in May. We also ask that you be available to our consultant, Michael Baker, if they need to collect any data from your office for this plan. For reference, the following individuals have been selected for the committee:

- Morgan County E-911 (Zachary Caldwell)
- Morgan County Commission (Brad Close)
- Morgan County Office of Homeland Security and Emergency Management (Dick Myers)
- Morgan County Grant Administrator (Stefanie Allemong)
- Morgan County Economic Development Authority (Betsy Heath)
- Morgan County Planning Commission (Alma Gorse)
- Morgan County Administrator (Jody McClintock)
- The Town of Paw Paw (Mayor Alton Wolfe, Jr.)
- The Town of Bath (Mayor Scott Merki)

In the meantime, I've attached an FAQ regarding the plan update, as well as a timeline and the scope of work which indicates what needs to be covered in the plan update. Here is a link to the 2012 plan, for your reference, <http://www.dhsem.wv.gov/MitigationRecovery/Documents/Region%20IX.pdf>
We are also updating Berkeley County's plan, but intend to keep the committee meetings separate.

If you have any questions, please feel free to contact me.

Rachel Snavelly
Project Assistant
Region 9: Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
304.263.1743
www.region9wv.com

From: Rachel Snavely [<mailto:RSnavely@region9wv.com>]

Sent: Tuesday, May 03, 2016 8:16 AM

To: agorse@morgancountywv.gov; altonwolfe1955@gmail.com; Bheath@morgancountywv.gov; Commissioner Brad Close <bclose@morgancountywv.gov>; dmyers@morgancountywv.gov; Jody McClintock <jmcclintock@morgancountywv.gov>; Mayor Scott Merki <asst5@aol.com>; sallemong@morgancountywv.gov; Zachary Caldwell <e911director@morgancountywv.gov>

Cc: Truax, Troy D <Troy.Truax@mbakerintl.com>; Bill Clark <BCClark@region9wv.com>

Subject: Kick-Off Meeting - May 31 - Hazard Mitigation Committee

Good morning,

The kick-off meeting for the Hazard Mitigation Plan Update for Morgan County has been scheduled for **May 31, 2016 from 9AM-11AM**. We will meet at the Morgan County Economic Development Authority's office, located at **83 War Memorial Hospital, Berkeley Springs, WV 25411** (the old hospital site).

This meeting will address roles, responsibilities, administrative procedures, and communication strategies. A Memorandum of Understanding for sharing information and data will be presented to the communities. The consultant will present a map with HAZUS-MH critical facilities plotted to better elicit local information from the Hazard Mitigation Committee.

Please RSVP, and if you are unable to attend, I will forward you a summary of information after the meeting. If you have any questions in the meantime, feel free to email or call me or Bill at the number below. Thank you,

Rachel Snavely

Project Assistant

Region 9: Eastern Panhandle Regional Planning & Development Council

400 W. Stephen Street, Ste. 301

Martinsburg, WV 25401

304.263.1743

www.region9wv.com

Meeting Agenda

Morgan County Hazard Mitigation Plan Update Steering Committee Kick-Off Meeting

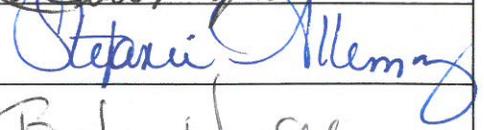
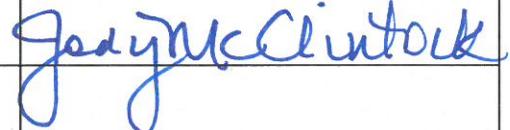
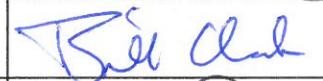
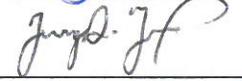
Date	Tuesday, May 31, 2016
Time	9:00 AM – 11:00 AM
Location	Morgan County Economic Development Authority 83 War Memorial Hospital, Berkeley Springs, WV 25411

Purpose: Steering Committee Kick-Off Meeting for Morgan County Hazard Mitigation Plan Update

Topic	Time
1. Attendance Sign-in	➤ 9:00 AM
2. Welcome and Introductions	➤ 9:05 AM
3. Definition of Hazard Mitigation	➤ 9:10 AM
4. Review of Planning Process	➤ 9:15 AM
5. Schedule and Meetings	➤ 9:30 AM
6. Hazard Review Exercises	➤ 9:40 AM
7. Participation <ul style="list-style-type: none"> ○ Municipal Contacts ○ Additional Stakeholders ○ Project Website 	➤ 10:00 AM
8. Relevant Data and Documents	➤ 10:30 AM
9. Next Steps	➤ 10:45 AM

Morgan County Hazard Mitigation Plan Update Steering Committee Kick-Off Meeting

May 31, 2016 – 9:00 AM

Name	Title	Jurisdiction/ Organization	Telephone	E-Mail Address	Signature
Zachary Caldwell	911 Director	Morgan County E-911	(304) 258-0305	e911director@morgancountywv.gov	
Brad Close	Commission President	Morgan County Commission	(304) 867-3140	bclose@morgancountywv.gov	
Dick Myers	Office of Emergency Services Director	Morgan County Office of Homeland Security and Emergency Management	(304) 258-0305	dmyers@morgancountywv.gov	
Stefanie Allemong	Grant Administrator	Morgan County Grant Administrator		sallemong@morgancountywv.gov	
Betsy Heath	Economic Development Authority Director	Morgan County Economic Development Authority	(304)258-8546	Bheath@morgancountywv.gov	
Alma Gorse	County Planner	Morgan County Planning Commission	(304)867-3133	agorse@morgancountywv.gov	
Jody McClintock	County Administrator	Morgan County Administrator	(304) 867-3131	jmcclintock@morgancountywv.gov	
Alton Wolfe Jr.	Mayor	The Town of Paw Paw	(304) 947- 7476	altonwolfe1955@gmail.com	
Scott Merki	Mayor	The Town of Bath	(304) 258-1102	asst5@aol.com	
Rachel Snavely	Project Assistant	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	RSnavely@region9wv.com	
Bill Clark	Executive Director	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	BClark@region9wv.com	
Troy Truax	Technical Manager, Planning Services	Michael Baker International	(717) 213-6241	Troy.Truax@mbakerintl.com	
Angela Welt	Environmental Specialist	Michael Baker International	(717) 221-2040	awelt@mbakerintl.com	

MORGAN COUNTY HAZARD MITIGATION PLAN UPDATE PROJECT

May 31, 2016



Agenda

- Attendance Sign-In
 - Introductions
 - Definition of Hazard Mitigation
 - Review of Planning Process
 - Schedule and Meetings
 - Hazard Review Exercise
 - Participation
 - Relevant Data and Documents
 - Next Steps
-

Hazard Mitigation Defined



What is Hazard Mitigation?

- Hazard mitigation is any **sustained** action taken to **reduce or eliminate long-term risk** to people and property from natural and man-made hazards and their effects.



What is a Hazard Mitigation Plan?

- A Hazard Mitigation Plan is a community-driven, living document that communities use to reduce their vulnerability to hazards.
- Counties must have a plan in order to maintain access to mitigation grants. These grants can augment local mitigation activities already being done.



Mitigation Techniques



Local Mitigation Planning Handbook

March 2013



FEMA

- New FEMA mitigation planning guidance identifies four mitigation techniques:
 - Plans and Regulations
 - Structure and Infrastructure Projects
 - Natural Systems Protection
 - Education and Awareness Programs

Planning Process



Hazard Mitigation Plan

Updates

- Every five years (2012, 2017)

Sections

1. Introduction
2. Community Profile
3. Planning Process
4. Risk Assessment
5. Capability Assessment
6. Mitigation Strategy
7. Plan Maintenance
8. Adoption



REGION 9 PLANNING & DEVELOPMENT COUNCIL

Multi-Jurisdictional Hazard Mitigation Plan
for Berkeley and Morgan Counties



Planning Process

- Plan development and participation
- The Planning Team
- Public and other stakeholder participation
- Meetings
 - Meeting #1 (HMC only) – **May**
 - Meeting #2 (HMC and public) – **July**
 - Meeting #3 (HMC and public) – **September**
 - Meeting #4 (HMC and public) – **October**
- Incorporating existing planning mechanisms



Schedule and Meetings



Schedule and Meetings

TASK	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
<i>HMC Meeting #1</i>								
Hazard Identification & Profiling								
<i>HMC Meeting #2</i>								
Vulnerability Assessment								
Estimation of Loss Calculated								
<i>HMC Meeting #3</i>								
Draft Plan								
Committees to Review Plan								
<i>HMC Meeting #4</i>								
Public Comment Period								
Finalize Plan and Submit to WV DHSEM								

Hazard Identification & Evaluation Worksheet

- Instructions:
 - **PART I:** evaluate whether the frequency, magnitude, or geographic area of hazards profiled in your last plan have:
 - I: Increased
 - D: Decreased
 - NC: Not Changed
 - **PART II:** which of the hazards not previously covered are now relevant and should be included in the updated HMP?
 - **PART III:** provide any other relevant comments or information indicating why a hazard should be profiled

Participation



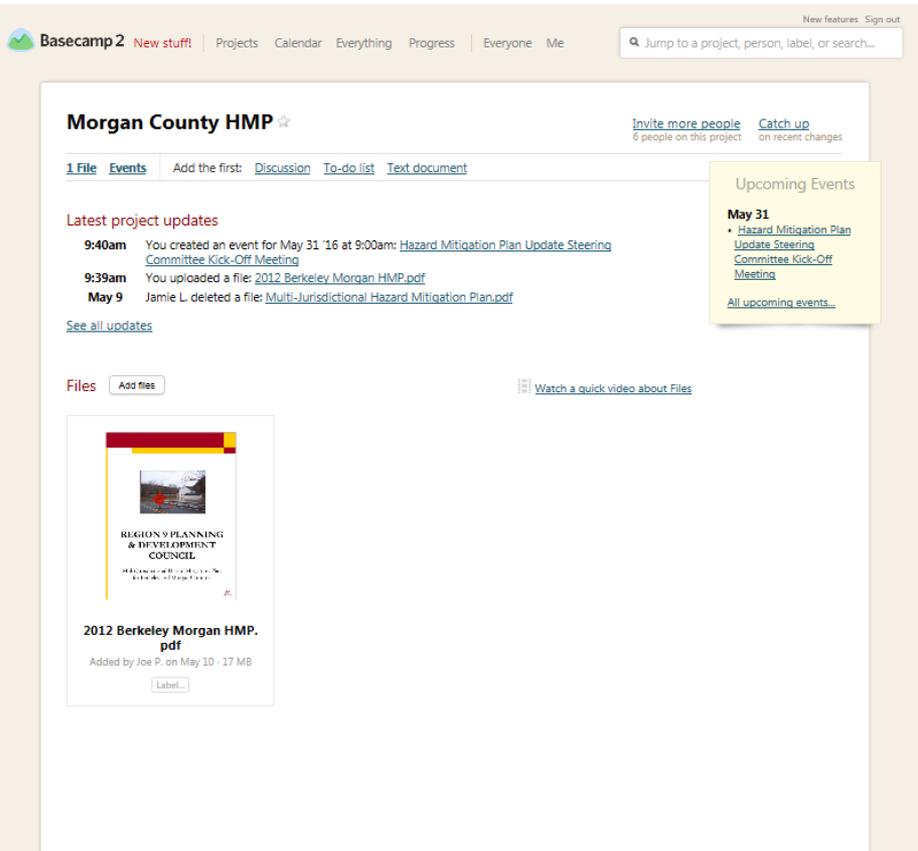
Plan Update Participants

- Steering Committee
 - Municipal Corporations – *Need confirmation of contact list.*
 - Stakeholders – *Need feedback.*

Morgan County Commission	Adjacent County Commissioners
The Town of Paw Paw	The Town of Bath
Morgan County Economic Development Authority	Morgan County Office of Homeland Security and Emergency Management
State/National Parks and Forests	Educational Institutions
Morgan County EMS	Red Cross
Morgan County E-911	Morgan County Fire Board

- Public

Project Website - Basecamp



The screenshot shows a Basecamp project page for "Morgan County HMP". At the top, there is a navigation bar with "New stuff!" and tabs for "Projects", "Calendar", "Everything", "Progress", "Everyone", and "Me". A search bar is located on the right. Below the navigation, the project name "Morgan County HMP" is displayed with a star icon. There are links for "invite more people" (6 people on this project) and "Catch up" (on recent changes). A sub-navigation bar includes "File", "Events", and "Add the first:" followed by "Discussion", "To-do list", and "Text document".

Latest project updates

- 9:40am** You created an event for May 31 '16 at 9:00am: [Hazard Mitigation Plan Update Steering Committee Kick-Off Meeting](#)
- 9:39am** You uploaded a file: [2012 Berkeley Morgan HMP.pdf](#)
- May 9** Jamie L. deleted a file: [Multi-Jurisdictional Hazard Mitigation Plan.pdf](#)

[See all updates](#)

Files [Watch a quick video about Files](#)

2012 Berkeley Morgan HMP.pdf
Added by Joe P. on May 10 - 17 MB

Upcoming Events

May 31

- [Hazard Mitigation Plan Update Steering Committee Kick-Off Meeting](#)

[All upcoming events...](#)

- Project website for each county
- Provides general project information
- Hosts project calendar
- Announcements
- Interactive steering committee involvement
- Not publicly accessible

Other Outreach Activities

(teleconferences, office hours, other)



Relevant Data and Documents



Local Mitigation Planning Handbook

March 2013



Commonwealth of Pennsylvania's
All-Hazard Mitigation Planning

Standard Operating Guide

October 18, 2013

Prepared for:
Pennsylvania Emergency Management Agency
2605 Interstate Drive
Harrisburg, PA 17110



Prepared by:
Michael Baker Jr., Inc.
1818 Market Street, Suite 3110
Philadelphia, PA 19103

Baker

Data and Document Requests

Data and Document Requests

- Emergency Operations Plan
- County GIS point-of-contact and advance notification
- County / Region 9 letterhead (if any hardcopy letters should be sent by Michael Baker)
- Photos or other documentation of past occurrences

Already Located on County / Municipal Website

- ✓ County Comprehensive Plan (MC)
- ✓ Floodplain Ordinance (MC)
- ✓ Subdivision Ordinance (MC)
- ✓ Stormwater Management Ordinance (MC)
- ✓ Snow Removal Plan (TB)
- ✓ Green Infrastructure Study (TB)

Next Steps and Action Items

- Distribute meeting summary
- Confirm future HMC meeting dates/times/venues
- Invite HMC members to join the project Basecamp site
- Confirm municipal, stakeholder, and GIS contacts
- Provide Emergency Operations Plan, County / Region 9 letterhead, and photographs



Do you have additional questions or ideas for this project?



Contacts

- Rachel Snavely, Region 9 Point of Contact
304-263-1743, RSnavely@region9wv.com
- Troy Truax, AICP, Michael Baker Point of Contact
717-213-6241, Troy.Truax@mbakerintl.com

THANK YOU!



Steering Committee Kick-Off Meeting

May 31, 2016

9:00 – 11:00 AM

Morgan County Commission Office

77 Fairfax Street

Berkeley Springs, WV 25411

Meeting Summary

The following notes are intended to supplement the meeting presentation.

- Michael Baker International (Baker) is updating the plan on behalf of Region 9.
- West Virginia University (WVU) is working on Hazards U.S. (HAZUS) modeling, which will be incorporated into the updated Hazard Mitigation Plan (HMP). WVU has finished the Berkeley County HAZUS but is still working on the Morgan County HAZUS models.
- The updated HMP must be adopted by the county and each community by resolution. A HMP approved by the Federal Emergency Management Agency (FEMA) is a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects.
- There are no zoning ordinances in Morgan County, but there are subdivision ordinances.
- The 2012 HMP has sections similar to the Standard Operating Guide outline (see PowerPoint slide 9). The main addition will be the Capability Assessment section.
- The goal is to have the revised HMP to the West Virginia Division of Homeland Security and Emergency Management by November/December and on to FEMA by a due date of January 7, 2017.
- In addition to inviting the public to the next three Morgan County Hazard Mitigation Planning Committee meetings, we will ask local newspapers to issue press releases to solicit public participation.
- We will be incorporating existing planning mechanisms into the HMP, like the source water contamination studies and storm water initiatives.
- We will be inviting additional stakeholders to attend meetings and participate in the HMP update.
- We will add some new hazard profiles to the HMP, like source water contamination.
- Please send any local disaster photos and ideas for more stakeholders to add to the contact list.

HAZARD MITIGATION PLANNING FACT SHEET

What is Hazard Mitigation?

Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property resulting from natural and human-caused hazards.

What is a Hazard Mitigation Plan?

A Hazard Mitigation Plan (HMP) is a community-driven, living document that communities and jurisdictions use to reduce their vulnerability to hazards.

Why should my community have a Hazard Mitigation Plan?

Communities must have a Plan to apply for and receive mitigation funding. These grants can augment local mitigation activities already being done. Ultimately, these actions reduce loss of life, property, essential services, critical facilities, and economic hardship and communities are able to recover more quickly from disasters.

What happens if my community doesn't participate in the Plan?

Communities that choose not to participate will not be eligible for certain types of hazard mitigation funding. This means that even if your community is included in a federally-declared disaster, you will not be eligible for Hazard Mitigation Grant Program funding unless you have a FEMA-approved HMP.

What does my community have to do to participate in the Plan?

Municipal representatives are required to attend meetings, provide valuable information, and actively participate in the planning process.

Hazard Mitigation Planning follows a six-step planning process:

- 1. Organize & Build the Planning Team**
- 2. Assess Risk and Vulnerability**
- 3. Assess Capabilities**
- 4. Develop the Mitigation Strategy**
- 5. Determine Plan Maintenance Process**
- 6. Obtain Mitigation Plan Approval and Adoption**

What are some examples of Hazard Mitigation?

Hazard mitigation actions usually fall into one of four different categories:

- *Plans and Regulations* – These actions include authorities, policies, or codes that influence the way land and buildings are developed and built.
- *Structure and Infrastructure* – These actions involve modifying existing structures and infrastructure or constructing new structures to reduce hazard vulnerability.
- *Natural Systems Protection* – These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.
- *Education and Awareness* – These are actions to inform and educate students, officials, and local citizenry about hazards and potential ways to mitigate them.

Mitigation actions may include:

- Enforcement of building codes, floodplain management codes and environmental regulations.
- Public safety measures such as continual maintenance of roadways, culverts and dams.
- Acquisition or relocation of structures, such as purchasing buildings located in a floodplain.
- Acquisition of hazard prone lands in their undeveloped state to ensure they remain so.
- Retrofitting of structures and design of new construction such as elevating a home or building.
- Protecting critical facilities and infrastructure from future hazard events.
- Mitigation, disaster recovery and COOP planning.
- Development and distribution of outreach materials related to hazard mitigation.
- Deployment of warning systems.

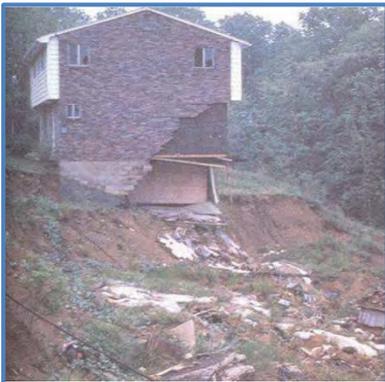
DID YOU KNOW?
Effective Mitigation efforts can break the cycle of disaster damage, reconstruction, and repetitive loss!

Hazard Mitigation Planning FAQ

- 100% managed and administered by Region 9 and its consultant.
- Requires participation and cooperation from communities in collecting necessary data to update plan.
- Must be adopted by each community by resolution.
- FEMA-approved hazard mitigation plan is a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects.
- 100% funded by FEMA and WVDHSEM.

Benefits of plan:

- 1) Increase awareness around threats and vulnerabilities
- 2) Build partnerships for risk reduction
- 3) Identify long-term strategies for risk reduction
- 4) Align risk reduction with state and community objectives
- 5) Identify approaches that focus resources on greatest risk and vulnerabilities; establish priorities



Approved Plan Required to Receive:

- Hazard Mitigation Grants:
Help communities implement hazard mitigation measures following Presidential major disaster declaration; fund plan updates
- Pre-Disaster Mitigation Grants:
Planning and project grants to help communities implement pre-disaster hazard mitigation programs
- Public Assistance Grants:
Provide FEMA assistance to communities so that they can respond to and recover from major disasters
- Fire Management Assistance Grant:
Provides FEMA assistance to communities for the mitigation, management, and control of fires on public/private owned forests
- Flood Insurance/Mitigation:
Required to receive Flood Mitigation Assistance project grants, which assist communities in flood hazard mitigation projects, plan development, and management costs. Required for access to FEMA grants if community has CRS rating for floodplain management – affects flood insurance rates



Hazards profiled in 2012 plan:

- Dam/levee failure
- Drought
- Earthquake
- Epidemic
- Flood
- Hailstorm
- Hazardous material release
- Infestation
- Land subsidence/sinkholes
- Severe winter storm
- Terrorism
- Thunderstorms
- Wildfire
- Windstorm/Tornado

Additional hazards may be profiled in the 2017 HMP update, such as source water contamination.

For more information, please visit:
<http://www.fema.gov/hazard-mitigation-planning>

Evaluation of Identified Hazards and Risk: Morgan County

Name: _____

Title: _____

Affiliation: _____

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
<i>Drought</i>		
<i>Earthquake</i>		
<i>Epidemic</i>		
<i>Flooding</i>		
<i>Hailstorm</i>		
<i>Infestation</i>		
<i>Land Subsidence</i>		
<i>Thunderstorm, Lightning Strike</i>		
<i>Wildfire</i>		
<i>Wind Storm, Tornado</i>		
<i>Winter Storm</i>		

Identified Hazards <i>2012 HMP</i>	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments <i>(Please provide an explanation for any hazards marked I or D in this column)</i>
Human-made Hazards		
Dam and Levee Failure		
Hazardous Materials		
Terrorism		

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? *(If so, check box)*

Natural

- | | |
|--|--|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input type="checkbox"/> Extreme Temperature | <input type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input type="checkbox"/> Landslide | <input type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|--|
| <input type="checkbox"/> Building or Structure Collapse | <input type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input type="checkbox"/> Source Water Contamination |
| <input type="checkbox"/> Transportation Accidents | <input type="checkbox"/> Urban Fire and Explosion |
| <input type="checkbox"/> Utility Interruption | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Standard List of Hazards

NOTE: Asterisk (*) indicates hazard not reviewed in the 2012 Region 9 Multi-Jurisdictional Hazard Mitigation Plan for Berkeley and Morgan Counties or in the 2013 West Virginia Statewide Standard Hazard Mitigation Plan Update

Natural Hazards

Hazard	Hazard Description
<i>Avalanche/ Glacier*</i>	<p>An avalanche is a mass of snow sliding down a mountainside. It occurs when the stress (from gravity) trying to pull the snow downhill exceeds the strength of bonds that form between snow grains within the snow cover. Temperature, precipitation, wind, depth of snow cover, slope, and vegetation density all influence the frequency and intensity of avalanches (FEMA, 1997).</p> <p>A glacier is a very large mass of ice which may or may not be moving slowly over a land mass, formed from compacted snow in an area where snow accumulation exceeds melting and sublimation. Glaciers exist where, over a period of years, snow remains after summer's end.</p>
<i>Coastal Erosion*</i>	<p>Coastal erosion is a natural coastal process in which sediment outflow exceeds sediment inflow at a particular location. These sediments are typically transported from one location to another by wind, waves, currents, tides, wind-driven water, waterborne ice, runoff of surface waters, or groundwater seepage. Depending on the location and processes in place, coastal erosion can take place very slowly, whereby the shoreline shifts only inches to a foot per year; or more rapidly, whereby changes can exceed ten feet per year. Intense storms and human interference can result in avulsive events where large portions of a beach or dune are washed away by strong currents and large waves (FEMA, 1997).</p>
<i>Drought</i>	<p>Droughts are defined according to meteorological, hydrological, and agricultural criteria. Any significant deficit of precipitation is categorized as meteorological. Hydrological drought is apparent in noticeably reduced river and stream flow and critically low groundwater tables. Agricultural drought indicates an extended dry period that results in crop stress and harvest reduction.</p> <p>The Palmer Drought Severity Index (PDSI) is widely used throughout the United States as a measure of drought and to track moisture conditions. The PDSI is defined as "an interval of time, generally in months or years in duration, during which the actual moisture supply at a given place rather consistently falls short of the climatically expected or climatically appropriate moisture supply". The range of the PDSI is from -4.0 (extremely dry) to +4.0 (excessively wet), with the central half (-2.0 to +2.0) representing normal or near normal conditions.</p>
<i>Dust, Sand Storm*</i>	<p>A dust or sand storm is a severe windstorm that sweeps clouds of dust across an arid region. Drought and wind contribute to the emergence of dust storms, as do poor farming and grazing practices by exposing dust and sand to the wind. Dust and sand storm events can be hazardous to transportation, navigation, and human health. Severe or prolonged dust and sand storms can result in disaster causing extensive economic damage over a wide area and personal injury or death in some cases. Dust and sand storm events occur in the dry regions of the United States, such as Texas, New Mexico, and Arizona (NOAA, 2009).</p>

<i>Hazard</i>	<i>Hazard Description</i>
<i>Earthquake</i>	<p>Earthquakes are the sudden, rapid shaking of the ground. Caused by the shifting and breaking of rock beneath the earth's surface, earthquakes result in three basic phenomena: ground motion, surface faulting, and related ground failures. While most earthquakes tend to occur at the boundaries where tectonic plates meet, some earthquakes do occur in the middle of the plates.</p> <p>The severity of an earthquake's impact is dependent on the amount of energy released from the fault (or epicenter) of the quake. The effects of an earthquake can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and, after just a few seconds, can cause massive damage and extensive casualties. Common effects of earthquakes are ground motion and shaking, surface fault ruptures, and ground failure.</p>
<i>Epidemic</i>	<p>An epidemic is a disease, usually contagious, that recurs in a community and attacks a large number of people at the same time. The potential impacts of an epidemic are illness or fatalities, disruption or closing of schools, or the forced closure of businesses and industrial operations.</p> <p>An epidemic can affect all parts of the region, but is more probable to occur in densely populated areas, particularly large, multi-unit residential developments. Epidemic situations can also spread rapidly through such congregate facilities as nursing homes and hospitals and even schools and colleges. Epidemics can develop with little or no warning and quickly erode the capacity of local medical care providers. A fast developing epidemic can last several days and extend into several weeks. In some extreme cases, they can last for several months. An epidemic can occur at any time of the year, but the warm summer months, when bacteria and microorganism growth are at their highest, present the greatest risk.</p>
<i>Expansive Soils*</i>	<p>Clay soils have the potential to shrink and swell when they become wetted or dried. Expansive soils do not change size quickly, but over time can result in significant movement that can damage supply lines (e.g. roads, power lines, railways, bridges, etc...) and structures that lack proper design. (Olive et al, 1989).</p>
<i>Extreme Temperature</i>	<p>Extreme heat can be described as temperatures that hover 10°F or more above the average high temperature for a region during the summer months. The medical dangers of extreme heat include heat exhaustion, heat stroke, sunburn, and dehydration. Extreme heat can also be associated with drought conditions.</p> <p>The definition of extreme cold temperature varies according to the normal climate of a region. In areas unaccustomed to winter weather, near freezing temperatures are considered "extreme cold." In West Virginia, extreme cold usually involves temperatures below 0° Fahrenheit. Excessive cold may accompany winter storms, linger after the winter storm event, and occur without storm activity. Extreme cold can lead to hypothermia and frostbite, which are both serious medical conditions.</p>

Hazard	Hazard Description
<i>Flooding</i>	<p>Floods are the most common and widespread natural disasters in the United States. Of the natural hazards facing West Virginia, floods constitute the greatest threat to property and lives. Some terms that are useful in the discussion of this hazard are defined as follows by FEMA:</p> <p>Flood – A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties (at least one of which is your property) from overflow of inland or tidal waters, from unusual and rapid accumulation or runoff of surface waters from any source, or from mudflow.</p> <p>Flash Flood – A flood event occurring with little or no warning where water levels rise at an extremely rapid rate.</p> <p>Floodplain – Any land area, including watercourse, susceptible to partial or complete inundation by water from any source.</p> <p>Floodway – The channel of a river or other watercourse and adjacent land areas that must be reserved in order to discharge the 1-percent-annual-chance flood without cumulatively increasing the water surface elevation by more than a designated height.</p> <p>Most communities in the United States can experience some kind of flooding after spring rains, heavy thunderstorms, or winter snow melts. The average annual U.S. flood loss from 2002-11 was more than \$2.9 billion. Flooding is arguably the highest priority hazard in both Berkeley and Morgan counties (as is the case in most of West Virginia). These counties are susceptible to flooding largely due to physical geography, which includes several rivers and creeks as well as varied topography.</p>
<i>Hailstorm</i>	<p>Hailstones are balls of ice caused by water droplets being caught in updrafts and transported to a level in the atmosphere that is below freezing. Hailstones can vary in size from small balls of less than 2 centimeters to hailstones as large as softballs.</p> <p>While thunderstorms with hail and lightning can be found throughout the United States, they are most likely to occur in the central and southern states (FEMA, 1997a). NCDC data indicate that there were 2,212 hail events in West Virginia between 1955 and September 2012, causing 3 injuries but no deaths, and \$180,495 (in 2012 dollars) in crop damage and \$34.16 million (in 2012 dollars) in property damage.</p>

<i>Hazard</i>	<i>Hazard Description</i>
<i>Hurricane, Tropical Storm, Nor'easter</i>	<p>Hurricanes pose a danger from torrential rains, high winds, and storm surges in coastal areas, and pose more of a flooding and occasional gusty wind threat once inland and impacting West Virginia. In order to be classified as a hurricane, the storm must have sustained winds exceeding 74 mph. Although originating over the ocean, a hurricane can move across inland areas and can last for days. Hurricanes can also spawn other severe weather events (e.g., thunderstorms, tornados and flash floods).</p> <p>Hurricanes are classified by their damage potential according to a scale developed in the 1970s by Robert Simpson and Herbert Saffir, and updated slightly by the National Hurricane Center in 2012. The scale is designed to give public officials and the general public usable information on the magnitude of a storm. The classification ranges from a category 1 hurricane that has wind speeds of 75 to 95 mph to a category 5 hurricane that has wind speeds of over 157 mph.</p> <p>By the time a storm classified as a hurricane at the United States coastline arrives in West Virginia, it has most likely weakened into a tropical storm or depression. Tropical storms are defined as tropical cyclones with sustained winds from 39 to 73 mph, and depressions are characterized by sustained winds of less than 39 mph. Both are low-pressure systems formed over tropical oceans and are accompanied by torrential rains. These types of storms pose similar dangers as hurricanes, but with reduced threat from wind speeds.</p>
<i>Infestation</i>	<p>An infestation is characterized by a swarm or the spread of a troublesome or dangerous organism. The effects of an infestation to this region could be quite damaging due to the thousands of acres of agriculture and forested land in the region. The Eastern Panhandle has been identified by the Department of Forestry as being infested with gypsy moths and may possibly encounter an infestation from the Asian long horned beetles, southern pine beetles, and mosquitoes.</p>
<i>Landslide</i>	<p>Landslides are the downward movement of large volumes of surface materials under gravitational influences. The term landslide includes mudflows, mudslides, debris flows, rock falls, rockslides, debris avalanches, debris slides, and earth flows. The types of materials in motion generally consist of fractured or weathered bedrock and loose or unconsolidated soils. Landslide-susceptible terrain includes:</p> <ul style="list-style-type: none"> • Mountainous terrain with very steep slopes • Areas of moderate relief suffering severe land degradation • Areas of heavy precipitation events • Areas covered with thick layers of finely grained soil deposits • Areas subject to earthquake shaking <p>Geologic, physiographic, and climatic factors affect the nature and occurrence of landslides in West Virginia. Geology and physiographic factors affecting the incidence of landslides include folds, fractures, and faults in the underlying geologic formation. Steep areas with poor surface and/or subsurface drainage are particularly susceptible to landslides.</p>

Hazard	Hazard Description
Land Subsidence	<p>Generally, land subsidence can be described as the loss of surface elevation due to the removal of subsurface support. This can range from broad regional lowering of surface land to localized collapse. The term subsidence is commonly used to imply a gradual sinking, but it also can refer to an instantaneous or catastrophic collapse.</p> <p>Land subsidence is vertical earth movement resulting from increased stresses in the soil mass, or loss of shallow soil support. Subsidence can be described as rapid, caused by undermining or failure of the underlying strata, or slow, caused by consolidation. Rapid subsidence, generally referred to as sinkholes, result from small subsurface voids enlarging over time until the thickness of soil/rock at the roof is insufficient to support the applied loads, including its own weight. When the loads exceed the strength of the roof, the roof collapses into the subsurface void forming a sinkhole.</p> <p>Rapid subsidence frequently occurs in areas of abandoned mines, and karst areas underlain by carbonate rocks (limestone and dolomite). Karst is a landscape with topographic depressions caused by the dissolution of carbonate rocks (limestone and dolomite) by moving groundwater.</p>
Thunderstorm, Lightning Strike	<p>The wind gusts associated with thunderstorms pose a threat to life and/or property. Severe thunderstorms also have the potential of producing a tornado with little or no advanced tornado warning. These storms may contain frequent cloud-to-ground lightning and heavy downpours which can lead to localized flooding. Thunderstorms are one of the most frequently-occurring hazards throughout the region (second only to winter storms). NCDC records reflect the most severe of thunderstorms. Storms, however, are common throughout the spring and summer months (although a thunderstorm can occur in any season) that cause downed trees and power lines.</p> <p>Lightning is an electrical discharge that results from the buildup of positive and negative charges within a thunderstorm. When the buildup becomes strong enough, lightning appears as a "bolt." This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning reaches a temperature approaching 50,000° Fahrenheit in a split second. The rapid heating and cooling of air near the lightning causes thunder.</p> <p>In the United States, 75 to 100 Americans are struck and killed each year by lightning. According to a NOAA technical report, from 1959 through 1994, West Virginia experienced 108 deaths attributed to lightning (NOAA, 2003). According to the NCDC, in the period from 1993 through September, 2012, West Virginia had 82 lightning events causing six deaths, 49 injuries, no crop damage, and \$4.8 million in property damage.</p>
Radon Exposure*	<p>Radon is a cancer-causing natural radioactive gas that you can't see, smell, or taste. It is a large component of the natural radiation that humans are exposed to and can pose a serious threat to public health when it accumulates in poorly ventilated residential and occupational settings. According to the USEPA, radon is estimated to cause about 21,000 lung cancer deaths per year, second only to smoking as the leading cause of lung cancer (EPA 402-R-03-003: EPA Assessment..., 2003).</p>
Tsunami*	<p>A tsunami is a series of ocean waves generated by sudden displacements in the sea floor, landslides, or volcanic activity. In the deep ocean, the tsunami wave may only be a few inches high. The tsunami wave may come gently ashore or may increase in height to become a fast moving wall of turbulent water several meters high. Worldwide, unusual wave heights have been known to be over 100 feet high and depending on a number of factors, some low-lying areas could experience severe inland inundation of water and debris of more than 1,000 feet (Dunbar & Weaver, 2007).</p>

Hazard	Hazard Description
Wildfire	<p>This hazard is defined as a highly destructive, uncontrolled fire or any instance of uncontrolled burning. Although a fire may have components of both, fires are generally categorized as one of two types: wildfire or a non-wilderness structural fire. A wildfire is an uncontrolled burning in woodlands, grasslands, or brushlands. These commonly burn in excess of 50 acres.</p> <p>Wildfires commonly begin unnoticed and spread quickly through vegetative fuels. Non-wilderness fires are primarily structural fires in urban areas. Fires in West Virginia have not affected large areas since the early 1960s, so fire as a hazard class is not as apparent a problem unless an unusually large fire occurs or the cumulative effects of many fires are examined.</p>
Wind Storm, Tornado	<p>Wind is the movement of air caused by a difference in pressure from one place to another. Local wind systems are created by the immediate geographic features in a given area, such as mountains, valleys, or large bodies of water. Wind poses a risk to West Virginia in several ways. Tornadoes, high winds, downbursts, wind erosion, and wind chill can harm people and damage property and infrastructure. Wind effects can include blowing debris, interruptions in elevated power and communications utilities, and intensification of the effects of other hazards related to winter weather and severe storms. Based on historical tornado and hurricane data, FEMA has calculated regional maximum wind speeds for design of safe rooms. West Virginia is included in Wind Zone III (200 mph).</p> <p>West Virginia wind events can produce damage often associated with thunderstorms or tornadoes. In some instances, these events have been associated with weakening tropical weather systems, including downgraded tropical and sub-tropical storm systems. Excluding tornadoes, NCDC data indicates 4,135 recorded wind events in West Virginia between 1955 and September 2012, most associated with thunderstorms. The wind events resulted in \$105.5 million (in 2012 dollars) in property damage. The data show that crops have been damaged by wind as well, with \$1.2 million (in 2012 dollars) reported in crop damages.</p> <p>A tornado is “a rapidly rotating vortex or funnel of air extending ground-ward from a cumulonimbus cloud” (FEMA, 1997). They typically spawn from thunderstorms, hurricanes, and wildfires. While roughly 1,000 tornadoes a year are generated by thunderstorms, relatively few touch down. As wind speeds increase, so does the level of destruction.</p>
Winter Storm	<p>West Virginia experiences frequent hazardous winter weather events. Winter weather may include heavy snows, damaging ice, extreme cold, or any combination thereof. A heavy snow is generally defined as having more than 8 inches of accumulation in less than 24 hours. Ice storms result from the accumulation of freezing rain, which is rain that becomes super-cooled and freezes upon impact with cold surfaces. Freezing rain most commonly occurs in a narrow band within a winter storm that is also producing heavy amounts of snow and sleet in other locations.</p> <p>Injuries and deaths related to heavy snow usually occur as a result of vehicle accidents. Casualties also occur due to overexertion while shoveling snow. Snow can also shut down roadways, the weight of snow can cause structural collapse in buildings, and a quick thaw can cause flooding. Ice is a significant hazard if the surface temperature is at or below freezing and a layer of the atmosphere above the surface is warm enough for precipitation to fall as rain rather than snow. The greatest threat from ice storms is to essential utility and transportation systems. When it coats power and communications lines, trees, highways, bridges and other surfaces, the ice-weighted wires, antennae, and support structures can break and collapse.</p>

<i>Hazard</i>	<i>Hazard Description</i>
<i>Volcano*</i>	A volcano is a vent in the earth's crust through which magma, rock fragments, gases, and ash are ejected from the earth's interior. Over time, accumulation of these erupted materials on the earth's surface creates a volcanic mountain. Hazards associated with the eruption of volcanoes endanger people, buildings, and infrastructure. Volcanoes can lie dormant for centuries between eruptions, and the risk posed by volcanic activity is not always apparent (FEMA, 1997).

Human-Made Hazards

<i>Hazard</i>	<i>Hazard Description</i>
<i>Building or Structure Collapse*</i>	Collapse of a building or structure refers to the loss of the load-carrying capacity of a component of the structure or the entire structure itself. The loss of a structure's load-carrying capacity occurs when the loads applied to the structure exceed the structure's load-carrying capacity. This can be a result of improper design, lack of maintenance, events from a structure's load history that have gradually reduced its load-carrying capacity, or sudden and severe hazard events such as severe weather or terrorism. (Ratay, 2000).
<i>Civil Disturbance*</i>	Civil disturbance hazards encompass a set of hazards emanating from a wide range of possible events that cause civil disorder, confusion, strife, and economic hardship. Civil disturbance hazards include the following: <ul style="list-style-type: none"> • Famine; involving a widespread scarcity of food leading to malnutrition and increased mortality (Robson, 1981). • Economic Collapse, Recession; Very slow or negative growth, for example (Economist, 2009). • Misinformation; erroneous information spread unintentionally (Makkai, 1970). • Civil Disturbance, Public Unrest, Mass Hysteria, Riot; group acts of violence against property and individuals, for example (18 U.S.C. § 232, 2008). • Strike, Labor Dispute; controversies related to the terms and conditions of employment, for example (29 U.S.C. § 113, 2008).

Hazard	Hazard Description
<i>Dam and Levee Failure</i>	<p>Dams are barriers constructed to impound water for storage, flood control, power generation, and/or stream navigation. Dams also are constructed to impound hydraulically transported industrial waste including spoil or mine processing waste, or coal combustions waste of fly ash. The structures can vary greatly in size based on their purpose and area topography.</p> <p>Dams can pose a risk to communities if not designed, constructed, operated, and maintained properly. In the event of a catastrophic dam failure, the energy of water released from even a small dam is capable of causing extensive property damage, injury, and potential loss of life. This is especially true in West Virginia where many communities lie along steep (or high) gradient streams and rivers within narrow valleys. Dam failure is often the result of prolonged rainfall or flooding or, during prolonged dry periods, erosion.</p> <p>A levee is a structure, earthen or artificial, with a primary purpose of providing protection from flooding during seasonal high water, storm surges, precipitation and other weather events. Levees are often parallel to a river or along low-lying coastlines. Although their primary function is flood protection, levees may also confine the flow of water, resulting in higher and faster flows. Similar to a dam failure, failure of a levee can result in catastrophic flooding as was seen in New Orleans on August 29, 2005, during Hurricane Katrina when the failure of levees and flood walls flooded over 80% of the city.</p>
<i>Disorientation*</i>	<p>Large numbers of people are attracted to West Virginia’s rural areas for recreational purposes such as hiking, camping, hunting, and fishing. As a result, people can become lost or trapped in remote and rugged wilderness areas. Search and rescue may be required for people who suffer from medical problems or injuries and those who become accidentally or intentionally disoriented. Search and rescue efforts would be focused in and around state forest and state park lands.</p>
<i>Drowning*</i>	<p>Drowning is death from suffocation, typically associated with swimming, fishing, boating or bridge accidents, or suicide. It can be a significant hazard in communities with numerous residential pools or water bodies (e.g. ponds, lakes, rivers, etc...) and extensive outdoor recreational activity. Drowning rates are particularly high for children ages 1-14. The Centers for Disease Control and Prevention estimates that drowning is the second leading cause of injury death (after motor vehicle crashes) among children ages 1-14. (CDC, 2008).</p>
<i>Hazardous Materials</i>	<p>Hazardous materials (Hazmat) are a concern for West Virginia because of the potential for a spontaneous accidental or intentional illegal release that could endanger human health and safety, property and the environment. Hazmat includes explosives, flammable and combustible substances, poisons and radioactive materials. Hazmat incidents can include highway transport, rail transport, fixed facilities, pipelines, radioactive materials, cryogenic tanks, chemical and biological terrorism, and illegal or clandestine drug laboratories. Each type of hazardous materials incident can cause death, serious injury, and long-lasting health effects, along with damage to buildings, homes, and other property.</p>

Hazard	Hazard Description
Mass Food/Animal Feed Contamination*	<p>Mass food or animal feed contamination hazards occur when food or food sources are contaminated with pathogenic bacteria, viruses, or parasites, as well as chemical or natural toxins. They may lead to foodborne illnesses and/or interruptions in the food supply. Contamination may occur due to natural foodborne illnesses and chemical, biological, radiological, or nuclear exposure. Most foodborne illnesses are caused by <i>Campylobacter</i> in poultry; <i>E. Coli</i> in beef, leafy greens, and raw milk; <i>Listeria</i> in deli meats, unpasteurized soft cheeses, and produce; <i>Salmonella</i> in eggs, poultry, meat, and produce; <i>Vibrio</i> in raw oysters; <i>Norovirus</i> in many foods; and <i>Toxoplasma</i> in meats (CDC, 2013). Contamination usually occurs accidentally during the production/preparation process but can also be the result of intentional acts.</p>
Natural Resource Extraction Processes	<ul style="list-style-type: none"> • Coal mining in West Virginia is very important to both the State and the country. However, coal mining, especially the underground mining prevalent in West Virginia, is a relatively hazardous industry. Coal mining hazards include those facing miners working in active operations, as well as residual post-mining hazards, especially those represented by abandoned mines. Coal mining workplace hazards include cave-ins or collapses, flooding, and hazardous and toxic gas accumulations. Active coal mining operations also create certain hazards to surrounding communities. The most significant community hazards posed by active mines are mine waste impoundment dam failures and waste pile landslides. • A procedure called hydraulic fracturing (often called “hydrofracking” or “fracking”) is used to retrieve the natural gas deposits. This process involves the hydraulic fracturing of the shale by pumping water at high pressures into the rock to create vertical fractures in the shale layer, while at the same time introducing sand into the rock to keep the fractures open once the water is removed. Hydraulic fracturing may have negative impacts on the environment and for property owners and communities near the wells. The water that is pumped at high pressures into the well is mixed with a series of chemicals, a few of which include acids, diesel fuels, gelling agents, antibacterial agents, and corrosion inhibitors. A portion of these chemicals may remain trapped in the ground and may leach into groundwater or surface water, and some of them qualify as hazardous materials and known carcinogens.
Nuclear Incident	<p>The Nuclear Regulatory Commission (NRC) emphasizes the integration of safety, security, and emergency preparedness as the basis for the NRC's primary mission of protecting public health and safety. Under the National Response Framework, the NRC will coordinate with other Federal, State, and local emergency organizations in response to various types of domestic events. Radioactive materials, if handled improperly, or radiation accidentally released into the environment, can be dangerous because of the harmful effects of certain types of radiation to the body. The longer a person is exposed to radiation and the closer the person is to the radiation, the greater the risk. Protection in a nuclear emergency comes from distance (the more distance from the radiation the better), shielding (protection using heavy materials that absorb radiation), and time (radiation loses its intensity rapidly). While radiation cannot be distinguished by the human senses (sight, smell, etc.), sophisticated instruments are able to detect even the smallest levels of radiation.</p>

Hazard	Hazard Description
Source Water Contamination*	Source water refers to the surface water and groundwater used to supply water for public drinking water supply systems. This source water becomes contaminated through the addition of any substance or property preventing the use of or reducing the usability of water for ordinary purposes such as drinking, preparing food, bathing, washing, recreation, and cooling. Contamination can pose a serious risk to public health and welfare.
Terrorism	<p>Terrorism is the use of force or violence, including threats of force or violence, against persons or property in violation of the criminal laws of the United States for the purposes of intimidate, coercion, or ransom. Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber attacks (computer-based); and the use of chemical, biological, nuclear and radiological weapons. High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks. Terrorists might also target large public gatherings, water and food supplies, utilities, and corporate centers. Further, terrorists are capable of spreading fear by sending explosives or chemical and biological agents through the mail.</p> <p>Terrorism is not always accomplished on a “grand scale”, as is the case with international terrorists who are attempting to coerce the federal government. Such terrorism, while technically a hazard in throughout Region 9, is more unlikely than what is known as “domestic terrorism” or “homegrown violent extremism”. Domestic terrorism can involve disgruntled employees (in the case of large industrial plants), angry parents (at schools), upset citizens (at government facilities), etc. Domestic terrorists may often only intend to harm a single individual or a small group of individuals, but the threat of their actions can be highly disruptive.</p>
Transportation Accidents*	Transportation accidents can result from any form of air, rail, water, or road travel. It is unlikely that small accidents would significantly impact the larger community. However, certain accidents could have secondary regional impacts such as a hazardous materials release or disruption in critical supply/access routes, especially if vital transportation corridors or junctions are present. (Research and Innovative Technology Administration, 2009). Traffic congestion in certain circumstances can also be hazardous. Traffic congestion is a condition that occurs when traffic demand approaches or exceeds the available capacity of the road network. This hazard should be carefully evaluated during emergency planning since it is a key factor in timely disaster or hazard response, especially in areas with high population density. (Federal Highway Administration, 2009).
Urban Fire and Explosion*	An urban fire involves a structure or property within an urban or developed area. For hazard mitigation purposes, major urban fires involving large buildings and/or multiple properties are of primary concern. The effects of a major urban fire include minor to significant property damage, loss of life, and residential or business displacement. Explosions are extremely rapid releases of energy that usually generate high temperatures and often lead to fires. The risk of severe explosions can be reduced through careful management of flammable and explosive hazardous materials. (FEMA, 1997). Urban fire also includes incidences of arson.

<i>Hazard</i>	<i>Hazard Description</i>
<i>Utility Interruption*</i>	<p>Utility interruption hazards are hazards that impair the functioning of important utilities in the energy, telecommunications, public works, and information network sectors. Utility interruption hazards include the following:</p> <ul style="list-style-type: none"> • Fuel or Resource Shortage; resulting from supply chain breaks or secondary to other hazard events. • Information Technology Failure; due to software bugs, viruses, or improper use (Rainer Jr., et al, 1991). • Ancillary Support Equipment; electrical generating, transmission, system-control, and distribution-system equipment for the energy industry (Hirst & Kirby, 1996). • Telecommunications System Failure; Damage to data transfer, communications, and processing equipment, for example (FEMA, 1997) • Transmission Facility or Linear Utility Accident; liquefied natural gas leakages, explosions, facility problems, for example (US Department of Energy, 2005) • Major Energy, Power, Utility Failure; interruptions of generation and distribution, power outages, for example (US Department of Energy, 2000).
<i>War and Criminal Activity*</i>	<p>War and criminal activity hazards are intentional acts of violence, damage to property, and other criminal activities. This category specifically includes the following hazards:</p> <ul style="list-style-type: none"> • War, Enemy Attack; foreign attack on territory of the United States (50 U.S.C., 2008). • Disinformation, Sabotage; intentionally spread inaccurate information, for example; interfering or impairing an operator’s management or control of an organization (USLegal, Inc., 2008). • Criminal Activity; lawlessness, acts committed for which punishment is imposed upon conviction after due process (USLegal, Inc., 2008). • Physical or Information Security Breach; contravening security and confidentiality laws and procedures; burglary, unreasonable search and seizure, for example (73 Pa. C.S. § 2303, 2006; Network Associates, Inc., 1998). • Workplace, School Violence; some environments are more likely than others to experience violence including occupations involving contact with the public (National Institute for Occupational Safety and Health, 1996). • Harassment; a pattern of conduct that causes substantial emotional distress with no legal purpose (18 U.S.C. § 1514, 2008). • Discrimination; widespread treatment based on class, category, or prejudice rather than merit, applies extensively to civil and labor law (26 U.S.C. § 62, 2008).

Other Hazards

<i>Hazard</i>	<i>Hazard Description</i>
<i>Climate Change*</i>	<p>Climate change refers to a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties. These changes persist for an extended period, typically decades or longer (IPCC, 2007). Climate change can alter the frequency and intensity of hazards such as wildfire, extreme temperature, drought, or flooding, particularly impacting sea level rise and coastal flooding.</p>

**Appendix C-3 Berkeley County Risk Assessment/Mitigation Workshop Materials
(July 25, 2016)**

To: Welt, Angela
Subject: RE: Hazard Mitigation Plan Update - Berkeley County

From: Rachel Snavely [<mailto:rsnavely@region9wv.com>]
Sent: Tuesday, June 28, 2016 2:09 PM
To: Welt, Angela <awelt@mbakerintl.com>
Subject: FW: Hazard Mitigation Plan Update - Berkeley County

Stakeholders invited for Berkeley.

I think that covers everything!

From: Busby, Keith [<mailto:busby.k@pg.com>]
Sent: Friday, June 24, 2016 2:42 PM
To: Rachel Snavely
Subject: RE: Hazard Mitigation Plan Update - Berkeley County

Rachel,
Thank you for the invite. Myself or someone from P&G will attend.

Best,
Keith

Keith Busby
P&G Tabler Station, WV
Site HR Leader
Cell 801-822-2071

From: Rachel Snavely [<mailto:rsnavely@region9wv.com>]
Sent: Thursday, June 23, 2016 5:29 AM
To: dpixler@eptawv.com; sue.flanagan@mail.wvu.edu; smontgomery@mbcpl.org; alana.c.hartman@wv.gov; monica.a.whyte@wv.gov; sduncan@wvca.us; Kenneth.L.Clohan@wv.gov; Nicolas.H.Diehl@wv.gov; kieran.m.o'malley@wv.gov; bill.g.kearns@wv.gov; dfant@svms.net; azelenka@wvuhealthcare.com; tmccabe@wvhealthcare.com; cthiel@berkeleywater.org; sknpmtbgwater@comcast.net; mrosens@firstenergycorp.com; charles_wilt@cable.comcast.com; paul.espinosa@ftr.com; cbkeller@bcpsd.com; ebobo@k12.wv.us; tina@berkeleycounty.org; catman@mbcparks-rec.org; dvanmetre@k12.wv.us; chull@blueridgectc.edu; jklein@shepherd.edu; lesley.hower@essroc.com; BILL.GRAY@gg.com; Busby, Keith; susan.huber@macys.com; rbrown@orgill.com; Randall.Rude@ecolab.com; bluheronenv1991@gmail.com; captainlou@comcast.net; rwachtel@talkradiowvnr.com
Subject: Hazard Mitigation Plan Update - Berkeley County

Good morning,

You have been identified as a potentially interested stakeholder for the ongoing Hazard Mitigation Plan (HMP) Update for Berkeley County.

An HMP is a community-driven, living document that communities and jurisdictions use to reduce their vulnerability to hazards. Communities must have a Plan to apply for and receive mitigation funding. An

HMP Fact Sheet is attached, and the 2012 HMP is available at this link:
<http://www.dhsem.wv.gov/MitigationRecovery/Documents/Region%20IX.pdf>.

You are invited to attend a meeting for the Hazard Mitigation Plan Update for Berkeley County, which has been scheduled for Monday, **July 25, 2016 from 1:30-3:30PM**. We will meet at **Shepherd-Martinsburg, located at 261 Aikens Center, Martinsburg, WV 25404 in Room 117**. Discussion at this meeting will include risk assessment, capability assessment, and mitigation strategies. As a stakeholder engaged in industry, healthcare, or education, you may have valuable feedback about how you notify employees of office closures, whether or not you have a Continuity of Operations Plan in place, and what types of disasters affect you the most. For those invitees involved with their local watersheds and/or farmland, you may have unique insight into the effects of natural disasters on the conservation of the lands and waterways in the region.

Please RSVP, and if you are unable to attend, I will forward you a summary of information after the meeting. If you do not wish to actively participate in this update or would like to suggest a different point-of-contact, please contact me so I can update my mailing list. Feel free to email or call me or Bill at the number below, with any questions about the project. Thank you,

Rachel Snavely
Project Manager
Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
(304)263-1743

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To: Welt, Angela
Subject: RE: Hazard Mitigation Plan Update - Meeting #2

From: Rachel Snavelly
Sent: Thursday, June 23, 2016 8:48 AM
To: adavis@berkeleywv.org; bcostello@berkeleywv.org; egochenour@berkeleywv.org; George Karos (gkaros@live.com); hwilliams@berkeleywv.org; James Barnhart; LT. Jason Hoover; Mark Baldwin (Markbaldwin17@aol.com); mcovell@cityofmartinsburg.org; Michael Thompson; mkackley@berkeleywv.org; Monica Whyte (monica.a.whyte@wv.gov); Nic Diehl (Nicolas.H.Diehl@wv.gov); Ronnie Good; Sandy Hamilton; tina@berkeleycounty.org; Randy Lilly; s_mcgovern@martinsburgpd.org
Cc: pshewell@berkeleywv.org; Chris Overton; Amy Corvin (hedgesvillewv@frontier.com); Matthew Pennington; BILL CLARK
Subject: Hazard Mitigation Plan Update - Meeting #2

Good morning,

Thank you to the many attendees of the Hazard Mitigation Plan Update kick-off meeting in May. Your participation and involvement in the update process is greatly appreciated.

The second meeting for the Hazard Mitigation Plan Update for Berkeley County has been scheduled for Monday, **July 25, 2016 from 1:30-3:30PM**. We will meet at **Shepherd-Martinsburg, located at 261 Aikens Center, Martinsburg, WV 25404 in Room 117**.

Additional reminders will be sent in the coming weeks.

Discussion at this meeting will include risk assessment, capability assessment, and mitigation strategies. Note that additional stakeholders will be invited to the July meeting, per our discussion at the kick-off meeting in May. This meeting will also be open to the public.

Please RSVP, and if you are unable to attend, a summary of information will be posted to the project's Basecamp website (<https://basecamp.com/3057556/projects/12171776>) after the meeting. If you have any questions in the meantime, feel free to email or call me or Bill at the number below. Thank you,

Rachel Snavelly
Project Manager
Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
(304)263-1743

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Version: 2016.0.7640 / Virus Database: 4613/12508 - Release Date: 06/28/16

From: Rachel Snavely <rsnavely@region9wv.com>
Sent: Thursday, June 23, 2016 9:08 AM
To: demke@journal-news.net; news@talkradiowrnr.com
Subject: Hazard Mitigation Plan Update - Berkeley County

Good morning,

You have been identified as a potentially interested stakeholder for the ongoing Hazard Mitigation Plan (HMP) Update for Berkeley County.

An HMP is a community-driven, living document that communities and jurisdictions use to reduce their vulnerability to hazards. Communities must have a Plan to apply for and receive mitigation funding. An HMP Fact Sheet is attached, and the 2012 HMP is available at this link:

<http://www.dhsem.wv.gov/MitigationRecovery/Documents/Region%20IX.pdf>.

You are invited to attend a meeting for the Hazard Mitigation Plan Update for Berkeley County, which has been scheduled for Monday, **July 25, 2016 from 1:30-3:30PM**. We will meet at **Shepherd-Martinsburg, located at 261 Aikens Center, Martinsburg, WV 25404 in Room 117**. Discussion at this meeting will include risk assessment, capability assessment, and mitigation strategies.

Please RSVP, and if you are unable to attend, I will forward you a summary of information after the meeting. If you do not wish to actively participate in this update or would like to suggest a different point-of-contact, please contact me so I can update my mailing list. Feel free to email or call me or Bill at the number below, with any questions about the project. Thank you,

Rachel Snavely
Project Manager
Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
(304)263-1743

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No: 521385

Phone: 304 263-1743

Ad No 521385	Customer No: L30602	Start Date 07-16-2016	Stop Date 07-20-2016	Category: Legal Notices		Classification: Legals/Public Notice				
Order No	Rate: LE	Lines: 32	Words: 96	Inches: 3.31		Cost 34.55	Payments .00	Balance 34.55		
Publications ... Runs Journal ... 2		Solicitor: TB	Origin: 2	Sales Rep: 34	Credit Card	Credit Card Number	Card Expire			
		<table border="1"> <tr> <td align="center">Identifier</td> </tr> <tr> <td> NOTICE OF PUBLIC MEETING HAZARD MITIGATION PLAN UPDATE The first public meeting of the Berkeley County Hazard </td> </tr> </table>							Identifier	NOTICE OF PUBLIC MEETING HAZARD MITIGATION PLAN UPDATE The first public meeting of the Berkeley County Hazard
Identifier										
NOTICE OF PUBLIC MEETING HAZARD MITIGATION PLAN UPDATE The first public meeting of the Berkeley County Hazard										
		*=-Extend Expiration Date								

Certificate of Publication

This is to certify the annexed advertisement

REGION 9
NOTICE

appeared for 2 consecutive days/weeks
in The Journal Publishing Company, a newspaper
in the City of Martinsburg, WV in its issue
beginning:

7-16-16

and ending

7-20-16

The Journal
207 W. King Street
Martinsburg, WV 25401

Fee (\$) 34.55

THE STATE OF WEST VIRGINIA
COUNTY OF BERKELEY

The foregoing instrument was acknowledged

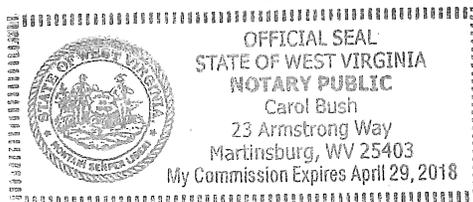
before me this July 20, 2016 by

Indith Stotler

My commission expires Apr 29 2018

Carol Bush

Notary Public



NOTICE OF PUBLIC MEETING

HAZARD MITIGATION PLAN UPDATE

The first public meeting of the Berkeley County Hazard Mitigation Plan Update Committee will meet on July 25, 2016 from 130-330pm at Shepherd-Martinsburg, located at 261 Aikens Center, Rm 117, Martinsburg, WV 25404. This meeting will kick-off discussion of risk & capabilities assessment and mitigation strategies in the event of disaster. All citizens are invited to attend and participate.

For further information, please contact Region 9 Planning & Development Council at 400 W. Stephen Street, Ste. 301, Martinsburg, WV 25401 or by phone at 304-263-1743.

7-16-20 (2)

Meeting Agenda

**Berkeley County Hazard Mitigation Plan Update
Risk Assessment-Mitigation Solutions Workshop**

Date	Monday, July 25, 2016
Time	1:30 PM – 3:30 PM
Location	Shepherd University’s Martinsburg Center - 261 Aikens Center, Martinsburg, WV

Purpose: Collect municipal and stakeholder feedback on hazard risk and mitigation solutions

Topic	Time
1. Sign-in, Welcome, and Introductions	➤ 1:30 PM
2. Hazard Mitigation Plan and Project Overview	➤ 1:40 PM
3. Kickoff Meeting Recap	➤ 1:55 PM
4. Risk Assessment Overview <ul style="list-style-type: none">○ Exercise #1: Jurisdictional Risk	➤ 2:10 PM
5. Mitigation Strategy Overview <ul style="list-style-type: none">○ Exercise #2: Mitigation Action Progress Report○ Exercise #3: New Mitigation Action(s)○ National Flood Insurance Program Compliance and Capabilities Worksheet (county and municipalities only)	➤ 2:40 PM
6. Schedule and Meetings	➤ 3:10 PM
7. Next Steps and Action Items	➤ 3:15 PM

Forms can be submitted to Angela Welt at:

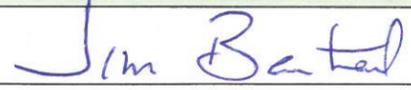
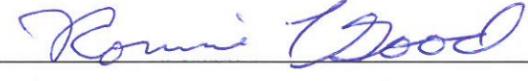
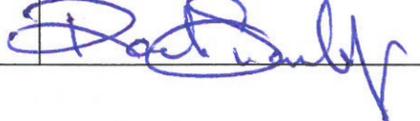
awelt@mbakerintl.com

4431 N. Front Street, 2nd Floor

Harrisburg, PA 17110

Berkeley County Hazard Mitigation Plan Update Risk Assessment & Mitigation Solutions Workshop

July 25, 2016 – 1:30 PM

Name	Title	Jurisdiction/ Organization	Telephone	E-Mail Address	Signature
James Barnhart	Council Person	Berkeley County Council	(304) 264-1923	jbarnhart@berkeleywv.org	
Alan Davis	County Administrator	Berkeley County Administrator	(304) 267-5102	adavis@berkeleywv.org	
Eddie Gochenour	OHSEM Director	Berkeley County Office of Homeland Security and Emergency Management	(304) 263-1345	egochenour@berkeleywv.org	
Randy Lilly	Emergency Manager	Berkeley County Office of Homeland Security and Emergency Management	(304) 263-1345	rlilly@berkeleywv.org	
Mike Thompson	Planning Director	Berkeley County Planning Department	(304) 267-5106	mthompson@berkeleywv.org	
Heather Williams	Planner I	Berkeley County Planning Department	(304) 267-5000 Ext. 8165	hwilliams@berkeleywv.org	
Mary Sue Catlett	Mayor	The Town of Hedgesville	(304) 754-4827	mscellpage@msn.com	
Ronnie Good	Councilor	The Town of Hedgesville	(304) 886-8618	95340@aol.com	
George Karos	Mayor	The City of Martinsburg	(304) 264-2140	gkaros@live.com	
Mark Baldwin	City Manager	The City of Martinsburg	(304) 264-2149	Markbaldwin17@aol.com	
Michael Covell	City Engineer/Planning Director	The City of Martinsburg	(304) 264-2131 Ext. 266	mcovell@cityofmartinsburg.org	
Jason Hoover	Emergency Management Coordinator	The City of Martinsburg	(304) 671-1507	jhoover@martinsburgfire.org	
Sam McGovern	Police Officer	The City of Martinsburg	(304) 264-2100	s_mcgovern@martinsburgpd.org	
Sandy Hamilton	Executive Director (Interim)	Berkeley County Development Authority	(304) 267-4144	shamilton@development.com	
W. Brian Costello	EMS Director	Berkeley County Ambulance Authority	(304) 264-1921	bcostello@berkeleywv.org	
Chad Winebrenner	Chief	Berkeley County Ambulance Authority	(304) 671-9801	cwinebrenner@bceaa.com	
Mary Kackley	Central Dispatch/911 Center Director	Berkeley County E-911		mkackley@berkeleywv.org	
Tina Combs	President & CEO	Martinsburg-Berkeley County Chamber of Commerce	(304) 267-4841	tina@berkeleycounty.org	
Rachel Snavelly	Project Manager	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	RSnavelly@region9wv.com	

Name	Title	Jurisdiction/ Organization	Telephone	E-Mail Address	Signature
Matthew Pennington	Environmental Program Coordinator	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 707-1920	MPennington@region9wv.com	
Bill Clark	Executive Director	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	BClark@region9wv.com	
Troy Truax	Technical Manager, Planning Services	Michael Baker International	(717) 213-6241	Troy.Truax@mbakerintl.com	
Angela Welt	Environmental Specialist	Michael Baker International	(717) 221-2040	awelt@mbakerintl.com	
Donald Grubb	Director of Safety	Berkeley Medical Center	304 264 1000	Donald.Grubb@wvmedcenter.org	
Steve DeRiddler	Water production superintendent	Berkeley County PLWD	304-267-4600	sderiddler@berkeleywater.org	
Denna VanNeste	Dir, James Rumsey	James Rumsey	301-754-7935	dvanmest@k12.wv.us	
Keith Busby	HR Manager	Procter + Gamble	801-822-2071	busby.k@pg.com	
JEFF RYMAN	DIR ENVIRONMENT OF CARE	SHENANDOAH VALLEY MEDICAL	304-263-4899	jryman@svms.net	
John Hemmen	SHE Manager	Ecotab, Inc.	304-260-3550	John.hemmen@ecotab.com	
Jeff Leinbach	Process Safety Engineer	"	304-260-3573	jeffrey.leinbach@ecotab.com	
Thomas McKenzie	Airport Mgr.	EWVRAA	304-263-2106	T-McKenzie@Frontier.com	
Mary Starkstrom	Media - The Journal	The Journal	304-263-8931 x138	mstarkstrom@journal-news.net	



Hazard Mitigation Plan Update Berkeley County, WV

Risk Assessment & Mitigation Solutions Workshop
July 25, 2016

- Welcome
- Hazard Mitigation Plan and Project Overview
- Recap of Kickoff Meeting
- Risk Assessment Overview
- Mitigation Strategy Evaluation
- Schedule and Meetings
- Next Steps and Action Items

What is Hazard Mitigation?

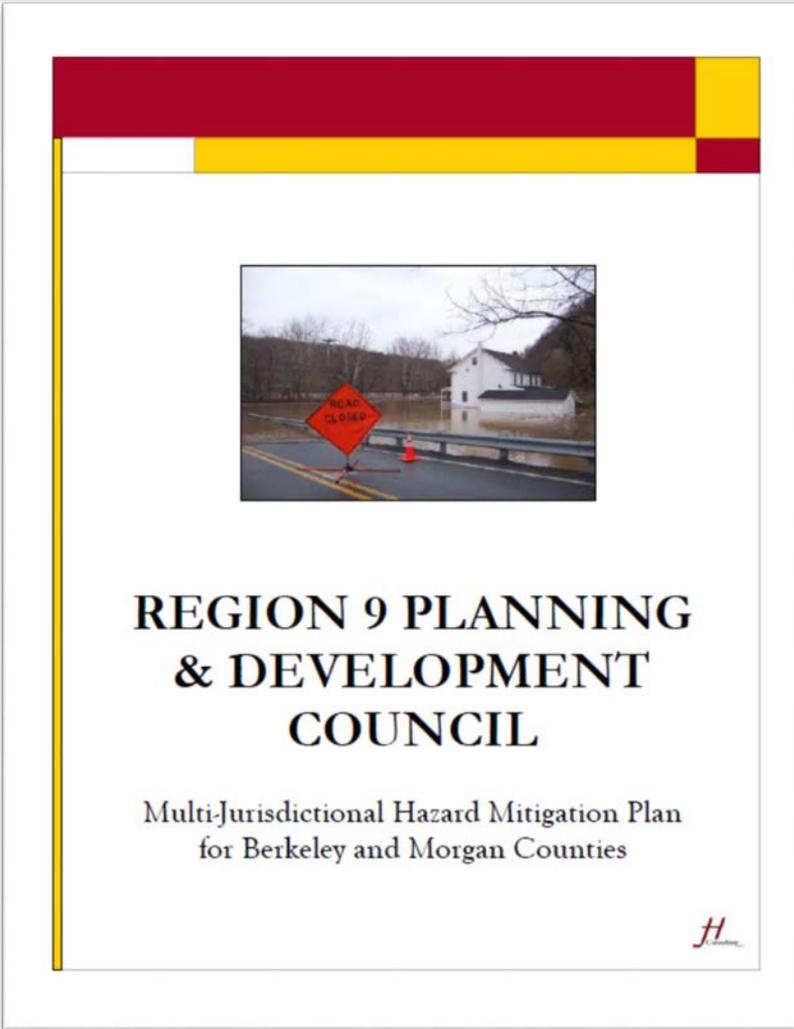
- Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property resulting from natural and human-made hazards.



What is a Hazard Mitigation Plan?

- A Hazard Mitigation Plan is a community-driven, living document that communities use to reduce their vulnerability to hazards.
- Counties must have a plan to maintain access to mitigation grants. These grants can augment local mitigation activities already being accomplished and can leverage other funding sources.





- Introduction
- Community Profile
- Planning Process
- Risk Assessment
- Capability Assessment
- Mitigation Strategy
- Plan Maintenance
- Adoption

Kickoff Meeting Recap



- Reviewed 2017 Plan format and process
- Completed Hazard-Risk Assessment Exercise
- Reviewed the Mitigation Techniques and Requirements
- Discussed participation opportunities
- Reviewed the schedule and next steps

Berkeley County Hazard Mitigation Plan 2017 Update

Evaluation of Identified Hazards and Risk: Berkeley County

Name: _____ Title: _____

Affiliation: _____

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought		
Earthquake		
Epidemic		
Flooding		
Hailstorm		
Infestation		
Land Subsidence		
Thunderstorm, Lightning Strike		
Wildfire		

- Hazard-Risk Evaluation
 - Evaluates the hazards being profiled in the county plan
 - Helps determine jurisdictional risk

Risk Assessment Overview



Natural Hazards

- Drought
- Earthquake
- Epidemic
- Flooding
- Hailstorm
- Infestation
- Land Subsidence
- Thunderstorm, Lightning Strike
- Wildfire
- Wind Storm, Tornado
- Winter Storm

Human-made Hazards

- Dam Failure
- Hazardous Materials Incident
- Terrorism

Assessing Changes in Risk for 2017

- Selected all hazards that impact the County
- NEW hazards for 2017:
 - Source water contamination
 - Transportation accidents
 - Hurricane, tropical storm, nor'easter
 - Radon exposure (B)
 - Utility interruption (M)

- Location and Extent
 - *Where* does the hazard happen?
- Range of Magnitude
 - How *minor or major* might the event be?
- Past Occurrence
 - *When and where* has the event happened in the past?
- Future Occurrence
 - *How likely* is it that the event will happen in the future?
- Vulnerability Assessment
 - What *people, structures, and critical facilities* are at risk?

- Standardized method to rank risks
- Done on a countywide basis
- Results are preliminary

$$\begin{aligned} \text{Risk Factor Value} = & \\ & [(Probability \times .30) + (Impact \times .30) + \\ & (Spatial Extent \times .20) + (Warning Time \times .10) + \\ & (Duration \times .10)] \end{aligned}$$



Mitigation Strategy Components

- Progress Report on 2017 Strategy
- Goals and Objectives
- Mitigation Techniques
- Mitigation Action Plan and Projects



Defining Goals, Objectives, & Actions

- *Goals:* General guidelines that describe what your community would like to achieve.
- *Objectives:* Define strategies that must be implemented to achieve the identified goal.
- *Actions:* The specific activities a community will take to reduce or eliminate risks.

GOALS

Goal 1: Lessen flood risk by maintaining compliance with the National Flood Insurance Program (NFIP) and undertaking buyout projects when funding is available.

Goal 2: Better identify hazard areas.

GOALS

Goal 1: Reduce the negative effects of drought.

Goal 2: Reduce the potential effects of earthquakes.

Goal 3: Protect population from an epidemic.

Goal 4: Reduce the negative effects of flooding.

Goal 5: Lessen hail damage.

Goal 6: Protect populations and assets from infestation.

Goal 7: Reduce the effects of landslides.

Goal 8: Reduce damage from severe thunderstorms.

Goal 9: Undertake projects to lessen losses from a number of different hazards.

Goal 10: Reduce the effects of severe winter storms.

GOALS

Goal 11: Protect Berkeley County's populations from a heat wave.

Goal 12: Protect Berkeley County populations and forests from wildfires.

Goal 13: Identify the risk associated with additional hazards and ways in which to mitigate against those hazards.

Identifies a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard.



Local Plans and Regulations



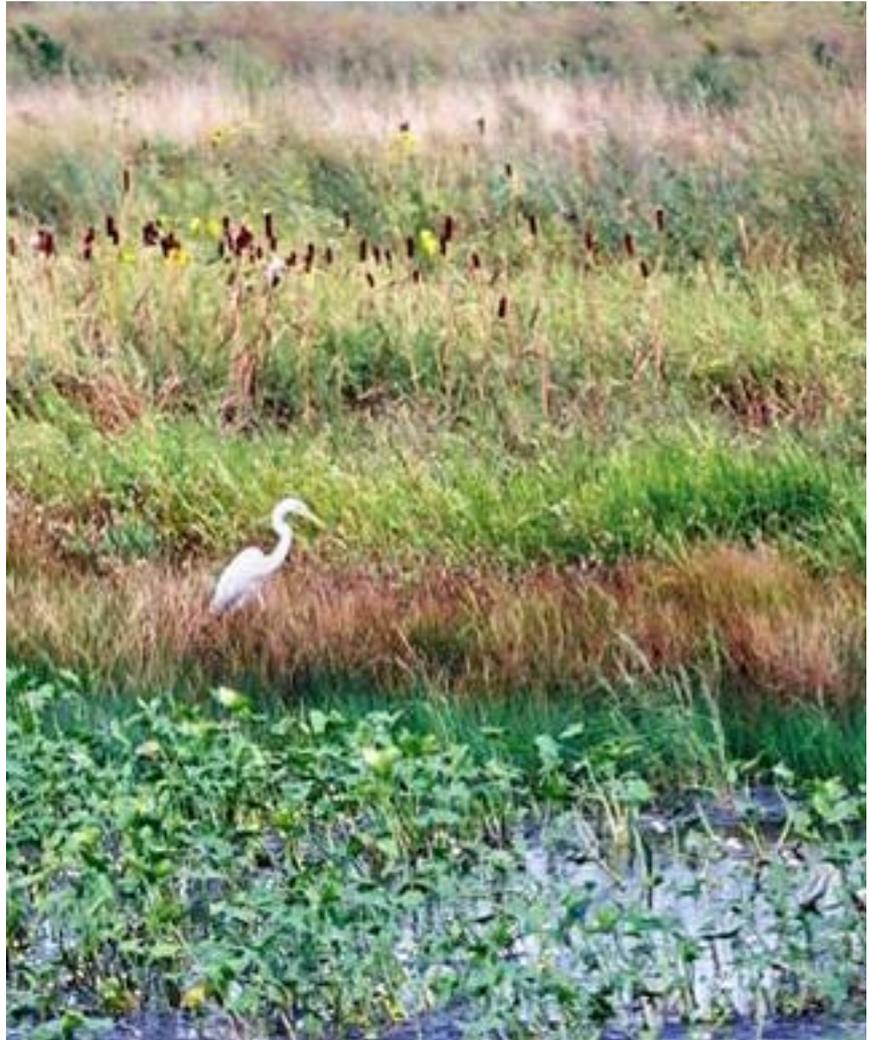
- Government authorities, policies, or codes that influence the way land and buildings are developed
- Examples:
 - Limit or restrict development in floodplains
 - Adopt or enforce building codes
 - Amend ordinances to require trailer anchoring
 - Map and assess landslide vulnerability

Structure and Infrastructure Projects



- Modifying existing structures and infrastructure to remove from a hazard area
- Construction of manmade structures to reduce impacts of hazards
- Examples:
 - Hardening critical facilities
 - Acquisition and Demolition
 - Elevation Projects

- Actions that minimize damage and losses and also preserve or restore the functions of natural systems
 - Sediment and erosion control
 - Stream corridor restoration
 - Forest management
 - Conservation easements
 - Riparian buffer
 - Flood and stormwater



Education and Awareness Programs



- Examples:
 - Real estate disclosures to floodprone properties
 - Water saving education programs
 - Assistance to vulnerable populations
 - Community organization presentations
 - Radio spots

- Each municipality must have at least one mitigation action.
- There must be at least one mitigation action for each profiled hazard.
- Mitigation actions should be realistic and sustainable.



Exercises 2 and 3: Mitigation Strategy Overview

- **Exercise 2** will allow the county and each municipality to report the progress it has made on mitigation actions from the 2012 HMP, the status of the project, and any relevant notes.
- **Exercise 3** will allow municipalities and stakeholders to suggest the implementation of new mitigation actions.
- A representative from each municipality and the county will also fill out a worksheet about local National Flood Insurance Program compliance and capabilities.

Berkeley County 2017 Hazard Mitigation Plan Update

Berkeley County - Mitigation Action Progress Report Form

ACTION	STATUS				STATUS UPDATE NOTES What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
	Completed	Cancelled	Deferred	Ongoing	
Develop an informational brochure to distribute to local farmers and residents.					
Evaluate current system to identify the most feasible locations to construct upgrades.					
Consider upgrades or extensions to the current public service district.					
Develop an informational brochure explaining the potential for earthquakes, as well as the potential damages from those earthquakes. The brochure should include information on measures to take to safeguard homes and other structures from the potential effects of earthquakes.					
Develop stringent storm water management codes for future development.					
Consider conducting acquisition and relocation projects (buyouts) in flood-prone areas. This includes repetitive, severe repetitive loss and non-repetitive and severe repetitive loss structures.					

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency _____

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	
Describing the Action	
Background/Issue action addresses	
Action description	
Action category	
Existing, Future, or NA	
Evaluating the Action	
Losses avoided (i.e., benefits)	
Cost estimate	

- Visit the HMP Update Basecamp website at <https://basecamp.com/3057556/projects/12171776>
- Project updates, meeting minutes, and planning documents will be posted there
- Users can upload their own documents or post questions and comments
- Meeting attendees will be invited via email, and invitations can be requested by emailing awelt@mbakerintl.com

The screenshot shows the Basecamp interface for a project named "Berkeley County HMP". At the top, there is a navigation bar with "Basecamp 2" and menu items: "Projects", "Calendar", "Everything", "Progress", "Everyone", and "Me". A search bar on the right contains the text "Jump to a project, person, label, or search...". Below the navigation, the project title "Berkeley County HMP" is displayed with a star icon. To the right of the title are two links: "Invite more people" (with "26 people on this project" below it) and "Catch up on recent changes". Below the title, there are tabs for "2 Discussions", "18 Files", and "Events". To the right of these tabs is a section "Add the first:" with links for "To-do list" and "Text document". Underneath, a section titled "Latest project updates" shows a post from "Jul 7" stating "You created an event for Jul 25 '16 at 1:30pm: Risk Assessment-Mitigation Solutions Workshop". On the right side of the page, there is a yellow box titled "Upcoming Events" which lists "July 25" and "Risk Assessment-Mitigation Solutions Workshop".

Next Steps and Action Items

- Planning Team:
 - Submit forms by August 8
 - Jurisdictional Risk Assessment Exercise
 - Mitigation Action Progress
 - Mitigation Action
 - Submit at least one Mitigation Action!
- Steering Committee:
 - Update project website with meeting materials
 - Distribute data requests
 - Mapping, data collection, writing

Next Meeting will be in September (TBD)

Schedule and Meetings

Task	Dates
Full Project Timeline	Now to December 2016
Kick Off Meeting	May 31, 2016
Risk Assessment/Mitigation Solutions	July 25, 2016
Plan Writing	September – October 2016
Draft Plan Review Public Meeting	October 2016
Deliver to WVDHSEM/ FEMA for Review	November - December 2016
Distribute to Municipalities for Adoption	March 2017



Rachel Snavely, Project Manager
Eastern Panhandle Regional Planning & Development Council
(304) 263-1743, rsnavely@region9wv.com

Troy Truax, AICP, Project Manager
Michael Baker International
(717) 213-6241, Troy.Truax@mbakerintl.com



Risk Assessment-Mitigation Solutions Workshop

July 25, 2016

1:30 – 3:30 PM

Shepherd University’s Martinsburg Center

261 Aikens Center, Martinsburg, WV

Meeting Summary

Meeting Attendees:

Representative	Organization	Representative	Organization
James Barnhart	Berkeley County Council	Tina Combs	Martinsburg-Berkeley County Chamber of Commerce
Randy Lilly	Berkeley County Office of Homeland Security & Emergency Management	Rachel Snavely	Eastern Panhandle Regional Planning & Development Council
Mike Thompson	Berkeley County Planning Dept.	Matthew Pennington	Eastern Panhandle Regional Planning & Development Council
Heather Williams	Berkeley County Planning Dept.	Bill Clark	Eastern Panhandle Regional Planning & Development Council
Ronnie Good	Councilor	Troy Truax	Michael Baker International
Michael Covell	The City of Martinsburg	Angela Welt	Michael Baker International
Donald Grubb	Berkeley Medical Center	Steve DeRidder	Berkeley County Public Service Water District
Donna Van Metre	James Rumsey Technical Institute	Keith Busby	Procter & Gamble
Jeff Ryman	Shenandoah Valley Medical	Thomas McKenzie	Eastern WV Regional Airport Authority
John Hemmen	Ecolab, Inc.	Mary Stortstrom	<i>The Journal</i>
Jeff Leinbach	Ecolab, Inc.		

The following notes are intended to supplement the meeting presentation.

- Michael Baker International (Baker) is updating the plan on behalf of Region 9.
- The Local Emergency Planning Committee (LEPC) is responsible for maintaining the HMP between formal updates. This will be mentioned in the Maintenance section of the HMP.

- Each municipality must have at least one mitigation action, and there must be at least one mitigation action for each profiled hazard. Therefore, we need to create at least five new mitigation actions for the five new profiles being added to the HMP.
- The updated HMP must be adopted by the county and each municipality by resolution. A HMP approved by the Federal Emergency Management Agency (FEMA) is a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects.
- There is an active proposal to put a natural gas pipeline through Morgan County into Berkeley County for Mountaineer Gas. This will be added to the Utility Interruption and Hazardous Materials profiles. This is definitely a distribution line rather than a transmission line but is just proposed.
- Attendees were asked to send any local disaster photos via email or Basecamp upload.
- Attendees were provided with the following worksheets: Jurisdictional Risk Evaluation, Mitigation Action Progress Report Form, New Action Form, and National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet. Attendees completed some of the worksheets during the meeting and were asked to submit any remaining worksheets to awelt@mbakerintl.com by August 8, 2016.
- A commodity flow study for the area is underway and will be done in fall 2016. This could be listed as an Action for the Transportation profile.
- Flooding risks have been reduced due to mitigation efforts (mainly relocating residences).
- The last major wildfire occurrence, in the 1940s, took out a lot of forest but no structures. Now there are 100-200 residences in this area.
- Baker will work on improving the Goals from the 2012 plan and will make sure that there are actions for each hazard and municipality.
- Most of the larger farms in the county have crop insurance.
- In the last two years, the water district drilled two wells to get higher quality water and to reduce the effects of drought. This relates to the second mitigation action in the HMP for Berkeley County.
- The county has adopted the International Building Code.
- There are no zoning ordinances in Berkeley County, but there are zoning ordinances in Hedgesville and Martinsburg. Berkeley County, Hedgesville, and Martinsburg all have Subdivision and Land Development ordinances.
- The public survey conducted by Region 9 may provide some insight into new mitigation actions for the 2017 HMP.

- The goal is to have the revised HMP to the West Virginia Division of Homeland Security and Emergency Management by November/December and on to FEMA by a due date of January 7, 2017.

Next Steps:

- The next public meeting will be in September, date TBD.
- Jurisdictional Risk Evaluation, Mitigation Action Progress Report Form, New Action Form, and NFIP Compliance and Capabilities Worksheet should be completed and submitted to awelt@mbakerintl.com by August 8, 2016. These forms will be incorporated into the Risk Assessment and Mitigation sections of the HMP and to emphasize the hazard profiles of greatest concern.
- Each municipality must submit at least one mitigation action, and there must be at least one mitigation action submitted for each profiled hazard.
- Baker will work on improving the mitigation goals from the 2012 HMP.
- Local disasters photos should be emailed to awelt@mbakerintl.com or posted to Basecamp.
- Baker will continue to collect community planning documents and local ordinances and integrate them into the HMP.
- Geographic data analyzed by Baker and HAZUS models from WVU will be utilized to determine quantitative hazard risk assessments.
- The public survey data collected by Region 9 will provide broader public input as hazard mitigation planning progresses.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:	
Name:	

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4	4	4	4	3.7	
N	Winter Storm	4	4	4	1	3	3.6	
M	Transportation Accidents*	4	4	3	4	2	3.6	
N	Wind Storm, Tornado	4	4	4	2	1	3.5	
N	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5	
M	Hazardous Materials	4	2	4	4	4	3.4	
M	Terrorism	2	3	4	4	2	2.9	
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	
N	Radon Exposure*	3	3	2	3	1	2.6	
N	Extreme Temperature	2	2	3	3	1	2.2	
N	Flooding	4	2	1	1	1	2.2	
N	Epidemic	1	2	2	3	3	1.9	
N	Drought	1	1	3	3	3	1.8	
M	Utility Interruption*	1	2	1	3	1	1.5	
N	Wildfire	1	1	1	3	1	1.2	
N	Hailstorm	1	1	2	1	1	1.2	
N	Earthquake	1	1	1	1	1	1.0	
N	Land Subsidence	1	1	1	1	1	1.0	
N	Infestation	1	1	1	1	1	1.0	
M	Dam and Levee Failure	1	1	1	1	1	1.0	

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Region 9 Planning and Development Council Mitigation Action Progress Report Form

ACTION	STATUS				STATUS UPDATE NOTES
	Completed	Canceled	Deferred	Ongoing	What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
Maintain compliance with the National Flood Insurance Program (NFIP) at the jurisdictional level by attending training, monitoring development, and ensuring that local floodplain regulations are as current and applicable as possible.					
Undertake buyout, elevation, and/or relocation projects in the Region 9 Planning and Development Council area when and if funding is available.					
Coordinate, as appropriate, with partners throughout the region to identify the location of privately-owned dams.					

Berkeley County - Mitigation Action Progress Report Form

ACTION	STATUS				STATUS UPDATE NOTES
	Completed	Canceled	Deferred	Ongoing	What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
Develop an informational brochure to distribute to local farmers and residents regarding the agricultural effects of drought, as well as the ramifications of drought to the public water supply.					
Evaluate current public water system to identify the most feasible locations to construct upgrades that would reduce or eliminate the effects of drought.					
Consider upgrades or extensions to the current public water service district.					
Develop an informational brochure explaining the potential for earthquakes, as well as the potential damages from those earthquakes. The brochure should include information on measures to take to safeproof homes and other structures from the potential effects of earthquakes.					
Develop stringent storm water management codes for future development.					
Consider conducting acquisition and relocation projects (buyouts) in flood-prone areas. This includes repetitive, severe repetitive loss and non-repetitive and severe repetitive loss structures.					

Berkeley County 2017 Hazard Mitigation Plan Update

ACTION	STATUS				STATUS UPDATE NOTES What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
	Completed	Canceled	Deferred	Ongoing	
Coordinate county efforts to meet the requirements of becoming a participant in the Community Rating System.					
Assess the feasibility of erecting floodwalls in flood prone areas.					
Coordinate efforts with local media to post advance warnings of hailstorms.					
Develop an informational brochure to distribute to local farmers and residents concerning the potential effects of an infestation.					
Instate or update countywide building codes, which will regulate the number of buildings and the materials used in buildings that are constructed.					
Enforce existing building codes that are already in place.					
Educate the public as to the benefits of building codes and advantages to mitigation planning.					
Construct a stabilization wall or safety fence along roadways which pass through areas that are prone to landslides.					

Berkeley County 2017 Hazard Mitigation Plan Update

ACTION	STATUS				STATUS UPDATE NOTES What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
	Completed	Canceled	Deferred	Ongoing	
Coordinate with the National Weather Service in Sterling, Virginia to warn residents of impending severe thunderstorm conditions.					
Instate or update countywide building codes, which will regulate the materials used in buildings that are constructed with respect to design wind speeds.					
Instate or update countywide building codes, which will regulate the materials used in construction with respect to snow and ice weight.					
Educate local residents on the benefits of conserving water during a heat wave.					
Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.					
Work with airport safety officials to determine how best to respond to a crash involving larger planes.					
Coordinate with railroad companies to provide more emergency access to railroad rights-of-way for emergency response activities in the event of a train wreck.					
Consider updating the existing Tier 2 report to include agricultural substances such as herbicides.					

Municipality/Organization/Agency ___ Penn State University – University Park Campus _____

Action Title: Emergency and Back up Power	
Assessing the Risk	
Hazard(s) addressed	Utility Interruption - Loss of power
Describing the Action	
Background/Issue action addresses	Penn State - University Park Campus has many critical functions that rely on power. It is essential to ensure power is available to provide life safety for the students living on campus. It is also vital to ensure certain research is protected from power losses. Our security systems and communication systems also rely on a power source. The University Park Campus ensures we are able to provide appropriate shelter for our students, thus lessening the burden on the Centre Region. We also have mutual aid agreements that allow us to provide essential/critical services to the Centre Region such as sheltering and feeding, if we are able.
Action description	Penn State recognizes the importance of ensuring power for essential functions. To address this a program has been instituted that ensures for each new building or major remodel the use of the building is evaluated for essential/critical functions. Based on this review, appropriate alternate power is provided for the building or portions of the building as needed.
Action category	Structure/Infrastructure
Existing, Future, or NA	Existing/future
Evaluating the Action	
Losses avoided (i.e., benefits)	By providing alternate power sources for critical/essential functions the University ensure that life safety systems are maintained and the University can continue to meet its missions of education, research, and outreach. This contributes to the economic resiliency and sustainability of the University and the Centre Region.
Cost estimate	Cost is dependent upon the use of the building and critical/essential functions present.
Cost effectiveness (i.e., benefit/cost)	Providing life safety services and being able to recover and sustain the university's mission is difficult to put a number on. Penn State is generally ranked among the top universities for research dollars and our enrollment is critical to the success of the university.
Priority	High
Implementing the Action	
Responsible party	Office of Physical Plant
Potential Partners	Departments and Colleges at the U-Park Campus. The Centre Region for sheltering purposes.
Potential funding sources	Capital funds
Timeline	This is an ongoing practice for the University.
Integration Opportunities (if any)	This effort is integrated into the early design phase for new buildings and major remodels.
Worksheet completed by (name/title)	Pam Soule EM Planner

Action Title: Springfield Road (T-333) Culvert	
Assessing the Risk	
Hazard(s) addressed	Flood, Flash Flood, & Ice Jam
Describing the Action	
Background/Issue action addresses	There is an area along Springfield Road (T-333) that floods during heavy rain events. Stormwater runoff flows down agricultural fields, builds up enough to overflow Springfield Road and crosses into 172 Springfield Road where a resident's well has suffered damage twice in recent years and the home is in danger of damage. We are currently in discussions with surrounding property owners to see how this can be alleviated.
Action description	The township engineer has looked at this, and he suggests a possible way to help this would be installing a culvert under the road and laying pipe back around one or two properties.
Action category	Structural Project Implementation
Existing, future &/or NA	Current - The township is contacting owners of properties where runoff is partially originating to request their cooperation in constructing facilities to control runoff. Future – Install culvert under Springfield Road and redirect runoff
Evaluating the Action	
Losses avoided (i.e., benefits)	Avoid wash out of Springfield Road. Avoid damage to a residence and well.
Cost estimate	\$40,000
Cost effectiveness (i.e., benefit/cost)	Preserves public road structure and public road access worth \$100,000. Preserves value of existing \$170,000 property, so it doesn't become vacant and negatively impact surrounding home values worth in excess of \$500,000.
Priority	Intermediate
Implementing the Action	
Responsible party	North Newton Township
Potential Partners	None known at this time.
Potential funding sources	Municipal General Fund, any available grant monies
Timeline	Dependent upon future flood occurrences.
Integration Opportunities (if any)	None known at this time.
Worksheet completed by (name/title)	Bonnie Myers, North Newton Township Secretary

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency _____

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	
Describing the Action	
Background/Issue action addresses	
Action description	
Action category	
Existing, Future, or NA	
Evaluating the Action	
Losses avoided (i.e., benefits)	
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	
Priority	
Implementing the Action	
Responsible party	
Potential Partners	
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	

Berkeley County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **Berkeley County**

Name and Title: _____

Phone: _____

Email: _____

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
How many NFIP policies are in the community?	CIS (provided by consultant)	200	
What is the total premium and coverage?	CIS (provided by consultant)	\$156,836 (total premium), \$36,928,500 (total coverage)	
How many claims have been paid in the community?	CIS (provided by consultant)	331	
What is the total amount of paid claims?	CIS (provided by consultant)	\$5,251,184	
How many of the claims were for substantial damage?	CIS (provided by consultant)	106	
Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.	Community floodplain administrator		
Staff Resources			
Is the Community Floodplain Administrator or NFIP Coordinator certified?	Community floodplain administrator		
Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?	Community floodplain administrator		
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).	Community floodplain administrator		

Berkeley County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
<i>What are the barriers to running an effective NFIP program in the community?</i>	Community floodplain administrator		
Compliance History			
<i>Is the community in good standing with the NFIP?</i>	CIS (provided by consultant)	Yes	
<i>Are there any outstanding compliance issues (i.e., current violations)?</i>	CIS (provided by consultant)	No	
<i>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</i>	CIS (provided by consultant)	CAV: 03/18/2009 CAC: NA	
<i>Is a CAV or CAC scheduled or needed?</i>	CIS (provided by consultant)	No	
Regulation			
<i>When did the community enter the NFIP?</i>	CIS (provided by consultant)	08/04/1988	
<i>Are the FIRMS digital or paper?</i>	CIS (provided by consultant)	Digital	
<i>Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?</i>	Community floodplain administrator		
<i>Provide an explanation of the permitting process.</i>	Community floodplain administrator		
Community Rating System (CRS)			
<i>Does the community participate in CRS?</i>	CIS (provided by consultant)	Yes	
<i>What is the community's CRS Class Ranking?</i>	CIS (provided by consultant)	07 (15%)	
<i>What categories and activities provide CRS points and how can the class be improved?</i>	CIS (provided by consultant)	<ul style="list-style-type: none"> • Higher regulatory standards • Acquisition and Relocation • Map Information • Flood Data Maintenance 	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

Berkeley County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **City of Martinsburg**

Name and Title: _____

Phone: _____

Email: _____

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
How many NFIP policies are in the community?	CIS (provided by consultant)	23	
What is the total premium and coverage?	CIS (provided by consultant)	\$36,026 (total premium), \$5,262,400 (total coverage)	
How many claims have been paid in the community?	CIS (provided by consultant)	22	
What is the total amount of paid claims?	CIS (provided by consultant)	\$307,759	
How many of the claims were for substantial damage?	CIS (provided by consultant)	0	
Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.	Community floodplain administrator		
Staff Resources			
Is the Community Floodplain Administrator or NFIP Coordinator certified?	Community floodplain administrator		
Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?	Community floodplain administrator		
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).	Community floodplain administrator		

Berkeley County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
<i>What are the barriers to running an effective NFIP program in the community?</i>	Community floodplain administrator		
Compliance History			
<i>Is the community in good standing with the NFIP?</i>	CIS (provided by consultant)	Yes	
<i>Are there any outstanding compliance issues (i.e., current violations)?</i>	CIS (provided by consultant)	No	
<i>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</i>	CIS (provided by consultant)	CAV: 03/12/2014 CAC:NA	
<i>Is a CAV or CAC scheduled or needed?</i>	CIS (provided by consultant)	No	
Regulation			
<i>When did the community enter the NFIP?</i>	CIS (provided by consultant)	12/18/1979	
<i>Are the FIRMS digital or paper?</i>	CIS (provided by consultant)	Digital	
<i>Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?</i>	Community floodplain administrator		
<i>Provide an explanation of the permitting process.</i>	Community floodplain administrator		
<i>Does the community participate in CRS?</i>	CIS (provided by consultant)	No	
<i>What is the community's CRS Class Ranking?</i>	CIS (provided by consultant)	NA	
<i>What categories and activities provide CRS points and how can the class be improved?</i>	CIS (provided by consultant)	NA	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

Berkeley County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **Town of Hedgesville**

Name and Title: _____

Phone: _____

Email: _____

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
How many NFIP policies are in the community?	CIS (provided by consultant)	0	
What is the total premium and coverage?	CIS (provided by consultant)	0	
How many claims have been paid in the community?	CIS (provided by consultant)	0	
What is the total amount of paid claims?	CIS (provided by consultant)	0	
How many of the claims were for substantial damage?	CIS (provided by consultant)	0	
Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.	Community floodplain administrator		
Staff Resources			
Is the Community Floodplain Administrator or NFIP Coordinator certified?	Community floodplain administrator		
Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?	Community floodplain administrator		
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).	Community floodplain administrator		

Berkeley County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
<i>What are the barriers to running an effective NFIP program in the community?</i>	Community floodplain administrator		
Compliance History			
<i>Is the community in good standing with the NFIP?</i>	CIS (provided by consultant)	NA	
<i>Are there any outstanding compliance issues (i.e., current violations)?</i>	CIS (provided by consultant)	NA	
<i>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</i>	CIS (provided by consultant)	NA	
<i>Is a CAV or CAC scheduled or needed?</i>	CIS (provided by consultant)	NA	
Regulation			
<i>When did the community enter the NFIP?</i>	CIS (provided by consultant)	Not Participating	
<i>Are the FIRMS digital or paper?</i>	CIS (provided by consultant)	No published FIRM	
<i>Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?</i>	Community floodplain administrator		
<i>Provide an explanation of the permitting process.</i>	Community floodplain administrator		
CRS			
<i>Does the community participate in CRS?</i>	CIS (provided by consultant)	No	
<i>What is the community's CRS Class Ranking?</i>	CIS (provided by consultant)	NA	
<i>What categories and activities provide CRS points and how can the class be improved?</i>	CIS (provided by consultant)	NA	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

**Appendix C-4 Morgan County Risk Assessment/Mitigation Workshop Materials
(July 25, 2016)**

CERTIFICATE OF PUBLICATION

THIS IS TO CERTIFY that a legal publication

Notice of Public Meeting

Hazard Mitigation Plan Update

placed by

Eastern Panhandle Regional

Planning & Development Council

appeared for 2 consecutive weeks in
THE MORGAN MESSENGER, a newspaper
published in Berkeley Springs, WV, in its issue
beginning

July 13, 2016

and ending

July 20, 2016

Per *Alis Henry*
THE MORGAN MESSENGER, INC.

Words 150

Charge \$ 31.50

**NOTICE OF PUBLIC MEETING
MORGAN COUNTY
HAZARD MITIGATION
PLAN UPDATE**

The first public meeting of the Morgan County Hazard Mitigation Plan Update Committee will meet on July 25, 2016 from 9-11 a.m. at the Morgan County Commission Office, located at 77 Fairfax Street, Berkeley Springs, WV 25411. This meeting will kick-off discussion of risk & capabilities assessments and mitigation strategies in the event of disaster. All citizens are invited to attend and participate. For further information, please contact Region 9 Planning & Development Council at 400 W. Stephen Street, Ste. 301, Martinsburg, WV 25401 or by phone at 304-263-1743.

7-13-2tm

Passmore, Joseph

To: Welt, Angela
Subject: RE: Hazard Mitigation Plan Update - Meeting #2

From: Rachel Snavelly
Sent: Thursday, June 23, 2016 8:52 AM
To: agorse@morgancountywv.gov; Alton Wolfe (altonwolfe1955@gmail.com); Commissioner Brad Close; dmyers@morgancountywv.gov; 'Jody McClintock'; Mayor Scott Merki; Monica Whyte (monica.a.whyte@wv.gov); sallemong@morgancountywv.gov; Timothy Mose; Zachary Caldwell
Cc: Matthew Pennington; BILL CLARK; Ginger Johnson
Subject: Hazard Mitigation Plan Update - Meeting #2

Good morning,

Thank you to the many attendees of the Hazard Mitigation Plan Update kick-off meeting in May. Your participation and involvement in the update process is greatly appreciated.

The second meeting for the Hazard Mitigation Plan Update for Morgan County has been scheduled for Monday, **July 25, 2016 from 9AM – 11 AM**. We will meet at the **Morgan County Commission Office, 77 Fairfax Street, Berkeley Springs, WV 25411**.

Additional reminders will be sent in the coming weeks.

Discussion at this meeting will include risk assessment, capability assessment, and mitigation strategies. Note that additional stakeholders will be invited to the July meeting, per our discussion at the kick-off meeting in May. This meeting will also be open to the public.

Please RSVP, and if you are unable to attend, a summary of information will be posted to the project's Basecamp website (<https://basecamp.com/3057556/projects/12171776>) after the meeting. If you have any questions in the meantime, feel free to email or call me or Bill at the number below. Thank you,

Rachel Snavelly
Project Manager
Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
(304)263-1743

No virus found in this message.

Checked by AVG - www.avg.com

Version: 2016.0.7640 / Virus Database: 4613/12508 - Release Date: 06/28/16

Passmore, Joseph

To: Welt, Angela
Subject: RE: Hazard Mitigation Plan Update - Morgan County

From: Rachel Snavely [<mailto:rsnavely@region9wv.com>]
Sent: Tuesday, June 28, 2016 2:09 PM
To: Welt, Angela <awelt@mbakerintl.com>
Subject: FW: Hazard Mitigation Plan Update - Morgan County

Below is the list of stakeholders invited to Morgan County.

From: Cindy Smalley [<mailto:Cindy.Smalley@mail.wvu.edu>]
Sent: Monday, June 27, 2016 10:28 AM
To: Rachel Snavely
Subject: RE: Hazard Mitigation Plan Update - Morgan County

I plan to attend

From: Rachel Snavely [<mailto:rsnavely@region9wv.com>]
Sent: Thursday, June 23, 2016 8:32 AM
To: joeltut32@hotmail.com; Cindy Smalley <Cindy.Smalley@mail.wvu.edu>; alana.c.hartman@wv.gov; Nicolas.H.Diehl@wv.gov; monica.a.whyte@wv.gov; sduncan@wvca.us; kieran.m.o'malley@wv.gov; Bill.G.Kearns@wv.gov; charles_wilt@cable.comcast.com; mrosens@firstenergycorp.com; jackdelawder@yahoo.com; water.town@hotmail.com; paul.espinosa@ftr.com; dbank@access.k12.wv.us; lbhansroth@yahoo.com; chull@blueridgectc.edu; gat@capertonfurnitureworks.com; Sales@ussilica.com; marshbc@aol.com; jjmichael@gmail.com; frodgers@cacaponinstitute.org; racheldagostino@hotmail.com; goldfairy39@gmail.com
Subject: Hazard Mitigation Plan Update - Morgan County

Good morning,

You have been identified as a potentially interested stakeholder for the ongoing Hazard Mitigation Plan (HMP) Update for Morgan County.

An HMP is a community-driven, living document that communities and jurisdictions use to reduce their vulnerability to hazards. Communities must have a Plan to apply for and receive mitigation funding. An HMP Fact Sheet is attached, and the 2012 HMP is available at this link:
<http://www.dhsem.wv.gov/MitigationRecovery/Documents/Region%20IX.pdf>.

You are invited to attend a meeting for the Hazard Mitigation Plan Update for Morgan County, which has been scheduled for Monday, **July 25, 2016 from 9AM – 11AM**. We will meet at the **Morgan County Commission Office, 77 Fairfax Street, Berkeley Springs, WV 25411**. Discussion at this meeting will include risk assessment, capability assessment, and mitigation strategies. As a stakeholder engaged in industry, healthcare, or education, you may have valuable feedback about how you notify employees of office closures, whether or not you have a Continuity of Operations Plan in place, and what types of disasters affect you the most. For those invitees involved with their local watersheds and/or farmland, you may have unique insight into the effects of natural disasters on the conservation of the lands and waterways in the region.

Please RSVP, and if you are unable to attend, I will forward you a summary of information after the meeting. If you do not wish to actively participate in this update or would like to suggest a different point-of-contact, please contact me so I can update my mailing list. Feel free to email or call me or Bill at the number below, with any questions about the project. Thank you,

Rachel Snavelly
Project Manager
Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
(304)263-1743

No virus found in this message.

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Version: 2016.0.7640 / Virus Database: 4613/12502 - Release Date: 06/27/16

Meeting Agenda

**Morgan County Hazard Mitigation Plan Update
Risk Assessment-Mitigation Solutions Workshop**

Date	Monday, July 25, 2016
Time	9:00 AM – 11:00 AM
Location	Morgan County Commission Office 77 Fairfax Street, Berkeley Springs, WV 25411

Purpose: Collect municipal and stakeholder feedback on hazard risk and mitigation solutions

Topic	Time
1. Sign-in, Welcome, and Introductions	➤ 9:00 AM
2. Hazard Mitigation Plan and Project Overview	➤ 9:10 AM
3. Kickoff Meeting Recap	➤ 9:25 AM
4. Risk Assessment Overview <ul style="list-style-type: none">○ Exercise #1: Jurisdictional Risk	➤ 9:40 AM
5. Mitigation Strategy Overview <ul style="list-style-type: none">○ Exercise #2: Mitigation Action Progress Report○ Exercise #3: New Mitigation Action(s)○ National Flood Insurance Program Compliance and Capabilities Worksheet (county and municipalities only)	➤ 10:10 AM
6. Schedule and Meetings	➤ 10:40 AM
7. Next Steps and Action Items	➤ 10:45 AM

Forms can be submitted to Angela Welt at:

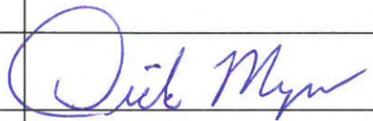
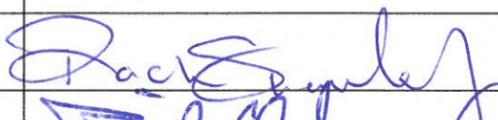
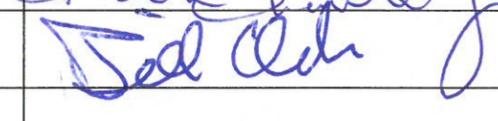
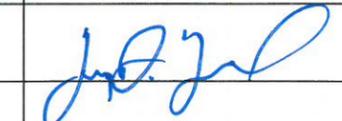
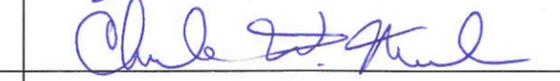
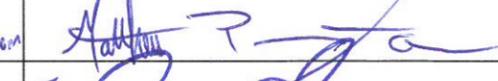
awelt@mbakerintl.com

4431 N. Front Street, 2nd Floor

Harrisburg, PA 17110

Morgan County Hazard Mitigation Plan Update Risk Assessment & Mitigation Solutions Workshop

July 25, 2016 – 9:00 AM

Name	Title	Jurisdiction/ Organization	Telephone	E-Mail Address	Signature
Zachary Caldwell	911 Director	Morgan County E-911	(304) 258-0305	e911director@morgancountywv.gov	
Brad Close	Commission President	Morgan County Commission	(304) 867-3140	bclose@morgancountywv.gov	
Dick Myers	Office of Emergency Services Director	Morgan County Office of Homeland Security and Emergency Management	(304) 258-0305	dmyers@morgancountywv.gov	
Stefanie Allemong	Grant Administrator	Morgan County Grant Administrator		sallemong@morgancountywv.gov	
Alma Gorse	County Planner	Morgan County Planning Commission	(304) 867-3133	agorse@morgancountywv.gov	
Jody McClintock	County Administrator	Morgan County Administrator	(304) 867-3131	jmcclintock@morgancountywv.gov	
Alton Wolfe Jr.	Mayor	The Town of Paw Paw	(304) 947- 7476	altonwolfe1955@gmail.com	
Scott Merki	Mayor	The Town of Bath	(304) 258-1102	asst5@aol.com	
Rachel Snavely	Project Manager	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	RSnavely@region9wv.com	
Bill Clark	Executive Director	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	BClark@region9wv.com	
Matthew Pennington	Environmental Program Coordinator	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 707-1920	MPennington@region9wv.com	
Troy Truax	Technical Manager, Planning Services	Michael Baker International	(717) 213-6241	Troy.Truax@mbakerintl.com	
Angela Welt	Environmental Specialist	Michael Baker International	(717) 221-2040	awelt@mbakerintl.com	
Matthew Rosensteel	Planning Engineer	Potomac Edison	201-491-1813	mrosens@firstenergycorp.com	
CHARLES MARSH	PRESIDENT	SLEEPY CREEK WATERSHED ^{Assoc.}	304-258-2605	MARSH80@aol.com	
JEFF ILIFF	Board Member WSWA	Warm Springs Watershed Assoc.	304-258-8037	ffjeff@gmail.com	
Lori Hansroth	Executive Director	BS-MOCO Chamber of Commerce	304-258-3738	chamber@berkeleysprings.com	
Matthew Pennington	Environmental Coordinator	Region 9 PDC	304-707-1920	mpennington@region9wv.com	
Timothy Johnson	Chief of Police	Town of Bath	304-258-4946	tjohnson@wvdsb.net	



Hazard Mitigation Plan Update

Morgan County, WV

Risk Assessment & Mitigation Solutions Workshop
July 25, 2016

- Welcome
- Hazard Mitigation Plan and Project Overview
- Recap of Kickoff Meeting
- Risk Assessment Overview
- Mitigation Strategy Evaluation
- Schedule and Meetings
- Next Steps and Action Items



Hazard Mitigation Defined



What is Hazard Mitigation?

- Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property resulting from natural and human-made hazards.



What is a Hazard Mitigation Plan?

- A Hazard Mitigation Plan is a community-driven, living document that communities use to reduce their vulnerability to hazards.
- Counties must have a plan to maintain access to mitigation grants. These grants can augment local mitigation activities already being accomplished and can leverage other funding sources.





REGION 9 PLANNING & DEVELOPMENT COUNCIL

Multi-Jurisdictional Hazard Mitigation Plan
for Berkeley and Morgan Counties



- Introduction
- Community Profile
- Planning Process
- Risk Assessment
- Capability Assessment
- Mitigation Strategy
- Plan Maintenance
- Adoption

Kickoff Meeting Recap



- Reviewed 2017 Plan format and process
- Completed Hazard-Risk Assessment Exercise
- Reviewed the Mitigation Techniques and Requirements
- Discussed participation opportunities
- Reviewed the schedule and next steps

Morgan County Hazard Mitigation Plan 2017 Update

Evaluation of Identified Hazards and Risk: Morgan County

Name: _____ Title: _____

Affiliation: _____

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
<i>Drought</i>		
<i>Earthquake</i>		
<i>Epidemic</i>		
<i>Flooding</i>		
<i>Hailstorm</i>		
<i>Infestation</i>		
<i>Land Subsidence</i>		
<i>Thunderstorm, Lightning Strike</i>		
<i>Wildfire</i>		
<i>Wind Storm, Tornado</i>		

- Hazard-Risk Evaluation
 - Evaluates the hazards being profiled in the county plan
 - Helps determine jurisdictional risk

Risk Assessment Overview



Natural Hazards

- Drought
- Earthquake
- Epidemic
- Flooding
- Hailstorm
- Infestation
- Land Subsidence
- Thunderstorm, Lightning Strike
- Wildfire
- Wind Storm, Tornado
- Winter Storm

Human-made Hazards

- Dam Failure
- Hazardous Materials Incident
- Terrorism

Assessing Changes in Risk for 2017

- Selected all hazards that impact the County
- NEW hazards for 2017:
 - Source water contamination
 - Transportation accidents
 - Hurricane, tropical storm, nor'easter
 - Radon exposure (B)
 - Utility interruption (M)

- Location and Extent
 - *Where* does the hazard happen?
- Range of Magnitude
 - How *minor or major* might the event be?
- Past Occurrence
 - *When and where* has the event happened in the past?
- Future Occurrence
 - *How likely* is it that the event will happen in the future?
- Vulnerability Assessment
 - What *people, structures, and critical facilities* are at risk?

- Standardized method to rank risks
- Done on a countywide basis
- Results are preliminary

$$\begin{aligned} \text{Risk Factor Value} = & \\ & [(Probability \times .30) + (Impact \times .30) + \\ & (Spatial Extent \times .20) + (Warning Time \times .10) + \\ & (Duration \times .10)] \end{aligned}$$

2017 Hazard Identification

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)	
N	Flooding	3	2	3	3	2	2.6
M	Utility Interruption*	3	2	2	3	2	2.4
N	Epidemic	2	3	2	1	4	2.4
N	Winter Storm	3	2	2	2	2	2.3
M	Hazardous Materials	2	2	2	4	3	2.3
N	Wind Storm, Tornado	2	2	2	4	2	2.2
N	Hailstorm	2	2	2	4	2	2.2
M	Transportation Accidents*	4	1	1	4	1	2.2
N	Hurricane, Tropical Storm, Nor'easter*	2	2	3	1	3	2.2
M	Source Water Contamination*	2	2	2	2	2	2.0
N	Wildfire	2	2	1	4	2	2.0
N	Drought	1	1	4	1	4	1.9
M	Dam and Levee Failure	1	2	2	4	2	1.9
M	Terrorism	1	1	1	4	2	1.4
N	Extreme Temperature	1	2	1	1	2	1.4
N	Infestation	1	1	2	2	2	1.4
N	Thunderstorm, Lightning Strike	1	1	1	4	1	1.3
N	Earthquake	1	1	1	4	1	1.3
N	Land Subsidence	1	1	1	4	1	1.3
N	Radon Exposure*	1	1	1	1	1	1.0

- High-Ranked Hazards
 - Flooding
 - Utility Interruption
 - Epidemic
 - Winter Storm
 - Hazardous Materials
 - Wind Storm, Tornado
 - Hailstorm
 - Transportation Accidents
 - Hurricane, Tropical Storm, Nor'easter



- Moderate-Ranked Hazards
 - Source Water Contamination
 - Wildfire
 - Drought
 - Dam and Levee Failure



- Low-Ranked Hazards
 - Terrorism
 - Extreme Temperatures
 - Infestation
 - Thunderstorm, Lightning Strike
 - Earthquake
 - Land Subsidence
 - Radon Exposure



Exercise 1 : Risk Assessment Exercise

- This document will allow each municipality to reflect on the ranked hazard profiles and their unique effects within municipal boundaries.

Morgan County 2017 Hazard Mitigation Plan Update

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:									
Name:									
NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a moderate hazard with a countywide ranking of 1.9. The presence or absence of a high hazard dam in your community may result in higher or lower risk.</i>	
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)			
N	Flooding	3	2	3	3	2	2.6		
M	Utility Interruption*	3	2	2	3	2	2.4		
N	Epidemic	2	3	2	1	4	2.4		
N	Winter Storm	3	2	2	2	2	2.3		
M	Hazardous Materials	2	2	2	4	3	2.3		
N	Wind Storm, Tornado	2	2	2	4	2	2.2		
N	Hailstorm	2	2	2	4	2	2.2		
M	Transportation Accidents*	4	1	1	4	1	2.2		
N	Hurricane, Tropical Storm, Nor'easter*	2	2	3	1	3	2.2		
M	Source Water Contamination*	2	2	2	2	2	2.0		
N	Wildfire	2	2	1	4	2	2.0		
N	Drought	1	1	4	1	4	1.9		
M	Dam and Levee Failure	1	2	2	4	2	1.9		
M	Terrorism	1	1	1	4	2	1.4		
N	Extreme Temperature	1	2	1	1	2	1.4		
N	Infestation	1	1	2	2	2	1.4		
N	Thunderstorm, Lightning Strike	1	1	1	4	1	1.3		
N	Earthquake	1	1	1	4	1	1.3		
N	Land Subsidence	1	1	1	4	1	1.3		
N	Radon Exposure*	1	1	1	1	1	1.0		

*Hazard was not in the 2012 plan but will be added to the 2017 plan.



Mitigation Strategy Components

- Progress Report on 2017 Strategy
- Goals and Objectives
- Mitigation Techniques
- Mitigation Action Plan and Projects



Defining Goals, Objectives, & Actions

- *Goals:* General guidelines that describe what your community would like to achieve.
- *Objectives:* Define strategies that must be implemented to achieve the identified goal.
- *Actions:* The specific activities a community will take to reduce or eliminate risks.

GOALS

Goal 1: Lessen flood risk by maintaining compliance with the National Flood Insurance Program (NFIP) and undertaking buyout projects when funding is available.

Goal 2: Better identify hazard areas.

GOALS

Goal 1: Minimize flood damages and risks from flood hazards.

Goal 2: Reduce the current and future risks from hazards.

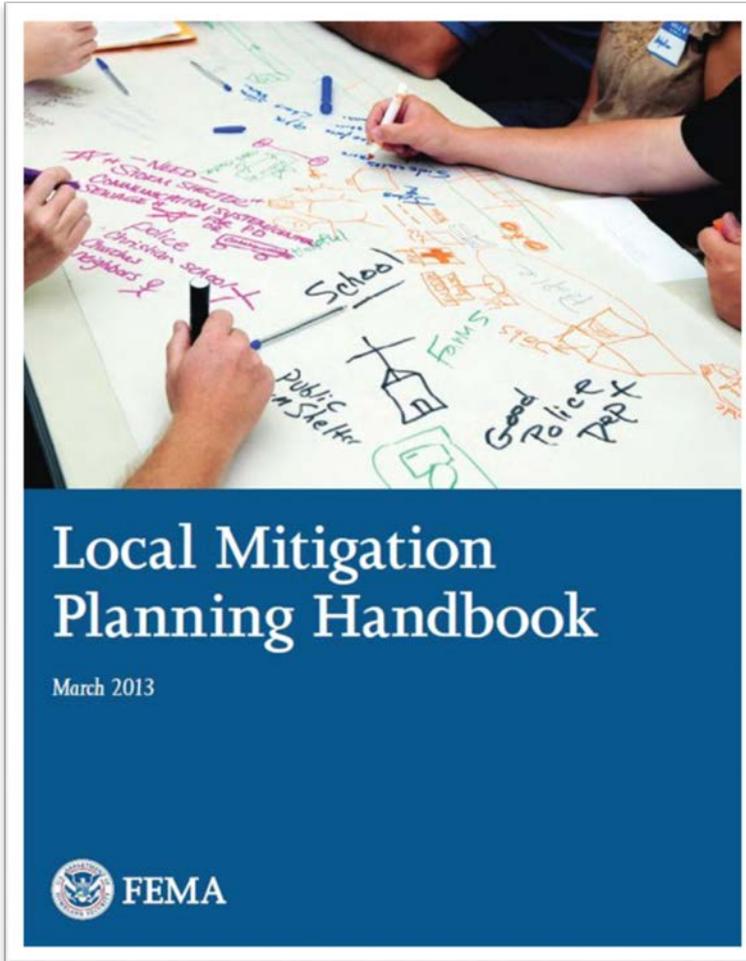
Goal 3: Improve emergency preparedness in Morgan County, Bath, and Paw Paw.

Goal 4: Reduce the potential impact of natural and man-made disasters on private property.

Goal 5: Reduce the potential impact of natural disasters on the county's historic treasures.

Identifies a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard.





- Updated FEMA mitigation planning guidance identifies four mitigation techniques:
 - Plans and Regulations
 - Structure and Infrastructure Projects
 - Natural Systems Protection
 - Education and Awareness Programs

Local Plans and Regulations



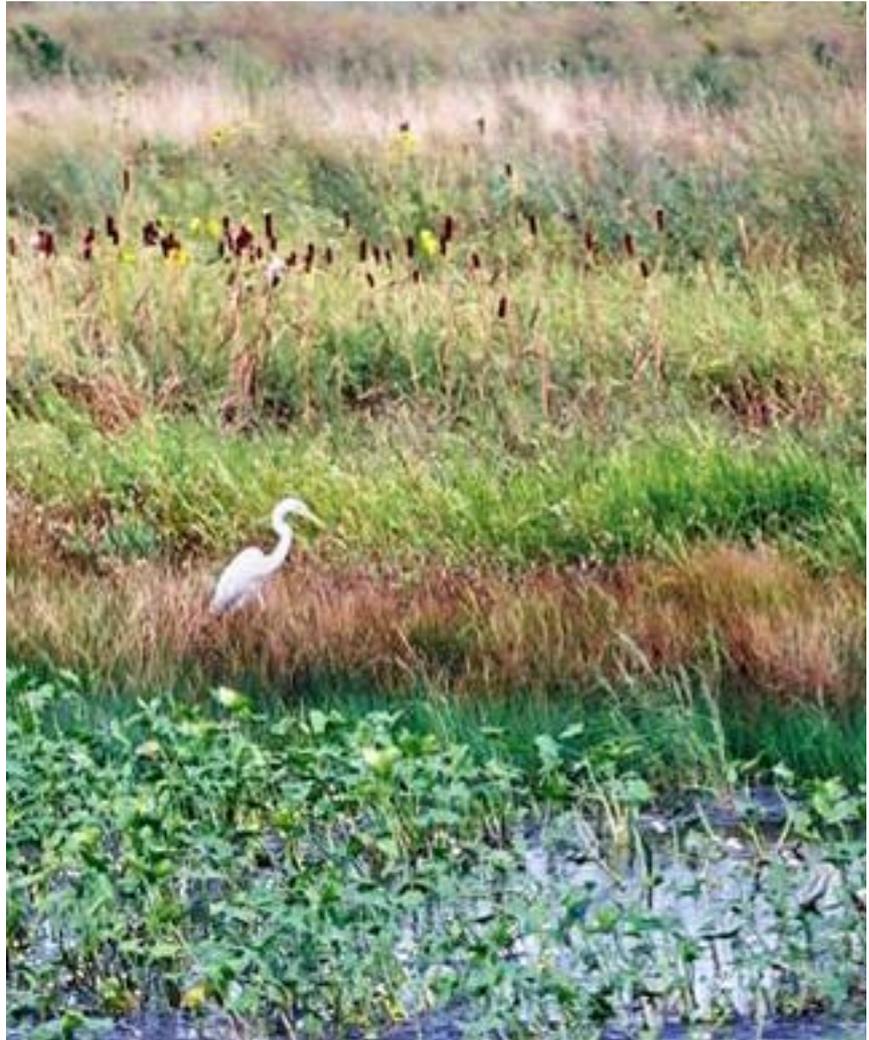
- Government authorities, policies, or codes that influence the way land and buildings are developed
- Examples:
 - Limit or restrict development in floodplains
 - Adopt or enforce building codes
 - Amend ordinances to require trailer anchoring
 - Map and assess landslide vulnerability

Structure and Infrastructure Projects



- Modifying existing structures and infrastructure to remove from a hazard area
- Construction of manmade structures to reduce impacts of hazards
- Examples:
 - Hardening critical facilities
 - Acquisition and Demolition
 - Elevation Projects

- Actions that minimize damage and losses and also preserve or restore the functions of natural systems
 - Sediment and erosion control
 - Stream corridor restoration
 - Forest management
 - Conservation easements
 - Riparian buffer
 - Flood and stormwater



Education and Awareness Programs



- Examples:
 - Real estate disclosures to floodprone properties
 - Water saving education programs
 - Assistance to vulnerable populations
 - Community organization presentations
 - Radio spots

- Each municipality must have at least one mitigation action.
- There must be at least one mitigation action for each profiled hazard.
- Mitigation actions should be realistic and sustainable.



Exercises 2 and 3: Mitigation Strategy Overview

- Exercise 2 will allow each municipality to report the progress it has made on mitigation actions from the 2012 HMP, the status of the project, and any relevant notes.
- Exercise 3 will allow municipalities and stakeholders to suggest the implementation of new mitigation actions.
- A representative from each municipality and the county will also fill out a worksheet about local National Flood Insurance Program compliance and capabilities.

Morgan County 2017 Hazard Mitigation Plan Update

Morgan County - Mitigation Action Progress Report Form

ACTION	STATUS				STATUS UPDATE NOTES What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
	Completed	Cancelled	Deferred	Ongoing	
Ensure that flood insurance policies remain affordable through the county and municipal government programs.					
Support Morgan County's efforts in the CRS program, and provide training to municipalities on the CRS program and encourage them to participate.					
Collect updated information on the number and location of all repetitive loss properties throughout the county and develop a database and maps for storage.					
Identify owners of repetitive and severe repetitive loss properties that may be willing to participate in future property acquisition and relocation projects.					
Review all existing regulations to ensure adequacy in reducing the amount of future identified hazard areas.					
Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.					
Provide training to municipalities on the CRS program and encourage them to participate.					

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency _____

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	
Describing the Action	
Background/Issue action addresses	
Action description	
Action category	
Existing, Future, or NA	
Evaluating the Action	
Losses avoided (i.e., benefits)	
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	

- Visit the HMP Update Basecamp website at <https://basecamp.com/3057556/projects/12171770>
- Project updates, meeting minutes, and planning documents will be posted there
- Users can upload their own documents or post questions and comments
- Meeting attendees will be invited via email, and invitations can be requested by emailing awelt@mbakerintl.com

The screenshot shows the Basecamp interface for a project named 'Morgan County HMP'. The top navigation bar includes 'Basecamp 2', 'Projects', 'Calendar', 'Everything', 'Progress', 'Everyone', and 'Me'. A search bar on the right says 'Jump to a project, person, label, or search...'. Below the navigation, the project title 'Morgan County HMP' is displayed with a star icon. To the right of the title are links for 'Invite more people' (17 people on this project) and 'Catch up on recent changes'. Below the title, there are tabs for '2 Discussions', '21 Files', and 'Events'. A section titled 'Latest project updates' lists two items: a post from July 7 about creating an event for July 25, and a post from June 29 about granting access to the project. On the right side, there is a yellow box titled 'Upcoming Events' which lists the event 'Risk Assessment-Mitigation Solutions Workshop' for July 25.

Schedule and Meetings

Task	Dates
Full Project Timeline	Now to December 2016
Kick Off Meeting	May 31, 2016
Risk Assessment/Mitigation Solutions	July 25, 2016
Plan Writing	September - October 2016
Draft Plan Review Public Meeting	October 2016
Deliver to WVDHSEM/ FEMA for Review	November - December 2016
Distribute to Municipalities for Adoption	March 2017

Next Steps and Action Items

- Planning Team:
 - Submit forms by August 8
 - Jurisdictional Risk Assessment Exercise
 - Mitigation Action Progress
 - Mitigation Action
 - Submit at least one Mitigation Action!
- Steering Committee:
 - Update project website with meeting materials
 - Distribute data requests
 - Mapping, data collection, writing

Next Meeting will be in September (TBD)



Rachel Snavely, Project Manager
Eastern Panhandle Regional Planning & Development Council
(304) 263-1743, rsnavely@region9wv.com

Troy Truax, AICP, Project Manager
Michael Baker International
(717) 213-6241, Troy.Truax@mbakerintl.com



Risk Assessment-Mitigation Solutions Workshop

July 25, 2016

9:00 – 11:00 AM

Morgan County Commission Office

77 Fairfax Street

Berkeley Springs, WV 25411

Meeting Summary

Meeting Attendees:

Representative	Organization	Representative	Organization
Alma Gorse	Morgan County Planning Commission	Timothy Johnson	Town of Bath Police Dept.
Dick Myers	Morgan County Office of Homeland Security and Emergency Management	Rachel Snavelly	Eastern Panhandle Regional Planning & Development Council
Matthew Rosensteel	Potomac Edison	Matthew Pennington	Eastern Panhandle Regional Planning & Development Council
Charles Marsh	Sleepy Creek Watershed Assoc.	Bill Clark	Eastern Panhandle Regional Planning & Development Council
Jeff Iliff	Warm Springs Watershed Assoc.	Troy Truax	Michael Baker International
Lori Hansroth	Berkeley Springs – Morgan County Chamber of Commerce	Angela Welt	Michael Baker International

The following notes are intended to supplement the meeting presentation.

- Michael Baker International (Baker) is updating the plan on behalf of Region 9.
- The updated HMP must be adopted by the county and each municipality by resolution. A HMP approved by the Federal Emergency Management Agency (FEMA) is a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects.
- There is an active proposal to put a natural gas pipeline through Morgan County into Berkeley County for Mountaineer Gas. This will be added to the Utility Interruption and Hazardous Materials profiles. This is definitely a distribution line rather than a transmission line but is just proposed.

- Attendees were provided with the following worksheets: Jurisdictional Risk Evaluation, Mitigation Action Progress Report Form, New Action Form, and National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet. Attendees completed some of the worksheets during the meeting and were asked to submit any remaining worksheets to awelt@mbakerintl.com by August 8, 2016.
- Floodplain buyouts can present challenges, sometimes due to disagreements over property values.
- Morgan County has subdivision ordinances in place, but does not have zoning ordinances.
- Chesapeake Bay funding initiatives may be applicable to fund some types of water protection mitigation actions. This could be identified in the HMP as a funding mechanism.
- Morgan County does not do building inspections and does not plan to adopt a building code. Bill Clark (Region 9) clarified that inspections are completed in floodplains, in order to comply with the National Flood Insurance Program.
- Matt Pennington (Region 9) has copies of the structural assessments conducted by the WV Department of Highways for bridges in Morgan County and will forward the reports to Troy Truax (Baker).
- The Eastern Panhandle has good documentation and reporting for natural systems protection mitigation actions that have been planned or completed. Chuck Marsh (Sleepy Creek Watershed Association) may be able to provide this information.
- The Sleepy Creek Watershed Plan is currently being updated.
- First Energy has a tree trimming program and will be doing ground to sky enhanced spec on the main lines and better tree trimming on all the side lines, on a five year cycle. Tree trimming is now required by the WV Commission and has resulted in much better reliability for customers. For example, a recent storm laid down 42" of snow and resulted in only two power outages. First Energy is also using some electronic devices to sectionalize outages (electronic reclosures). Maryland now requires all new lines to be installed underground, but West Virginia has not done that because of the increased costs for construction and maintenance. Underground facilities have fewer utility interruptions, because tree limbs and ice/snow do not affect underground facilities. Most developers tend to install underground facilities in Morgan and Berkeley counties.
- Baker will be incorporating existing planning mechanisms into the HMP, like the source water contamination studies and storm water initiatives.
- Each municipality must have at least one mitigation action, and there must be at least one mitigation action for each profiled hazard. Therefore, we need to create at least five new mitigation actions for the five new profiles being added to the HMP.

- Morgan County has not been doing annual reviews/updates of the HMP. Matt Pennington (Region 9) offered to serve on a review committee, if one is established.
- Attendees were asked to send any local disaster photos via email or Basecamp upload.
- The draft 2017 HMP will be posted on the Region 9 and county websites for public review.
- The goal is to have the revised HMP to the West Virginia Division of Homeland Security and Emergency Management by November/December and on to FEMA by a due date of January 7, 2017.
- West Virginia University (WVU) is working on Hazards U.S. (HAZUS) modeling, which will be incorporated into the updated HMP. WVU has finished the Berkeley County HAZUS but is still working on the Morgan County HAZUS models.
- The Town of Paw Paw will need to participate in a meeting / conference call and will also need to complete at least one worksheet, in order to be eligible to adopt the 2017 HMP. Rachel Snavely (Region 9) will contact them to discuss.

Next Steps:

- The next public meeting will be in September, date TBD.
- Jurisdictional Risk Evaluation, Mitigation Action Progress Report Form, New Action Form, and NFIP Compliance and Capabilities Worksheet should be completed and submitted to awelt@mbakerintl.com by August 8, 2016. These forms will be incorporated into the Risk Assessment and Mitigation sections of the HMP and to emphasize the hazard profiles of greatest concern.
- Each municipality must submit at least one mitigation action, and there must be at least one mitigation action submitted for each profiled hazard.
- Baker will work on improving the mitigation goals from the 2012 HMP.
- A conference call/meeting must be held with a representative from Paw Paw.
- Local disasters photos should be emailed to awelt@mbakerintl.com or posted to Basecamp.
- Baker will continue to collect community planning documents and local ordinances and integrate them into the HMP.
- Geographic data analyzed by Baker and HAZUS models from WVU will be utilized to determine quantitative hazard risk assessments.
- The public survey data collected by Region 9 will provide broader public input as hazard mitigation planning progresses.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:	
Name:	

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a moderate hazard with a countywide ranking of 1.9. The presence or absence of a high hazard dam in your community may result in higher or lower risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
N	Flooding	3	2	3	3	2	2.6	
M	Utility Interruption*	3	2	2	3	2	2.4	
N	Epidemic	2	3	2	1	4	2.4	
N	Winter Storm	3	2	2	2	2	2.3	
M	Hazardous Materials	2	2	2	4	3	2.3	
N	Wind Storm, Tornado	2	2	2	4	2	2.2	
N	Hailstorm	2	2	2	4	2	2.2	
M	Transportation Accidents*	4	1	1	4	1	2.2	
N	Hurricane, Tropical Storm, Nor'easter*	2	2	3	1	3	2.2	
M	Source Water Contamination*	2	2	2	2	2	2.0	
N	Wildfire	2	2	1	4	2	2.0	
N	Drought	1	1	4	1	4	1.9	
M	Dam and Levee Failure	1	2	2	4	2	1.9	
M	Terrorism	1	1	1	4	2	1.4	
N	Extreme Temperature	1	2	1	1	2	1.4	
N	Infestation	1	1	2	2	2	1.4	
N	Thunderstorm, Lightning Strike	1	1	1	4	1	1.3	
N	Earthquake	1	1	1	4	1	1.3	
N	Land Subsidence	1	1	1	4	1	1.3	
N	Radon Exposure*	1	1	1	1	1	1.0	

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Region 9 Planning and Development Council Mitigation Action Progress Report Form

ACTION	STATUS				STATUS UPDATE NOTES
	Completed	Canceled	Deferred	Ongoing	What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
Maintain compliance with the National Flood Insurance Program (NFIP) at the jurisdictional level by attending training, monitoring development, and ensuring that local floodplain regulations are as current and applicable as possible.					
Undertake buyout, elevation, and/or relocation projects in the Region 9 Planning and Development Council area when and if funding is available.					
Coordinate, as appropriate, with partners throughout the region to identify the location of privately-owned dams.					

Morgan County - Mitigation Action Progress Report Form

ACTION	STATUS				STATUS UPDATE NOTES
	Completed	Canceled	Deferred	Ongoing	What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
Ensure that flood insurance policies remain affordable through the county and municipal government programs.					
Support Morgan County's efforts in the CRS program, and provide training to municipalities on the CRS program and encourage them to participate.					
Collect updated information on the number and location of all repetitive loss properties throughout the county and develop a database and maps for storage.					
Identify owners of repetitive and severe repetitive loss properties that may be willing to participate in future property acquisition and relocation projects.					
Review all existing regulations to ensure adequacy in reducing the amount of future identified hazard areas.					
Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.					
Provide training to municipalities on the CRS program and encourage them to participate.					

Morgan County 2017 Hazard Mitigation Plan Update

ACTION	STATUS				STATUS UPDATE NOTES What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
	Completed	Canceled	Deferred	Ongoing	
Work with WV Department of Highways to identify areas of frequent roadway flooding and develop mitigation strategies.					
Identify strategies to mitigate risks from the transportation and/or storage of hazardous materials in Morgan County.					
Develop a plan to implement the Needs Assessment recommendations developed by the Public Safety System Consultant.					
Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter and the Morgan County Office of Emergency Services.					
Expand the mission and membership of the Morgan County Local Emergency Planning Committee to act as a countywide disaster task force.					
Develop adequate emergency shelter and evacuation plans for citizens and animals (domestic pets, livestock and wildlife).					
Establish a formal process for the city and the Park Service to coordinate disaster related efforts, which will include defining boundaries and establishing responsibilities.					
Conduct training exercises that include representatives from the city and the Park Service to facilitate increased coordination.					

Morgan County 2017 Hazard Mitigation Plan Update

ACTION	STATUS				STATUS UPDATE NOTES
	Completed	Canceled	Deferred	Ongoing	What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
Continue to enforce ordinances that new structures do not interfere with flood mitigation measures.					
Obtain updated information on the number of NFIP policyholders in Morgan County and its municipalities.					
Develop mitigation strategies to protect any at-risk historic properties.					
Conduct a survey of all historic sites that are located in hazard areas.					

Municipality/Organization/Agency ___ Penn State University – University Park Campus _____

Action Title: Emergency and Back up Power	
Assessing the Risk	
Hazard(s) addressed	Utility Interruption - Loss of power
Describing the Action	
Background/Issue action addresses	Penn State - University Park Campus has many critical functions that rely on power. It is essential to ensure power is available to provide life safety for the students living on campus. It is also vital to ensure certain research is protected from power losses. Our security systems and communication systems also rely on a power source. The University Park Campus ensures we are able to provide appropriate shelter for our students, thus lessening the burden on the Centre Region. We also have mutual aid agreements that allow us to provide essential/critical services to the Centre Region such as sheltering and feeding, if we are able.
Action description	Penn State recognizes the importance of ensuring power for essential functions. To address this a program has been instituted that ensures for each new building or major remodel the use of the building is evaluated for essential/critical functions. Based on this review, appropriate alternate power is provided for the building or portions of the building as needed.
Action category	Structure/Infrastructure
Existing, Future, or NA	Existing/future
Evaluating the Action	
Losses avoided (i.e., benefits)	By providing alternate power sources for critical/essential functions the University ensure that life safety systems are maintained and the University can continue to meet its missions of education, research, and outreach. This contributes to the economic resiliency and sustainability of the University and the Centre Region.
Cost estimate	Cost is dependent upon the use of the building and critical/essential functions present.
Cost effectiveness (i.e., benefit/cost)	Providing life safety services and being able to recover and sustain the university's mission is difficult to put a number on. Penn State is generally ranked among the top universities for research dollars and our enrollment is critical to the success of the university.
Priority	High
Implementing the Action	
Responsible party	Office of Physical Plant
Potential Partners	Departments and Colleges at the U-Park Campus. The Centre Region for sheltering purposes.
Potential funding sources	Capital funds
Timeline	This is an ongoing practice for the University.
Integration Opportunities (if any)	This effort is integrated into the early design phase for new buildings and major remodels.
Worksheet completed by (name/title)	Pam Soule EM Planner

Action Title: Springfield Road (T-333) Culvert	
Assessing the Risk	
Hazard(s) addressed	Flood, Flash Flood, & Ice Jam
Describing the Action	
Background/Issue action addresses	There is an area along Springfield Road (T-333) that floods during heavy rain events. Stormwater runoff flows down agricultural fields, builds up enough to overflow Springfield Road and crosses into 172 Springfield Road where a resident's well has suffered damage twice in recent years and the home is in danger of damage. We are currently in discussions with surrounding property owners to see how this can be alleviated.
Action description	The township engineer has looked at this, and he suggests a possible way to help this would be installing a culvert under the road and laying pipe back around one or two properties.
Action category	Structural Project Implementation
Existing, future &/or NA	Current - The township is contacting owners of properties where runoff is partially originating to request their cooperation in constructing facilities to control runoff. Future – Install culvert under Springfield Road and redirect runoff
Evaluating the Action	
Losses avoided (i.e., benefits)	Avoid wash out of Springfield Road. Avoid damage to a residence and well.
Cost estimate	\$40,000
Cost effectiveness (i.e., benefit/cost)	Preserves public road structure and public road access worth \$100,000. Preserves value of existing \$170,000 property, so it doesn't become vacant and negatively impact surrounding home values worth in excess of \$500,000.
Priority	Intermediate
Implementing the Action	
Responsible party	North Newton Township
Potential Partners	None known at this time.
Potential funding sources	Municipal General Fund, any available grant monies
Timeline	Dependent upon future flood occurrences.
Integration Opportunities (if any)	None known at this time.
Worksheet completed by (name/title)	Bonnie Myers, North Newton Township Secretary

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency _____

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	
Describing the Action	
Background/Issue action addresses	
Action description	
Action category	
Existing, Future, or NA	
Evaluating the Action	
Losses avoided (i.e., benefits)	
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	
Priority	
Implementing the Action	
Responsible party	
Potential Partners	
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	

Morgan County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **Morgan County**

Name and Title: _____

Phone: _____

Email: _____

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
How many NFIP policies are in the community?	CIS (provided by consultant)	138	
What is the total premium and coverage?	CIS (provided by consultant)	\$156,265 (total premium), \$24,186,800 (total coverage)	
How many claims have been paid in the community?	CIS (provided by consultant)	175	
What is the total amount of paid claims?	CIS (provided by consultant)	\$2,717,720	
How many of the claims were for substantial damage?	CIS (provided by consultant)	50	
Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.	Community floodplain administrator		
Staff Resources			
Is the Community Floodplain Administrator or NFIP Coordinator certified?	Community floodplain administrator		
Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?	Community floodplain administrator		
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).	Community floodplain administrator		

Morgan County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
<i>What are the barriers to running an effective NFIP program in the community?</i>	Community floodplain administrator		
Compliance History			
<i>Is the community in good standing with the NFIP?</i>	CIS (provided by consultant)	Yes	
<i>Are there any outstanding compliance issues (i.e., current violations)?</i>	CIS (provided by consultant)	No	
<i>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</i>	CIS (provided by consultant)	CAV:06/14/2012 CAC:NA	
<i>Is a CAV or CAC scheduled or needed?</i>	CIS (provided by consultant)	No	
Regulation			
<i>When did the community enter the NFIP?</i>	CIS (provided by consultant)	07/01/1987	
<i>Are the FIRMS digital or paper?</i>	CIS (provided by consultant)	Digital	
<i>Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?</i>	Community floodplain administrator		
<i>Provide an explanation of the permitting process.</i>	Community floodplain administrator		
Community Rating System (CRS)			
<i>Does the community participate in CRS?</i>	CIS (provided by consultant)	YES	
<i>What is the community's CRS Class Ranking?</i>	CIS (provided by consultant)	09 (5%)	
<i>What categories and activities provide CRS points and how can the class be improved?</i>	CIS (provided by consultant)	<ul style="list-style-type: none"> • Higher Regulatory Standards • Map Information • Floodplain Management Planning • Flood Data Maintenance 	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

Morgan County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **Town of Paw Paw**

Name and Title: _____

Phone: _____

Email: _____

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
How many NFIP policies are in the community?	CIS (provided by consultant)	7	
What is the total premium and coverage?	CIS (provided by consultant)	\$4,351 (total premium), \$835,100 (total coverage)	
How many claims have been paid in the community?	CIS (provided by consultant)	6	
What is the total amount of paid claims?	CIS (provided by consultant)	\$79,551	
How many of the claims were for substantial damage?	CIS (provided by consultant)	3	
Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.	Community floodplain administrator		
Staff Resources			
Is the Community Floodplain Administrator or NFIP Coordinator certified?	Community floodplain administrator		
Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?	Community floodplain administrator		
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).	Community floodplain administrator		

Morgan County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
<i>What are the barriers to running an effective NFIP program in the community?</i>	Community floodplain administrator		
Compliance History			
<i>Is the community in good standing with the NFIP?</i>	CIS (provided by consultant)	Yes	
<i>Are there any outstanding compliance issues (i.e., current violations)?</i>	CIS (provided by consultant)	No	
<i>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</i>	CIS (provided by consultant)	CAV:NA CAC: NA	
<i>Is a CAV or CAC scheduled or needed?</i>	CIS (provided by consultant)	No	
Regulation			
<i>When did the community enter the NFIP?</i>	CIS (provided by consultant)	11/02/1984	
<i>Are the FIRMS digital or paper?</i>	CIS (provided by consultant)	Digital	
<i>Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?</i>	Community floodplain administrator		
<i>Provide an explanation of the permitting process.</i>	Community floodplain administrator		
<i>Does the community participate in CRS?</i>	CIS (provided by consultant)	No	
<i>What is the community's CRS Class Ranking?</i>	CIS (provided by consultant)	NA	
<i>What categories and activities provide CRS points and how can the class be improved?</i>	CIS (provided by consultant)	NA	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

Morgan County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **Town of Bath**

Name and Title: _____

Phone: _____

Email: _____

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
How many NFIP policies are in the community?	CIS (provided by consultant)	21	
What is the total premium and coverage?	CIS (provided by consultant)	\$29,501 (total premium), \$4,062,000 (total coverage)	
How many claims have been paid in the community?	CIS (provided by consultant)	20	
What is the total amount of paid claims?	CIS (provided by consultant)	\$380,219	
How many of the claims were for substantial damage?	CIS (provided by consultant)	1	
Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.	Community floodplain administrator		
Staff Resources			
Is the Community Floodplain Administrator or NFIP Coordinator certified?	Community floodplain administrator		
Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?	Community floodplain administrator		
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).	Community floodplain administrator		

Morgan County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
<i>What are the barriers to running an effective NFIP program in the community?</i>	Community floodplain administrator		
Compliance History			
<i>Is the community in good standing with the NFIP?</i>	CIS (provided by consultant)	Yes	
<i>Are there any outstanding compliance issues (i.e., current violations)?</i>	CIS (provided by consultant)	No	
<i>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</i>	CIS (provided by consultant)	CAV:07/01/2010 CAC:NA	
<i>Is a CAV or CAC scheduled or needed?</i>	CIS (provided by consultant)	No	
Regulation			
<i>When did the community enter the NFIP?</i>	CIS (provided by consultant)	01/02/1980	
<i>Are the FIRMS digital or paper?</i>	CIS (provided by consultant)	Digital	
<i>Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?</i>	Community floodplain administrator		
<i>Provide an explanation of the permitting process.</i>	Community floodplain administrator		
CRS			
<i>Does the community participate in CRS?</i>	CIS (provided by consultant)	No	
<i>What is the community's CRS Class Ranking?</i>	CIS (provided by consultant)	NA	
<i>What categories and activities provide CRS points and how can the class be improved?</i>	CIS (provided by consultant)	NA	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

**Appendix C-5 Paw Paw Town Council Meeting Presentation
(September 12, 2016)**

AGENDA
PAW PAW TOWN COUNCIL
MEETING SEPTEMBER 12, 2016

Call to Order

Roll Call

Reading of Minutes for approval

Approval of bills for payment

New Business

Kenneth Hogan to discuss water bill

Park Comm. To discuss getting a donation for children's party

Natalie Crabtree for the Bank of Romney

Rachel Snavelly of Region 9 Hazmat Mit Report meeting and PowerPoint

Earl Meyers Building permit and other topics to discuss

Unfinished Business

Advantage Computers update on cusi and cameras

Committee Reports

Cemetery

Building Enforcement

Parks & Recreation

Streets & Alleys

Festival Grounds

Water & Sewer

Comments and concerns from the Mayor

Comments and concerns from the council

Adjourn



Hazard Mitigation Plan Update

Paw Paw, Morgan County, WV

Paw Paw Council Meeting
September 12, 2016

- Hazard Mitigation Plan and Project Overview
- Risk Assessment Overview
- Mitigation Strategy
- Schedule
- Questions

Hazard Mitigation Defined



What is Hazard Mitigation?

- Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property resulting from natural and human-made hazards.



What is a Hazard Mitigation Plan?

- A Hazard Mitigation Plan is a community-driven, living document that communities use to reduce their vulnerability to hazards.
- Counties must have a plan to maintain access to mitigation grants. These grants can augment local mitigation activities already being accomplished and can leverage other funding sources.





REGION 9 PLANNING & DEVELOPMENT COUNCIL

Multi-Jurisdictional Hazard Mitigation Plan
for Berkeley and Morgan Counties



- Introduction
- Community Profile
- Planning Process
- Risk Assessment
- Capability Assessment
- Mitigation Strategy
- Plan Maintenance
- Adoption

- Reviewed 2017 Plan format, process, and requirements
- Discussed risk assessment, mitigation strategies, and mitigation progress
- Gathered input from county, municipalities, and stakeholders on hazard risks and potential mitigation measures

Risk Assessment Overview



Natural Hazards

- Drought
- Earthquake
- Epidemic
- Flooding
- Hailstorm
- Infestation
- Land Subsidence
- Thunderstorm, Lightning Strike
- Wildfire
- Wind Storm, Tornado
- Winter Storm

Human-made Hazards

- Dam Failure
- Hazardous Materials Incident
- Terrorism

Assessing Changes in Risk for 2017

- Selected all hazards that impact the County
- NEW hazards for 2017:
 - Source water contamination
 - Transportation accidents
 - Hurricane, tropical storm, nor'easter
 - Radon exposure (B)
 - Utility interruption (M)

- Location and Extent
 - *Where* does the hazard happen?
- Range of Magnitude
 - How *minor or major* might the event be?
- Past Occurrence
 - *When and where* has the event happened in the past?
- Future Occurrence
 - *How likely* is it that the event will happen in the future?
- Vulnerability Assessment
 - What *people, structures, and critical facilities* are at risk?

- High-Ranked Hazards
 - Flooding
 - Utility Interruption
 - Epidemic
 - Winter Storm
 - Hazardous Materials
 - Wind Storm, Tornado
 - Hailstorm
 - Transportation Accidents
 - Hurricane, Tropical Storm, Nor'easter



- Moderate-Ranked Hazards
 - Source Water Contamination
 - Wildfire
 - Drought
 - Dam and Levee Failure



- Low-Ranked Hazards
 - Terrorism
 - Extreme Temperatures
 - Infestation
 - Thunderstorm, Lightning Strike
 - Earthquake
 - Land Subsidence
 - Radon Exposure





Mitigation Strategy Components

- Progress Report on 2017 Strategy
- Goals and Objectives
- Mitigation Techniques
- Mitigation Action Plan and Projects



Defining Goals, Objectives, & Actions

- *Goals:* General guidelines that describe what your community would like to achieve.
- *Objectives:* Define strategies that must be implemented to achieve the identified goal.
- *Actions:* The specific activities a community will take to reduce or eliminate risks.

GOALS

Goal 1: Lessen flood risk by maintaining compliance with the National Flood Insurance Program (NFIP) and undertaking buyout projects when funding is available.

Goal 2: Better identify hazard areas.

GOALS

Goal 1: Minimize flood damages and risks from flood hazards.

Goal 2: Reduce the current and future risks from hazards.

Goal 3: Improve emergency preparedness in Morgan County, Bath, and Paw Paw.

Goal 4: Reduce the potential impact of natural and man-made disasters on private property.

Goal 5: Reduce the potential impact of natural disasters on the county's historic treasures.

Identifies a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard.



Local Plans and Regulations



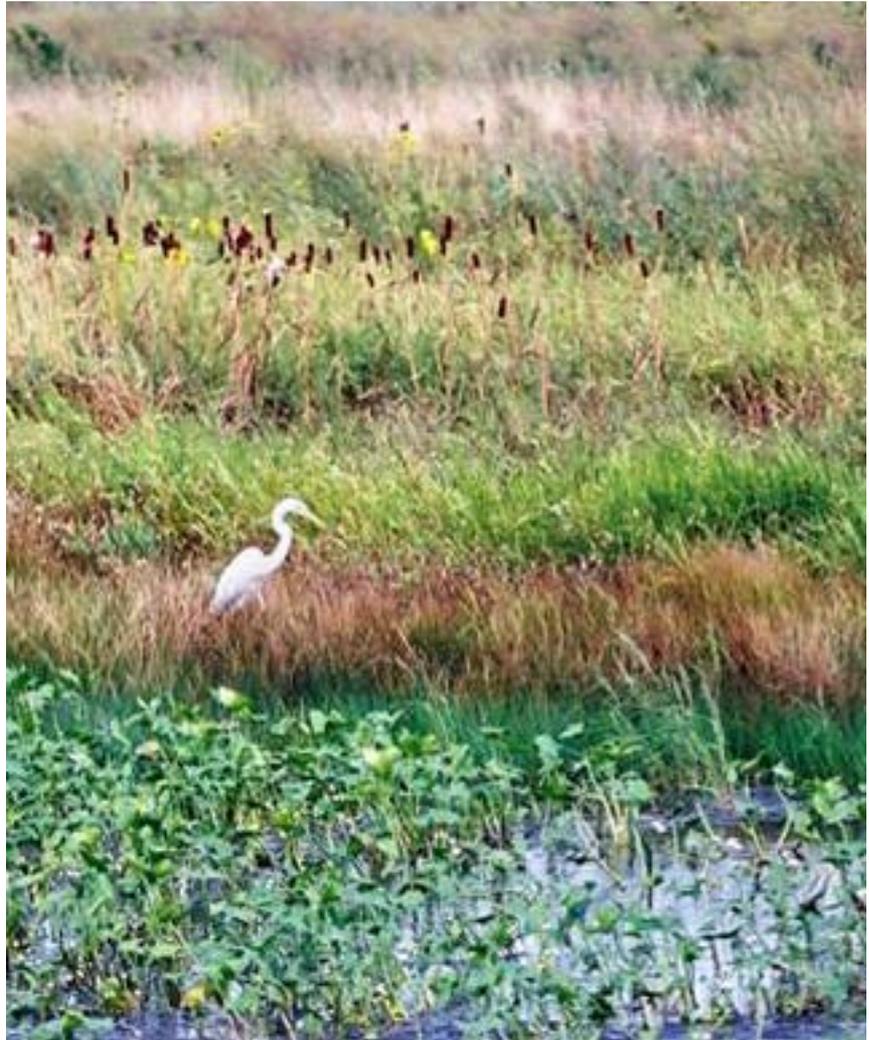
- Government authorities, policies, or codes that influence the way land and buildings are developed
- Examples:
 - Limit or restrict development in floodplains
 - Adopt or enforce building codes
 - Amend ordinances to require trailer anchoring
 - Map and assess landslide vulnerability

Structure and Infrastructure Projects



- Modifying existing structures and infrastructure to remove from a hazard area
- Construction of manmade structures to reduce impacts of hazards
- Examples:
 - Hardening critical facilities
 - Acquisition and Demolition
 - Elevation Projects

- Actions that minimize damage and losses and also preserve or restore the functions of natural systems
 - Sediment and erosion control
 - Stream corridor restoration
 - Forest management
 - Conservation easements
 - Riparian buffer
 - Flood and stormwater



Education and Awareness Programs



- Examples:
 - Real estate disclosures to floodprone properties
 - Water saving education programs
 - Assistance to vulnerable populations
 - Community organization presentations
 - Radio spots

- Each municipality must have at least one mitigation action.
- There must be at least one mitigation action for each profiled hazard.
- Mitigation actions should be realistic and sustainable.



Paw Paw's Mitigation Actions

- Maintain floodplain management agreement with Morgan County Planning Commission
- Establish disaster shelters in existing government facilities
- Educate residents and businesses within the source water Zone of Critical Concern
- Seek funding for generators and other equipment to aid continuation of essential services during utility interruption

Schedule and Meetings

Task	Dates
Full Project Timeline	May to December 2016
Kick Off Meeting	May 31, 2016
Risk Assessment/Mitigation Solutions	July 25, 2016
Plan Writing	August- September 2016
Draft Plan Review Public Meeting	September 26, 2016
Deliver to WVDHSEM/ FEMA for Review	October- December 2016



Rachel Snavely, Project Manager
Eastern Panhandle Regional Planning & Development Council
(304) 263-1743, rsnavely@region9wv.com

Troy Truax, AICP, Project Manager
Michael Baker International
(717) 213-6241, Troy.Truax@mbakerintl.com



Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Paw Paw, WV

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Flooding
Describing the Action	
Background/Issue action addresses	Unable to fund floodplain management position for municipality
Action description	Review and maintain agreement with Morgan County Planning Commission to provide floodplain management
Action category	Prevention
Existing, Future, or NA	Existing
Evaluating the Action	
Losses avoided (i.e., benefits)	Flood damage mitigation and maintenance of CRS status
Cost estimate	No cost
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	High
Implementing the Action	
Responsible party	Town of Paw Paw
Potential Partners	Morgan County Planning Commission
Potential funding sources	N/A
Timeline	Immediate
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alton Wolfe, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Paw Paw

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	All natural hazards
Describing the Action	
Background/Issue action addresses	Need to provide safe haven for citizens in event of disaster
Action description	Establish shelters within existing government facilities
Action category	Safety
Existing, Future, or NA	Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Provide protection to citizens who are unable to remain at their homes during or as a result of a disaster
Cost estimate	\$100,000
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	Medium
Implementing the Action	
Responsible party	Town of Paw Paw
Potential Partners	Morgan County Commission
Potential funding sources	FEMA/WVDHSEM/Local and State Government
Timeline	Long-term
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alton Wolfe, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Paw Paw, WV

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Source Water Contamination
Describing the Action	
Background/Issue action addresses	Public Education
Action description	Post information about sourcewater protection on town website & consider sending brochures to residents/businesses in Zone of Critical Concern, alerting public of need for conservation and protection. Include information re: proper disposal of prescriptions and regular septic maintenance. Follow similar recommendations as outlined in 2016 Source Water Protection Plan.
Action category	Education
Existing, Future, or NA	N/A
Evaluating the Action	
Losses avoided (i.e., benefits)	Public education and awareness improves conservation efforts and aides in the prevention of possible contamination.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	Effective – minimal cost provides thorough public education
Priority	Medium
Implementing the Action	
Responsible party	Town of Paw Paw
Potential Partners	WVU Extension Service/Region 9 Planning & Development Council
Potential funding sources	Local, DEP, BPH
Timeline	Immediate
Integration Opportunities (if any)	Incorporate similar recommendations as made in 2016 Source Water Protection Plan.
Worksheet completed by (name/title)	Alton Wolfe, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Paw Paw

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Utility Interruption
Describing the Action	
Background/Issue action addresses	Utility interruption in the event of a disaster would disable certain essential operations of government; there is a need to have mechanisms in place in order to continue security/safety operations
Action description	Seek funding for generators and other equipment to aid in the continuation of essential services in the event of utility interruption
Action category	Equipment/Safety
Existing, Future, or NA	
Evaluating the Action	
Losses avoided (i.e., benefits)	Ability to continue essential operations of government in the event of a disaster
Cost estimate	80,000
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	Medium
Implementing the Action	
Responsible party	Town of Paw Paw
Potential Partners	WVDHSEM
Potential funding sources	WVDHSEM
Timeline	Continual
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alton Wolfe, Mayor

Appendix C-6 Berkeley County Public Meeting Materials (September 26, 2016)

From: Rachel Snavely [mailto:rsnavely@region9wv.com]

Sent: Thursday, August 25, 2016 1:43 PM

To: adavis@berkeleywv.org; bcostello@berkeleywv.org; egochenour@berkeleywv.org; George Karos (gkaros@live.com) <gkaros@live.com>; hwilliams@berkeleywv.org; James Barnhart <jbarnhart@berkeleywv.org>; LT. Jason Hoover <jhoover@martinsburgfire.org>; Mark Baldwin (Markbaldwin17@aol.com) <Markbaldwin17@aol.com>; mcovell@cityofmartinsburg.org; Michael Thompson <mthompson@berkeleywv.org>; mkackley@berkeleywv.org; Monica Whyte (monica.a.whyte@wv.gov) <monica.a.whyte@wv.gov>; Nic Diehl (Nicolas.H.Diehl@wv.gov) <Nicolas.H.Diehl@wv.gov>; Ronnie Good <g5240@aol.com>; Sandy Hamilton <shamilton@developmentauthority.com>; tina@berkeleycounty.org

Cc: Welt, Angela <awelt@mbakerintl.com>; BILL CLARK <BClark@region9wv.com>; mstortstrom@journal-news.net; John McVey (news@talkradiowv.com) <news@talkradiowv.com>

Subject: Hazard Mitigation Plan Update - Meeting #3

Good afternoon,

The final meeting of the Hazard Mitigation Planning Committee will be held on **September 26, 2016 from 1:30-3:30PM** at Shepherd-Martinsburg, 261 Aikens Center, Martinsburg, WV 25404 in Room 117. This meeting is open to the public.

At this meeting, we will go over the draft of the plan update, as well as the results of the public survey. The plan update will then be made available for public comment for one month before being submitted to WV DHSEM and FEMA for approval.

Again, if you haven't yet turned in your Mitigation Action Worksheets, please do so. If you have any questions in the meantime, please feel free contact Angela or myself.

Thank you,

Rachel Snavely
Project Manager
Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
(304)263-1743

From: Rachel Snavely [mailto:rsnavely@region9wv.com]

Sent: Wednesday, September 21, 2016 2:00 PM

To: adavis@berkeleywv.org; bcostello@berkeleywv.org; egochenour@berkeleywv.org; George Karos (gkaros@live.com) <gkaros@live.com>; hwilliams@berkeleywv.org; James Barnhart <jbarnhart@berkeleywv.org>; LT. Jason Hoover <jhoover@martinsburgfire.org>; Mark Baldwin (Markbaldwin17@aol.com) <Markbaldwin17@aol.com>; mcovell@cityofmartinsburg.org; Michael Thompson <mthompson@berkeleywv.org>; mkackley@berkeleywv.org; Monica Whyte (monica.a.whyte@wv.gov) <monica.a.whyte@wv.gov>; Nic Diehl (Nicolas.H.Diehl@wv.gov) <Nicolas.H.Diehl@wv.gov>; Ronnie Good <g5240@aol.com>; Sandy Hamilton <shamilton@developmentauthority.com>; tina@berkeleycounty.org

Cc: bluheronenv1991@gmail.com; jkellyc62@outlook.com; artzkat@yahoo.com; Kidwell2006@verizon.net; captainlou@comcast.net; mstortstrom@journal-news.net; news@talkradiowv.com; BILL CLARK <BClark@region9wv.com>; Welt, Angela <awelt@mbakerintl.com>; Todd Beard <tbeard@journal-news.net>

Subject: Hazard Mitigation Committee - Final Meeting - REMINDER

Good afternoon,

Just a reminder that the final Hazard Mitigation Committee meeting will take place on Monday, September 26, 2016 from 1:30-3:30PM at Shepherd-Martinsburg, located at 261 Aikens Center, Room 117, Martinsburg, WV.

At this meeting, we will go over the draft plan, the results of the public survey, and wrap up any additional details needed for submission of the update to FEMA/WVDHSEM.

This meeting is open to the public.

We look forward to seeing you. Thanks,

Rachel Snavely
Project Manager
Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
(304)263-1743

From: [Rachel Snavely](#)
To: kewis@washco-md.net; [Barbara Miller](#); slee@alleganygov.org; clauck@fcva.us; bmcolm@hampshirewv.com
Cc: [Welt, Angela](#); [Passmore, Joseph](#); [BILL CLARK](#)
Subject: Berkeley-Morgan County Hazard Mitigation Plan Meeting
Date: Friday, September 23, 2016 10:57:57 AM

Good morning,

The 2017 Hazard Mitigation Plan Update for Berkeley & Morgan Counties, WV is nearing completion. As such, we'd like to extend the invitation for each of you, the emergency management directors of our adjoining counties, to join us at our upcoming meeting to discuss the draft plan.

The final meetings will take place on:

Monday, September 26, 2016 – 9-11AM – Morgan County Commission Room, 77 Fairfax Street, Berkeley Springs, WV

Monday, September 26, 2016 – 1:30-3:30PM – Shepherd-Martinsburg Center, 261 Aikens Center, Room 117, Martinsburg, WV

If you are unable to attend, please feel free to send a representative from your office. This meeting is open to the public.

Additionally, the draft plan will be made available on our website (www.region9wv.com) on September 28th for 30 days for comment.

If you have any comments or questions, please feel free to email me at rsnavely@region9wv.com or our consultant, Michael Baker, at awelt@mbakerintl.com.

Thank you,

Rachel Snavely
Project Manager
Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
(304)263-1743

NOTICE OF PUBLIC MEETING

BERKELEY COUNTY HAZARD MITIGATION PLAN UPDATE
 The second public meeting of the Berkeley County Hazard Mitigation Plan Update Committee will meet on September 26, 2016 from 130-330pm at Shepherd-Martinsburg, located at 261 Aikens Center, Rm 117, Martinsburg, WV 25404. This meeting will include discussion of the draft plan and public survey. All citizens are invited to attend and participate.

For further information, please contact Region 9 Planning & Development Council at 400 W. Stephen Street, Ste. 301, Martinsburg, WV 25401 or by phone at 304-263-1743.

9:14,21 (2)

Certificate of Publication

This is to certify the annexed advertisement

REGION 9
 NOTICE

appeared for 2 consecutive days/weeks in The Journal Publishing Company, a newspaper in the City of Martinsburg, WV in its issue beginning:

9-14-16

and ending

9-21-16

The Journal
207 W. King Street
Martinsburg, WV 25401

Fee (\$) 34.55

THE STATE OF WEST VIRGINIA
 COUNTY OF BERKELEY

The foregoing instrument was acknowledged

before me this 21st September 2016 by

Penny Craft

My commission expires Feb 7, 2021

Jeri L. Wines

Notary Public



Certificate of Publication

This is to certify the annexed advertisement

REGION 9

NOTICE

appeared for 1 consecutive days/weeks
in The Journal Publishing Company, a newspaper
in the City of Martinsburg, WV in its issue
beginning:

10-13-16

and ending

10-13-16

The Journal
207 W. King Street
Martinsburg, WV 25401

Fee (\$) 19.73

THE STATE OF WEST VIRGINIA
COUNTY OF BERKELEY

The foregoing instrument was acknowledged

before me this 13 October 2016 by

Randy Craft

My commission expires Feb 7 2021

Jeri L. Wines

Notary Public



PUBLIC NOTICE

Notice is hereby given that the draft of the 2017 Multi-Jurisdictional Hazard Mitigation Plan for Berkeley and Morgan Counties is now available for public comment. The Plan describes hazards that can affect Berkeley & Morgan Counties and their municipalities, and the actions that can be taken to reduce impacts on the community. Interested persons may download and review an electronic copy of the Draft Plan at www.region9wv.com starting on September 28, 2016. Questions and/or comments about the plan may be made by emailing Rachel Snavelly, Project Manager, at rsnavely@region9wv.com or by calling 304-263-1743. Comments will be accepted until October 28, 2016 at 2PM.

10:13

(1)

Meeting Agenda

**Berkeley County Hazard Mitigation Plan Update
Draft Plan Review Meeting**

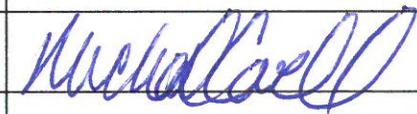
Date	September 26, 2016
Time	1:30 PM – 3:30 PM
Location	Shepherd University’s Martinsburg Center - 261 Aikens Center, Martinsburg, WV Room 117

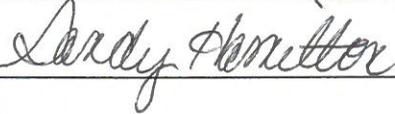
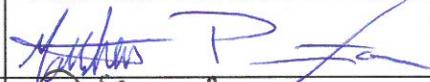
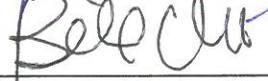
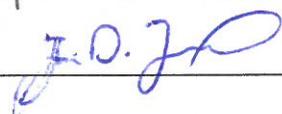
Purpose: Collect municipal, stakeholder, and public feedback on the draft plan

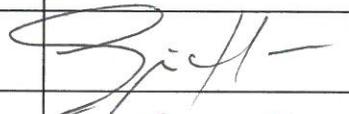
Topic	Time
1. Sign-in, Welcome, and Introductions	➤ 1:30 PM
2. Hazard Mitigation Plan and Project Overview	➤ 1:45 PM
3. Planning Process	➤ 2:00 PM
4. Risk Assessment Summary <ul style="list-style-type: none">○ WVU - Flood Risk Assessment	➤ 2:15 PM
5. Capability Assessment Overview	➤ 2:40 PM
6. Mitigation Strategy Summary	➤ 3:00 PM
7. Planning Timeline and Next Steps	➤ 3:15 PM

Berkeley County Hazard Mitigation Plan Update Hazard Mitigation Plan Draft Review Meeting

September 26, 2016 – 1:30-3:30 PM

Name	Title	Jurisdiction/ Organization	Telephone	E-Mail Address	Signature
James Barnhart	Council Person	Berkeley County Council	(304) 264-1923	jbarnhart@berkeleywv.org	
Alan Davis	County Administrator	Berkeley County Administrator	(304) 267-5102	adavis@berkeleywv.org	
Eddie Gochenour	OHSEM Director	Berkeley County Office of Homeland Security and Emergency Management	(304) 263-1345	egochenour@berkeleywv.org	
Randy Lilly	Emergency Manager	Berkeley County Office of Homeland Security and Emergency Management	(304) 263-1345	rlilly@berkeleywv.org	
Mike Thompson	Planning Director	Berkeley County Planning Department	(304) 267-5106	mthompson@berkeleywv.org	
Heather Williams	Planner I	Berkeley County Planning Department	(304) 267-5000 Ext. 8165	hwilliams@berkeleywv.org	
Mary Sue Catlett	Mayor	The Town of Hedgesville	(304) 754-4827	mscellpage@msn.com	
Ronnie Good	Councilor	The Town of Hedgesville	(304) 886-8618	95340@aol.com	
George Karos	Mayor	The City of Martinsburg	(304) 264-2140	gkaros@live.com	
Mark Baldwin	City Manager	The City of Martinsburg	(304) 264-2149	Markbaldwin17@aol.com	
Michael Covell	City Engineer/Planning Director	The City of Martinsburg	(304) 264-2131 Ext. 266	mcovell@cityofmartinsburg.org	
Jason Hoover	Emergency Management Coordinator	The City of Martinsburg	(304) 671-1507	jhoover@martinsburgfire.org	
Sam McGovern	Police Officer	The City of Martinsburg	(304) 264-2100	s_mcgovern@martinsburgpd.org	

Name	Title	Jurisdiction/ Organization	Telephone	E-Mail Address	Signature
Sandy Hamilton	Executive Director (Interim)	Berkeley County Development Authority	(304) 267-4144	shamilton@development.com	
W. Brian Costello	EMS Director	Berkeley County Ambulance Authority	(304) 264-1921	bcostello@berkeleywv.org	
Chad Winebrenner	Chief	Berkeley County Ambulance Authority	(304) 671-9801	cwinebrenner@bceaa.com	
Mary Kackley	Central Dispatch/911 Center Director	Berkeley County E-911		mkackley@berkeleywv.org	
Tina Combs	President & CEO	Martinsburg-Berkeley County Chamber of Commerce	(304) 267-4841	tina@berkeleycounty.org	
Rachel Snavelly	Project Manager	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	RSnavely@region9wv.com	
Matthew Pennington	Environmental Program Coordinator	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 707-1920	MPennington@region9wv.com	
Bill Clark	Executive Director	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	BClark@region9wv.com	
Troy Truax	Technical Manager, Planning Services	Michael Baker International	(717) 213-6241	Troy.Truax@mbakerintl.com	
Angela Welt	Environmental Specialist	Michael Baker International	(717) 221-2040	awelt@mbakerintl.com	
Donald Grubb	Director of Safety	Berkeley Medical Center	(304) 264-1000	Donald.Grubb@wwmedicine.org	
Steve DeRidder	Water Production Superintendent	Berkeley County Public Service Water District	(304) 267-4600	sderidder@berkeleywater.org	
Donna Van Metre	Director	James Rumsey Technical Institute	(304) 754-7925	dvanmetre@k12.wv.us	
Keith Busby	HR Manager	Procter & Gamble	(801) 822-2071	Busby.k@pg.com	
Jeff Ryman	Director of Environmental Care	Shenandoah Valley Medical	(304) 203-4999	JRyman@svms.net	

Name	Title	Jurisdiction/ Organization	Telephone	E-Mail Address	Signature
John Hemmen	SHE Manager	Ecolab, Inc.	(304) 260-3550	John.Hemmen@ecolab.com	
Jeff Leinbach	Process Safety Engineer	Ecolab, Inc.	(304) 260-3573	Jeffrey.Leinbach@ecolab.com	
Thomas McKenzie	Airport Manager	Eastern WV Regional Airport Authority	(304) 263-2106	T_McKenzie@Frontier.com	
Mary Stortstrom	Staff Writer	The Journal	(304) 263-8931 Ext. 138	mstortstrom@journal-news.net	
Richard Tidwell	farmer	Binetterm ^{Network} ENVIRONMENT	301 4595717	rtidwell2006@verizon.net	
Kurt Donaldson	Manager	WV61STC, WVU	304 293-9467	kdonalds@wvu.edu	
ERIC HOPKINS	GIS ANALYST	WV GIS TC, WVU	(304) 293-9463	ehopkins@wvu.edu	
MANEESH SHARMA	GIS Analyst	WV GIS TC, WVU	304-293-0557	maneesh.sharma@mail.wvu.edu	
Connie Good	Town of Hedgesville	Town of Hedgesville	304-886-8618	93240@AOL.COM	
Matthew Pennington	Environmental Coordinator	Region 9	304 707 1920	mpennington	



Hazard Mitigation Plan Update

Berkeley County, WV

Draft Review Public Meeting
September 26, 2016

- Hazard Mitigation Plan and Project Overview
- Planning Process
- Risk Assessment Summary
- Capability Assessment Overview
- Mitigation Strategy Summary
- Planning Timeline
- Next Steps

- Berkeley and Morgan County have been working to update their Hazard Mitigation Plan since May 2016.
- Municipal and County officials and other stakeholders have participated in meetings in May and July.
- Today, the public and other stakeholders are invited to learn more about the plan and its process.
- Deadlines:
 - 30 day public comment period
 - WV DHSEM submission – October 28, 2016
 - FEMA submission – November 25, 2016
 - 2012 HMP expires on January 7, 2017

What is Hazard Mitigation?

- Hazard mitigation is any *sustained action* taken to *reduce or eliminate long-term risk* to life and property resulting from natural and human-made hazards.



What is a Hazard Mitigation Plan?

- A Hazard Mitigation Plan is a *community-driven, living document* that communities use to reduce their vulnerability to hazards.
- Counties *must have a plan to maintain access to mitigation grants*. These grants can augment local mitigation activities already being accomplished and can leverage other funding sources.



How does the Hazard Mitigation Plan impact you?

- Hazard mitigation planning helps create *safer, more sustainable, and more resilient communities.*
- Communities are *more aware of risks*, take *positive action to reduce losses*, and are able to *bounce back quickly from disasters.*





Multi-Jurisdictional Hazard Mitigation Plan
2017 Update for Berkeley and Morgan County



Region 9

Michael Baker
INTERNATIONAL

- Introduction
- Community Profile
- Planning Process
- Risk Assessment
- Capability Assessment
- Mitigation Strategy
- Plan Maintenance
- Adoption

- Snapshot of the County's:
 - Geography in the Eastern Panhandle and environment/watersheds
 - Community facts and key statistics
 - Population and demographic patterns and historical changes
 - Land use and development patterns

Planning Process Overview



Steering Committee

Name	Organization
James Barnhart	Berkeley County Council
Alan Davis	Berkeley County Administrator
Eddie Gochenour	Berkeley County Office of Homeland Security and Emergency Management
Randy Lilly	Berkeley County Office of Homeland Security and Emergency Management
Mike Thompson	Berkeley County Planning Department
Heather Williams	Berkeley County Planning Department
Mary Sue Catlett	The Town of Hedgesville
Ronnie Good	The Town of Hedgesville
George Karos	The City of Martinsburg
Mark Baldwin	The City of Martinsburg
Michael Covell	The City of Martinsburg
Jason Hoover	The City of Martinsburg
Sam McGovern	The City of Martinsburg Police Department
Sandy Hamilton	Berkeley County Development Authority
Tina Combs	Martinsburg-Berkeley County Chamber of Commerce
W. Brian Costello	Berkeley County Ambulance Authority
Chad Winebrenner	Berkeley County Ambulance Authority
Mary Kackley	Berkeley County E-911
Rachel Snavely	Region 9
Matthew Pennington	Region 9
Bill Clark	Region 9
Troy Truax	Michael Baker International
Angela Welt	Michael Baker International

*Includes all invited members

- The public was invited to attend this meeting and the previous meeting
- State agencies, major area employers, and other important area stakeholders were contacted and invited to meetings
- A public survey was conducted:
 - 44 Berkeley County residents participated
 - Collected demographics of respondents, their disaster knowledge/preparedness, and their hazard concerns
 - Feel most threatened by winter storms, thunderstorms, and transportation accidents
 - Feel least threatened by dam/levee failure, landslides, and earthquakes
- HMP update discussed in newspaper articles, radio interviews

- Planning Team Assessment and Participation:
 - Kick-Off Meeting
 - Capability Assessment
 - Hazard Risk Review
 - Risk Assessment-Mitigation Solutions Workshop
 - Jurisdictional Risk Assessment
 - National Flood Insurance Program Capabilities Assessment
 - Mitigation Action Progress Assessment
 - New Mitigation Action Identification
- Risk and Vulnerability Analysis
 - Hazus (Potential Loss Estimation)

Risk Assessment Overview



Natural Hazards

- Drought
- Earthquake
- Epidemic
- Flooding
- Hailstorm
- Infestation
- Land Subsidence
- Thunderstorm, Lightning Strike
- Wildfire
- Wind Storm, Tornado
- Winter Storm
- Hurricane, Tropical storm, Nor'easter
- Radon exposure

Human-made Hazards

- Dam Failure
- Hazardous Materials Incident
- Terrorism
- Source water Contamination
- Transportation Accidents
- Utility Interruption

Hazard Ranking Methodology

- Hazards are ranked to understand what is most important to mitigate
- Standardized method to rank risks associated with hazards
- Analysis completed on a countywide basis
- Risk criteria include:
 - Probability
 - Impact
 - Spatial Extent
 - Warning Time
 - Duration

$$\text{Risk Factor Value} = [(Probability \times .30) + (Impact \times .30) + (Spatial Extent \times .20) + (Warning Time \times .10) + (Duration \times .10)]$$

Berkeley County Ranking of Hazard Types Based on Risk Factor Methodology							
Risk Class	Hazard	Risk Assessment Category (1 = least severe, 4 = most severe)					Calculated Risk Factor
		Probability (1-4)	Severity (1-4)	Spatial Extent (1-4)	Warning Time (1-4)	Duration (1-4)	
High	Source Water Contamination	3	4	4	4	4	3.7
	Winter Storm	4	4	4	1	3	3.6
	Transportation Accidents	4	4	3	4	2	3.6
	Wind Storm, Tornado	4	4	4	2	1	3.5
	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5
	Hazardous Materials	4	2	4	4	4	3.4
	Terrorism	2	3	4	4	2	2.9
	Hurricane, Tropical Storm, Nor'easter	3	3	4	1	2	2.9
	Radon Exposure	3	3	2	3	1	2.6
Mod.	Extreme Temperature	2	2	3	3	1	2.2
	Flooding	4	2	1	1	1	2.2
Low	Epidemic	1	2	2	3	3	1.9
	Drought	1	1	3	3	3	1.8
	Utility Interruption	1	2	1	3	1	1.5
	Wildfire	1	1	1	3	1	1.2
	Hailstorm	1	1	2	1	1	1.2
	Earthquake	1	1	1	1	1	1.0
	Land Subsidence	1	1	1	1	1	1.0
	Infestation	1	1	1	1	1	1.0
	Dam and Levee Failure	1	1	1	1	1	1.0

- HMP flood risk assessment was provided by WVU's GIS Technical Center
- Assessment data examples:



Structures and Population within the Special Flood Hazard Area

	Total Structures	Total Structures in SFHA	Percent of Structures in SFHA	Critical Facilities in SFHA	Population	Estimated Displaced Population in SFHA	Percent Displaced Population
Berkeley County	39,219	1,115	2.84	91	104,169	3,038	2.92

FLOOD RISK ANALYSIS REPORT
BERKELEY COUNTY, WV



Supplement to 2017 County Multi-Hazard Risk Assessment and Mitigation Plan

June 9, 2016

Structures Vulnerable to Flooding within the Special Flood Hazard Area by Land Use Type and Corresponding Replacement Cost

	Total Structures	Residential	Commercial	Industrial	Agricultural	Government	Education	Total Structures in SFHA
Berkeley County	39,219	499 (\$80,371,337)	613 (\$196,804,576)	1 (\$1,889,497)	2 (\$632,397)	0	0	1,115 (\$279,697,807)

Capability Assessment Overview



Why Integrate?

- Save time and money
 - Common formats for information sharing
 - Build upon existing efforts
 - Identify best practices
 - Accomplish County goals using different funding sources
- Reduce risk to hazards
 - Common picture of hazards facing County and municipalities
- Avoid or minimize risk through safe development practices

Mitigation Strategy Overview



Defining Goals, Objectives, and Actions

- *Goals:* General guidelines that describe what your community would like to achieve.
- *Objectives:* Define strategies that must be implemented to achieve the identified goal.
- *Actions:* The specific activities a community will take to reduce or eliminate risks.



2017 Berkeley County Mitigation Goals

Goal 1: Protect surface water and groundwater sources by limiting future development in floodplains and flood damage, effectively managing stormwater, and reducing the possibility of source water contamination.

Goal 2: Reduce the current and future risks from hazards in Berkeley County.

Goal 3: Improve emergency preparedness and response in Berkeley County, Martinsburg, and Hedgesville.

Goal 4: Promote hazard mitigation as a public value in recognition of its importance to the health, safety and welfare of the population.

Four Mitigation Techniques

Local Plans and Regulations

Government authorities, policies, or codes that influence the way land and buildings are developed



Structure and Infrastructure Projects

Modifying existing structures or infrastructure to remove from a hazard area or construction of new structures to reduce impacts of hazards



Natural Systems Protection

Actions that minimize damage and losses and also preserve or restore the functions of natural systems



Education and Awareness Programs

Sustained programs to educate the public and decision-makers about hazard risks and community mitigation programs



Mitigation Actions

- Each municipality must have at least one mitigation action.
- There must be at least one mitigation action for each profiled hazard.
- Mitigation actions should be realistic and sustainable.



Berkeley County Mitigation Actions for 2017 HMP

Hazard	# of Actions in Plan for Berkeley County and Municipalities
Source Water Contamination	4
Winter Storm	2
Transportation Accidents	3
Wind Storm, Tornado	1
Thunderstorm, Lightning Strike	2
Hazardous Materials	3
Terrorism	1
Hurricane, Tropical Storm, Nor'easter	1
Radon Exposure	1
Extreme Temperature	3
Flooding	9
Epidemic	2
Drought	4
Utility Interruption	1
Wildfire	2
Hailstorm	2
Earthquake	1
Landslides and Land Subsidence	2
Infestation	3
Dam and Levee Failure	1

- Visit the HMP Update Basecamp website
 - <https://basecamp.com/3057556/projects/12171776>
 - The draft HMP, previous meeting materials, and planning documents are posted there
 - Users can upload their own documents or post questions and comments
 - Meeting attendees will be invited via email, and invitations can be requested by emailing awelt@mbakerintl.com



- Draft HMP will also be posted on Region 9's website
 - <http://www.region9wv.com/plans---studies.html>



What's Next?



Task	Dates
Full Project Timeline	Now to January 2017
Kick Off Meeting	May 31, 2016
Risk Assessment/Mitigation Solutions	July 25, 2016
Plan Writing	September – October 2016
Draft Plan Review Public Meeting	September 26, 2016
Deliver to WVDHSEM for Review	October 28, 2016
Submit to FEMA for Review	November 25, 2016
Distribute to Municipalities for Adoption	January 2017

- The plan should be reviewed and updated annually during a meeting of steering committee members
 - Amendments should be added as needed
- The progress of mitigation projects should be reviewed annually
- The entire plan must be updated and reviewed by FEMA every 5 years



Rachel Snavely, Project Manager
Eastern Panhandle Regional Planning & Development Council
(304) 263-1743, rsnavely@region9wv.com

Troy Truax, AICP, Project Manager
Michael Baker International
(717) 213-6241, Troy.Truax@mbakerintl.com



Risk Assessment for Mitigation Planning

Submitted as part of the
Region 9 Planning and Development Council
Multi-Hazard Mitigation Plan
September 2016

Eric Hopkins, GIS Analyst (*ehopkins@wvu.edu*)

Kurt Donaldson, GIS Project Manager (*kdonalds@wvu.edu*)

West Virginia University GIS Technical Center

Overview

<http://MapWV.gov/flood>

- Flood Risk Analysis, Risk Assessment & Mitigation Planning
 - ArcGIS models for processing state, county & local data
 - Updated building inventory
 - Loss estimation
- Future Directions
 - Visualization
 - Additional Advisory Flood Height (water surface) and Depth data
 - Landslide Susceptibility

Hazard Risk Analysis

http://MapWV.gov/flood/content/documents/localData_for_RiskAssessment.pdf

- Sponsor: WV DHSEM, FEMA
- Purpose: Create countywide building inventories with replacement costs for flood risk analysis, loss estimation and hazard mitigation planning
- Status: Completed pilot study in Berkeley County
- Local Data/Input Needed: Parcels, CAMA, E-911 address points, Building footprints, Feature validation

Model Data Inputs

County building inventory, facilities,
depth grid, flood hazard area, etc.

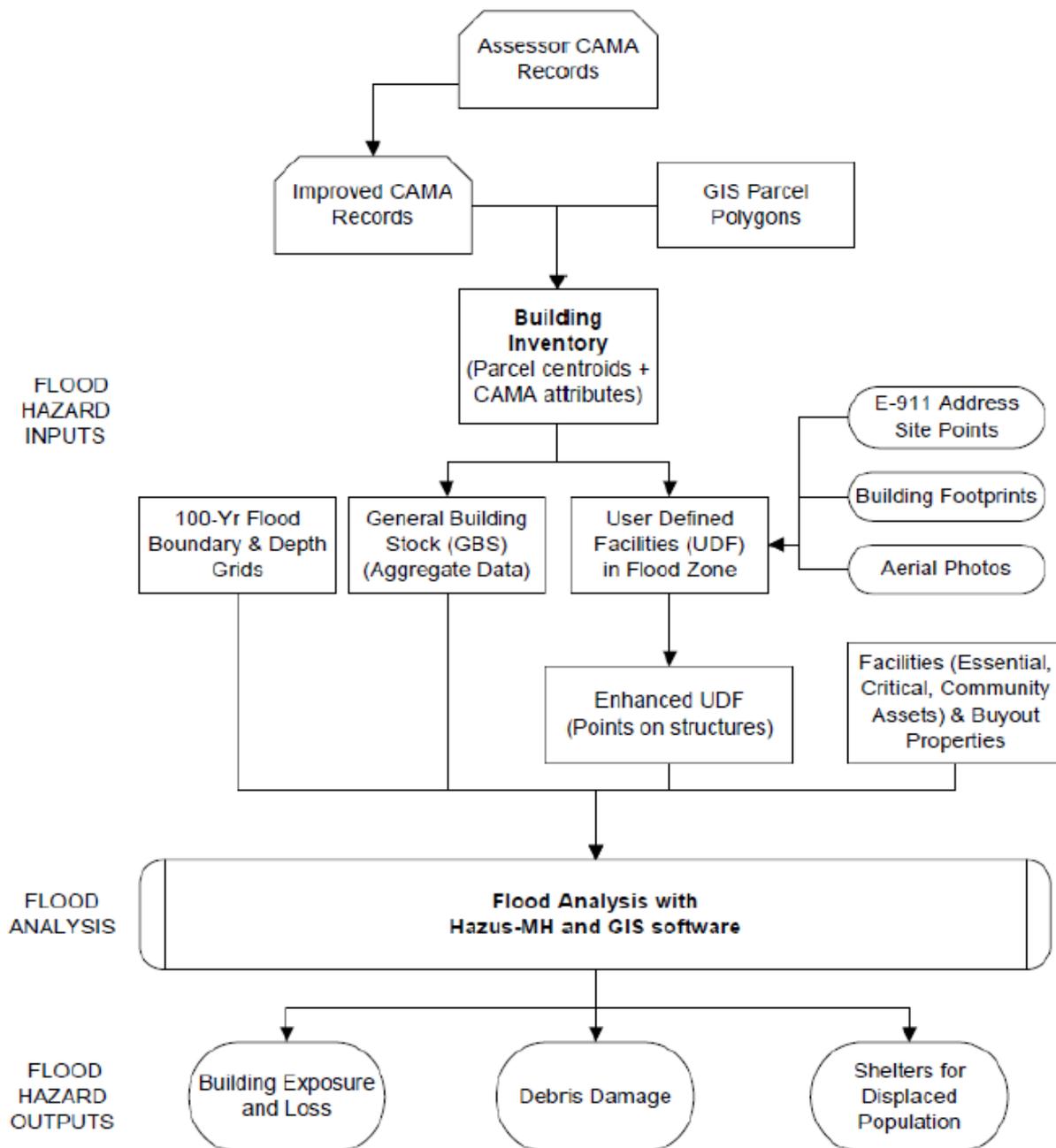
FLOOD MODEL

(Hazus-MH & GIS Software)

Building
Damage
Model

Debris
Model

People
Displacement
Model



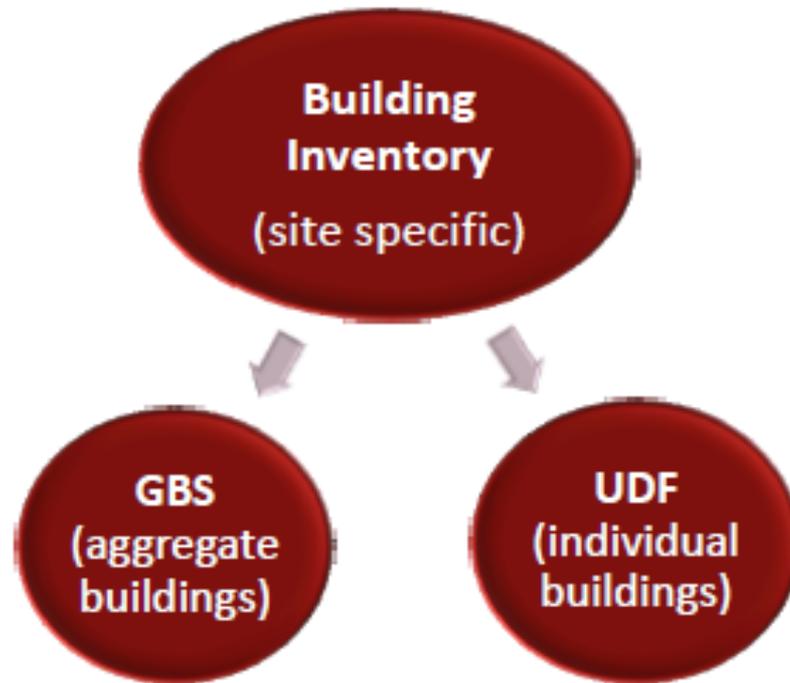


Table 1: Local Building Inventory

Assessor Records and Parcels					E-911 Sites
Category	Parcel CAMA Records (unique)	Improved or Processed CAMA Records (attributes)	Assessor Parcels (parcel polygons)	Building Inventory (parcel centroids + CAMA replacement cost attributes)	E-911 Addressable Structures (points on structure)
Martinsburg	-	-	7,403	6,162	9,164
Unincorporated	-	-	45,700	33,057	40,132
Total	54,650	44,650	53,103	39,219	49,296

Table 4: Essential Facilities

Category	Number of Facilities
Police Stations	3
Fire Stations	12
Emergency Service Centers	1
Health Care Facilities	2
Schools	34
TOTAL	52

Table 5: Critical Facilities

Category	Number of Facilities	Description
<i>Governmental Facilities</i>	n/a	Essential for the delivery of critical services and crisis management including data and communication centers and key government complexes.
<i>Dams</i>	9	Source: USACE
<i>Transportation Systems</i> <ul style="list-style-type: none"> • Airports • Railroads • Bridges 	5 1 8	Necessary for transport of people and resources including airports, highways, railways. Source: GNIS
<i>Lifeline Utility Systems</i> <ul style="list-style-type: none"> • Wastewater Treatment Plants • Potable Water Systems • Communication Facilities • Electric Substations • Electric Power Facilities • Natural Gas Facilities 	45 n/a n/a 7 0 n/a	Vital to public health and safety including potable water, wastewater, oil, natural gas, electric power, and communication systems.
<i>Hazardous Material Facilities</i>	16	Involved in the production, storage, and/or transport of corrosives, explosives, flammable materials, radioactive materials, and toxins.
TOTAL	91	

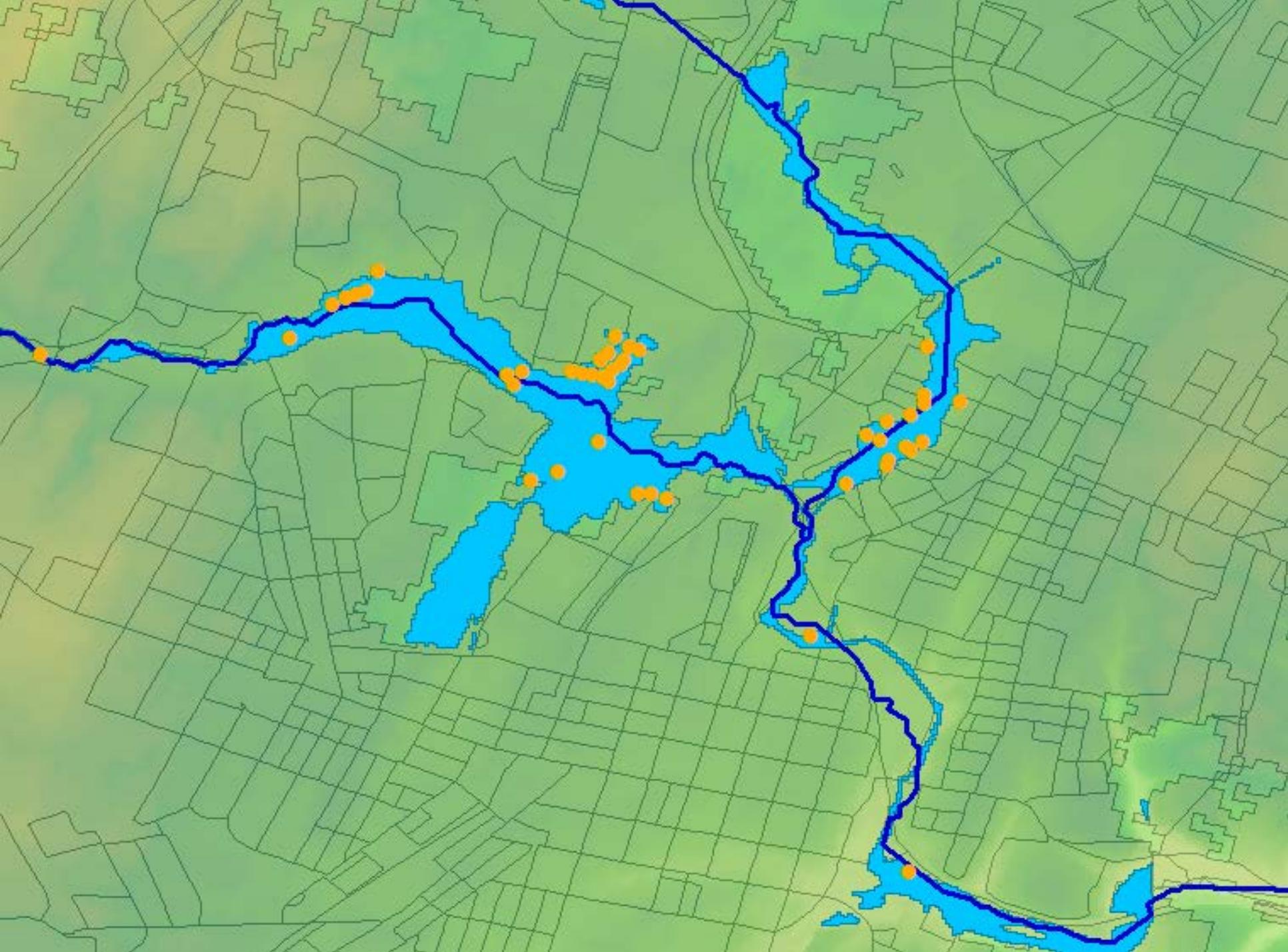
Table 2A: Countywide Building Number and Exposure (\$) from updated General Building Stock

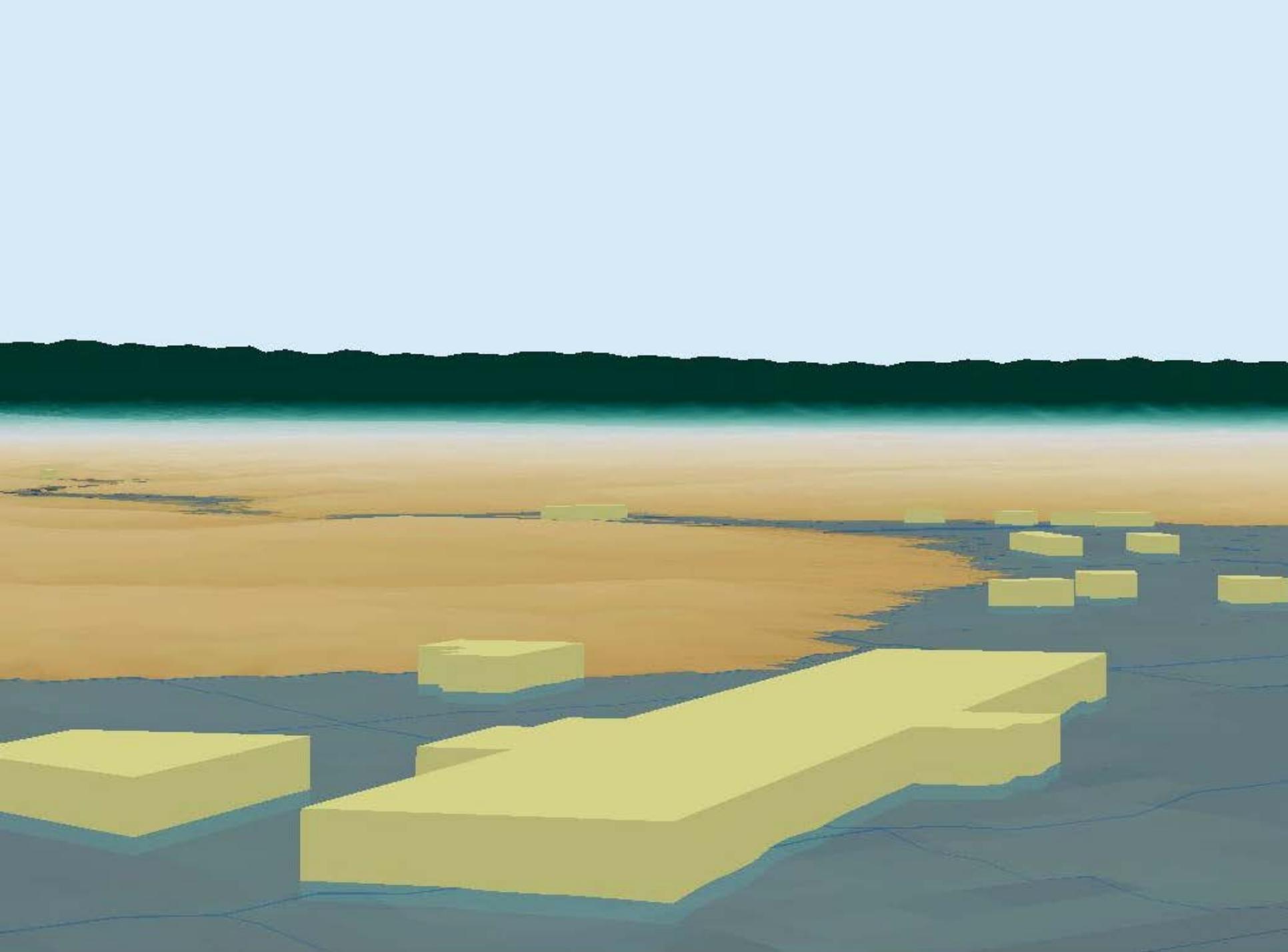
Occupancy Classification	Building Count	Total Building Exposure (\$)	Percent of Total
Berkeley County (including all jurisdictions)			
Residential	35,667	\$7,232,609,000	83.9%
Commercial	3,418	\$1,231,879,000	14.3%
Industrial	94	\$143,923,000	1.7%
Agricultural	31	\$7,338,000	0.1%
Religious	6	\$4,614,000	0.1%
Government	1	\$249,000	0.0%
Education	2	\$4,847,000	0.1%
TOTAL	39,219	\$8,625,459,000	100%
Martinsburg			
Residential	5,644	\$1,167,904,000	83.9%
Commercial	496	\$199,408,000	14.3%
Industrial	19	\$22,158,000	1.6%
Agricultural	0	\$0	0.0%
Religious	3	\$2,307,000	0.2%
Government	0	\$0	0.0%
Education	0	\$0	0.0%
TOTAL	6,162	\$1,391,777,000	100.0%

Table 8: Berkeley County Riverine Floodplain (1% Flood) Related Losses

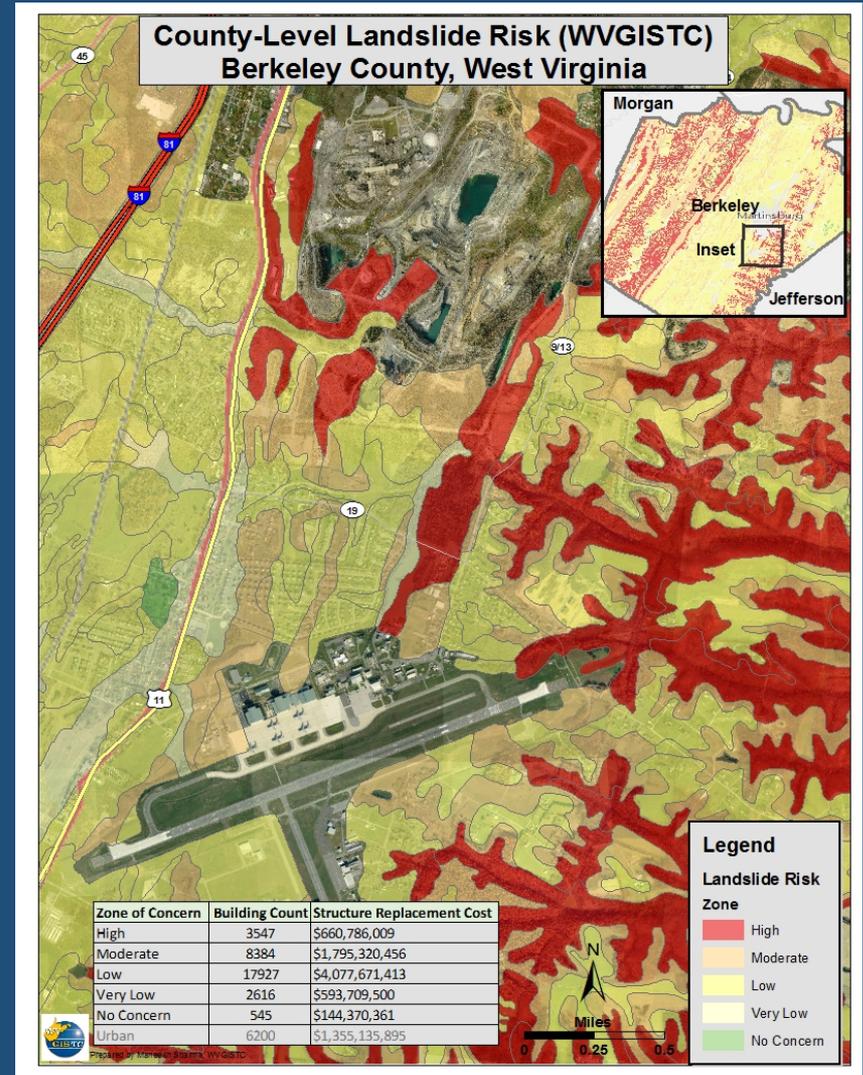
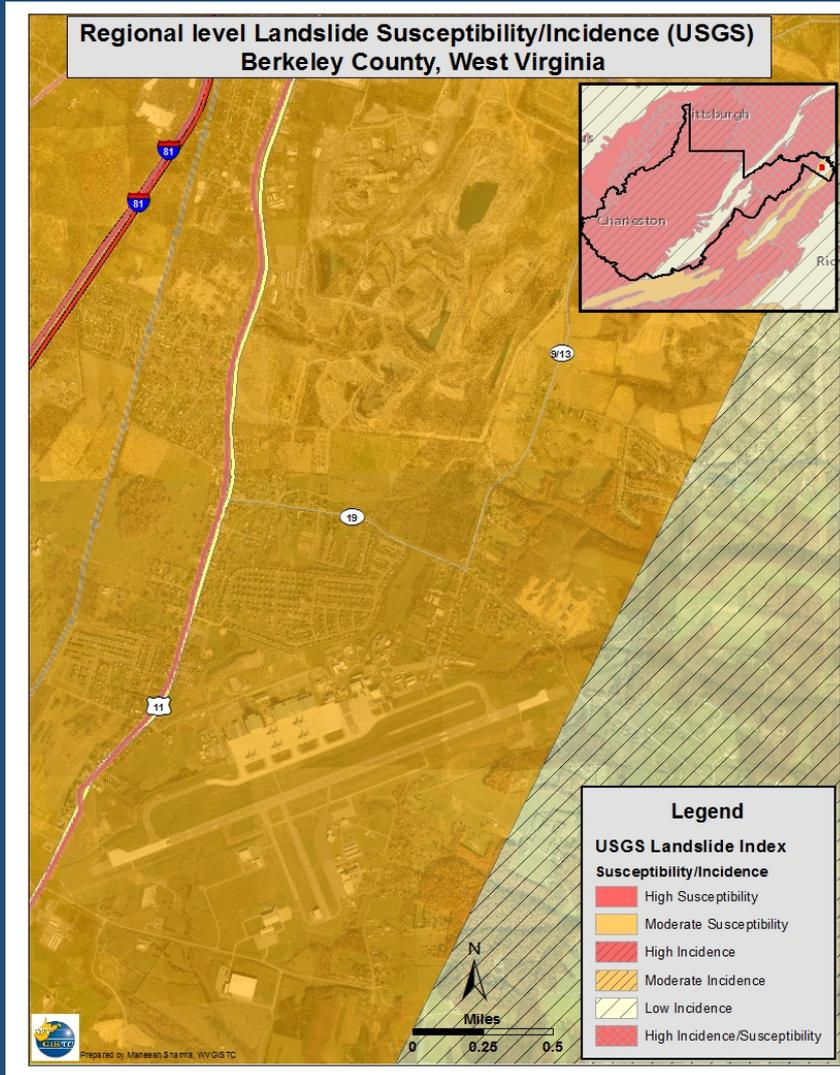
Classification	Number of Buildings Damaged	Total Building Loss (\$)	Loss Ratio
Berkeley County (including all jurisdictions)			
Residential	400	\$ 20,439,548	0.3%
Commercial	599	\$ 82,092,330	6.7%
Industrial	1	\$ 70,570	0.0%
Agricultural	2	\$ 396,336	5.4%
Religious	0	\$0	0.0%
Government	0	\$0	0.0%
Education	0	\$0	0.0%
TOTAL	1,002	102,998,784	
Martinsburg			
Residential	24	\$549,236	4.7%
Commercial	12	\$227,804	11.4%
Industrial	1	\$0	0.0%
Agricultural	0	\$0	0.0%
Religious	0	\$0	0.0%
Government	0	\$0	0.0%
Education	0	\$0	0.0%
TOTAL	37	\$777,040	







Landslide Susceptibility



Questions?

<http://wvgis.wvu.edu>

Kurt Donaldson – GIS Project Manager, Knowledgeable about all projects

kdonalds@wvu.edu

(304) 293-9467

Kevin Kuhn – GIS Analyst, Addressing, Aerial Imagery, Transportation, Elevation, Training (POC)

Kevin.Kuhn@mail.wvu.edu

(304) 293-9462

Eric Hopkins – GIS Analyst, Flood Tool (POC), Mitigation Planning, Scanning

ehopkins@wvu.edu

(304) 293-9463

West Virginia Trail Inventor x DOT Map Search x WV Flood Tool x How to take a screenshot on x Eric

www.mapwv.gov/flood/

Home Resources Help

WV Flood Tool

Remember: When In Doubt, It's Not Out!

[Launch Map](#)

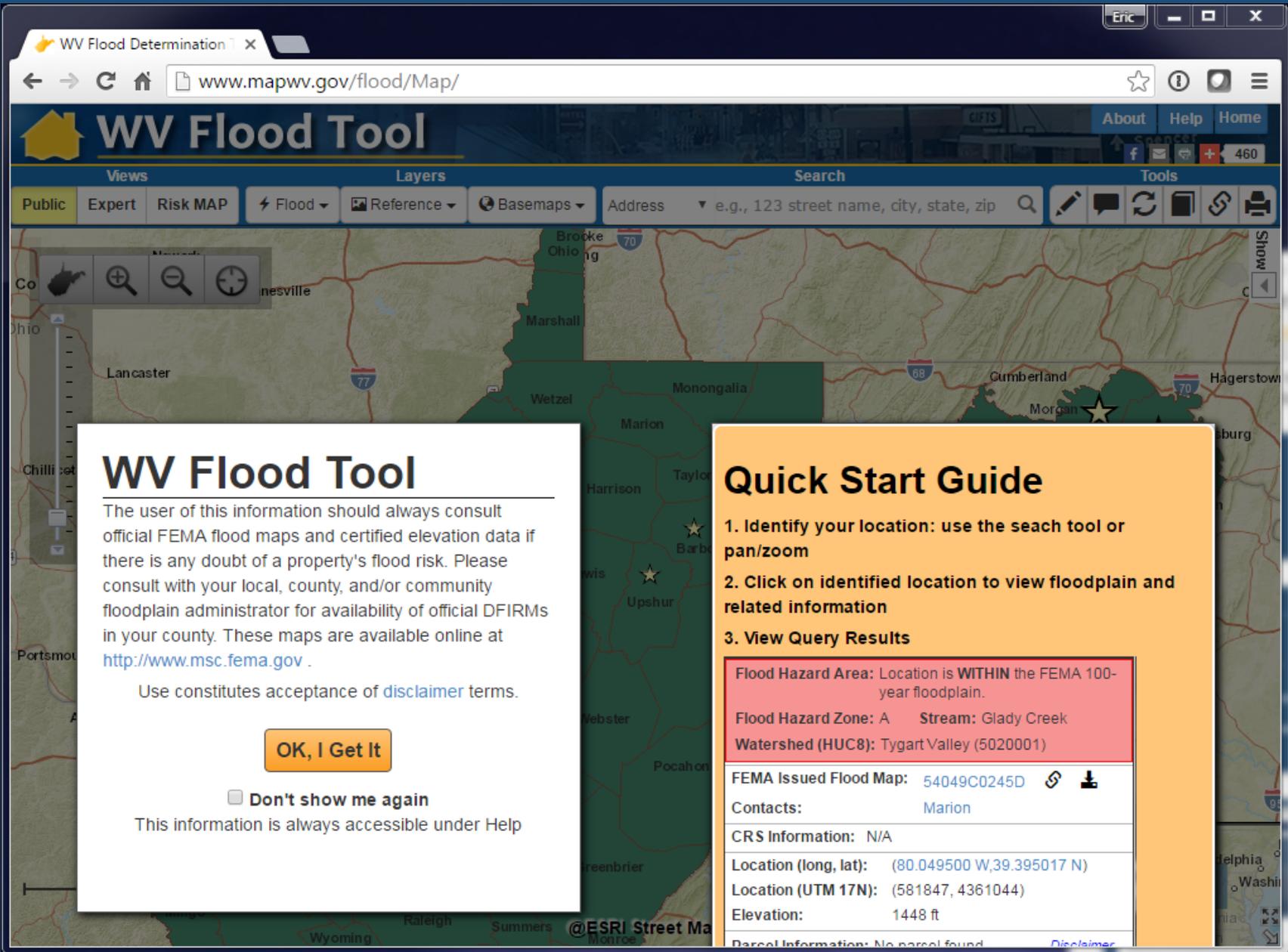
[Mobile Phone Version](#) / [Expert View](#) / [Flood Tool Survey](#)

Overview

The West Virginia Flood Tool is designed to provide floodplain managers, insurance agents, developers, real estate agents, local planners and citizens with an effective means by which to make informed decisions about the degree of flood risk for a specific area or property.

This is NOT the official instrument of a final hazard determination. Remember: if in doubt, it's not out!

www.mapwv.gov/flood/map



WV Flood Tool

The user of this information should always consult official FEMA flood maps and certified elevation data if there is any doubt of a property's flood risk. Please consult with your local, county, and/or community floodplain administrator for availability of official DFIRMs in your county. These maps are available online at <http://www.msc.fema.gov>.

Use constitutes acceptance of [disclaimer](#) terms.

OK, I Get It

Don't show me again

This information is always accessible under Help

Quick Start Guide

1. Identify your location: use the search tool or pan/zoom
2. Click on identified location to view floodplain and related information
3. View Query Results

Flood Hazard Area: Location is **WITHIN** the FEMA 100-year floodplain.

Flood Hazard Zone: A Stream: Glady Creek

Watershed (HUC8): Tygart Valley (5020001)

FEMA Issued Flood Map: [54049C0245D](#) [🔗](#) [📄](#)

Contacts: Marion

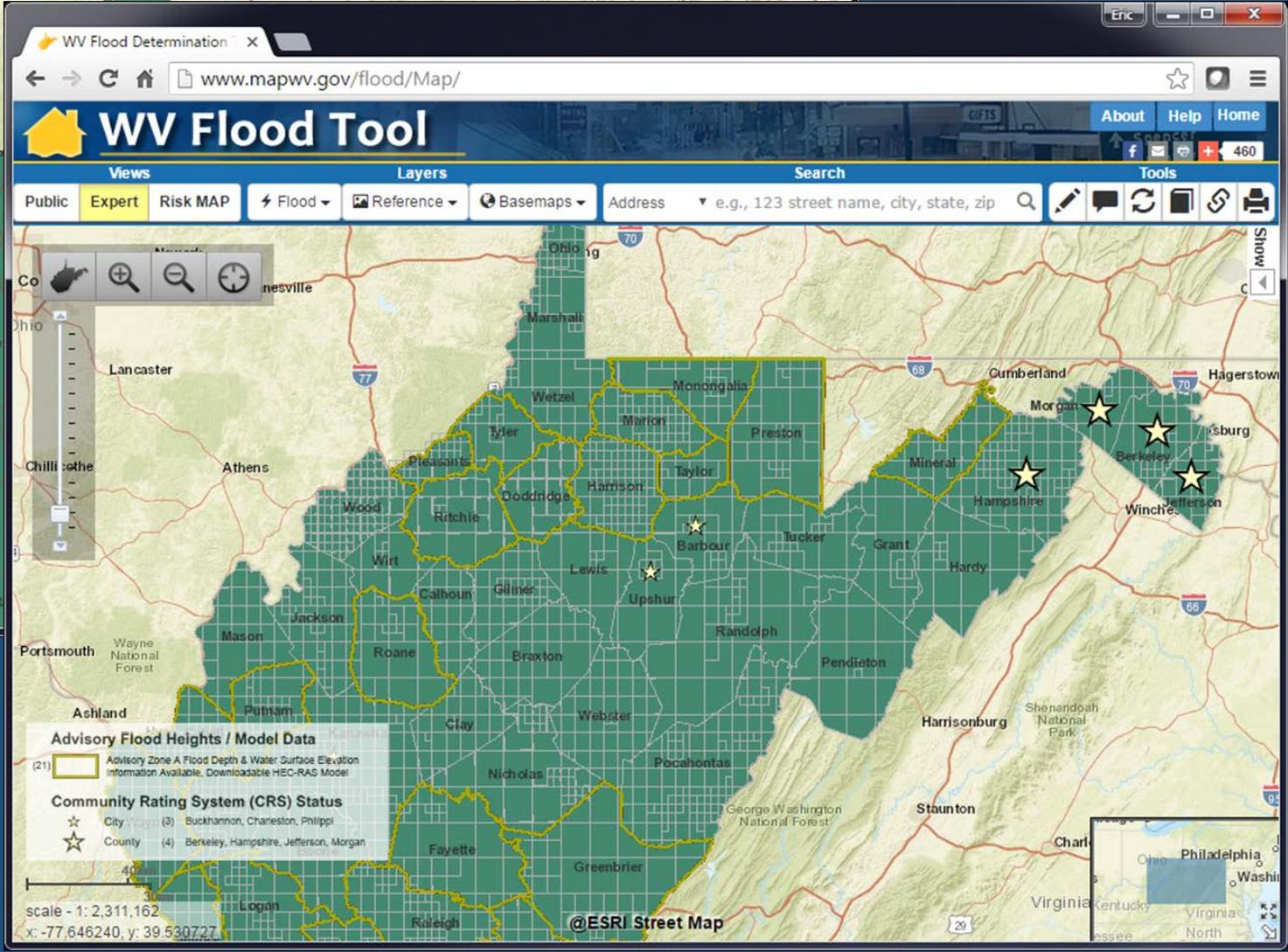
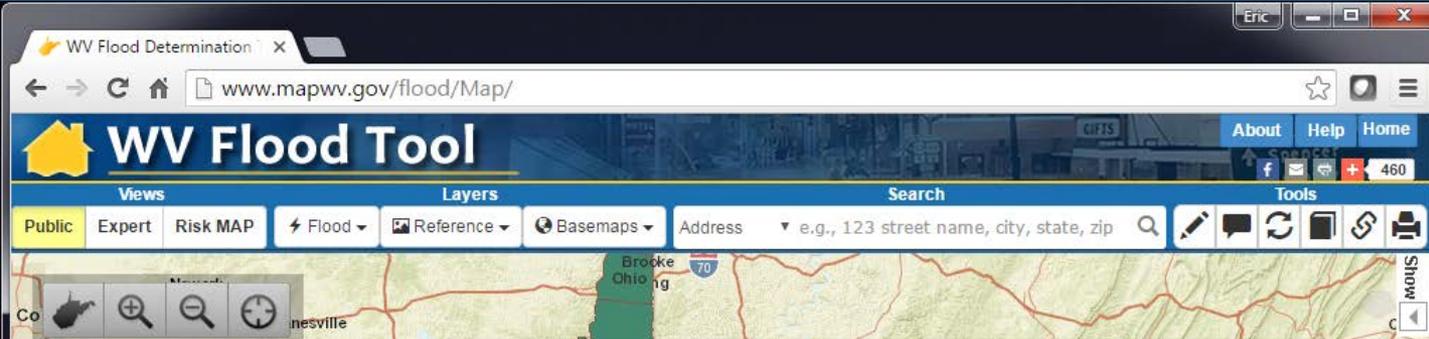
CRS Information: N/A

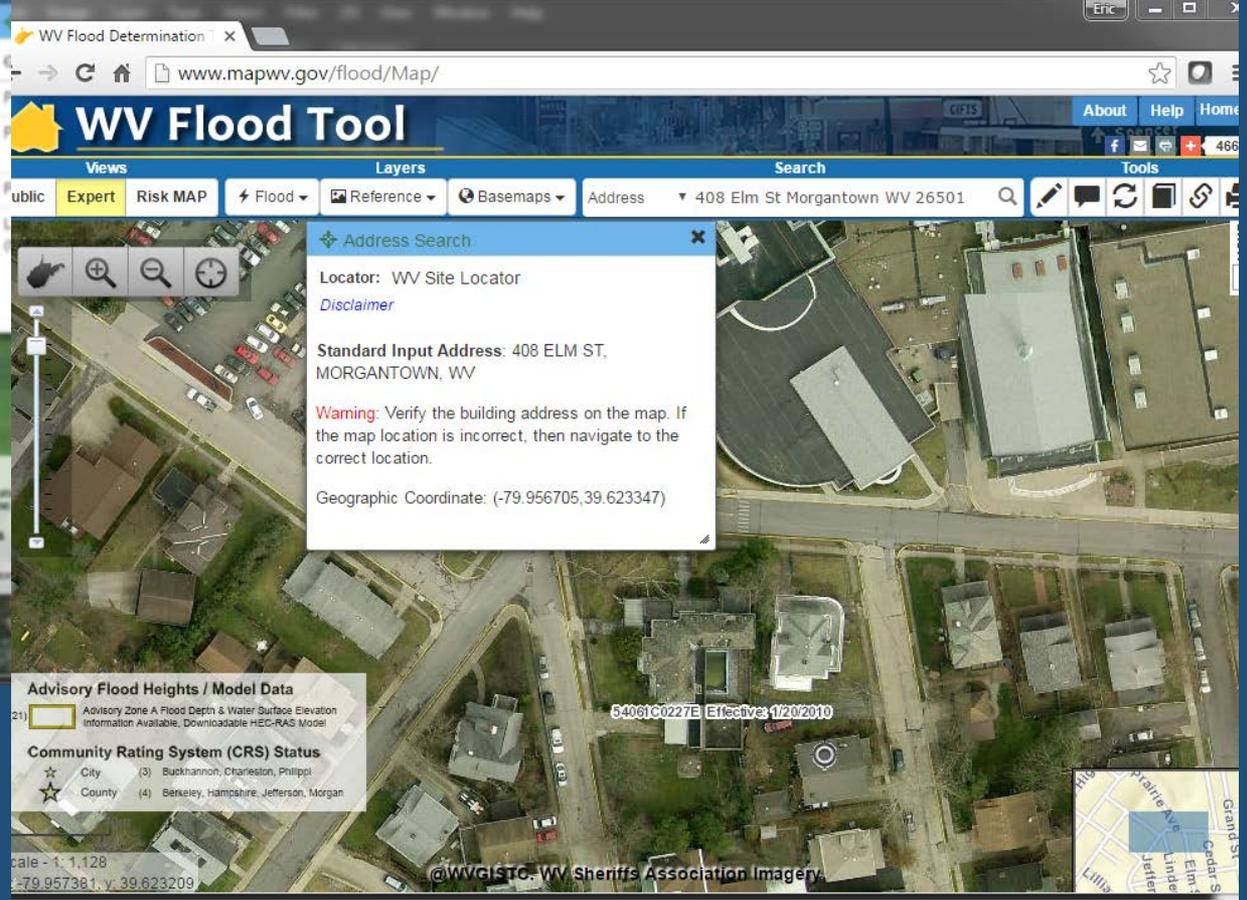
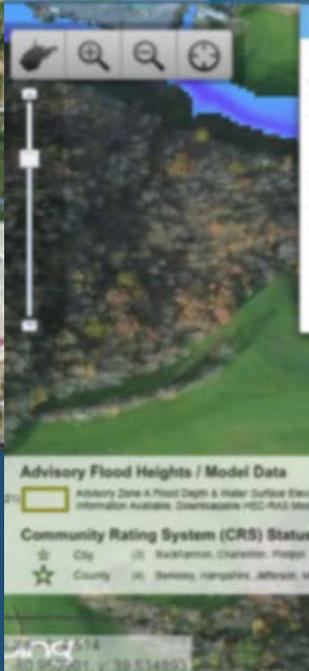
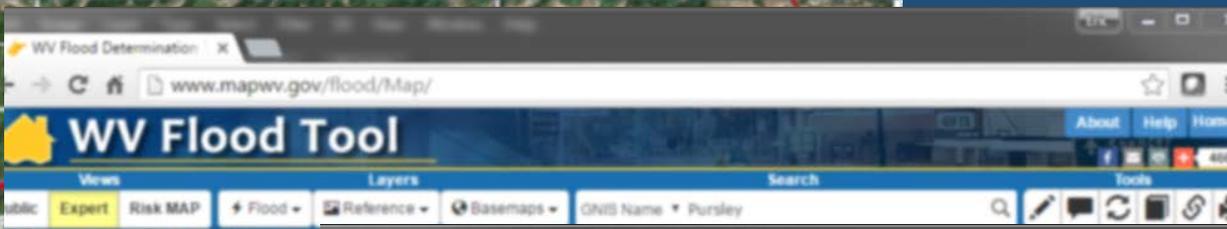
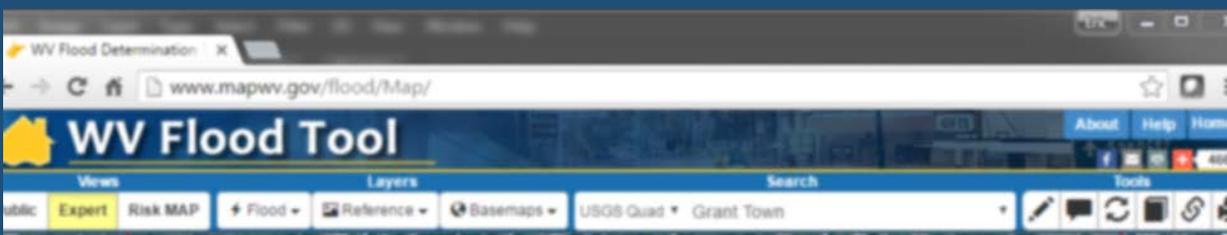
Location (long, lat): (80.049500 W, 39.395017 N)

Location (UTM 17N): (581847, 4361044)

Elevation: 1448 ft

Parcel Information: No parcel found [Disclaimer](#)





WV Flood Tool

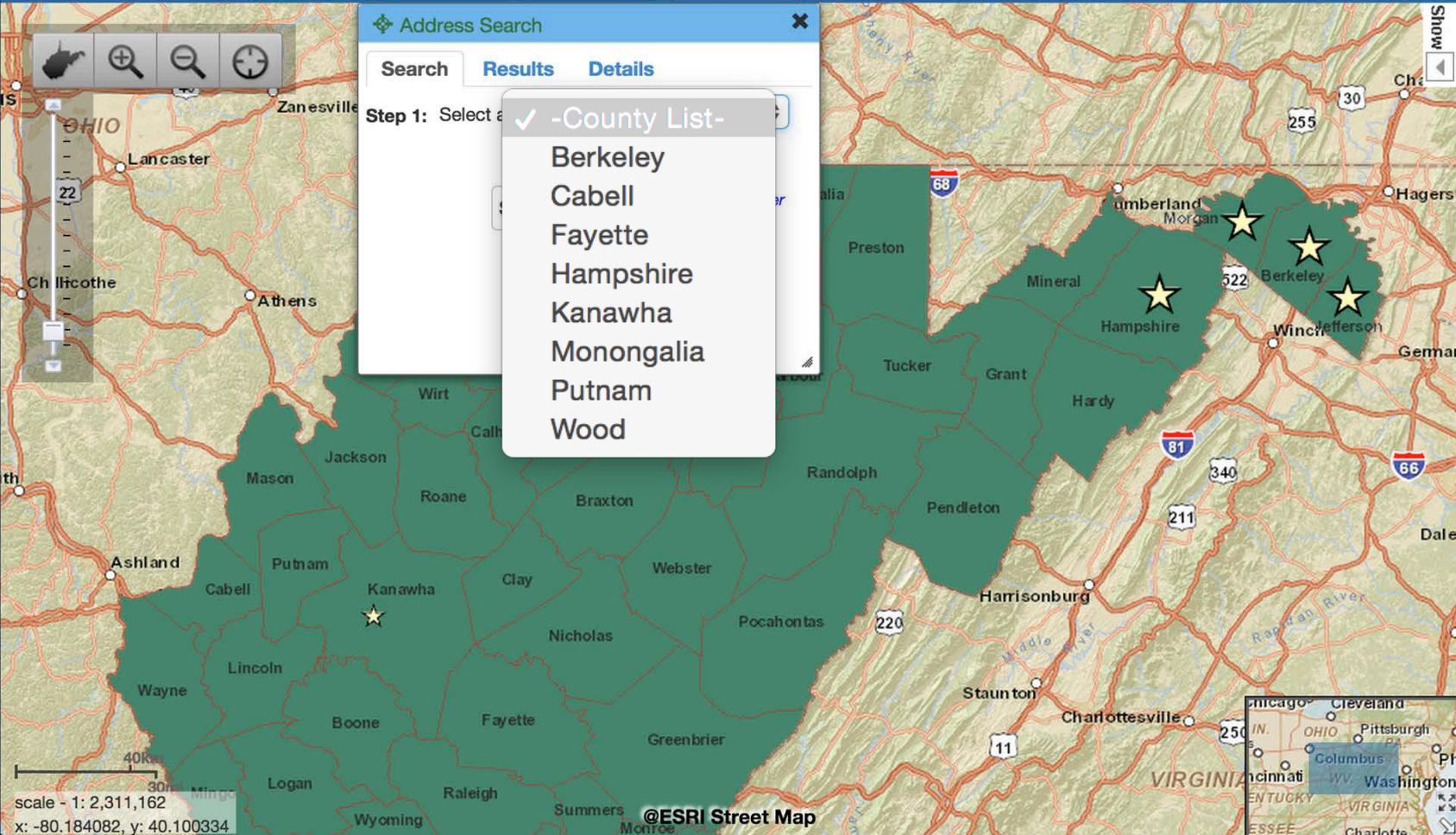
About Help Home

Views: Public Expert Risk MAP

Layers: Flood Reference Basemaps Parcel

Search: Use PARCEL window to search

Tools: [Icons for drawing, editing, etc.]



WV Flood Tool

Views: Public | Expert | Risk MAP

Layers: Flood | Reference | Basemaps

Search: Address e.g., 123 street name, city, state, zip

Tools: [Icons for drawing, commenting, refreshing, mobile, link, print]



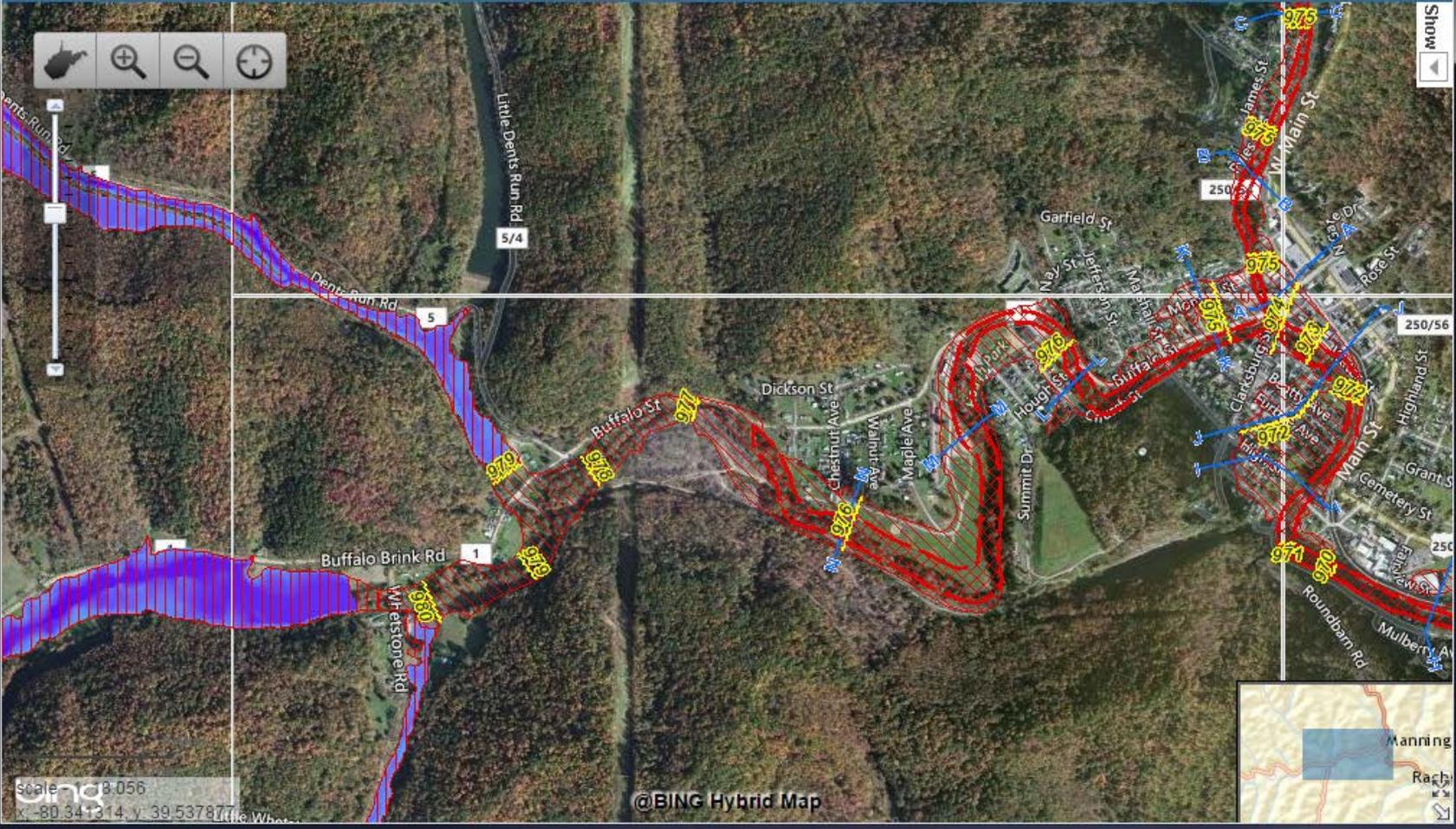
WV Flood Tool

Views: Public | Expert | Risk MAP

Layers: Flood | Reference | Basemaps

Search: Address e.g., 123 street name, city, state, zip

Tools: [Icons for drawing, commenting, refreshing, mobile, link, print]



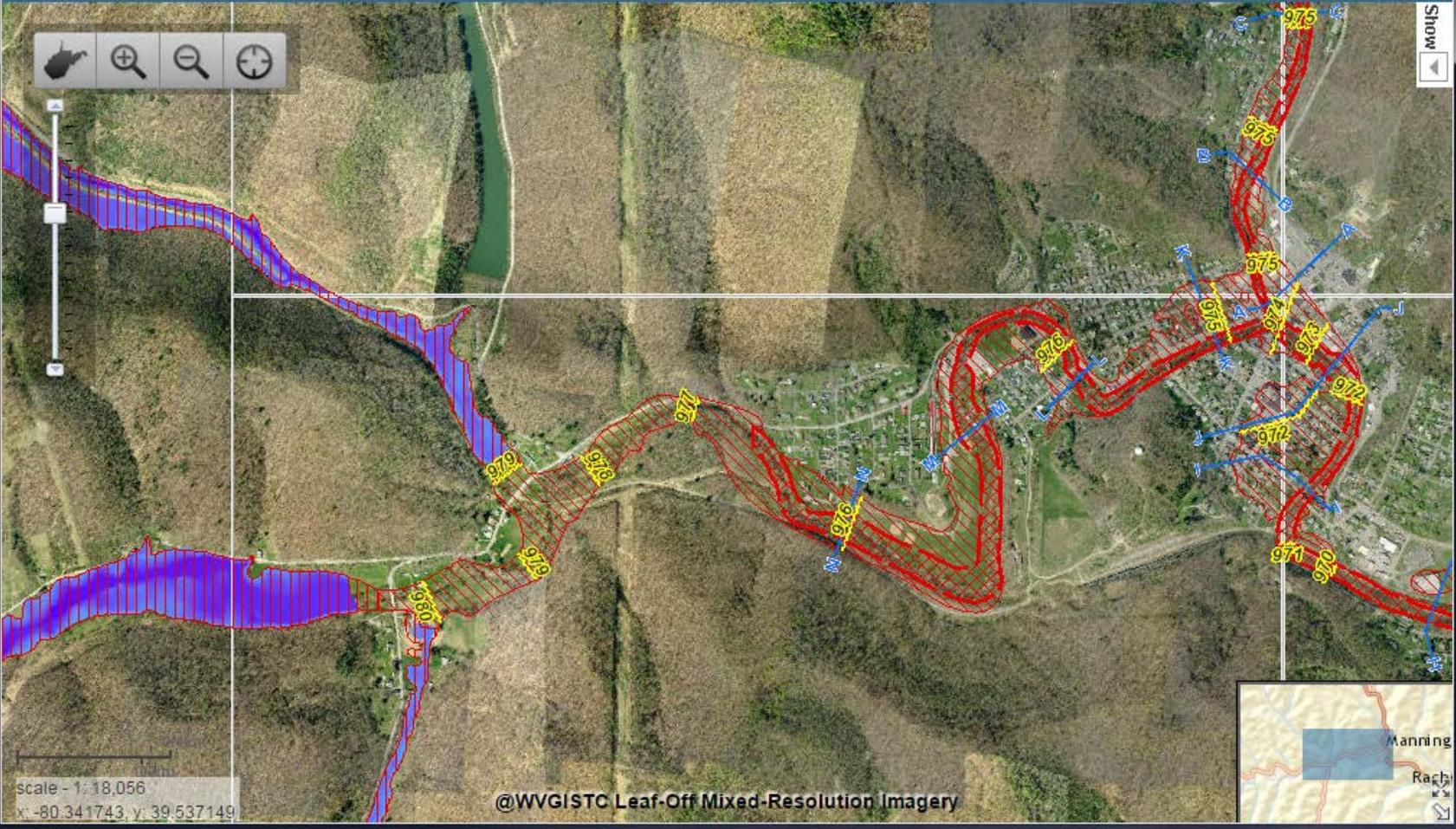
WV Flood Tool

Views: Public | Expert | Risk MAP

Layers: Flood | Reference | Basemaps

Search: Address e.g., 123 street name, city, state, zip

Tools: [Icons for Print, Share, etc.]



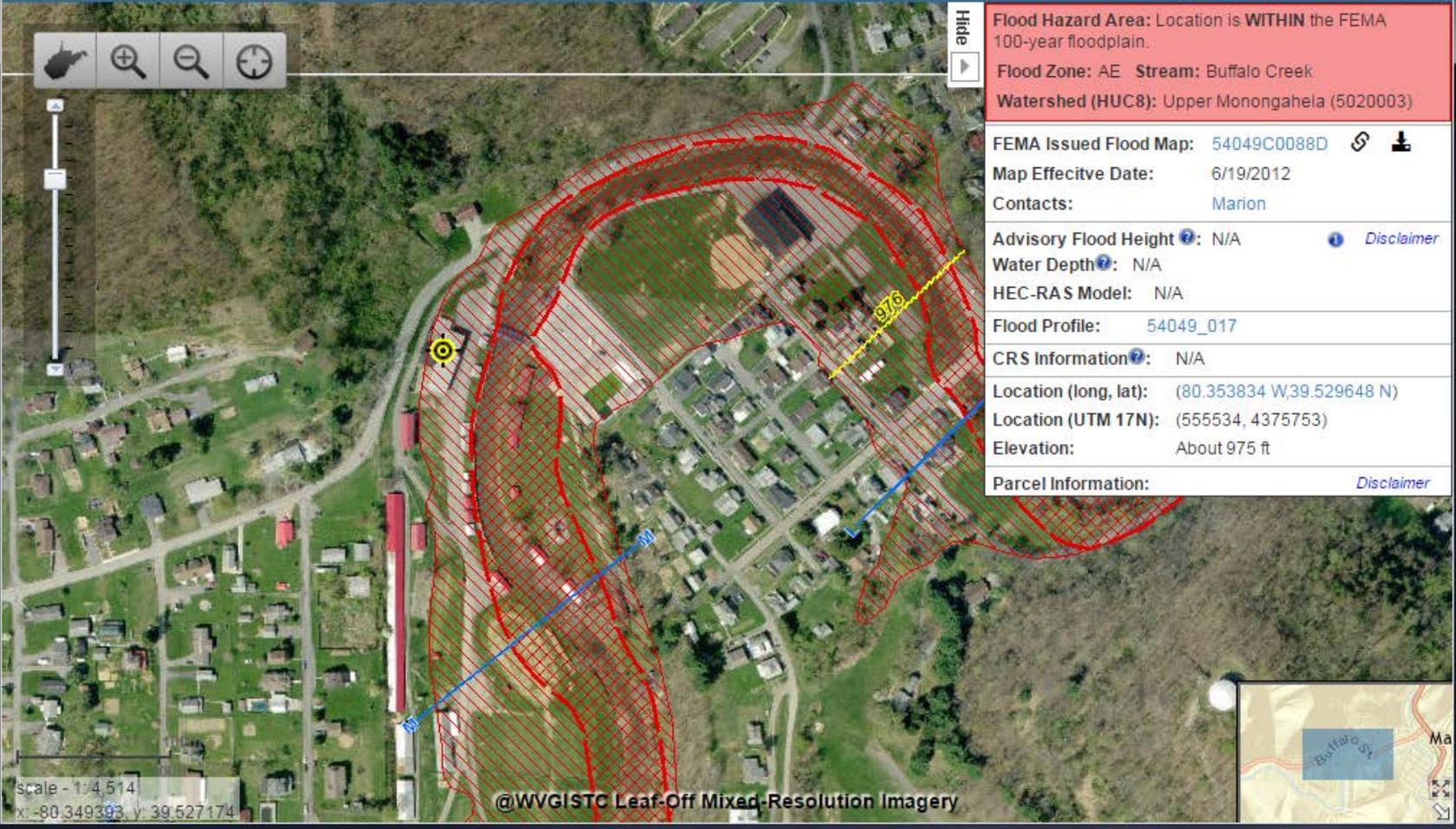
@WVGISTC Leaf-Off Mixed-Resolution Imagery

WV Flood Tool

About Help Home

460

Views: Public Expert Risk MAP | Layers: Flood Reference Basemaps | Search: Address e.g., 123 street name, city, state, zip | Tools: [Icons]



Flood Hazard Area: Location is **WITHIN** the FEMA 100-year floodplain.

Flood Zone: AE **Stream:** Buffalo Creek

Watershed (HUC8): Upper Monongahela (5020003)

FEMA Issued Flood Map: 54049C0088D

Map Effective Date: 6/19/2012

Contacts: Marion

Advisory Flood Height: N/A [Disclaimer](#)

Water Depth: N/A

HEC-RAS Model: N/A

Flood Profile: 54049_017

CRS Information: N/A

Location (long, lat): (80.353834 W, 39.529648 N)

Location (UTM 17N): (555534, 4375753)

Elevation: About 975 ft

Parcel Information: [Disclaimer](#)

scale - 1:4,514
x: -80,349,393 y: 39,527,174

@WVGISTC Leaf-Off Mixed-Resolution Imagery



WV Flood Tool

Views: Public | Expert | Risk MAP | Layers: Flood | Reference | Basemaps | Search: Address [e.g., 123 street name, city, state, zip] | Tools: [Icons]



Flood Hazard Area: Location is **WITHIN** the FEMA 100-year floodplain.

Flood Zone: A (Advisory A) **Stream:** Buffalo Creek

Watershed (HUC8): Upper Monongahela (5020003)

FEMA Issued Flood Map: 54049C0070D

Map Effective Date: 6/19/2012

Contacts: Marion

Advisory Flood Height: About 982 ft

Water Depth: About 3.5 ft (Source: HEC_RAS)

HEC-RAS Model: Buffalo Creek

Flood Profile:

CRS Information: N/A

Location (long, lat): (80.377191 W, 39.524071 N)

Location (UTM 17N): (553531, 4375120)

Elevation: About 979 ft

Parcel Information: [Disclaimer](#)

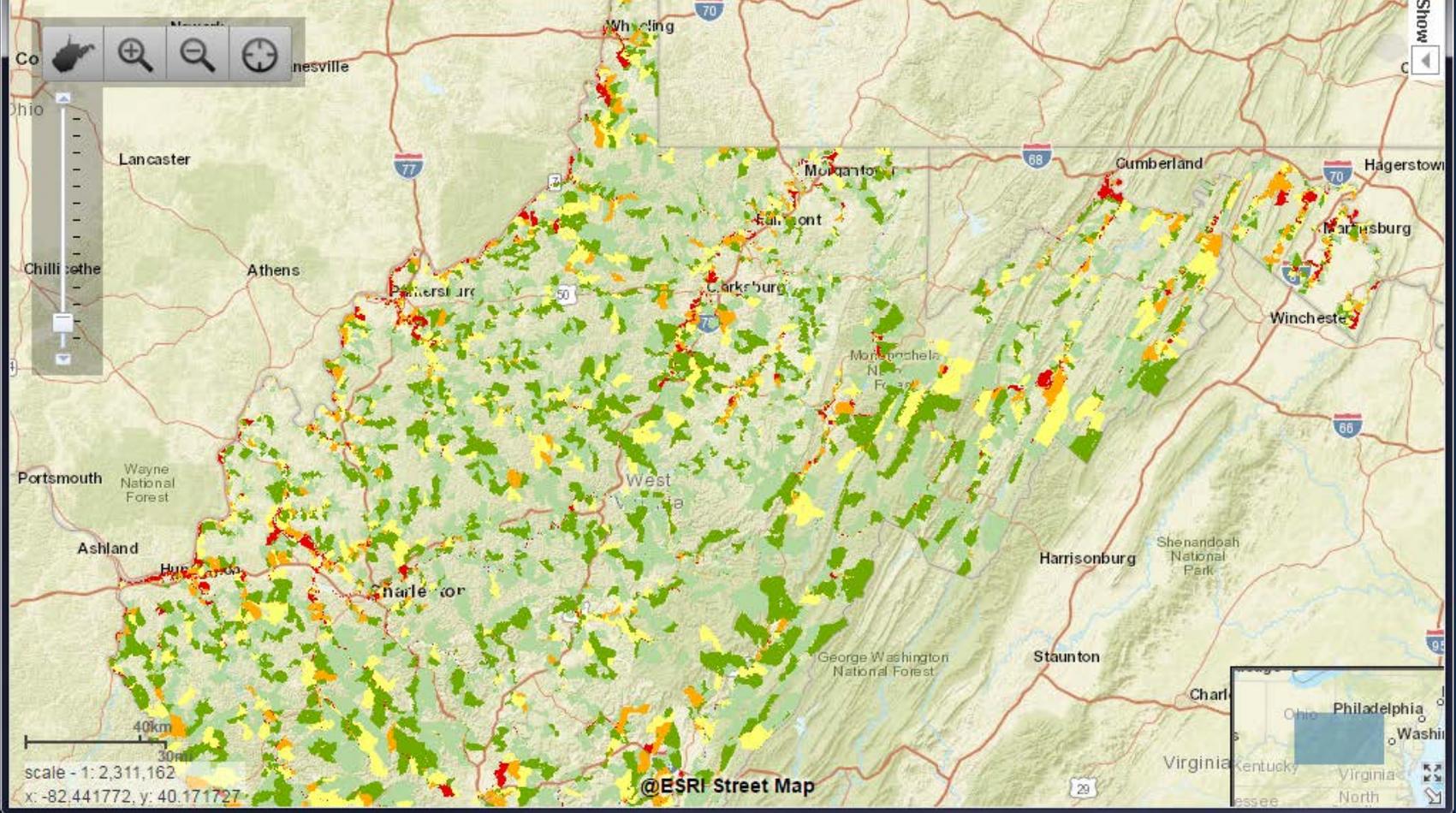
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@WVGISTC Leaf-Off Mixed-Resolution Imagery



WV Flood Tool

Views: Public Expert **Risk MAP** Layers: Flood Reference Basemaps Search: Address e.g., 123 street name, city, state, zip Tools: [Icons]



@ESRI Street Map

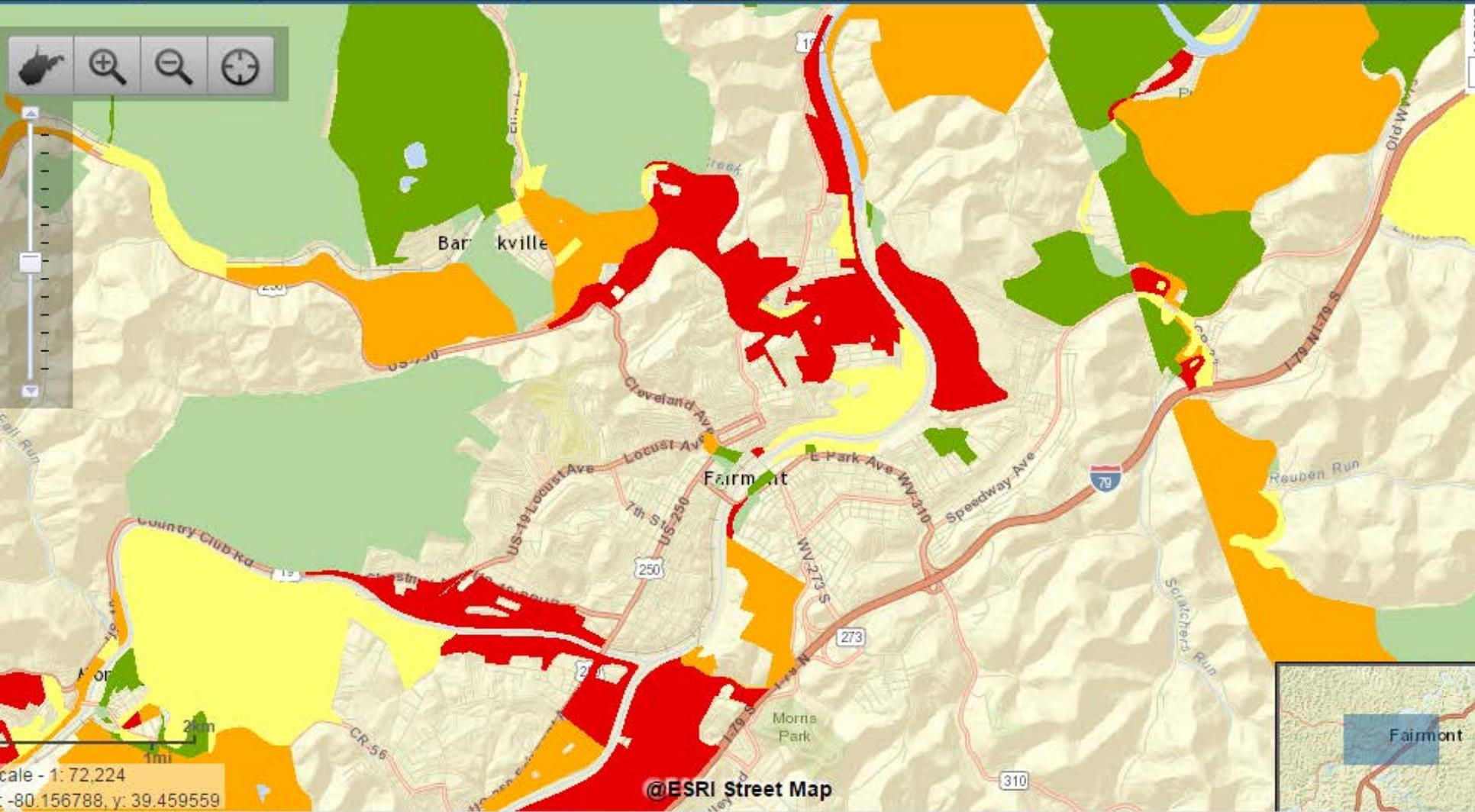
WV Flood Tool

Views: Public Expert Risk MAP

Layers: Flood Reference Basemaps Parcel

Search: Use PARCEL window to search

Tools: [Icons for drawing, commenting, refreshing, printing, linking]



WV Flood Tool

Remember: When In Doubt, It's Not Out!

Spencer
Grantsville

Layers Search Tools

RT Risk MAP Flood Reference Basemaps Address e.g., 123 street name, city, state, zip

Hazard Layers

Water Depth (HEC_RAS)

Water Depth (HAZUS)

Risk Layer

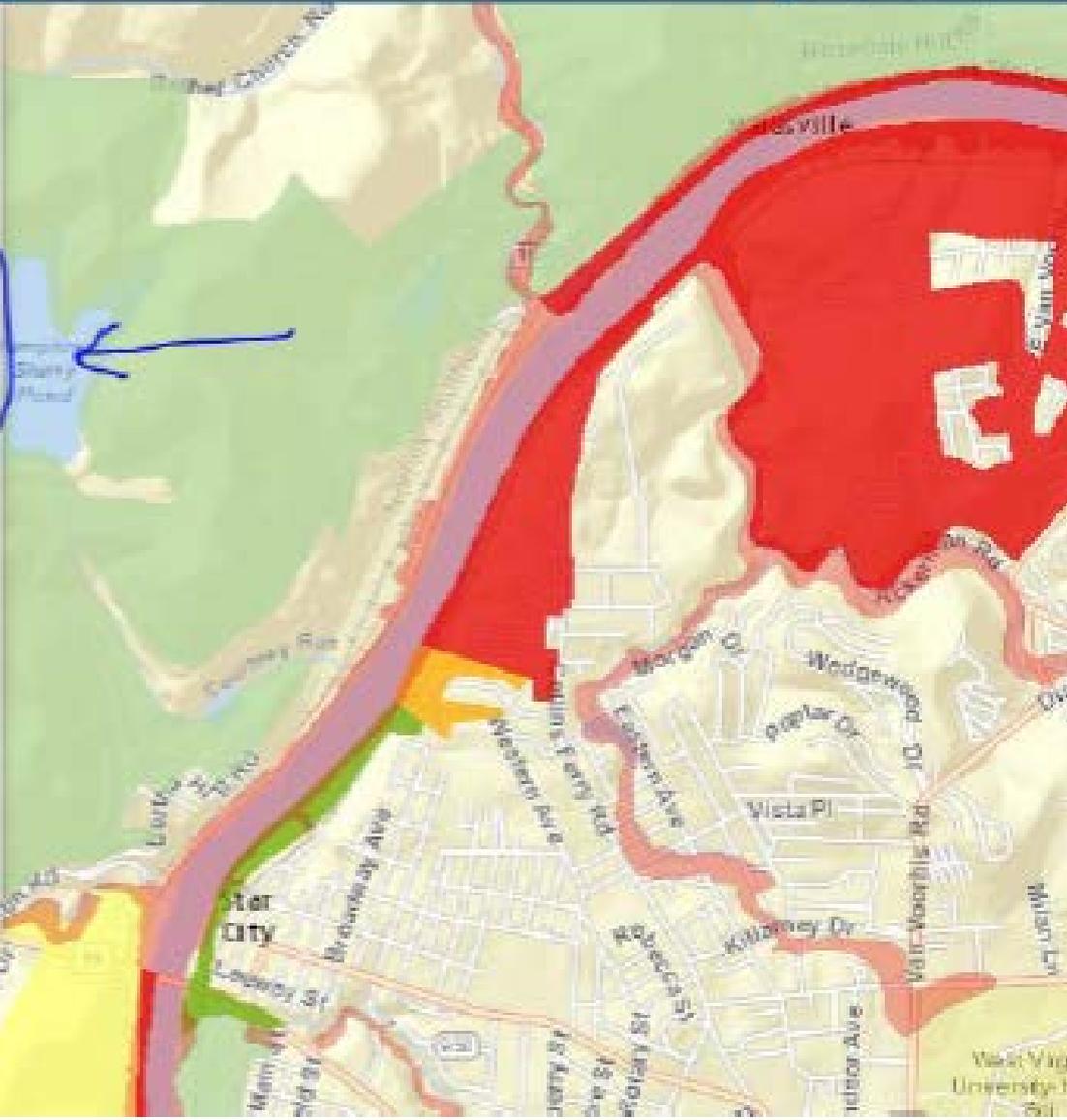
Total Assets
Total Loss
Total Building Loss
Total Debris
Total Shaffer

[Hide Legend](#)

Flood Risk (Total Building Losses)
Estimated Building Loss (Dollars, 1000s)

- 1 - 11
- 11 - 40
- 40 - 108
- 108 - 335
- 335 - 78592

Flood Hazard
Flood Hazard Zone



WV Flood Tool

About Help Home

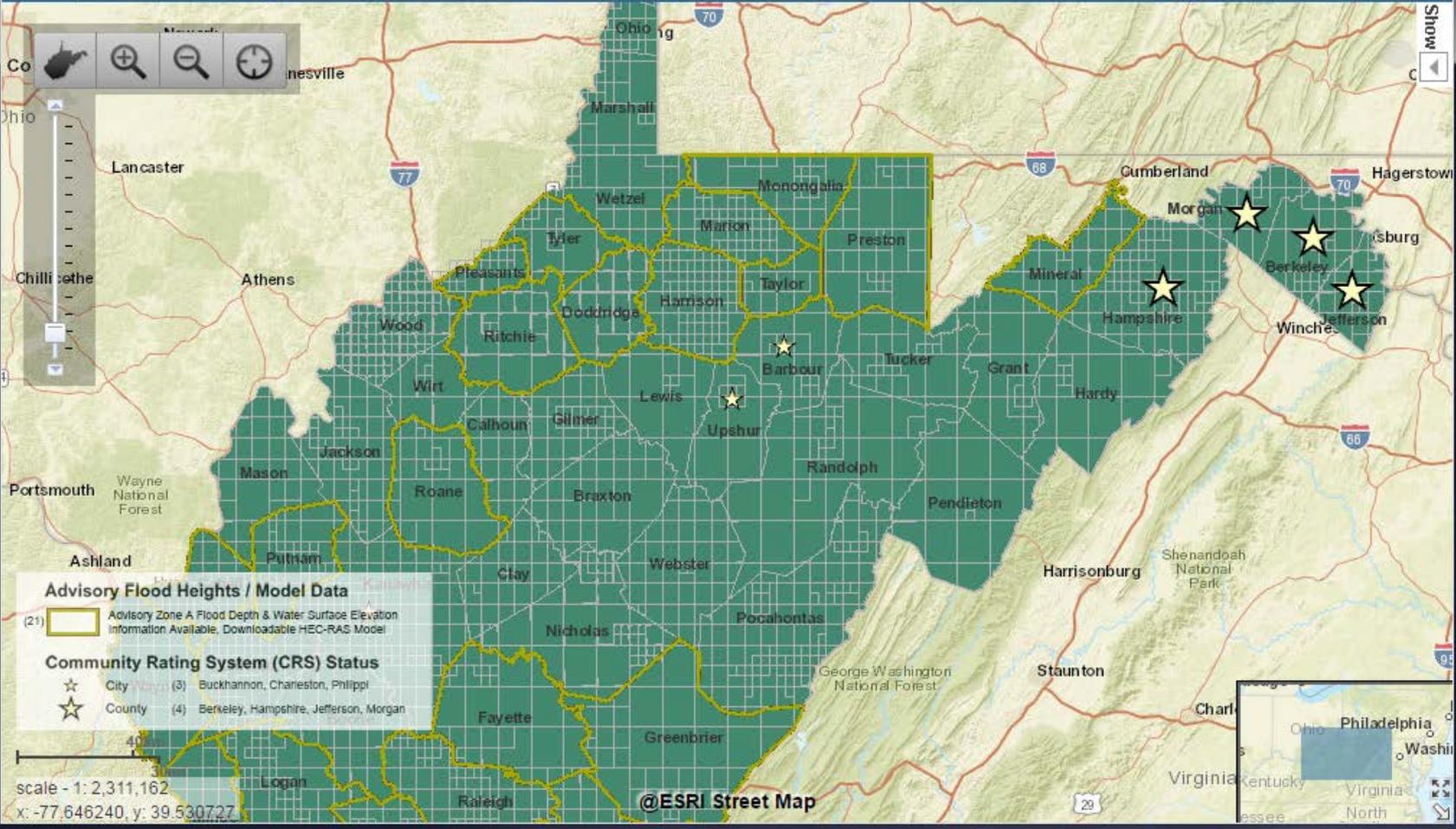
Facebook, Email, Print, +460

Views: Public | Expert | Risk MAP

Layers: Flood | Reference | Basemaps

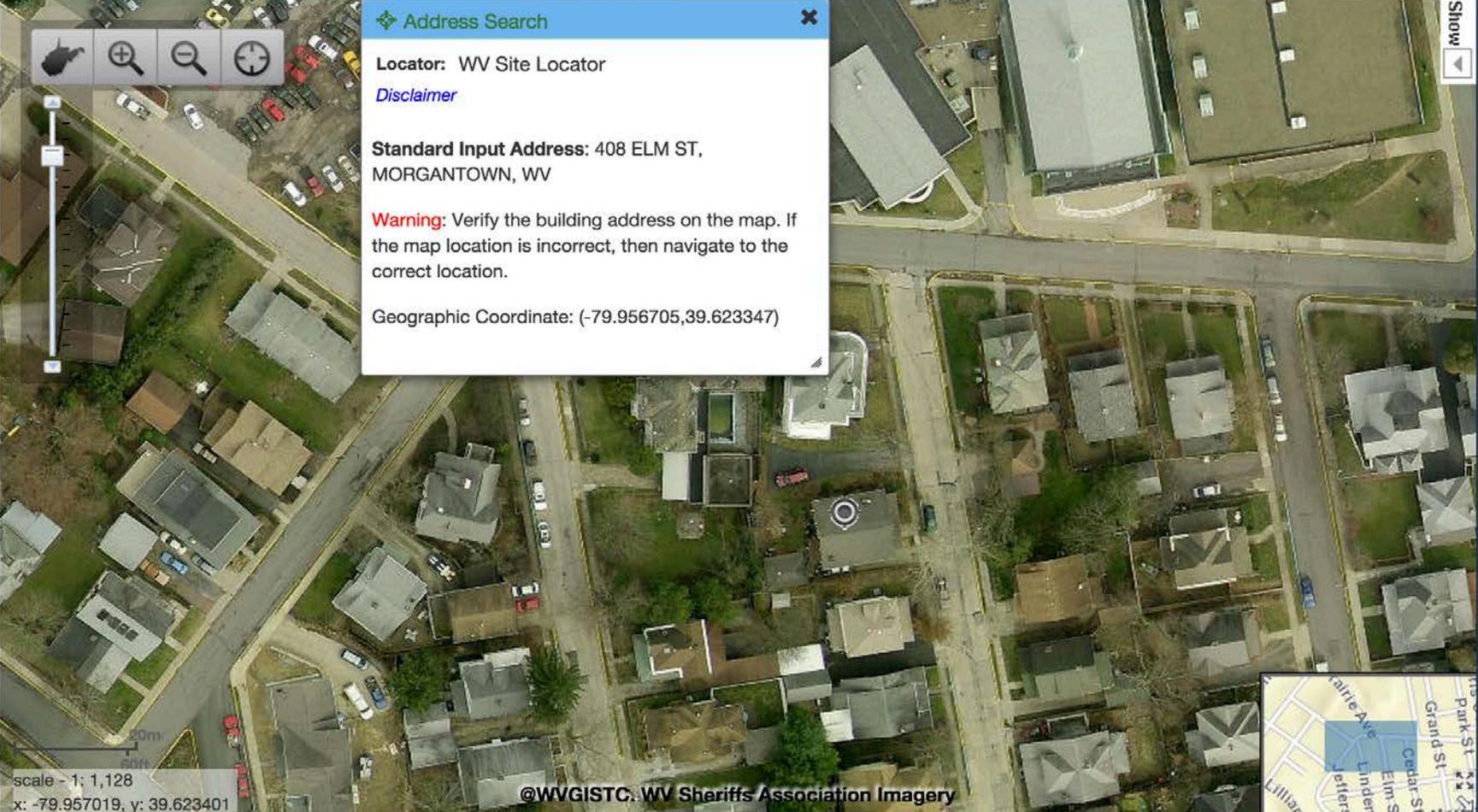
Search: Address e.g., 123 street name, city, state, zip

Tools: [Icons for Edit, Comment, Refresh, Mobile, Link, Print]



WV Flood Tool

Views: Public Expert Risk MAP
Layers: Flood Reference Basemaps
Search: Address 408 Elm St, Morgantown, WV
Tools: [Icons]



Address Search

Locator: WV Site Locator
Disclaimer

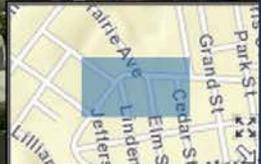
Standard Input Address: 408 ELM ST,
MORGANTOWN, WV

Warning: Verify the building address on the map. If
the map location is incorrect, then navigate to the
correct location.

Geographic Coordinate: (-79.956705,39.623347)

scale - 1: 1,128
x: -79.957019, y: 39.623401

©WVGISTC, WV Sheriffs Association Imagery



Draft Plan Review Meeting
September 26, 2016
1:30 – 3:30 PM
Shepherd University's Martinsburg Center
261 Aikens Center, Martinsburg, WV

Meeting Summary

The following notes are intended to supplement the meeting presentation.

- Michael Baker presented a summary of the 2017 HMP and updated attendees on the status of the project.
- West Virginia University's GIS Technical Center gave a presentation on their flood risk assessment.
- Michael Baker explained how mitigation goals and objective were updated in the 2017 HMP and led an in-depth discussion on the new 2017 Mitigation Action Plan
- The draft plan will be made available September 27 on www.region9wv.com. It will be available for comment through October 28th.
- There was a discussion about the possibility of adding another mitigation action addressing Pikeside Waterway as an ongoing mitigation strategy for flooding in the Pikeside area.
- LEPCs are responsible for providing annual updates to the HMP.
- Municipal and county resolutions to adopt the plan do not get signed until FEMA approves the final draft of the HMP.

Next Steps:

- If Berkeley County wants to include the Pikeside Waterway as an ongoing mitigation strategy they were encouraged to submit a new Mitigation Action Form.
- Meeting attendees were strongly encouraged to read the HMP at www.region9wv.com and submit comments about the draft during the comment period which ends October 28th, 2016.
- Once a final draft is approved by FEMA, municipalities and the county can officially adopt the 2017 HMP.

List of 2012 Mitigation Goals and Objectives, and a Review of Changes made in 2017 Update		
Berkeley County Goals		
Goal 1B: Reduce the negative effects of drought in Berkeley County.	Objective 1A: Increase public awareness as to the agricultural effects of drought, as well as the ramifications of drought to the public water supply.	This goal has been consolidated into Goal 2B and Goal 4B. Objective 1A has been carried into Objective 4D and Objective 1B has been carried into Objective 2A
	Objective 1B: Reduce or eliminate the effects of drought by undertaking public water infrastructure upgrades or extensions.	
Goal 2B: Reduce the potential effects of earthquakes in Berkeley County.	Objective 2A: Educate the public as to the potential for earthquakes in West Virginia, specifically Berkeley County.	This goal has been consolidated into Goal 4B. Objective 2A has been carried into Objective 4A.
Goal 3B: Protect Berkeley County's population from an epidemic.	Objective 3A: Increase public awareness and knowledge after an epidemic has been declared.	This goal has been consolidated into 3B, and Objective 3A has been carried over into Objective 3C.
Goal 4B: Reduce the negative effects of flooding in Berkeley County.	Objective 4A: Minimize future flood damage in municipal areas through effective stormwater management.	This goal and its objectives have been carried over into Goal 1B, though the wording of the goal has been changed.
	Objective 4B: Minimize future flood damage throughout Berkeley County by increasing control over development in the floodplain.	
	Objective 4C: Coordinate with other federal, state, and county agencies to facilitate flood mitigation activities.	
	Objective 4D: Participate in the Community Rating System (CRS) to help monitor hazard mitigation efforts and to improve the affordability of flood insurance for citizens.	
	Objective 4E: Minimize future flood damage in Berkeley County through structural projects.	
	Objective 4F: Reduce the potential for injury or loss of life due to severe flooding events	
Goal 5B: Provide local residents with more advanced warning of impending hailstorms.	Objective 5A: Provide local residents with more advanced warning of impending hailstorms.	This goal has been consolidated into Goal 3B, and Objective 5A has been carried into Objective 3A.
	Objective 6A: Increase public awareness and knowledge after an infestation has been discovered.	This goal has been consolidated into Goal 3B, and Objective 5A has been carried into Objective 3B.
Goal 7B: Reduce the effects of landslides in Berkeley County.	Objective 7A: Minimize future damage from landslides throughout Berkeley County by increasing control over construction activities.	This goal has been consolidated into Goal 2B. Objective 7A has been carried into Objective 2C and Objective 7B has been carried into 2B.
	Objective 7B: Reduce landslide occurrences through structural projects.	

Goal 8B: Reduce damage from severe thunderstorms in Berkeley County	Objective 8A: Increase public awareness that a severe thunderstorm is imminent.	This goal has been consolidated into Goal 3B, and Objective 8A has been carried into Objective 3B.
Goal 9B: Undertake projects to lessen losses from a number of different hazards.	Objective 9A: Minimize effects of extreme power outages on community.	This goal has been consolidated into Goal 2B. Objective 9A has been carried into Objective 2D, and Objective 9B has been carried into 2E.
	Objective 9B: Minimize future damage from severe wind or tornadoes throughout Berkeley County by increasing control over construction activities.	
Goal 10B: Reduce the effects of severe winter storms in Berkeley County.	Objective 10A: Minimize future damage from severe winter storms throughout Berkeley County by increasing control over construction activities.	This goal has been consolidated into Goal 2B, and Objective 10A has been carried into Objective 2F.
Goal 11B: Protect Berkeley County's populations from a heat wave.	Objective 11A: Increase public knowledge of protective measures to take during a heat wave.	This goal has been consolidated into Goal 4B, and Objective 11A has been carried into Objective 4C.
Goal 12B: Protect Berkeley County populations and forests from wildfires.	Objective 12A: Educate the public on how to avoid starting wildfires.	This goal has been consolidated into Goal 4B, and Objective 12A has been carried into Objective 4B.
Goal 13B: Identify the risk associated with additional hazards and ways in which to mitigate against those hazards.	Objective 13A: Reduce the potential for transportation accidents in Berkeley County.	This goal has been consolidated into Goal 2B and 3B. Objective 13A has been carried into Objective 2G, Objective 13B has been carried into Objective 3E, and Objective 13C has been carried into Objective 2H.
	Objective 13B: Reduce communication failures (dead spots) in Berkeley County.	
	Objective 13C: Identify and control hazardous materials within the county.	

2017 Berkeley County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
1B	Develop an informational brochure to distribute to local farmers and residents regarding drought.	Berkeley County	Education and Awareness	Drought	Farm Bureau, West Virginia University, Natural Resource Conservation Service	Ongoing	Floodplain coordinator, WV flood mitigation office, FEMA	High
2B	Evaluate current public water system to identify the most feasible locations to construct upgrades that would reduce or eliminate the effects of drought.	Berkeley County	Structure and Infrastructure	Drought, Source Water Contamination	Local Public Service District	Ongoing	Local funding	High
3B	Develop stringent stormwater management codes for future development.	Berkeley County	Plans and Regulations	Flooding	County Commission	Ongoing	None Required	High
4B	Consider conducting acquisition and relocation projects (buyouts) in flood-prone areas. This includes repetitive, severe repetitive loss and non-repetitive and severe repetitive loss structures.	Berkeley County	Structure and Infrastructure	Flooding	County Commission	Ongoing	HMGP, PDM, FMA, SRL	High
5B	Coordinate with the National Weather Service in Sterling, Virginia to warn residents of impending severe thunderstorm conditions.	Berkeley County	Education and Awareness	Thunderstorm, Lightning Strike	OES, National Weather Service	Ongoing	None Required	High
6B	Educate local residents on the benefits of conserving water during a heat wave.	Berkeley County	Education and Awareness	Extreme Temperatures, Drought	Local Public Service District	Ongoing	Local funding, PDM	High

2017 Berkeley County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
7B	Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.	Berkeley County	Education and Awareness, Natural System Protection	Wildfire	WVDNR, State Parks Commission	Ongoing	WVDNR, State Parks Commission	High
8B	Work with airport safety officials to determine how best to respond to a crash involving larger planes.	Berkeley County	Plans and Regulations	Transportation Accident	Office of Emergency Services	Ongoing	Local Funding	High
9B	Coordinate efforts with local media to post advance warnings of hailstorms.	Berkeley County	Education and Awareness	Hailstorm	OES, Local Media Outlets	Ongoing	None Required	High
10B	Continue coordinating county efforts to meet the requirements of participation in the CRS.	Berkeley County	Plans and Regulations	Flooding	County Council and Floodplain Administrator	Ongoing	None Required	High
11B*	In the event of a release of a hazardous material it is imperative to quickly & safely identify what the material is to ensure responder and community safety.	Berkeley County	Education and Awareness	Hazardous Materials	BCHSEM	Ongoing	Grant Funding	High
12B*	Conduct a study to determine what hazardous materials & how much is transported on the roadways and rail.	Berkeley County	Education and Awareness	Hazardous Materials	BCHSEM	Ongoing	Unknown	High

2017 Berkeley County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
13B*	Opt into a mass notification system that can warn residents of potential incoming weather events so that they may be better prepared prior to the event. Mass notification can also be used to send community members information on how to prepare for other potential threats and community awareness events.	Berkeley County	Education and Awareness	Winter Storm, Windstorm, Tornado, Thunderstorm, Lightning Strike, Hurricane, Tropical Storm, Nor'easter, Extreme Temperature, Flooding, Epidemic, Drought, Hailstorm, Infestation	BCHSEM	Ongoing	Unknown	High
14B*	Develop a plan with cooperation from all agencies that may be directly or indirectly involved that would manage traffic in the event of an accident that requires roadways to be shut down.	Berkeley County	Plans and Regulations	Transportation Accidents	BCHSEM	Ongoing	Unknown	High
15B*	Create an informational brochure and/or digital media to inform/educate community members on how to be prepared for an event that may render them immobile for a period of time. Brochure should include suggested items and quantities of goods to have on hand.	Berkeley County	Education and Awareness	Winter Storm	BCHSEM	Ongoing	Unknown	High

2017 Berkeley County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
16B*	Maintain county Source Water protection Plan (SWPP) according to state regulatory requirements.	Berkeley County	Plans and Regulations, Natural Systems Protection	Source Water Contamination	Berkeley County Public Service Water District	Ongoing updates every three years	BCPWD Budget	High
17B*	Assist Berkeley County in educating the public regarding radon systems and home testing available.	Town of Hedgesville	Education and Awareness	Radon Exposure	Town of Hedgesville	Short-tem	Local Funding	High
18B*	Prohibit new facilities for persons with special needs or mobility concerns in hazard areas.	City of Martinsburg	Plans and Regulations	Flooding, Landslides and Land Subsidence	City of Martinsburg	2 Years	None Required	High
19B	Continue coordinating county efforts to meet the requirements of participation in the CRS.	Berkeley County	Plans and Regulations	Flooding	County Commission	Ongoing	None Required	Medium
20B	Develop an informational brochure to distribute to local farmers and residents concerning the potential effects of an infestation.	Berkeley County	Education and Awareness	Infestation	Farm Bureau, Natural Resource Conservation Service, WVDNR	Ongoing	USDA (if necessary), WVDNR	Medium
21B	Construct a stabilization wall or safety fence along roadways which pass through areas that are prone to landslides.	Berkeley County	Structure and Infrastructure	Landsides	WVDOH	Ongoing	None Required	Medium

2017 Berkeley County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
21B	Coordinate with railroad companies to provide more emergency access to railroad rights-of-way for emergency response activities in the event of a train wreck.	Berkeley County	Plans and Regulations	Transportation Accident	County Commission, Railroad Companies	Ongoing	Local Funding	Medium
22B	Berkeley County will continue to seek out opportunities to apply for Hazard Mitigation Assistance (HMA) funds for mitigation reconstruction, elevations, relocations or acquisitions of identified at risk, repetitive loss, non-repetitive loss, substantial damaged, partially or completely demolished or destroyed properties within Berkeley County. If mitigation reconstruction is chosen, properties identified as partially or completely demolished, outside of the regulatory floodway, as identified by available flood hazard data, will be reconstructed in accordance with the standards established in the local floodplain ordinance and in accordance with the same conditions as an elevated structure. Berkeley County will comply with all acquisition, elevation, relocation and mitigation reconstruction requirements, as per the HMA Guidance.	Berkeley County	Structure and Infrastructure	Flooding	County Commission, Floodplain Coordinators	Ongoing	Hazard Mitigation Assistance	Medium
23B*	Utilize electronic tools and/or broadcast systems to communicate to citizens in Special Flood Hazard Areas.	Berkeley County	Education and Awareness	Flooding	OEMHS, IT	Ongoing	Unknown	Medium

2017 Berkeley County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
24B*	Complete Sportsman's Paradise Park acquisition of area within floodplain and turn it into a green space park.	Berkeley County	Natural Systems Protection	Flooding	County Council	Ongoing	Unknown	Medium
25B*	Create an informational brochure and/or digital media to inform/educate community members on the effects of a drought. Information should include water conservation initiatives.	Berkeley County	Education and Awareness	Drought	BCHSEM	Ongoing	Unknown	Medium
26B*	Create an informational brochure and/or digital media to inform/educate community members on the effects of an epidemic. Information should include how to prevent the spread during an event.	Berkeley County	Education and Awareness	Epidemic	BCHSEM	Ongoing	Unknown	Medium
27B*	Create an informational brochure and/or digital media to inform/educate community members on the effects that extreme temperatures can have on them as well as outside pets. Information should include how to be prepared for an event as well as what to do during an event.	Berkeley County	Education and Awareness	Extreme Temperature	BCHSEM	Ongoing	Unknown	Medium
28B*	Educate the community members on how to be prepared for a power interruption as well as reporting and handling a power outage with First Energy through digital media and/or brochures.	Berkeley County	Education and Awareness	Utility Interruption	BCHSEM	Ongoing	Unknown	Medium
29B*	Work with area school/libraries/public facilities to include source water protection curriculum/classroom events/public education events.	Town of Hedgesville	Education and Awareness	Source Water Contamination	Town of Hedgesville	Short-term	Local Funding, Education Grants, DEP Grants, BPH Grants	Medium

2017 Berkeley County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
30B	Consider updating the existing Tier 2 report to include agricultural substances such as herbicides.	Berkeley County	Education and Awareness	Hazardous Materials	OES, LEPC	Ongoing	County Commission	Low
31B*	Coordinate with partners throughout the region to identify the location of privately owned dams.	Berkeley County	Education and Awareness	Dam and Levee Failure	BCHSEM	Ongoing	None Required	Low
32B*	Create an informational brochure and/or digital media as to the potential of earthquakes in West Virginia as well as potential damages from those earthquakes. Brochure should include information on measures to take to prepare for prior to, during and after an earthquake.	Berkeley County	Education and Awareness	Earthquake	BCHSEM	Ongoing	Unknown	Low
33B*	Create an informational brochure and/or digital media to inform/educate local farmers and residents on the potential effects of an infestation.	Berkeley County	Education and Awareness	Infestation	BCHSEM	Ongoing	None Required	Low
34B*	Create an informational brochure and/or digital media as to how to prepare for a terrorism event and what to do if a terrorism event occurs.	Berkeley County	Education and Awareness	Terrorism	BCHSEM	Ongoing	None Required	Low
35B*	Create an informational brochure and/or digital media as to the potential of wildfire. Brochure should include information on how wildfires are commonly started and steps to take to prevent wildfires.	Berkeley County	Education and Awareness, Natural System Protection	Wildfire	BCHSEM	Ongoing	None Required	Low

*Indicates that action was added during 2017 HMP update

Hazard Mitigation Plan Update Comment Form

Please use this form to provide any comments you have based on a review of the draft Hazard Mitigation Plan and the meeting's presentation.

Name:	
Municipality/Agency/Organization:	

1. Planning Process

Do you have comments about the assembly of the planning team, stakeholders, or participation documentation?

2. Mitigation Strategy

Do you have comments about the goals, objectives or types of projects/actions in the plan?

Berkeley County 2017 Hazard Mitigation Plan Update

3. Risk Assessment

Do you have comments about the hazards profiled and/or the Risk Factor ranking?

Risk Class	Hazard	Risk Assessment Category (1 = least severe, 4 = most severe)					Calculated Risk Factor
		Probability (1-4)	Severity (1-4)	Spatial Extent (1-4)	Warning Time (1-4)	Duration (1-4)	
High	Source Water Contamination	3	4	4	4	4	3.7
	Winter Storm	4	4	4	1	3	3.6
	Transportation Accidents	4	4	3	4	2	3.6
	Wind Storm, Tornado	4	4	4	2	1	3.5
	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5
	Hazardous Materials	4	2	4	4	4	3.4
	Terrorism	2	3	4	4	2	2.9
	Hurricane, Tropical Storm, Nor'easter	3	3	4	1	2	2.9
	Radon Exposure	3	3	2	3	1	2.6
Mod	Extreme Temperature	2	2	3	3	1	2.2
	Flooding	4	2	1	1	1	2.2
Low	Epidemic	1	2	2	3	3	1.9
	Drought	1	1	3	3	3	1.8
	Utility Interruption	1	2	1	3	1	1.5
	Wildfire	1	1	1	3	1	1.2
	Hailstorm	1	1	2	1	1	1.2
	Earthquake	1	1	1	1	1	1.0
	Land Subsidence	1	1	1	1	1	1.0
	Infestation	1	1	1	1	1	1.0
	Dam and Levee Failure	1	1	1	1	1	1.0

4. Other

Please provide any other comments or feedback you may have about the Hazard Mitigation Plan Update.

Appendix C-7 Morgan County Public Meeting Materials (September 26, 2016)

From: Rachel Snavely [mailto:rsnavely@region9wv.com]

Sent: Thursday, August 25, 2016 1:45 PM

To: agorse@morgancountywv.gov; Alton Wolfe (altonwolfe1955@gmail.com) <altonwolfe1955@gmail.com>; Commissioner Brad Close <bclose@morgancountywv.gov>; dmyers@morgancountywv.gov; 'Jody McClintock' <jmclintock@morgancountywv.gov>; Mayor Scott Merki <asst5@aol.com>; Monica Whyte (monica.a.whyte@wv.gov) <monica.a.whyte@wv.gov>; sallemong@morgancountywv.gov; Timothy Mose <timothy.mose@fema.dhs.gov>; Zachary Caldwell <e911director@morgancountywv.gov>
Cc: BILL CLARK <BClark@region9wv.com>; Welt, Angela <awelt@mbakerintl.com>; John McVey (news@talkradiowv.com) <news@talkradiowv.com>; news@morganmessenger.com
Subject: Hazard Mitigation Plan Update - Meeting #3

Good afternoon,

The final meeting of the Hazard Mitigation Planning Committee will be held on **September 26, 2016 from 9-11 AM** at the Morgan County Commission Room, 77 Fairfax Street, Berkeley Springs, WV 25411. This meeting is open to the public.

At this meeting, we will go over the draft of the plan update, as well as the results of the public survey. The plan update will then be made available for public comment for one month before being submitted to WV DHSEM and FEMA for approval.

Again, if you haven't yet turned in your Mitigation Action Worksheets, please do so. If you have any questions in the meantime, please feel free contact Angela or myself.

Thank you,

Rachel Snavely
Project Manager
Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
(304)263-1743

From: Rachel Snavely [mailto:rsnavely@region9wv.com]

Sent: Wednesday, September 21, 2016 1:14 PM

To: agorse@morgancountywv.gov; Alton Wolfe (altonwolfe1955@gmail.com) <altonwolfe1955@gmail.com>; Commissioner Brad Close <bclose@morgancountywv.gov>; dmyers@morgancountywv.gov; 'Jody McClintock' <jmclintock@morgancountywv.gov>; Mayor Scott Merki <asst5@aol.com>; Monica Whyte (monica.a.whyte@wv.gov) <monica.a.whyte@wv.gov>; sallemong@morgancountywv.gov; Timothy Mose <timothy.mose@fema.dhs.gov>; Zachary Caldwell <e911director@morgancountywv.gov>

Cc: Welt, Angela <awelt@mbakerintl.com>; BILL CLARK <BClark@region9wv.com>; marshbc@aol.com; jjmichael@gmail.com; frodgers@cacaponinstitute.org; racheldagostino@hotmail.com; goldfairy39@gmail.com; mstortstrom@journal-news.net; news@morganmessenger.com; news@talkradiowv.com; mrosens@firstenergycorp.com

Subject: Hazard Mitigation Committee - Final Meeting - REMINDER

Good afternoon,

Just a reminder that the final Hazard Mitigation Committee meeting will take place on Monday, September 26, 2016 from 9-11AM in the Morgan County Commission Room, 77 Fairfax Street, Berkeley Springs, WV.

At this meeting, we will go over the draft plan, the results of the public survey, and wrap up any additional details needed for submission of the update to FEMA/WVDHSEM.

This meeting is open to the public.

We look forward to seeing you. Thanks,

Rachel Snavely
Project Manager
Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
(304)263-1743

From: [Rachel Snavely](#)
To: kewis@washco-md.net; [Barbara Miller](#); slee@alleganygov.org; clauck@fcva.us; bmcolm@hampshirewv.com
Cc: [Welt, Angela](#); [Passmore, Joseph](#); [BILL CLARK](#)
Subject: Berkeley-Morgan County Hazard Mitigation Plan Meeting
Date: Friday, September 23, 2016 10:57:57 AM

Good morning,

The 2017 Hazard Mitigation Plan Update for Berkeley & Morgan Counties, WV is nearing completion. As such, we'd like to extend the invitation for each of you, the emergency management directors of our adjoining counties, to join us at our upcoming meeting to discuss the draft plan.

The final meetings will take place on:

Monday, September 26, 2016 – 9-11AM – Morgan County Commission Room, 77 Fairfax Street, Berkeley Springs, WV

Monday, September 26, 2016 – 1:30-3:30PM – Shepherd-Martinsburg Center, 261 Aikens Center, Room 117, Martinsburg, WV

If you are unable to attend, please feel free to send a representative from your office. This meeting is open to the public.

Additionally, the draft plan will be made available on our website (www.region9wv.com) on September 28th for 30 days for comment.

If you have any comments or questions, please feel free to email me at rsnavely@region9wv.com or our consultant, Michael Baker, at awelt@mbakerintl.com.

Thank you,

Rachel Snavely
Project Manager
Eastern Panhandle Regional Planning & Development Council
400 W. Stephen Street, Ste. 301
Martinsburg, WV 25401
(304)263-1743

CERTIFICATE OF PUBLICATION

THIS IS TO CERTIFY that a legal publication

Notice of Public Meeting
Hazard Mitigation Plan Update

placed by

Region 9
Planning & Development

appeared for 2 consecutive weeks in
THE MORGAN MESSENGER, a newspaper
published in Berkeley Springs, WV, in its issue
beginning

September 14, 2016
and ending

September 21, 2016

Per *J. Diptler*
THE MORGAN MESSENGER, INC.

Words 150

Charge \$ 31.50

**NOTICE OF PUBLIC MEETING
MORGAN COUNTY
HAZARD MITIGATION
PLAN UPDATE**

The second public meeting of the Morgan County Hazard Mitigation Plan Update Committee will meet on September 26, 2016 from 9-11 a.m. at the Morgan County Commission Office, located at 77 Fairfax Street, Berkeley Springs, WV 25411. This meeting will include discussion of the draft plan and public survey. All citizens are invited to attend and participate. For further information, please contact Region 9 Planning & Development Council at 400 W. Stephen Street, Ste. 301, Martinsburg, WV 25401 or by phone at 304-263-1743.

9-14-2tm

CERTIFICATE OF PUBLICATION

THIS IS TO CERTIFY that a legal publication

Public Notice - Multi

Jurisdictional Hazard

Mitigation Plan

placed by

Eastern Panhandle Regional

Planning & Development

Council

appeared for 1 consecutive weeks in
THE MORGAN MESSENGER, a newspaper
published in Berkeley Springs, WV, in its issue
beginning

September 28, 2016

and ending

September 28, 2016

Per

Deborah Henry

THE MORGAN MESSENGER, INC.

Words 150

Charge \$ 18.00

PUBLIC NOTICE

Notice is hereby given that the draft of the 2017 Multi-Jurisdictional Hazard Mitigation Plan for Berkeley and Morgan Counties is now available for public comment. The Plan describes hazards that can affect Berkeley & Morgan Counties and their municipalities, and the actions that can be taken to reduce impacts on the community. Interested persons may download and review an electronic copy of the Draft Plan at www.region9wv.com starting on September 28, 2016. Questions and/or comments about the plan may be made by emailing Rachel Snavely, Project Manager, at rsnavely@region9wv.com or by calling 304-263-1743. Comments will be accepted until October 28, 2016 at 2 p.m.

9-28-16m

Meeting Agenda

**Morgan County Hazard Mitigation Plan Update
Draft Plan Review Meeting**

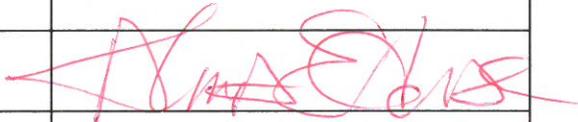
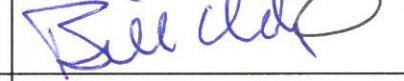
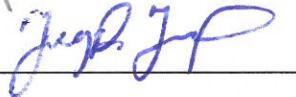
Date	September 26, 2016
Time	9:00 AM – 11:00 AM
Location	Morgan County Commission Room, 77 Fairfax Street, Berkeley Springs, WV

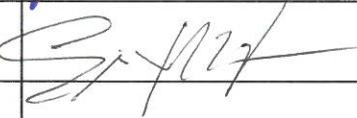
Purpose: Collect municipal, stakeholder, and public feedback on the draft plan

Topic	Time
1. Sign-in, Welcome, and Introductions	➤ 9:00 AM
2. Hazard Mitigation Plan and Project Overview	➤ 9:15 AM
3. Planning Process	➤ 9:30 AM
4. Risk Assessment Summary <ul style="list-style-type: none">○ WVU - Flood Risk Assessment	➤ 9:45 AM
5. Capability Assessment Overview	➤ 10:10 AM
6. Mitigation Strategy Summary	➤ 10:30 AM
7. Planning Timeline and Next Steps	➤ 10:45 AM

Morgan County Hazard Mitigation Plan Update Hazard Mitigation Plan Draft Review Meeting

September 26, 2016 – 9:00 AM

Name	Title	Jurisdiction/ Organization	Telephone	E-Mail Address	Signature
Zachary Caldwell	911 Director	Morgan County E-911	(304) 258-0305	e911director@morgancountywv.gov	
Brad Close	Commission President	Morgan County Commission	(304) 867-3140	bclose@morgancountywv.gov	
Dick Myers	Office of Emergency Services Director	Morgan County Office of Homeland Security and Emergency Management	(304) 258-0305	dmyers@morgancountywv.gov	
Stefanie Allemong	Grant Administrator	Morgan County Grant Administrator		sallemong@morgancountywv.gov	
Betsy Heath	Economic Development Authority Director	Morgan County Economic Development Authority	(304)258-8546	Bheath@morgancountywv.gov	
Alma Gorse	County Planner	Morgan County Planning Commission	(304)867-3133	agorse@morgancountywv.gov	
Jody McClintock	County Administrator	Morgan County Administrator	(304) 867-3131	jmcclintock@morgancountywv.gov	
Alton Wolfe Jr.	Mayor	The Town of Paw Paw	(304) 947- 7476	altonwolfe1955@gmail.com	
Scott Merki	Mayor	The Town of Bath	(304) 258-1102	asst5@aol.com	
Rachel Snavelly	Project Manager	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	RSnavely@region9wv.com	
Bill Clark	Executive Director	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 263-1743	BClark@region9wv.com	
Matthew Pennington	Environmental Program Coordinator	Region 9: Eastern Panhandle Regional Planning & Development Council	(304) 707-1920	MPennington@region9wv.com	
Troy Truax	Technical Manager, Planning Services	Michael Baker International	(717) 213-6241	Troy.Truax@mbakerintl.com	

Name	Title	Jurisdiction/ Organization	Telephone	E-Mail Address	Signature
Angela Welt	Environmental Specialist	Michael Baker International	(717) 221-2040	awelt@mbakerintl.com	
Matthew Rosensteel	Planning Engineer	Potomac Edison	(701) 491-1813	mrosens@firstenergycorp.com	
Charles Marsh	President	Sleepy Creek Watershed Assoc.	(304) 258-2605	marshbc@aol.com	
Jeff Iliff	Board Member	Warm Springs Watershed Assoc.	(304) 258-8037	pfpjeff@gmail.com	
Lori Hansroth	Executive Director	Berkeley Springs – Morgan County Chamber of Commerce	(304) 258-3738	chamber@berkeleysprings.com	
Timothy Johnson	Chief of Police	Town of Bath	(309) 258-1198	tjohnson@wvdsi.net	
MANEESH SHARMA	RESEARCH ASSOCIATE	WUGISTC, WVU	304-293-0557	maneesh.sharma@mail.wvu.edu	
Kurt Donaldson	GIS Manager	WV6ISTC, WVU	304-293-9467	kdonalds@wvu.edu	
ERIC HOPKINS	GIS ANALYST	WVGISTC, WVU	(304) 293-9463	ehopkins@wvu.edu	



Hazard Mitigation Plan Update

Morgan County, WV

Draft Plan Review Public Meeting
September 26, 2016

- Hazard Mitigation Plan and Project Overview
- Planning Process
- Risk Assessment Summary
- Capability Assessment Overview
- Mitigation Strategy Summary
- Planning Timeline
- Next Steps

- Berkeley and Morgan County have been working to update their Hazard Mitigation Plan since May 2016.
- Municipal and County officials and other stakeholders have participated in meetings in May and July.
- Today, the public and other stakeholders are invited to learn more about the plan and its process.
- Deadlines:
 - 30 day public comment period
 - WV DHSEM submission – October 28, 2016
 - FEMA submission – November 25, 2016
 - 2012 HMP expires on January 7, 2017

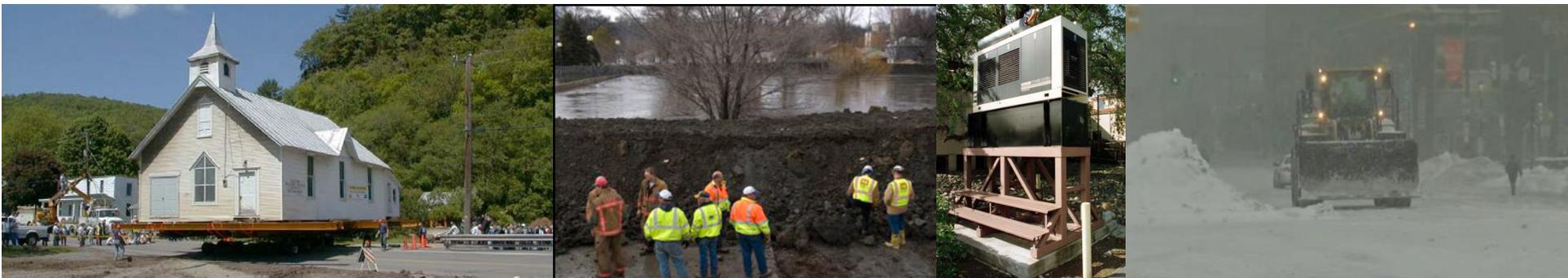
What is Hazard Mitigation?

- Hazard mitigation is any *sustained action* taken to *reduce or eliminate long-term risk* to life and property resulting from natural and human-made hazards.



What is a Hazard Mitigation Plan?

- A Hazard Mitigation Plan is a *community-driven, living document* that communities use to reduce their vulnerability to hazards.
- Counties *must have a plan to maintain access to mitigation grants*. These grants can augment local mitigation activities already being accomplished and can leverage other funding sources.



How does the Hazard Mitigation Plan impact you?

- Hazard mitigation planning helps create *safer, more sustainable, and more resilient communities.*
- Communities are *more aware of risks*, take *positive action to reduce losses*, and are able to *bounce back quickly from disasters.*





Multi-Jurisdictional Hazard Mitigation Plan
2017 Update for Berkeley and Morgan County



Region 9

Michael Baker
INTERNATIONAL

- Introduction
- Community Profile
- Planning Process
- Risk Assessment
- Capability Assessment
- Mitigation Strategy
- Plan Maintenance
- Adoption

- Snapshot of the County's:
 - Geography in the Eastern Panhandle and environment/watersheds
 - Community facts and key statistics
 - Population and demographic patterns and historical changes
 - Land use and development patterns

Planning Process Overview



Steering Committee

Name	Organization
Zachary Caldwell	Morgan County E-911
Brad Close	Morgan County Commission
Dick Myers	Morgan County Office of Homeland Security and Emergency Management
Stefanie Allemong	Morgan County Grant Administrator
Betsy Heath	Morgan County Economic Development Authority
Alma Gorse	Morgan County Planning Commission
Jody McClintock	Morgan County Administrator
Alton Wolfe Jr.	The Town of Paw Paw
Scott Merki	The Town of Bath
Timothy Johnson	Town of Bath
Rachel Snavely	Region 9: Eastern Panhandle Regional Planning & Development Council
Bill Clark	Region 9: Eastern Panhandle Regional Planning & Development Council
Matthew Pennington	Region 9: Eastern Panhandle Regional Planning & Development Council
Troy Truax	Michael Baker International
Angela Welt	Michael Baker International

*Includes all invited members

- The public was invited to attend this meeting and the previous meeting
- State agencies, major area employers, and other important area stakeholders were contacted and invited to meetings
- A public survey was conducted:
 - 85 Morgan County residents participated
 - Collected demographics of respondents, their disaster knowledge/preparedness, and their hazard concerns
 - Feel most threatened by winter storms, thunderstorms, and utility interruption
 - Feel least threatened by dam/levee failure, landslides, and earthquakes
- HMP update discussed in newspaper articles, radio interviews

- Planning Team Assessment and Participation:
 - Kick-Off Meeting
 - Capability Assessment
 - Hazard Risk Review
 - Risk Assessment-Mitigation Solutions Workshop
 - Jurisdictional Risk Assessment
 - National Flood Insurance Program Capabilities Assessment
 - Mitigation Action Progress Assessment
 - New Mitigation Action Identification
- Risk and Vulnerability Analysis
 - Hazus (Potential Loss Estimation)

Risk Assessment Overview



Natural Hazards

- Drought
- Earthquake
- Epidemic
- Flooding
- Hailstorm
- Infestation
- Land Subsidence
- Thunderstorm, Lightning Strike
- Wildfire
- Wind Storm, Tornado
- Winter Storm
- Hurricane, Tropical storm, Nor'easter
- Radon exposure

Human-made Hazards

- Dam Failure
- Hazardous Materials Incident
- Terrorism
- Source water Contamination
- Transportation Accidents
- Utility Interruption

Hazard Ranking Methodology

- Hazards are ranked to understand what is most important to mitigate
- Standardized method to rank risks associated with hazards
- Analysis completed on a countywide basis
- Risk criteria include:
 - Probability
 - Impact
 - Spatial Extent
 - Warning Time
 - Duration

$$\text{Risk Factor Value} = [(Probability \times .30) + (Impact \times .30) + (Spatial Extent \times .20) + (Warning Time \times .10) + (Duration \times .10)]$$

2017 Hazard Identification

Morgan County Ranking of Hazard Types Based on Risk Factor Methodology							
Risk Class	Hazard	Risk Assessment Category (1 = least severe, 4 = most severe)					Calculated Risk Factor
		Probability (1-4)	Severity (1-4)	Spatial Extent (1-4)	Warning Time (1-4)	Duration (1-4)	
High	Flooding	3	2	3	3	2	2.6
Moderate	Utility Interruption	3	2	2	3	2	2.4
	Epidemic	2	3	2	1	4	2.4
	Winter Storm	3	2	2	2	2	2.3
	Hazardous Materials	2	2	2	4	3	2.3
	Wind Storm, Tornado	2	2	2	4	2	2.2
	Hailstorm	2	2	2	4	2	2.2
	Transportation Accidents	4	1	1	4	1	2.2
	Hurricane, Tropical Storm, Nor'easter	2	2	3	1	3	2.2
	Source Water Contamination	2	2	2	2	2	2.0
	Wildfire	2	2	1	4	2	2.0
Low	Drought	1	1	4	1	4	1.9
	Dam and Levee Failure	1	2	2	4	2	1.9
	Terrorism	1	1	1	4	2	1.4
	Extreme Temperature	1	2	1	1	2	1.4
	Infestation	1	1	2	2	2	1.4
	Thunderstorm, Lightning Strike	1	1	1	4	1	1.3
	Earthquake	1	1	1	4	1	1.3
	Land Subsidence	1	1	1	4	1	1.3
	Radon Exposure	1	1	1	1	1	1.0

- HMP flood risk assessment was provided by WVU's GIS Technical Center
- Morgan County data not yet released
- Assessment data examples:



FLOOD RISK ANALYSIS REPORT
BERKELEY COUNTY, WV



Supplement to 2017 County Multi-Hazard Risk
Assessment and Mitigation Plan

Structures and Population within the Special Flood Hazard Area

	Total Structures	Total Structures in SFHA	Percent of Structures in SFHA	Critical Facilities in SFHA	Population	Estimated Displaced Population in SFHA	Percent Displaced Population
Berkeley County	39,219	1,115	2.84	91	104,169	3,038	2.92

Structures Vulnerable to Flooding within the Special Flood Hazard Area by Land Use Type and the Corresponding Replacement Cost

June 9, 2016

	Total Structures	Residential	Commercial	Industrial	Agricultural	Government	Education	Total Structures in SFHA
Berkeley County	39,219	499 (\$80,371,337)	613 (\$196,804,576)	1 (\$1,889,497)	2 (\$632,397)	0	0	1,115 (\$279,697,807)

Capability Assessment Overview



Why Integrate?

- Save time and money
 - Common formats for information sharing
 - Build upon existing efforts
 - Identify best practices
 - Accomplish County goals using different funding sources
- Reduce risk to hazards
 - Common picture of hazards facing County and municipalities
- Avoid or minimize risk through safe development practices

Mitigation Strategy Overview



Defining Goals, Objectives, and Actions

- *Goals:* General guidelines that describe what your community would like to achieve.
- *Objectives:* Define strategies that must be implemented to achieve the identified goal.
- *Actions:* The specific activities a community will take to reduce or eliminate risks.



2017 Morgan County Mitigation Goals

Goal 1: Minimize flood damages and risks from flood hazards in Morgan County.

Goal 2: Reduce the current and future risks from hazards in Morgan County.

Goal 3: Improve emergency preparedness in Morgan County, Bath, and Paw Paw.

Goal 4: Reduce the potential impact of natural and man-made disasters on private property.

Goal 5: Reduce the potential impact of natural disasters on the county's historic treasures.

Four Mitigation Techniques

Local Plans and Regulations

Government authorities, policies, or codes that influence the way land and buildings are developed



Structure and Infrastructure Projects

Modifying existing structures or infrastructure to remove from a hazard area or construction of new structures to reduce impacts of hazards



Natural Systems Protection

Actions that minimize damage and losses and also preserve or restore the functions of natural systems



Education and Awareness Programs

Sustained programs to educate the public and decision-makers about hazard risks and community mitigation programs



Mitigation Actions

- Each municipality must have at least one mitigation action.
- There must be at least one mitigation action for each profiled hazard.
- Mitigation actions should be realistic and sustainable.



Morgan County Mitigation Actions for 2017 HMP

Hazard	# of Actions in Plan for Morgan County and Municipalities
Flooding	17
Utility Interruption	3
Epidemic	2
Winter Storm	2
Hazardous Materials	3
Wind Storm, Tornado	2
Hailstorm	2
Transportation Accidents	2
Hurricane, Tropical Storm, Nor'easter	2
Source Water Contamination	2
Wildfire	2
Drought	2
Dam and Levee Failure	1
Terrorism	1
Extreme Temperature	2
Infestation	2
Thunderstorm, Lightning Strike	2
Earthquake	2
Landslide and Land Subsidence	3
Radon Exposure	2

- Visit the HMP Update Basecamp website
 - <https://basecamp.com/3057556/projects/12171776>
 - The draft HMP, previous meeting materials, and planning documents are posted there
 - Users can upload their own documents or post questions and comments
 - Meeting attendees will be invited via email, and invitations can be requested by emailing awelt@mbakerintl.com



- Draft HMP will also be posted on Region 9's website
 - <http://www.region9wv.com/plans---studies.html>



What's Next?



Task	Dates
Full Project Timeline	Now to January 2017
Kick Off Meeting	May 31, 2016
Risk Assessment/Mitigation Solutions	July 25, 2016
Plan Writing	September – October 2016
Draft Plan Review Public Meeting	September 26, 2016
Deliver to WVDHSEM for Review	October 28, 2016
Submit to FEMA for Review	November 25, 2016
Distribute to Municipalities for Adoption	January 2017

- The plan should be reviewed and updated annually during a meeting of steering committee members
 - Amendments should be added as needed
- The progress of mitigation projects should be reviewed annually
- The entire plan must be updated and reviewed by FEMA every 5 years



Rachel Snavely, Project Manager
Eastern Panhandle Regional Planning & Development Council
(304) 263-1743, rsnavely@region9wv.com

Troy Truax, AICP, Project Manager
Michael Baker International
(717) 213-6241, Troy.Truax@mbakerintl.com



Risk Assessment for Mitigation Planning

Submitted as part of the
Region 9 Planning and Development Council
Multi-Hazard Mitigation Plan
September 2016

Eric Hopkins, GIS Analyst (*ehopkins@wvu.edu*)

Kurt Donaldson, GIS Project Manager (*kdonalds@wvu.edu*)

West Virginia University GIS Technical Center

Overview

<http://MapWV.gov/flood>

- Flood Risk Analysis, Risk Assessment & Mitigation Planning
 - ArcGIS models for processing state, county & local data
 - Updated building inventory
 - Loss estimation
- Future Directions
 - Visualization
 - Additional Advisory Flood Height (water surface) and Depth data
 - Landslide Susceptibility

Hazard Risk Analysis

http://MapWV.gov/flood/content/documents/localData_for_RiskAssessment.pdf

- Sponsor: WV DHSEM, FEMA
- Purpose: Create countywide building inventories with replacement costs for flood risk analysis, loss estimation and hazard mitigation planning
- Status: Completed pilot study in Berkeley County
- Local Data/Input Needed: Parcels, CAMA, E-911 address points, Building footprints, Feature validation

Model Data Inputs

County building inventory, facilities,
depth grid, flood hazard area, etc.

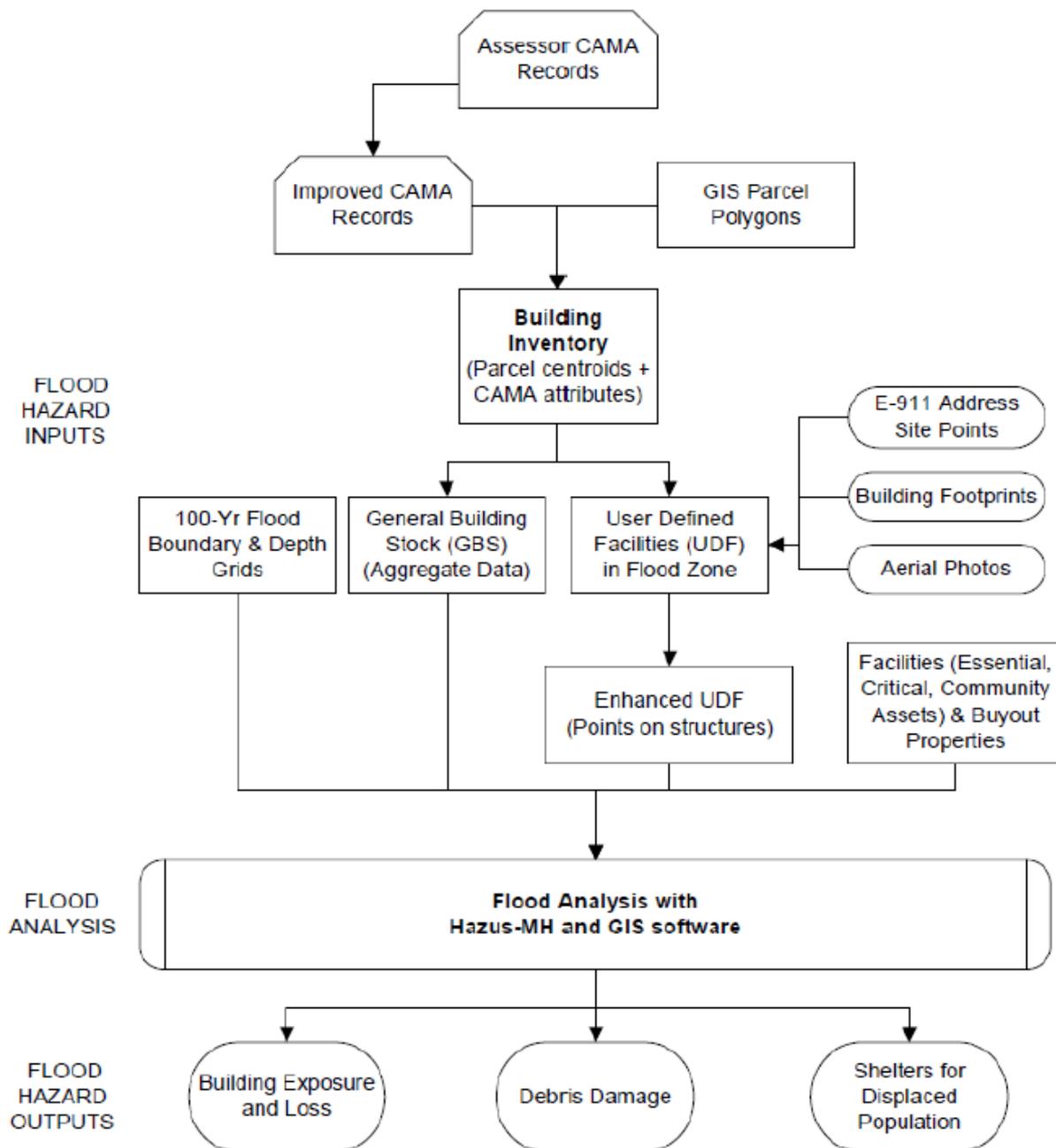
FLOOD MODEL

(Hazus-MH & GIS Software)

Building
Damage
Model

Debris
Model

People
Displacement
Model



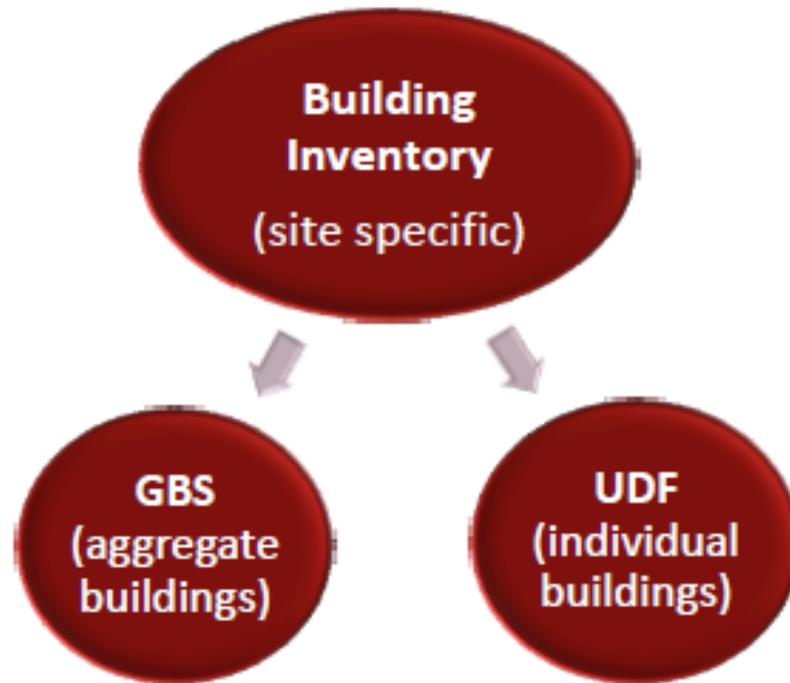


Table 1: Local Building Inventory

Assessor Records and Parcels					E-911 Sites
Category	Parcel CAMA Records (unique)	Improved or Processed CAMA Records (attributes)	Assessor Parcels (parcel polygons)	Building Inventory (parcel centroids + CAMA replacement cost attributes)	E-911 Addressable Structures (points on structure)
Martinsburg	-	-	7,403	6,162	9,164
Unincorporated	-	-	45,700	33,057	40,132
Total	54,650	44,650	53,103	39,219	49,296

Table 4: Essential Facilities

Category	Number of Facilities
Police Stations	3
Fire Stations	12
Emergency Service Centers	1
Health Care Facilities	2
Schools	34
TOTAL	52

Table 5: Critical Facilities

Category	Number of Facilities	Description
<i>Governmental Facilities</i>	n/a	Essential for the delivery of critical services and crisis management including data and communication centers and key government complexes.
<i>Dams</i>	9	Source: USACE
<i>Transportation Systems</i> <ul style="list-style-type: none"> • Airports • Railroads • Bridges 	5 1 8	Necessary for transport of people and resources including airports, highways, railways. Source: GNIS
<i>Lifeline Utility Systems</i> <ul style="list-style-type: none"> • Wastewater Treatment Plants • Potable Water Systems • Communication Facilities • Electric Substations • Electric Power Facilities • Natural Gas Facilities 	45 n/a n/a 7 0 n/a	Vital to public health and safety including potable water, wastewater, oil, natural gas, electric power, and communication systems.
<i>Hazardous Material Facilities</i>	16	Involved in the production, storage, and/or transport of corrosives, explosives, flammable materials, radioactive materials, and toxins.
TOTAL	91	

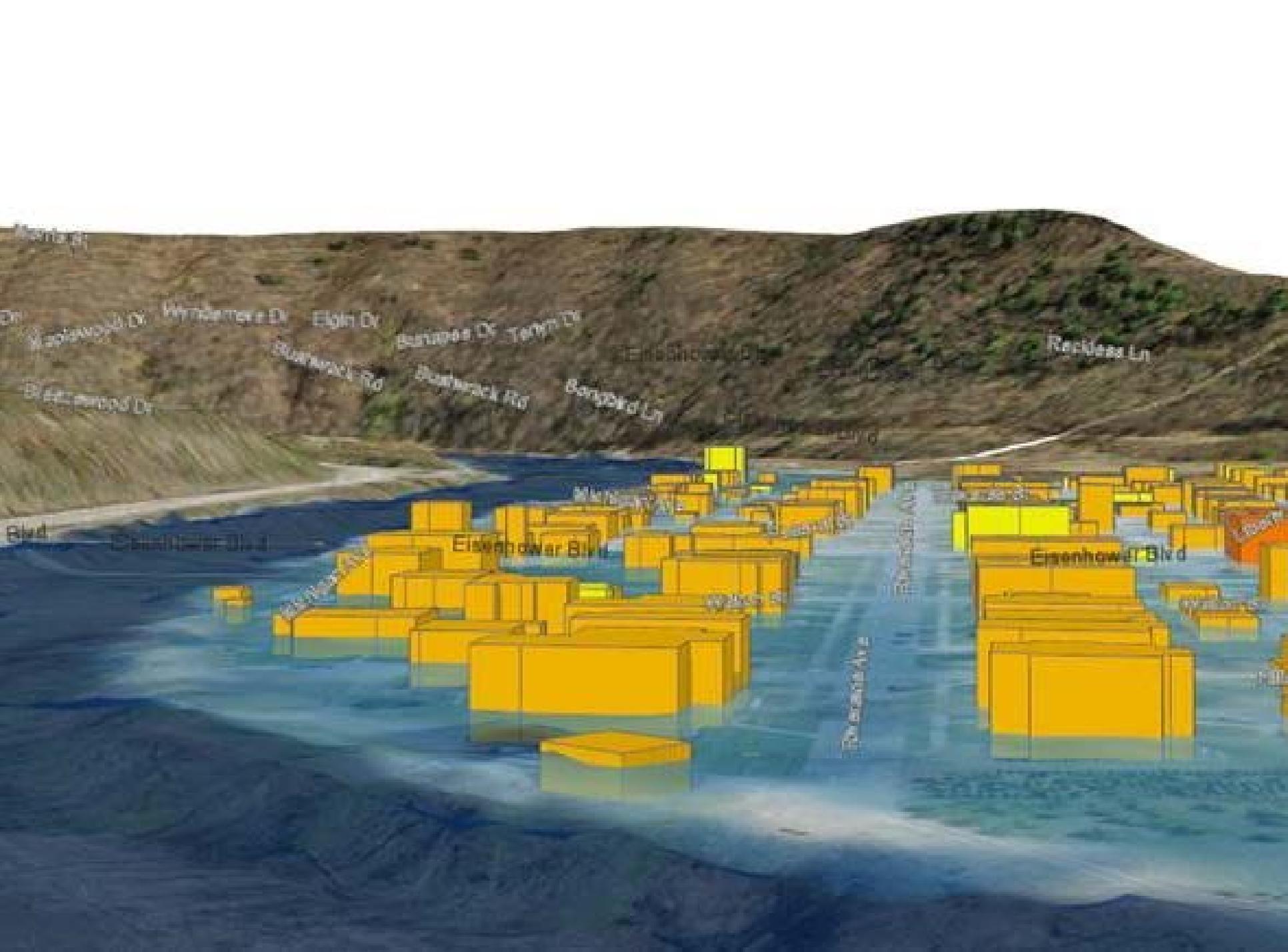
Table 2A: Countywide Building Number and Exposure (\$) from updated General Building Stock

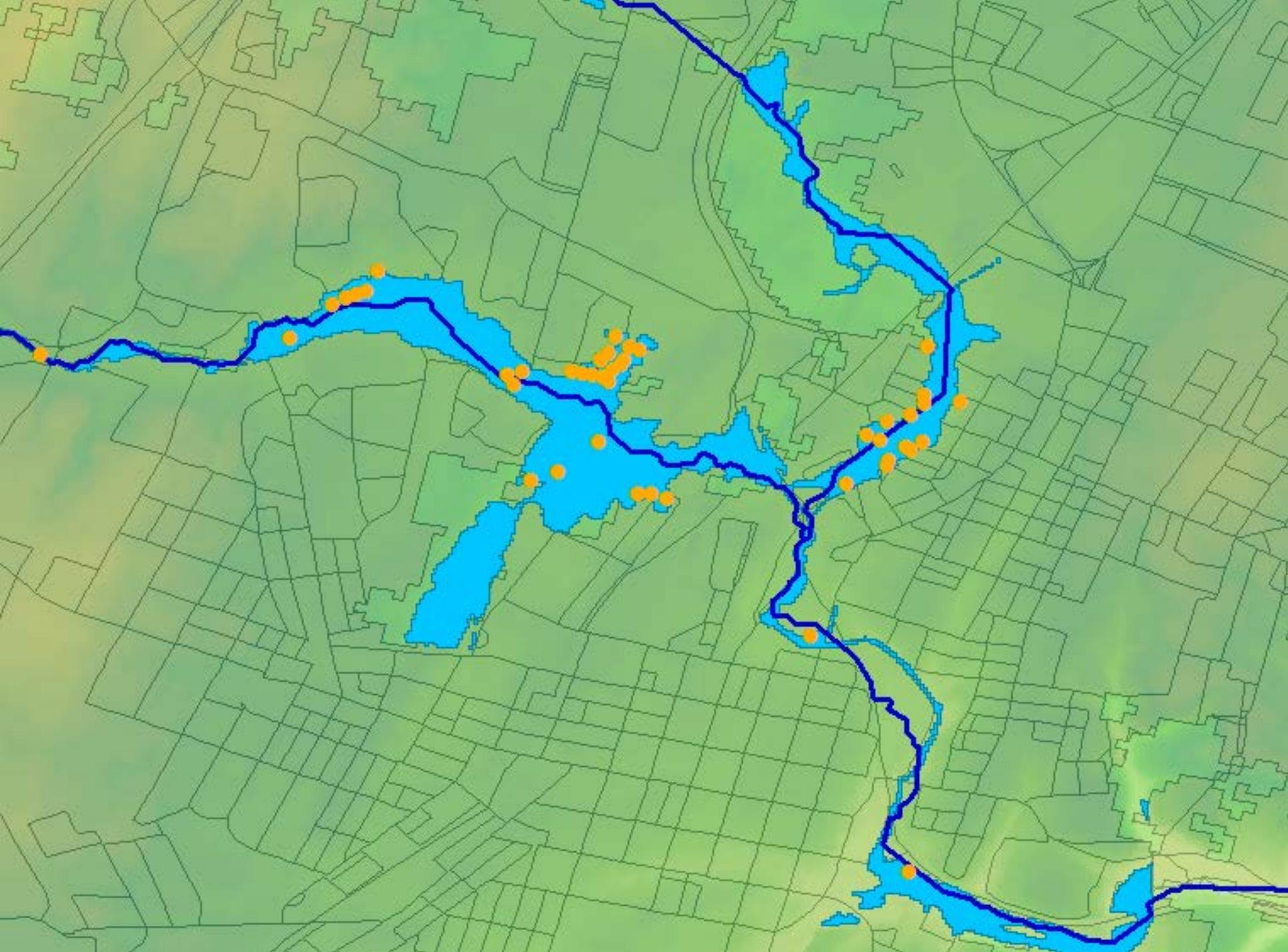
Occupancy Classification	Building Count	Total Building Exposure (\$)	Percent of Total
Berkeley County (including all jurisdictions)			
Residential	35,667	\$7,232,609,000	83.9%
Commercial	3,418	\$1,231,879,000	14.3%
Industrial	94	\$143,923,000	1.7%
Agricultural	31	\$7,338,000	0.1%
Religious	6	\$4,614,000	0.1%
Government	1	\$249,000	0.0%
Education	2	\$4,847,000	0.1%
TOTAL	39,219	\$8,625,459,000	100%
Martinsburg			
Residential	5,644	\$1,167,904,000	83.9%
Commercial	496	\$199,408,000	14.3%
Industrial	19	\$22,158,000	1.6%
Agricultural	0	\$0	0.0%
Religious	3	\$2,307,000	0.2%
Government	0	\$0	0.0%
Education	0	\$0	0.0%
TOTAL	6,162	\$1,391,777,000	100.0%

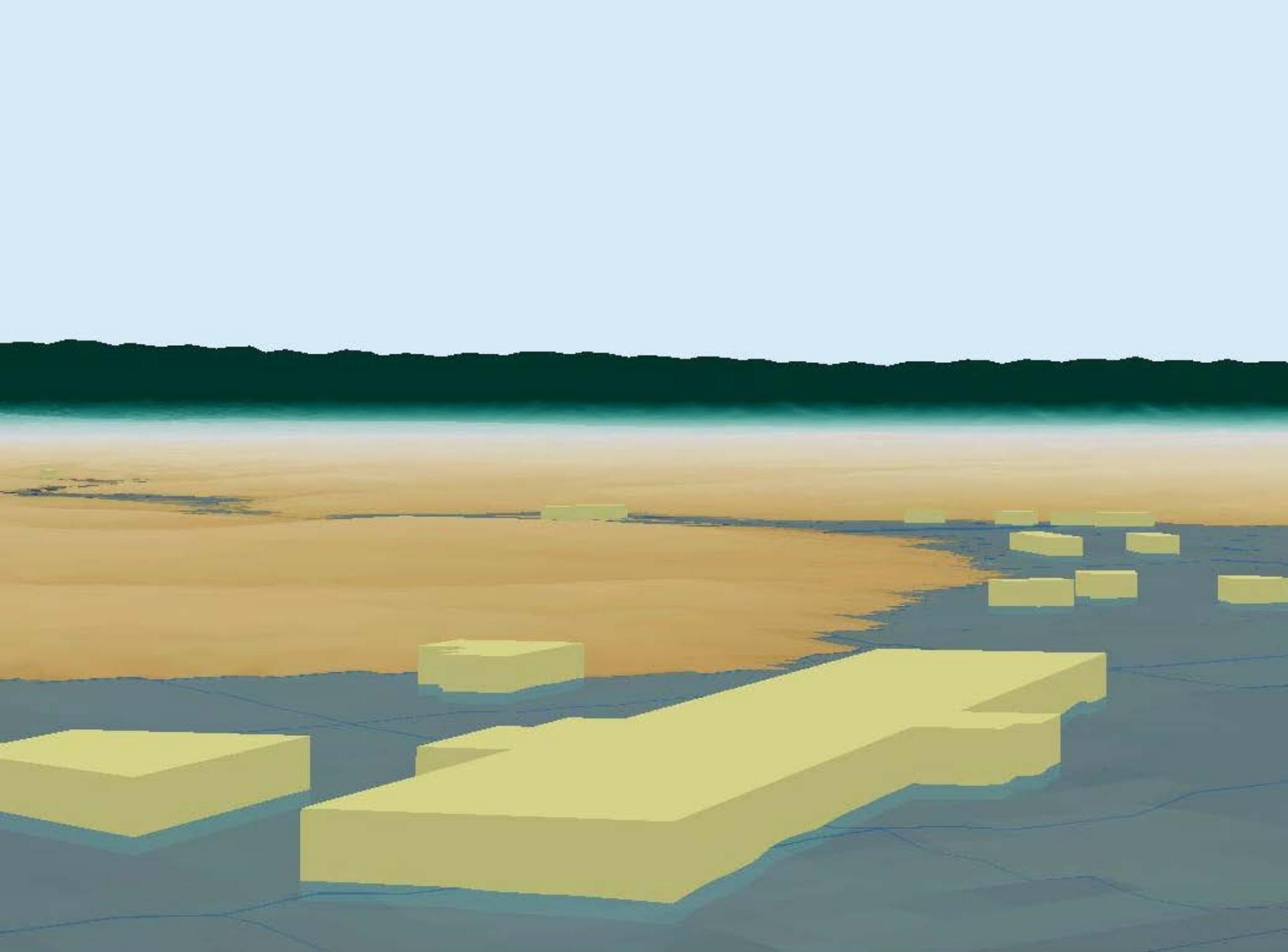
Table 8: Berkeley County Riverine Floodplain (1% Flood) Related Losses

Classification	Number of Buildings Damaged	Total Building Loss (\$)	Loss Ratio
Berkeley County (including all jurisdictions)			
Residential	400	\$ 20,439,548	0.3%
Commercial	599	\$ 82,092,330	6.7%
Industrial	1	\$ 70,570	0.0%
Agricultural	2	\$ 396,336	5.4%
Religious	0	\$0	0.0%
Government	0	\$0	0.0%
Education	0	\$0	0.0%
TOTAL	1,002	102,998,784	
Martinsburg			
Residential	24	\$549,236	4.7%
Commercial	12	\$227,804	11.4%
Industrial	1	\$0	0.0%
Agricultural	0	\$0	0.0%
Religious	0	\$0	0.0%
Government	0	\$0	0.0%
Education	0	\$0	0.0%
TOTAL	37	\$777,040	

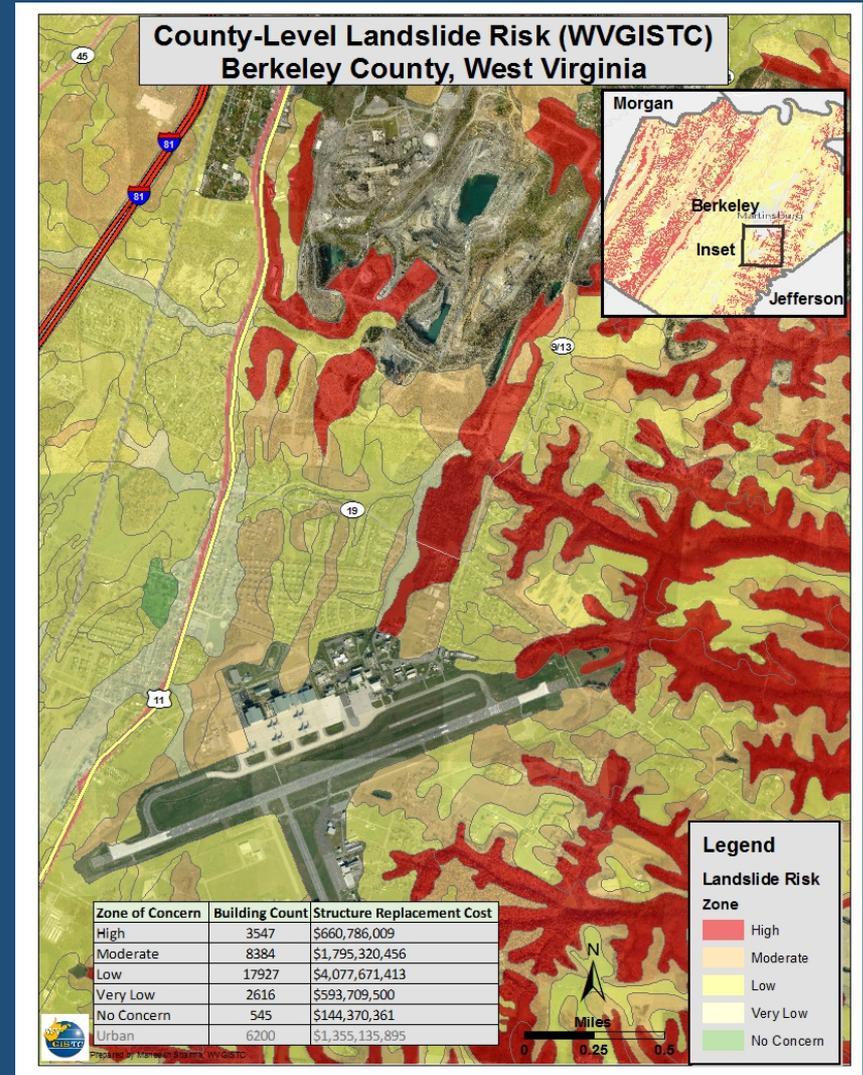
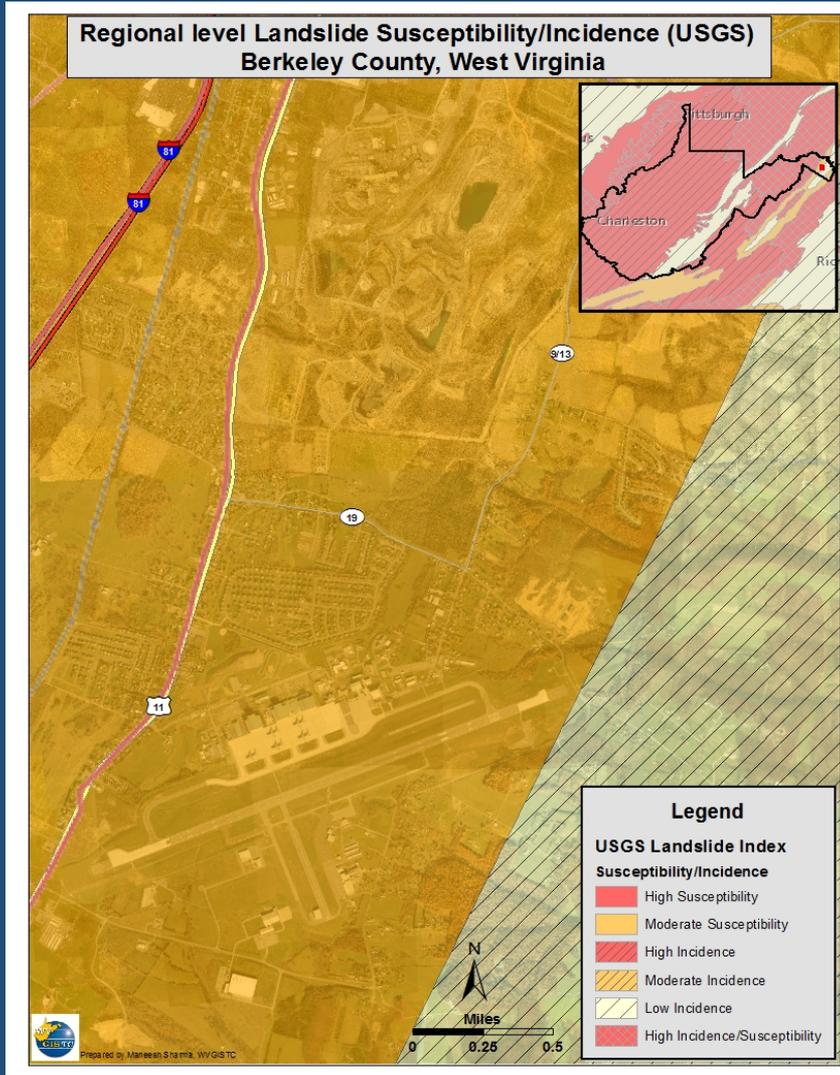








Landslide Susceptibility



Questions?

<http://wvgis.wvu.edu>

Kurt Donaldson – GIS Project Manager, Knowledgeable about all projects

kdonalds@wvu.edu

(304) 293-9467

Kevin Kuhn – GIS Analyst, Addressing, Aerial Imagery, Transportation, Elevation, Training (POC)

Kevin.Kuhn@mail.wvu.edu

(304) 293-9462

Eric Hopkins – GIS Analyst, Flood Tool (POC), Mitigation Planning, Scanning

ehopkins@wvu.edu

(304) 293-9463

West Virginia Trail Inventor x DOT Map Search x WV Flood Tool x How to take a screenshot on x Eric

www.mapwv.gov/flood/

Home Resources Help

WV Flood Tool

Remember: When In Doubt, It's Not Out!

[Launch Map](#)

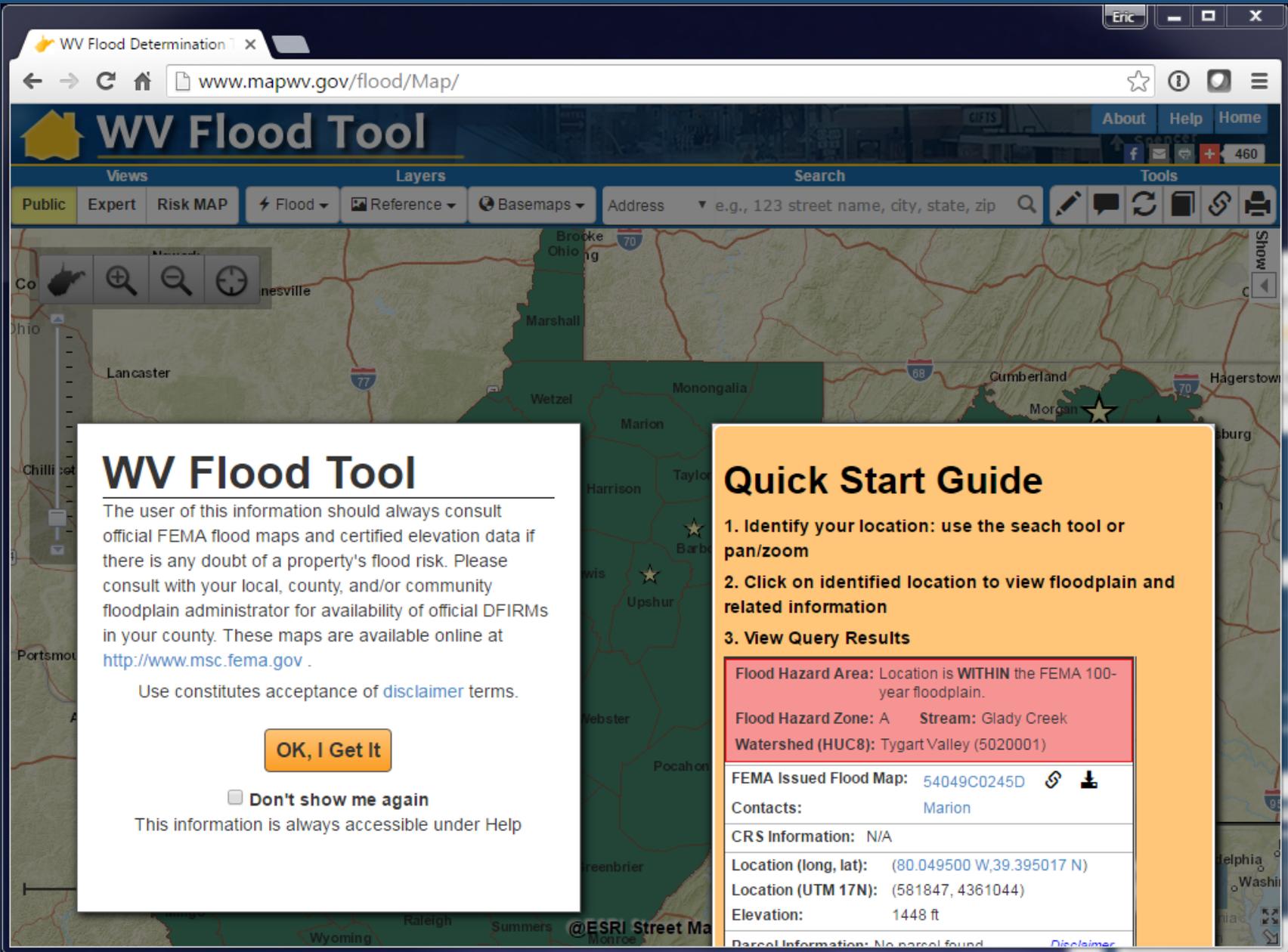
[Mobile Phone Version](#) / [Expert View](#) / [Flood Tool Survey](#)

Overview

The West Virginia Flood Tool is designed to provide floodplain managers, insurance agents, developers, real estate agents, local planners and citizens with an effective means by which to make informed decisions about the degree of flood risk for a specific area or property.

This is NOT the official instrument of a final hazard determination. Remember: if in doubt, it's not out!

www.mapwv.gov/flood/map



WV Flood Tool

The user of this information should always consult official FEMA flood maps and certified elevation data if there is any doubt of a property's flood risk. Please consult with your local, county, and/or community floodplain administrator for availability of official DFIRMs in your county. These maps are available online at <http://www.msc.fema.gov>.

Use constitutes acceptance of [disclaimer](#) terms.

OK, I Get It

Don't show me again

This information is always accessible under Help

Quick Start Guide

1. **Identify your location:** use the search tool or pan/zoom
2. **Click on identified location to view floodplain and related information**
3. **View Query Results**

Flood Hazard Area: Location is **WITHIN** the FEMA 100-year floodplain.

Flood Hazard Zone: A Stream: Glady Creek

Watershed (HUC8): Tygart Valley (5020001)

FEMA Issued Flood Map: [54049C0245D](#)  

Contacts: Marion

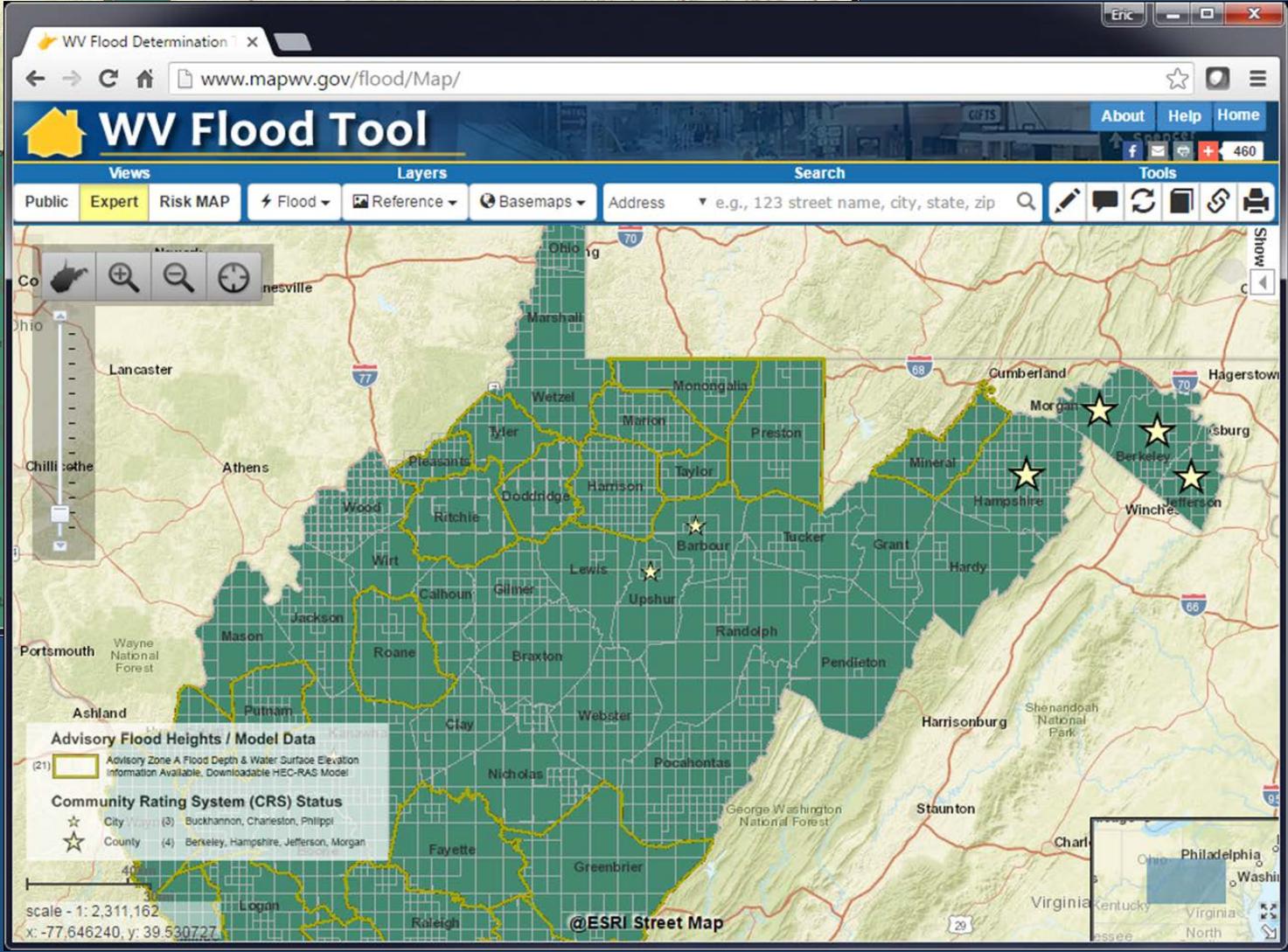
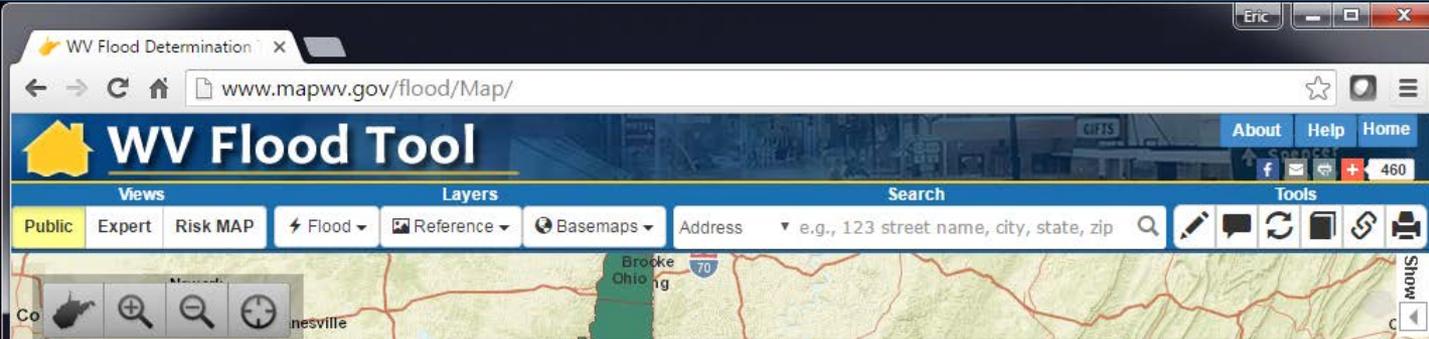
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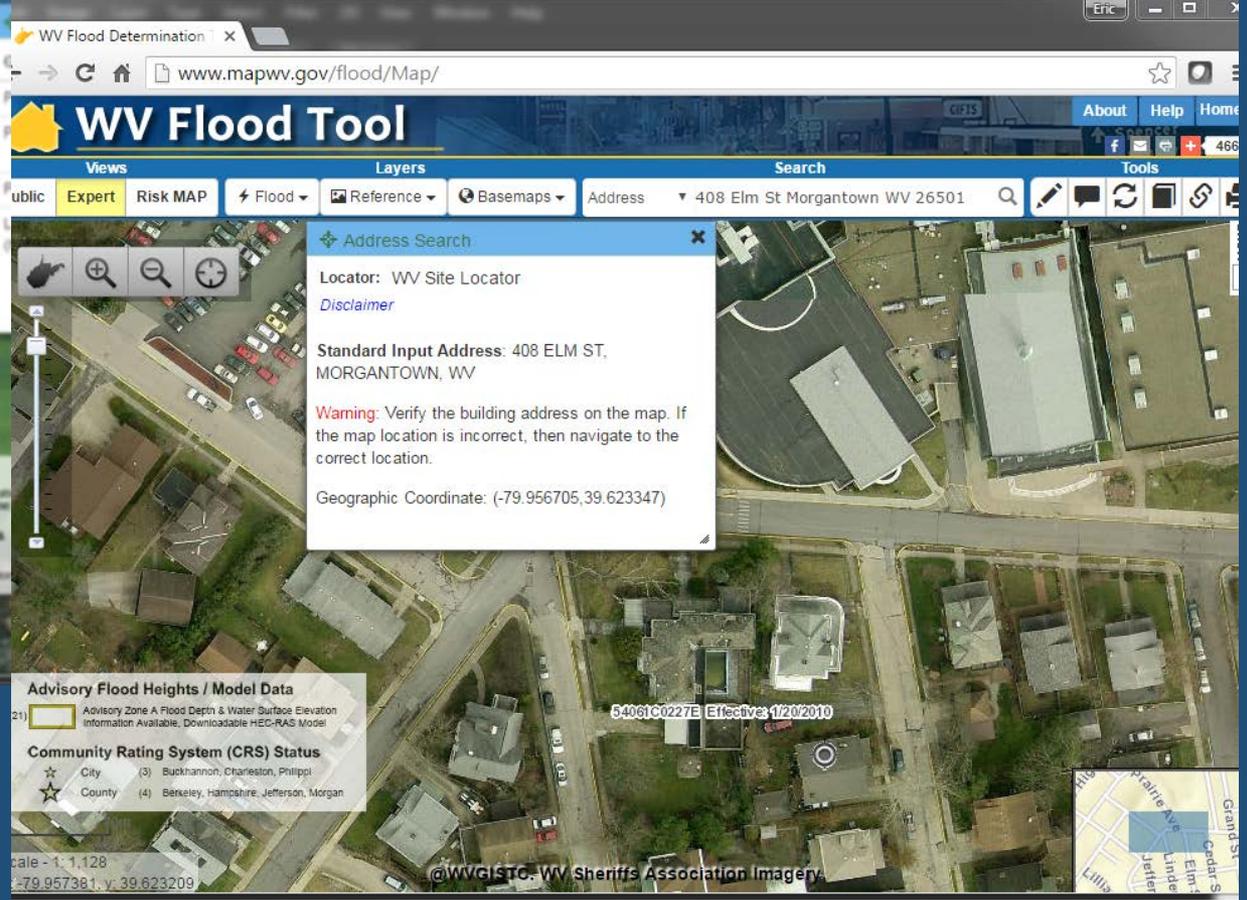
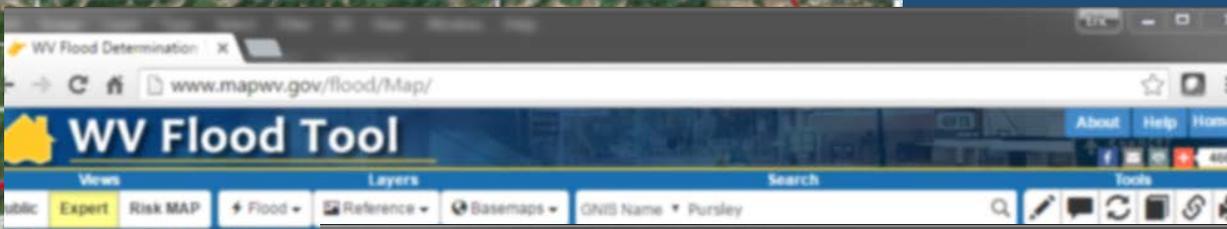
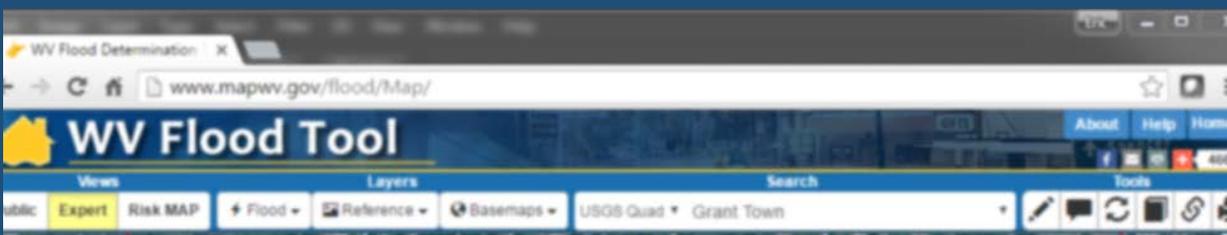
Location (long, lat): (80.049500 W, 39.395017 N)

Location (UTM 17N): (581847, 4361044)

Elevation: 1448 ft

Parcel Information: No parcel found [Disclaimer](#)





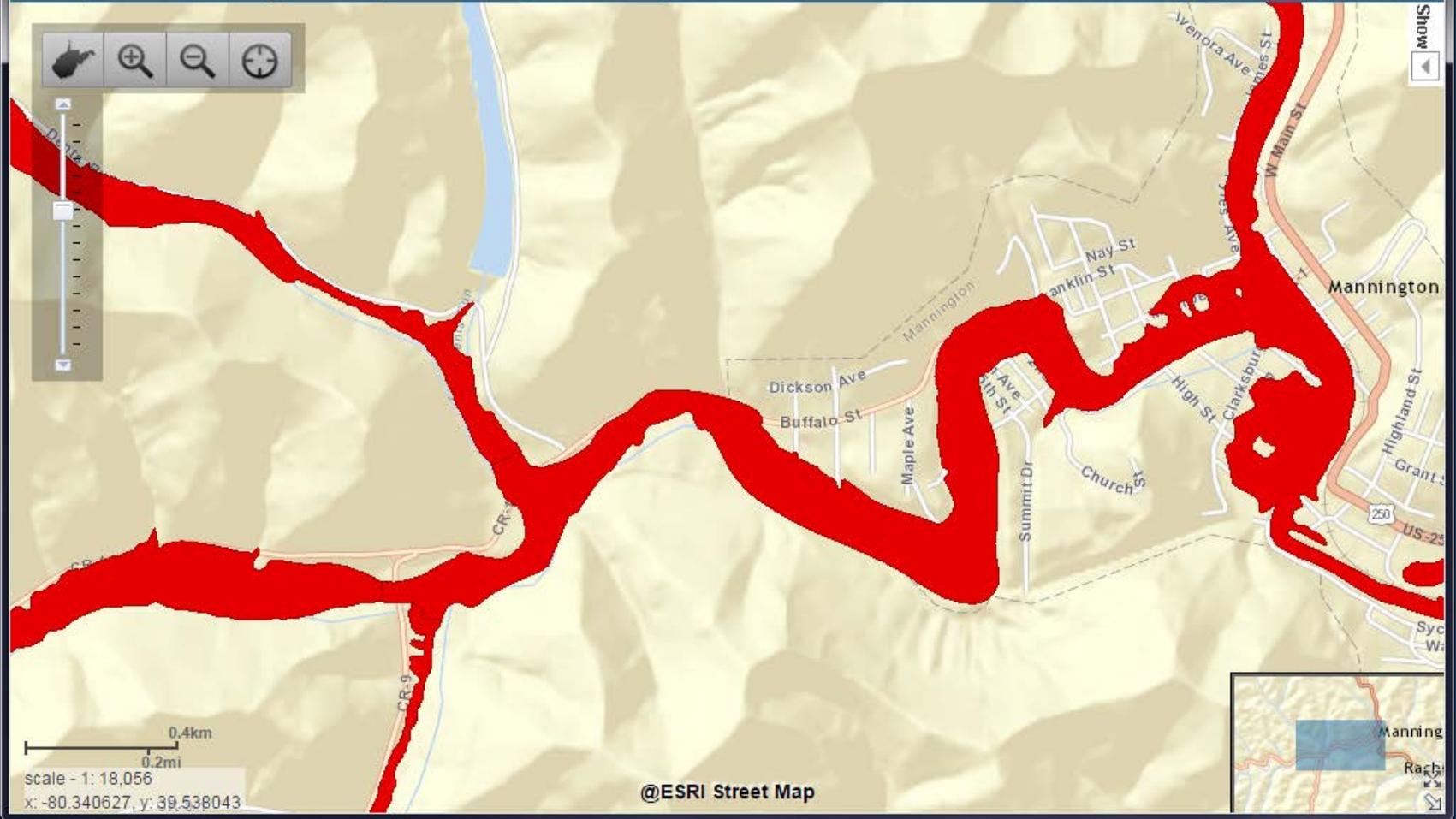
WV Flood Tool

Views: Public | Expert | Risk MAP

Layers: Flood | Reference | Basemaps

Search: Address e.g., 123 street name, city, state, zip

Tools: [Icons for Print, Share, etc.]



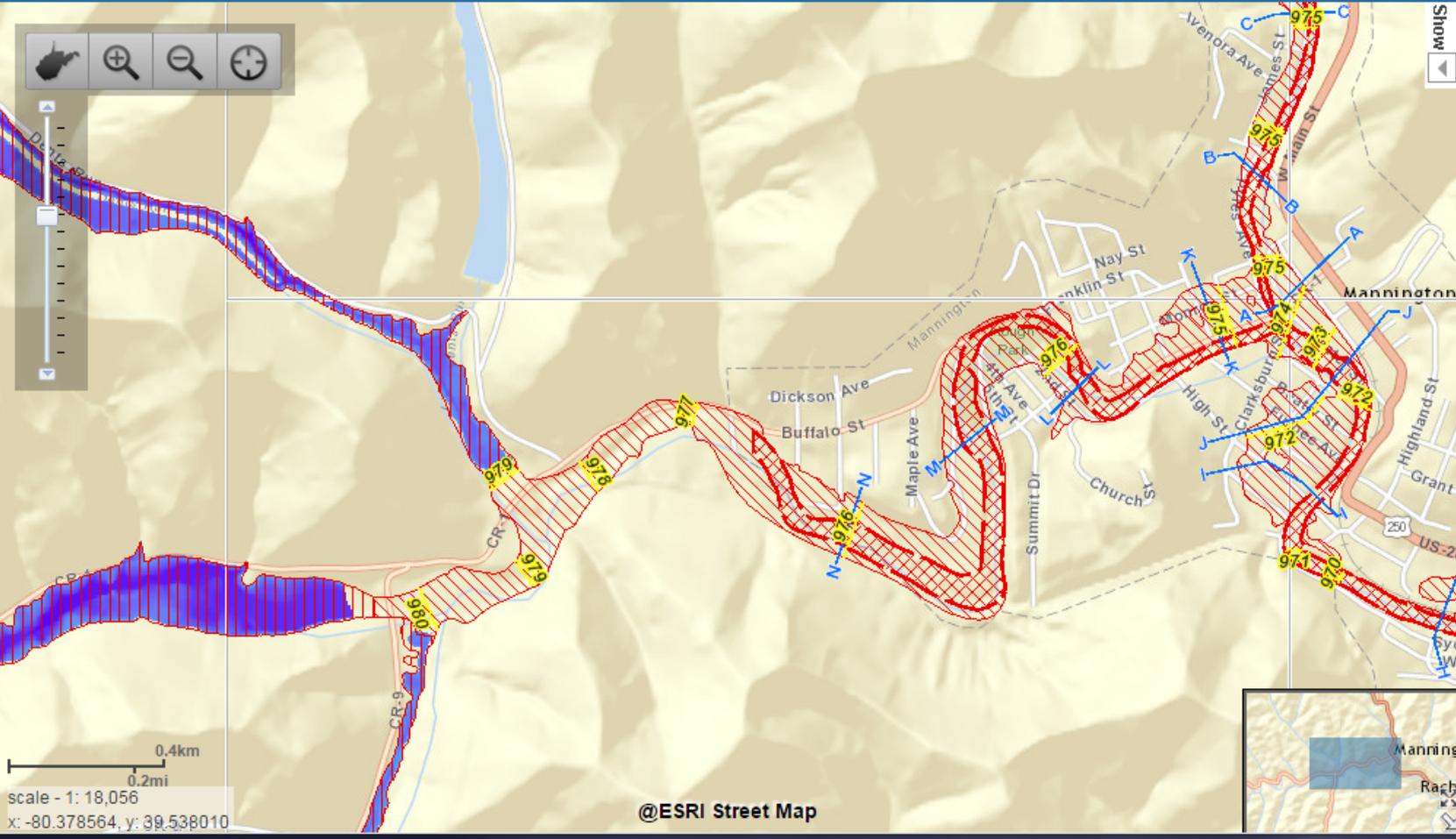
WV Flood Tool

Views: Public | **Expert** | Risk MAP

Layers: Flood | Reference | Basemaps

Search: Address e.g., 123 street name, city, state, zip

Tools: [Icons for drawing, commenting, refreshing, mobile, link, print]



0.4km
0.2mi
scale - 1: 18,056
x: -80.378564, y: 39.538010

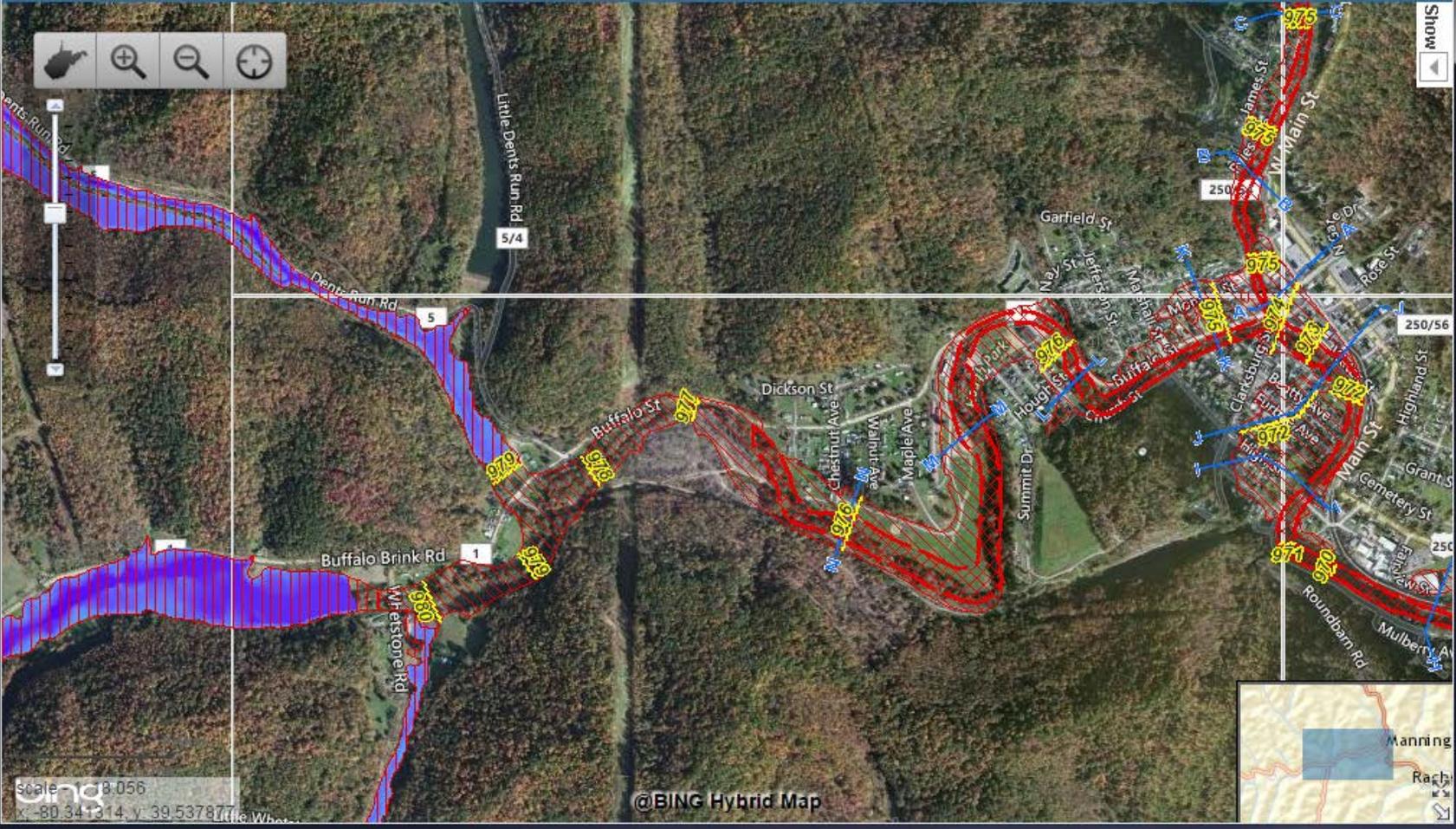
@ESRI Street Map

WV Flood Tool

About Help Home

460

Views: Public Expert Risk MAP
 Layers: Flood Reference Basemaps
 Search: Address e.g., 123 street name, city, state, zip
 Tools: [Icons for drawing, commenting, refreshing, mobile, link, print]



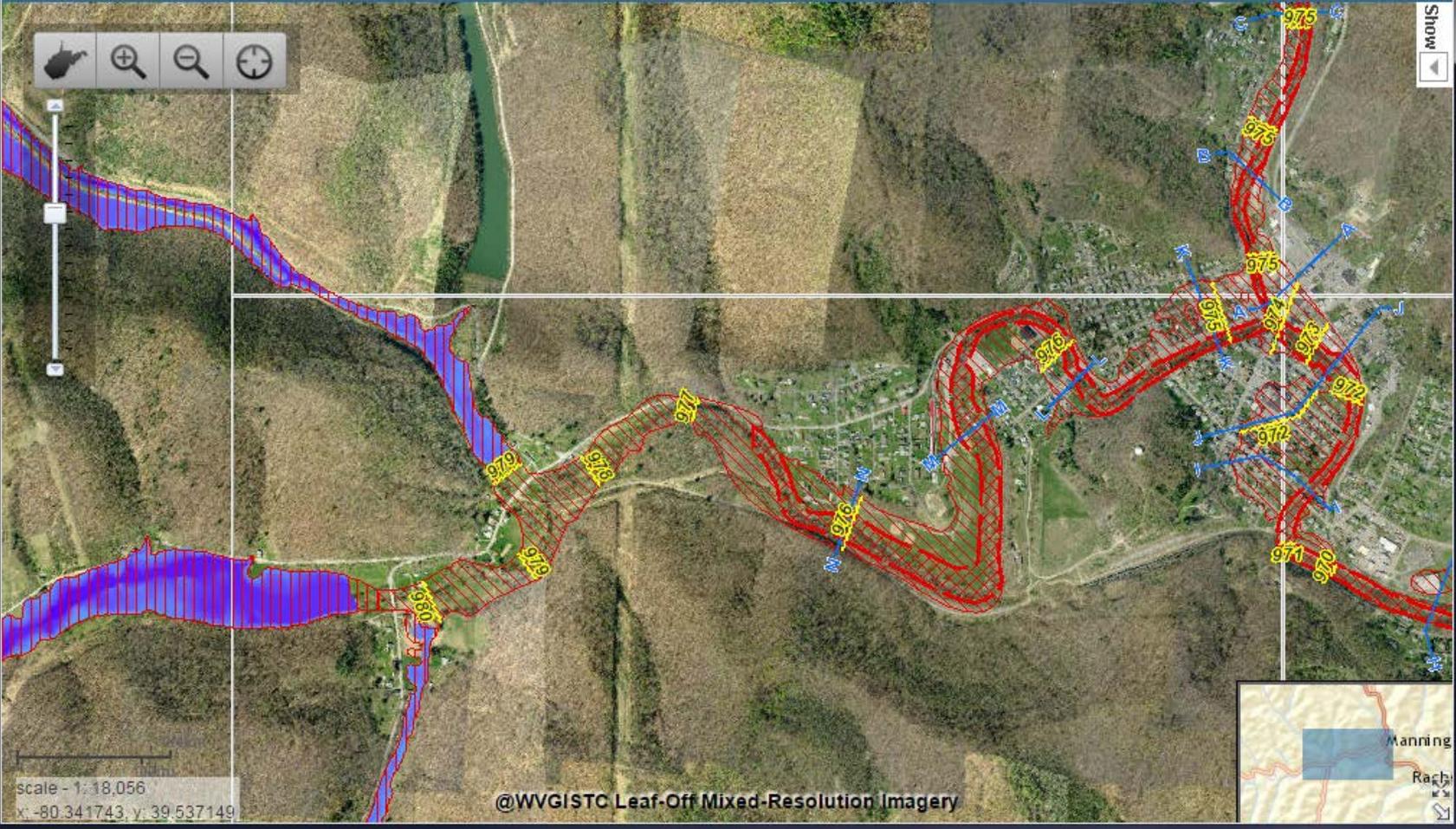
WV Flood Tool

Views: Public | Expert | Risk MAP

Layers: Flood | Reference | Basemaps

Search: Address e.g., 123 street name, city, state, zip

Tools: [Icons for Print, Share, etc.]



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©WVGISTC Leaf-Off Mixed-Resolution Imagery

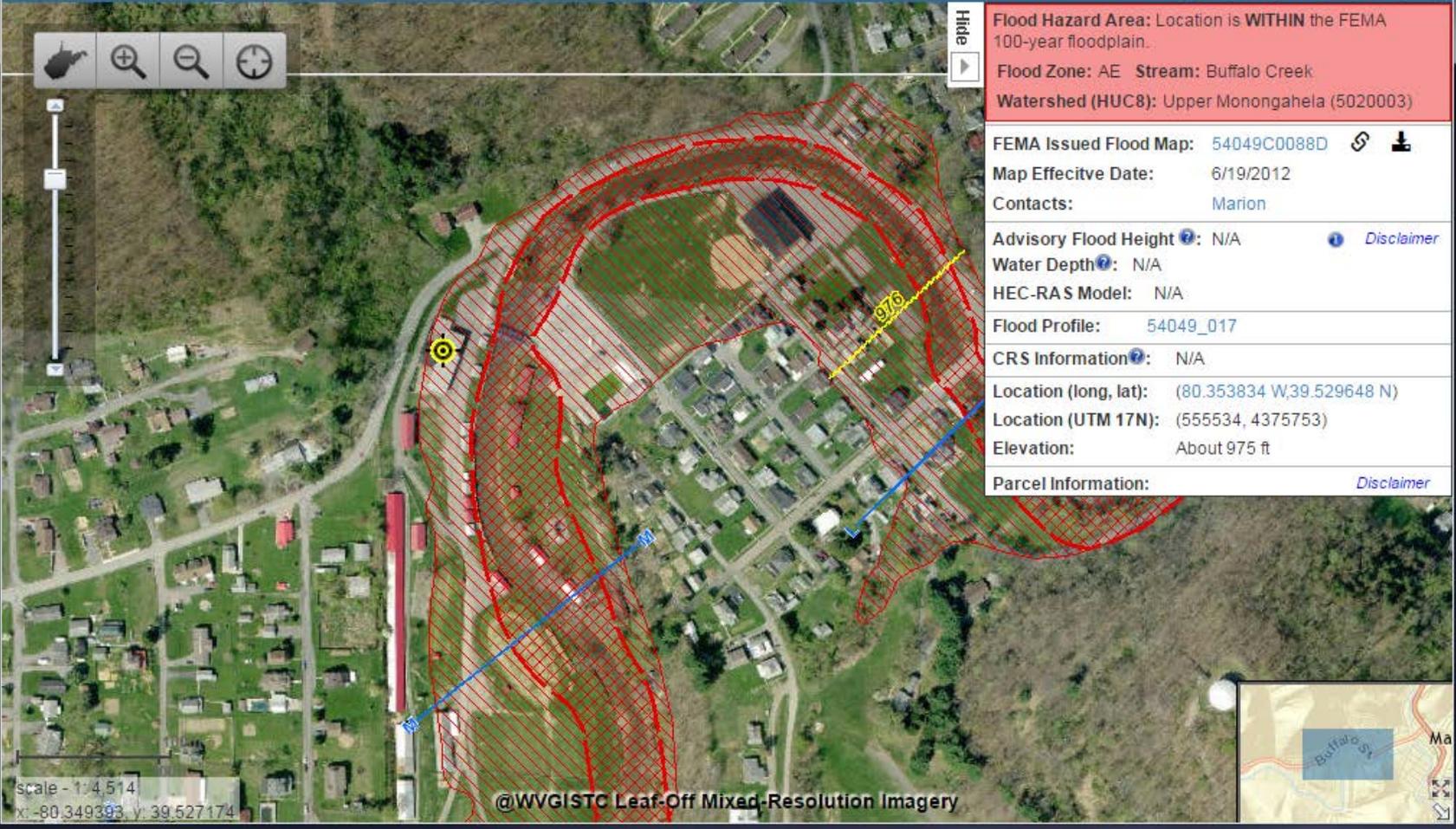


WV Flood Tool

About Help Home

460

Views: Public Expert Risk MAP | Layers: Flood Reference Basemaps | Search: Address e.g., 123 street name, city, state, zip | Tools: [Icons]



Flood Hazard Area: Location is **WITHIN** the FEMA 100-year floodplain.

Flood Zone: AE **Stream:** Buffalo Creek

Watershed (HUC8): Upper Monongahela (5020003)

FEMA Issued Flood Map: 54049C0088D

Map Effective Date: 6/19/2012

Contacts: Marion

Advisory Flood Height: N/A [Disclaimer](#)

Water Depth: N/A

HEC-RAS Model: N/A

Flood Profile: 54049_017

CRS Information: N/A

Location (long, lat): (80.353834 W, 39.529648 N)

Location (UTM 17N): (555534, 4375753)

Elevation: About 975 ft

Parcel Information: [Disclaimer](#)

scale - 1:4,514
x: -80,349,393 y: 39,527,174

@WVGISTC Leaf-Off Mixed-Resolution Imagery



WV Flood Tool

Views: Public | Expert | Risk MAP | Layers: Flood | Reference | Basemaps | Search: Address [e.g., 123 street name, city, state, zip] | Tools: [Icons]



Flood Hazard Area: Location is **WITHIN** the FEMA 100-year floodplain.

Flood Zone: A (Advisory A) **Stream:** Buffalo Creek

Watershed (HUC8): Upper Monongahela (5020003)

FEMA Issued Flood Map: 54049C0070D

Map Effective Date: 6/19/2012

Contacts: Marion

Advisory Flood Height: About 982 ft

Water Depth: About 3.5 ft (Source: HEC_RAS)

HEC-RAS Model: Buffalo Creek

Flood Profile:

CRS Information: N/A

Location (long, lat): (80.377191 W, 39.524071 N)

Location (UTM 17N): (553531, 4375120)

Elevation: About 979 ft

Parcel Information: [Disclaimer](#)

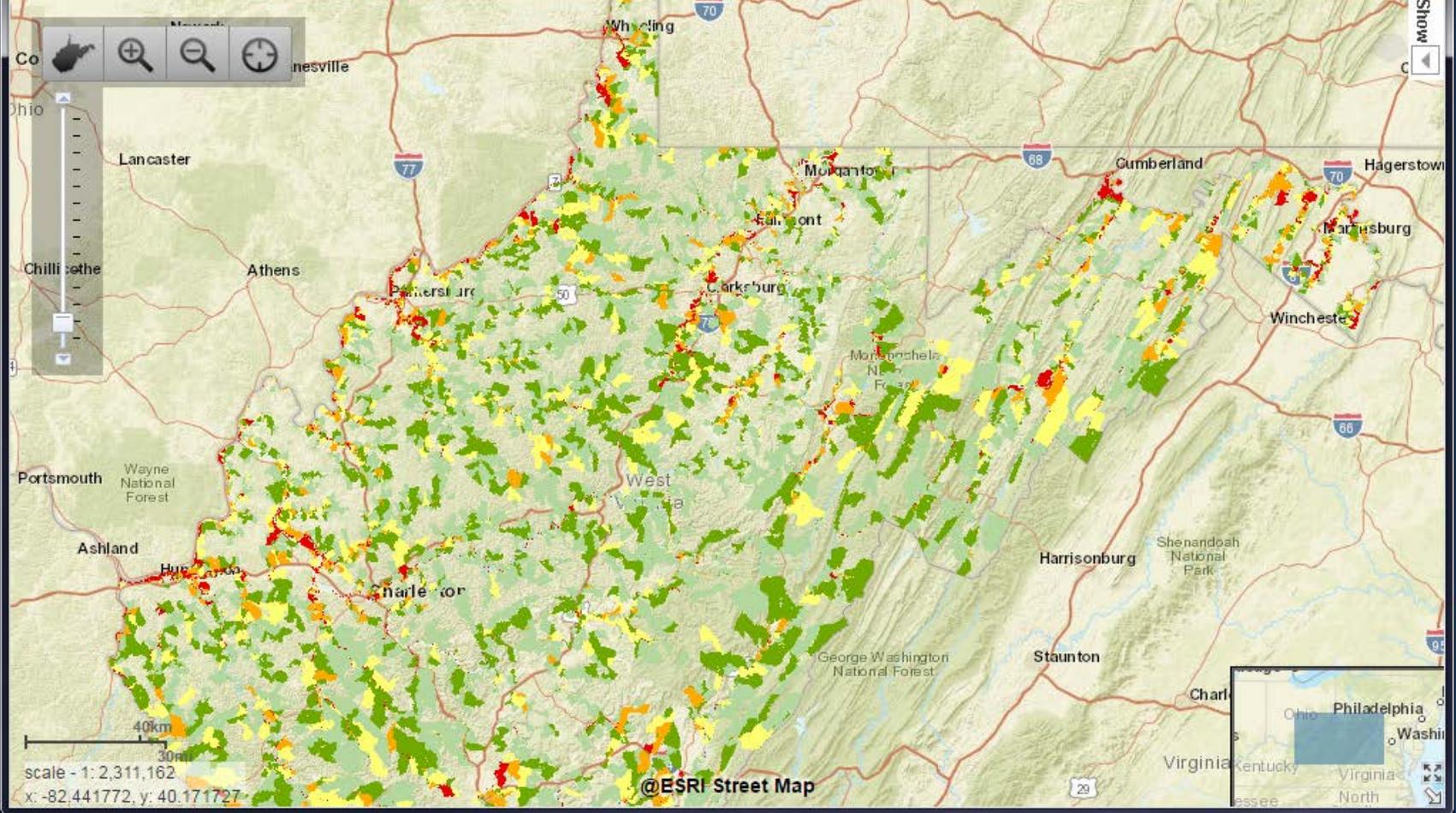
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@WVGISTC Leaf-Off Mixed-Resolution Imagery



WV Flood Tool

Views: Public Expert **Risk MAP** Layers: Flood Reference Basemaps Search: Address e.g., 123 street name, city, state, zip Tools: [Icons]



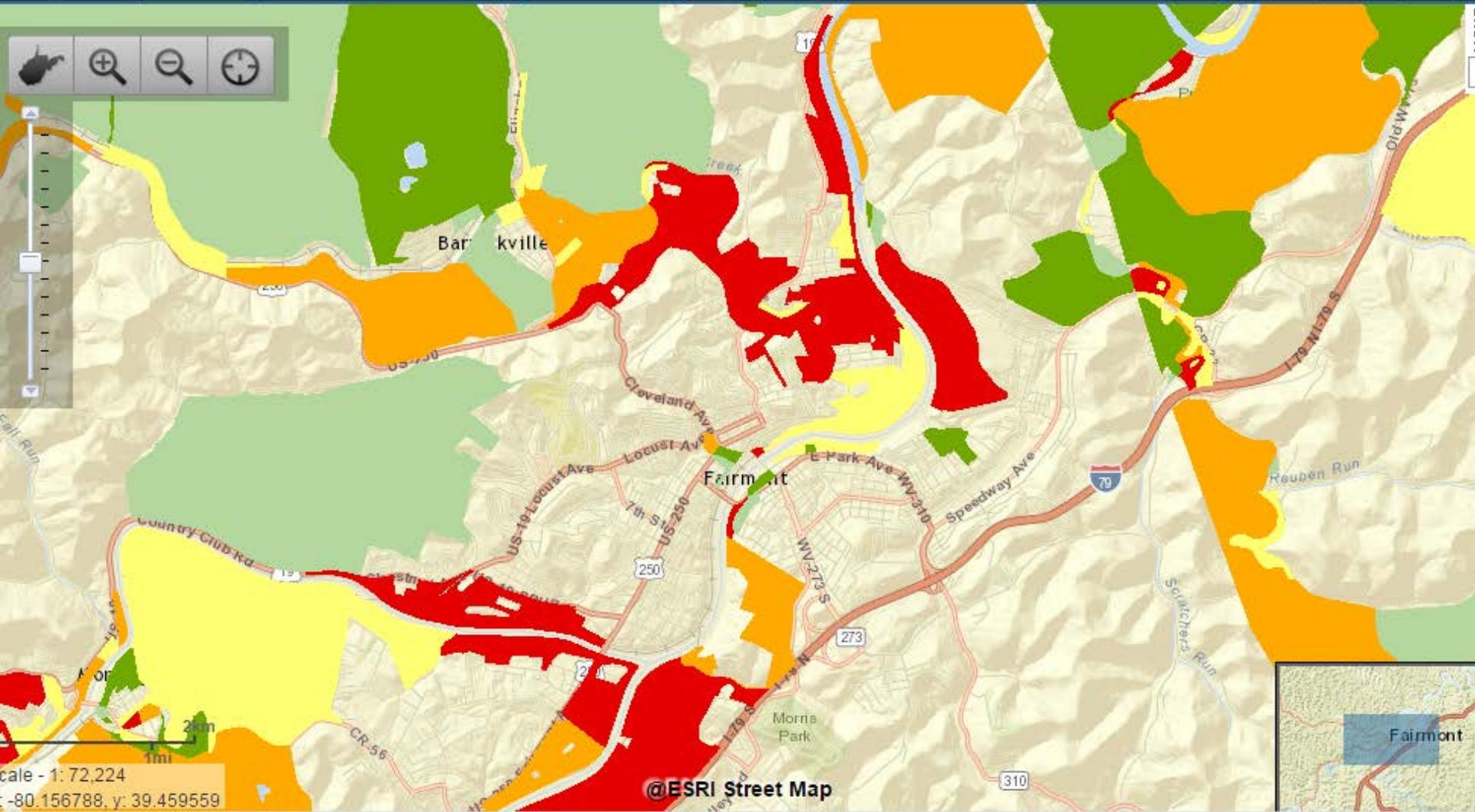
WV Flood Tool

Views: Public Expert **Risk MAP**

Layers: **Flood** Reference Basemaps Parcel Use PARCEL window to search

Search: [Search Icon]

Tools: [Layers Icon] [Comments Icon] [Refresh Icon] [Print Icon] [Share Icon]



Scale - 1:72,224
x: -80.156788, y: 39.459559

©ESRI Street Map

WV Flood Tool

Remember: When In Doubt, It's Not Out!

Spencer
Grantsvil

Layers Search Tools

RT Risk MAP Flood Reference Basemaps Address e.g., 123 street name, city, state, zip

Hazard Layers

Water Depth (HEC_RAS)

Water Depth (HAZUS)

Risk Layer

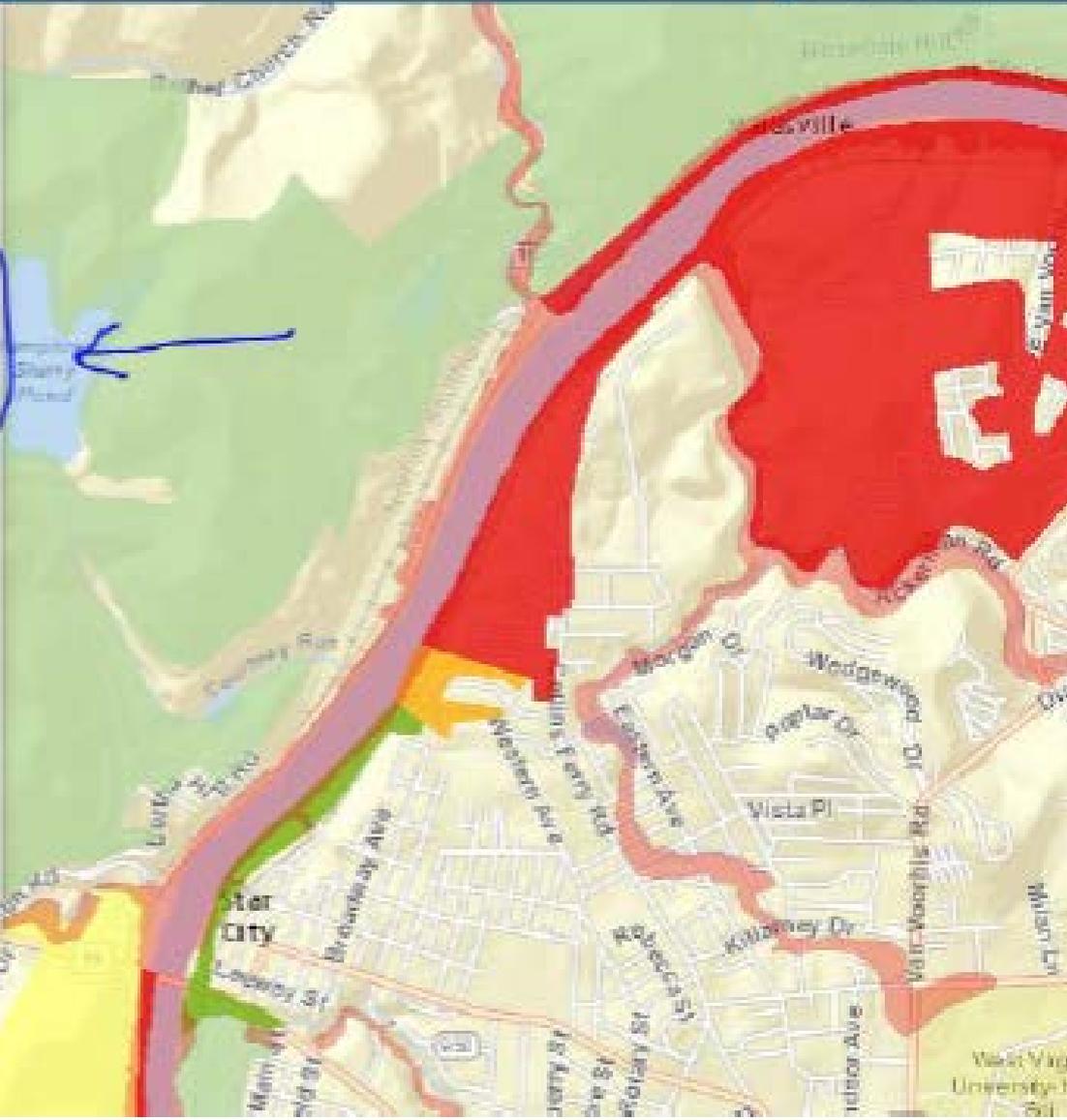
Total Assets
Total Loss
Total Building Loss
Total Debris
Total Shaffer

[Hide Legend](#)

Flood Risk (Total Building Losses)
Estimated Building Loss (Dollars, 1000s)

- 1 - 11
- 11 - 40
- 40 - 108
- 108 - 335
- 335 - 78592

Flood Hazard
Flood Hazard Zone



WV Flood Tool

About Help Home

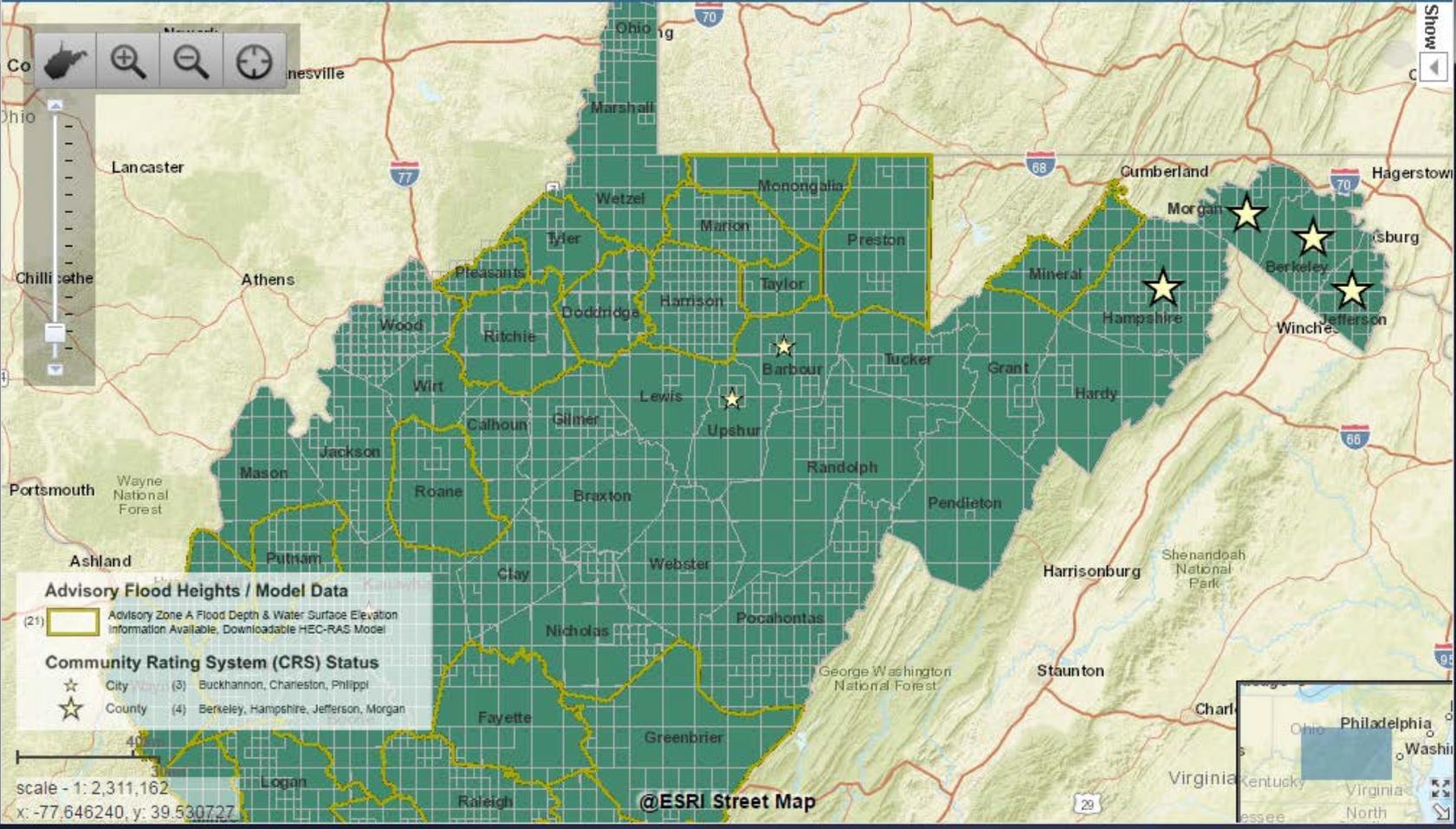
460

Views: Public | Expert | Risk MAP

Layers: Flood | Reference | Basemaps

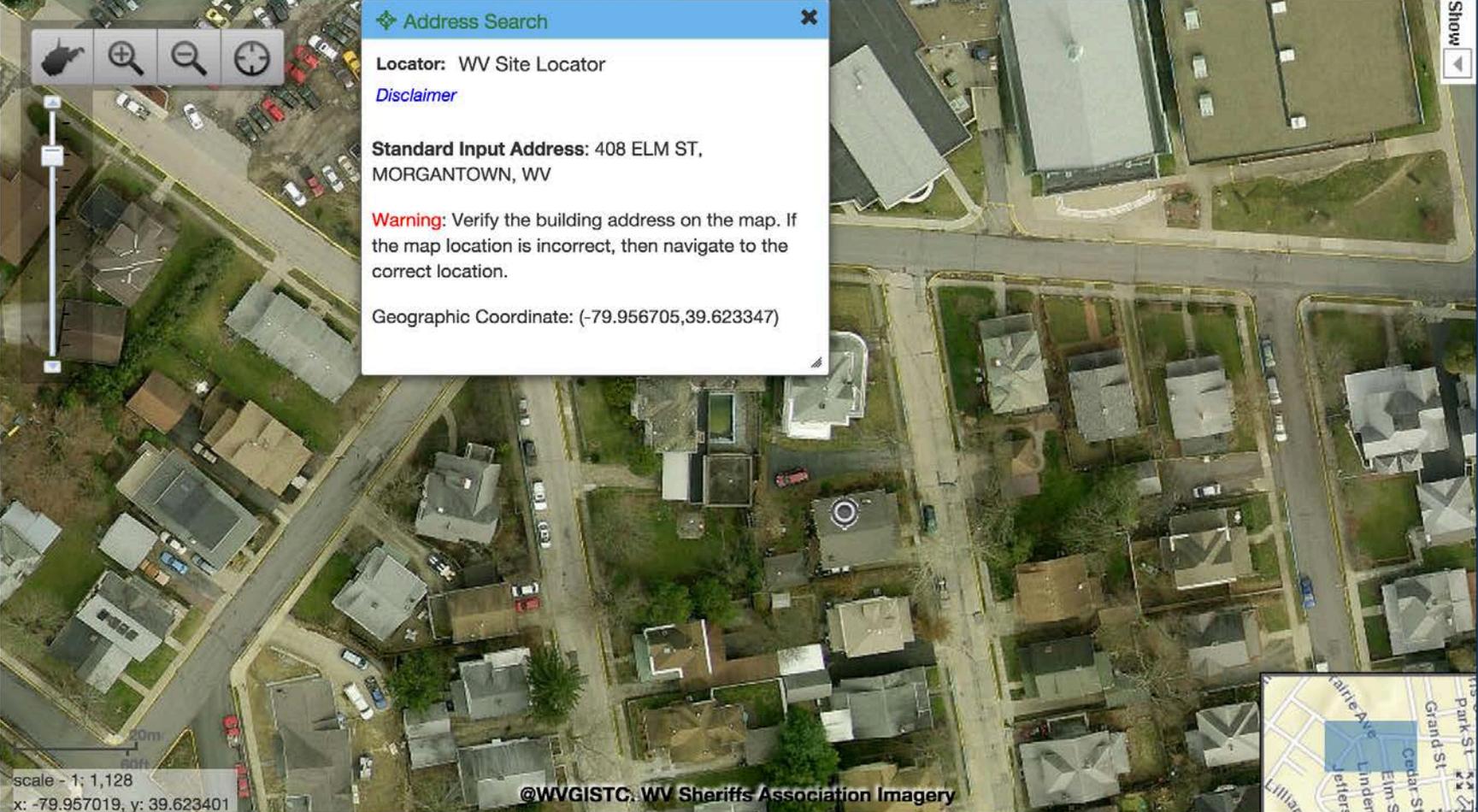
Search: Address e.g., 123 street name, city, state, zip

Tools: [Icons for Print, Share, etc.]



WV Flood Tool

Views: Public Expert Risk MAP
Layers: Flood Reference Basemaps
Search: Address 408 Elm St, Morgantown, WV
Tools: [Icons]



Address Search

Locator: WV Site Locator
Disclaimer

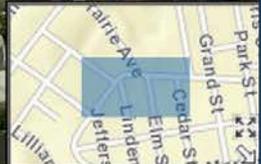
Standard Input Address: 408 ELM ST,
MORGANTOWN, WV

Warning: Verify the building address on the map. If
the map location is incorrect, then navigate to the
correct location.

Geographic Coordinate: (-79.956705,39.623347)

scale - 1: 1,128
x: -79.957019, y: 39.623401

©WVGISTC, WV Sheriffs Association Imagery



**Draft Plan Review Meeting
September 26, 2016
9:00 – 11:00 AM
Morgan County Commission Room
77 Fairfax Street, Berkeley Springs, WV**

Meeting Summary

The following notes are intended to supplement the meeting presentation.

- Michael Baker presented a summary of the 2017 HMP and updated attendees on the status of the project.
- West Virginia University's GIS Technical Center gave a presentation regarding their flood risk assessment.
- Michael Baker explained how mitigation goals and objective were updated in the 2017 HMP and led an in-depth discussion on the new 2017 Mitigation Action Plan
- The draft plan will be made available September 27 on www.region9wv.com. It will be available for comment through October 28th.
- There was a discussion about the possibility of adding another mitigation action addressing Morgan County's lack of digital data that could be used for hazard mitigation planning purposes. It was suggested that Morgan County could apply for WVDHSEM grant funding in order to finance the creation of additional datasets.
- LEPCs are responsible for providing annual updates to the HMP.
- Municipal and county resolutions to adopt the plan do not get signed until FEMA approves the final draft of the HMP.

Next Steps:

- If Morgan County wants to include WVDHSEM grant funding for county hazard data collection as an ongoing mitigation strategy they were encouraged to submit a new Mitigation Action Form.
- Meeting attendees were strongly encouraged to read the HMP at www.region9wv.com and submit comments about the draft during the comment period which ends October 28th, 2016.
- Once a final draft is approved by FEMA, municipalities and the county can officially adopt the 2017 HMP.

List of 2012 Mitigation Goals and Objectives, and a Review of Changes made in 2017 Update		
Morgan County Goals		
Goal 1M: Minimize Flood Damages and Risks from flood hazards in Morgan County.	Objective 1A: Evaluate and update existing floodplain ordinances to meet or exceed the NFIP standards.	No changes
	Objective 1B: Flood Mitigation Reconstruction-Seek Hazard Mitigation Assistance funds for the mitigation reconstruction of eligible at-risk, repetitive or non-repetitive loss, damage or destroyed properties.	
Goal 2M: Reduce the current and future risks from hazards in Morgan County.	Objective 2A: Identify all repetitive loss structures throughout the county.	No changes
	Objective 2B: Direct new development away from hazard areas.	
	Objective 2C: Evaluate and update existing floodplain ordinances to meet or exceed the NFIP standards.	
	Objective 2D: Improve the enforcement of existing floodplain regulations.	
	Objective 2E: Ensure that flood insurance policies remain affordable through the county and municipal government programs.	
	Objective 2F: Update flood hazard mapping.	
	Objective 2G: Assess vulnerability of transportation systems and assets located in hazard areas.	
Goal 3M: Improve emergency preparedness in Morgan County, Bath, and Paw Paw.	Objective 3A: Update Emergency Operations Plans (EOP).	No changes
	Objective 3B: Equipment assessment at the 911 Communications Center.	
	Objective 3C: Improve coordination and communication among disaster response organizations, local and county governments.	
	Objective 3D: Improve coordination of mitigation efforts between the National Park Service and the Town of Paw Paw.	
Goal 4M: Reduce the potential impact of natural and man-made disasters on private property.	Objective 4A: Encourage participation in the National Flood Insurance program.	No changes
	Objective 4B: Develop public/private partnerships toward the protection of private properties.	
Goal 5M: Reduce the potential impact of natural disasters on the county's historic treasures.	Objective 5A: Identify and protect other historic structures throughout the county that are at risk of hazards.	No changes

2017 Morgan County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
1M	Review all existing regulations to ensure adequacy in reducing the amount of future identified hazard areas.	Morgan County	Plans and Regulations	All hazards	Planning Commission, Floodplain Coordinator, County Commission, OES and FEMA	Ongoing	County funding/ grant funding when available	High
2M	Expand the mission and membership of the Morgan County Local Emergency Planning Committee to act as a countywide disaster task force.	Morgan County	Plans and Regulations	All Hazards	LEPC, OES	Ongoing	None Required	High
3M	Develop adequate emergency shelter and evacuation plans for citizens and animals (domestic pets, livestock and wildlife).	Morgan County	Plans and Regulations	All Hazards	County Commission, OES, LEPC, Red Cross, DNR, Humane Society, Sheriff's Office	Ongoing	Local funding, USDA Programs	High
4M*	Construct a bypass along US Route 522 to improve safety and ease of access.	Morgan County	Structure and Infrastructure	Transportation Accidents	WV DOT	Ongoing	Grant Funding, FHA	High
5M*	Reduce utility interruption by establishing standards for tree trimming, burying power lines, and install redundancies and loop feeds.	Morgan County	Plans and Regulations, Structure and Infrastructure	Utility Interruption	First Energy	Ongoing	Unknown	High

2017 Morgan County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
6M*	Educate water system operators and workers about the importance of safe available water and SWPPs, update the SWPP as necessary	Morgan County	Education and Awareness, Plans and Regulations	Source Water Contamination	Local, State, and Federal Government, Utility Providers	Ongoing	Various	High
7M*	Use floodplain ordinances, NFIP, CRS participation, public education, and property acquisition to remove existing developed properties from flood hazard areas and limit new development.	Morgan County	Plans and Regulations, Education and Awareness	Flooding	Morgan County	Ongoing	Local Funding and Grants	High
8M*	Increase awareness of key hazardous material transportation routes and storage areas and conduct drills with local agencies focusing on high risk areas.	Morgan County	Education and Awareness	Hazardous Materials	LEPC, County Commission, WVDOH	Ongoing	WVDOH and WVDEP Funding, Local Funding	High
9M*	Assist vulnerable populations and publicize road conditions using news stations, newspapers, and radio during winter storms.	Morgan County	Education and Awareness	Winter Storm	Morgan County	Ongoing	Local Funding, FEMA Funding	High
10M*	Review and maintain agreement with Morgan County Planning Commission to provide floodplain management	Town of Bath	Plans and Regulations	Flooding	Town of Bath	Immediate	None Required	High
11M*	Review and maintain agreement with Morgan County Planning Commission to provide floodplain management.	Town of Paw Paw	Plans and Regulations	Flooding	Town of Paw Paw	Immediate	None Required	High
12M*	Apply for TAP grant through DOH to fund the addition and repair of sidewalks within town; include stormwater management practices to reduce flooding events on town/state roads.	Town of Paw Paw	Structure and Infrastructure	Flooding	Town of Paw Paw	1-4 Years	WV DOH Funding	High

2017 Morgan County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
13M	Ensure that flood insurance policies remain affordable through the county and municipal government programs.	Morgan County	Education and Awareness	Flooding	Floodplain Coordinators	Ongoing	None Required	Medium
14M	Support Morgan County's efforts in the CRS program, and provide training to municipalities on the CRS program and encourage them to participate.	Morgan County	Education and Awareness	Flooding	Floodplain Coordinator	Ongoing	None Required	Medium
15M	Collect updated information on the number and location of all repetitive loss properties throughout the county and develop a database and maps for storage.	Morgan County	Education and Awareness	Flooding	Floodplain Coordinators	Ongoing	None Required	Medium
16M	Identify owners of repetitive and severe repetitive loss properties that may be willing to participate in future property acquisition and relocation projects	Morgan County	Public Education Awareness	Flooding	Floodplain Coordinators	Ongoing	None Required	Medium
17M	Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.	Morgan County	Plans and Regulations	All hazards	Planning Commission, Floodplain Coordinator	Ongoing	Local funds, F&W Federation	Medium
18M	Provide training to municipalities on the CRS program and encourage them to participate.	Morgan County	Education and Awareness	Flooding	Town Councils, Floodplain Coordinator, Planning Commission	Ongoing	Local Funding	Medium
19M	Work with WV Department of Highways to identify areas of frequent roadway flooding and develop mitigation strategies.	Morgan County	Flooding	Flooding	DOT, OES, Floodplain Coordinator	Ongoing	Local Funds	Medium

2017 Morgan County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
20M	Identify strategies to mitigate risks from the transportation and/or storage of hazardous materials in Morgan County.	Morgan County	Plans and Regulations	Transportation Accidents, Hazardous Materials	OES, LEPC	Ongoing	HMEP, Local funds when available	Medium
21M	Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter and the Morgan County Office of Emergency Services.	Morgan County	Education and Awareness	All Hazards	Red Cross, OES	Ongoing	None Required	Medium
22M	Establish a formal process for the city and the Park Service to coordinate disaster related efforts, which will include defining boundaries and establishing responsibilities.	Morgan County	Plans and Regulations	All Hazards	OES, County Commission	Ongoing	Local Funding when available, FEMA, EMA	Medium
23M	Conduct training exercises that include representatives from the city and the Park Service to facilitate increased coordination.	Morgan County	Education and Awareness	All Hazards	Local WVDOH	Ongoing	FEMA Flood Emergency Program, Local funds, Town of Paw Paw	Medium
24M	Continue to enforce ordinances that new structures do not interfere with flood mitigation measures.	Morgan County	Structure and Infrastructure	Flooding	County Commission, Planning Commission	Ongoing	None Required	Medium
25M	Obtain updated information on the number of NFIP policyholders in Morgan County and its municipalities.	Morgan County	Education and Awareness	Flooding	Floodplain Coordinator, OES, FEMA	Ongoing	Local funding, FEMA, EMA	Medium

2017 Morgan County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
26M	Develop mitigation strategies to protect any at-risk historic properties.	Morgan County	Structure and Infrastructure	All Hazards	County Historic Society, Floodplain Coordinator	Ongoing	None Required	Medium
27M	Conduct a survey of all historic sites that are located in hazard areas.	Morgan County	Education and Awareness	Flooding	County Historic Society, Floodplain Coordinator	Ongoing	None Required	Medium
28M	Apply for Hazardous Materials Emergency Preparedness (HMEP) grant from WVOES to finance the development of a hazardous materials survey for Morgan County	Morgan County	Education and Awareness	Hazardous Materials	OES, LEPC	Ongoing	HMEP, Local funds when available	Medium
29M	Review all capital improvement plans to ensure that infrastructure improvements are not directed towards hazardous areas.	Morgan County	Plans and Regulations	Flooding, Landslide and Land Subsidence	County Commission, Planning Commission	Ongoing	Local Funding	Medium
30M	Continue to support initiatives established under the Morgan County Office of Emergency Services.	Morgan County	Plans and Regulations	All Hazards	OES, Planning Commission	Ongoing	None Required	Medium

2017 Morgan County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
31M	Morgan County will continue to seek out opportunities to apply for Hazard Mitigation Assistance (HMA) funds for mitigation reconstruction, elevations, relocations or acquisitions of identified at risk, repetitive loss, non-repetitive loss, substantial damaged, partially or completely demolished or destroyed properties within Morgan County. If mitigation reconstruction is chosen, properties identified as partially or completely demolished, outside of the regulatory floodway, as identified by available flood hazard data, will be reconstructed in accordance with the standards established in the local floodplain ordinance and in accordance with the same conditions as an elevated structure. Morgan County will comply with all acquisition, elevation, relocation and mitigation reconstruction requirements, as per the HMA Guidance.	Morgan County	Structure and Infrastructure	Flooding	County Commission, Floodplain Coordinators	Ongoing	Hazard Mitigation Assistance	Medium
32M*	Reinforce structures and infrastructure against hail and increase awareness before hailstorms with public announcements.	Morgan County	Structure and Infrastructure, Education and Awareness	Hailstorm	Morgan County, Insurance Providers	Ongoing	Various	Medium
33M*	Use building codes, retrofits, and increased risk awareness to protect property, infrastructure, and utilities from wind storms and tornadoes.	Morgan County	Plans and Regulations, Structure and Infrastructure, Education and Awareness	Wind Storm, Tornado	Morgan County, Utility Providers	Ongoing	Unknown	Medium

2017 Morgan County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
34M*	Assess areas vulnerable to wildfires and publicize outdoor burning regulations and wildfire risks using pamphlets, news articles, and the Firewise Program.	Morgan County	Natural Systems Protection, Education and Awareness	Wildfire	Morgan County	Ongoing	Local Funding	Medium
35M*	Work with WVDOH to find solutions to flood impacted parts of US Route 522 within town limits, such as S. Washington Street.	Town of Bath	Structure and Infrastructure	Flooding	Town of Bath	Ongoing, Long-term	Local Funding, WVDOH Funding	Medium
36M*	Establish shelters within existing government facilities.	Town of Bath	Structure and Infrastructure	All Natural Hazards	Town of Bath	Ongoing, Long-term	FEMA, WVDHSEM, Local, State Funding	Medium
37M*	Seek funding for generators and other equipment to aid in the continuation of essential services in the event of utility interruption.	Town of Bath	Structure and Infrastructure	Utility Interruption	Town of Bath	Ongoing	WVDHSEM	Medium
38M*	Establish shelters within existing government facilities.	Town of Paw Paw	Structure and Infrastructure	All Natural Hazards	Town of Bath	Ongoing	FEMA, WVDHSEM, Local, State Funding	Medium
39M*	Post information about source water protection on town website & consider sending brochures to residents/businesses in Zone of Critical Concern, alerting public of need for conservation and protection. Include information regarding proper disposal of prescriptions and regular septic maintenance. Follow similar recommendations as outlined in 2016 Source Water Protection Plan.	Town of Paw Paw	Education and Awareness	Source Water Contamination	Town of Paw Paw	Immediate	Local Funding, WVDEP, WV BPH Funding	Medium

2017 Morgan County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
40M*	Seek funding for generators and other equipment to aid in the continuation of essential services in the event of utility interruption.	Town of Paw Paw	Structure and Infrastructure	Utility Interruption	Town of Paw Paw	Ongoing	WVDHSEM Funding	Medium
41M*	Post and distribute terrorism preparedness information based on current data.	Morgan County	Education and Awareness	Terrorism	State OHSEM	Ongoing	Unknown	Low
42M*	Provide NWS sponsored weather related classes to the public, distribute emergency preparedness information on severe weather hazards, and provide classes on severe weather preparedness to the public.	Morgan County	Education and Awareness	Hurricane, Tropical Storm, Nor' Easter	OHSEM	Ongoing	Grants, Community Partners	Low
43M*	Provide pamphlets and educational material to county residents to encourage annual residential radon testing.	Morgan County	Education and Awareness	Radon Exposure	County Commission	Ongoing	Unknown	Low
44M*	Monitor water supply and conserve water through public awareness campaigns conducted using news and radio stations.	Morgan County	Natural System Protection, Education and Awareness	Drought	Local, State, Federal Government	Ongoing	Various	Low
45M*	Monitor rainfall and conduct annual inspections of berms to protect against structural failures.	Morgan County	Structure and Infrastructure	Dam and Levee Failure	Property Owners, Local/State Government	Ongoing	Local Funding, WVDEP, FEMA Funding	Low

2017 Morgan County and Municipal Actions

Action Number	Action	Jurisdiction	Category	Hazard(s) Addressed	Lead Agency/ Department	Implementation Schedule	Funding Source	Priority
46M*	Adopt and enforce building codes, perform building inspections, and conduct outreach to the public and builders through pamphlets.	Morgan County	Structure and Infrastructure, Plans and Regulations, Education and Awareness	Earthquake	County and Municipal Governments	Ongoing	Local and State Funding	Low
47M*	Educate the public about the risks associated with extreme temperatures using the county website and local radio stations.	Morgan County	Education and Awareness	Extreme Temperatures	Morgan County	Ongoing	Local Funding and Grants	Low
48M*	When a disease reoccurs in a community use pamphlets, local news media, and online resources to educate the public about mitigation.	Morgan County	Education and Awareness	Epidemic	Morgan County Health Department	Ongoing	State, Federal Funding	Low
49M*	Protect roadways and remove buildings in potential landslide and land subsidence hazard areas.	Morgan County	Structure and Infrastructure	Landslide and Land Subsidence	Local, State, Federal Government	Ongoing	State, Federal Funding	Low
50M*	Utilize pamphlets and articles about the warning signs and the potential damages of thunderstorms and lightning strikes.	Morgan County	Education and Awareness	Thunderstorm, Lightning Strike	Local Funding, NOAA, NWS	Ongoing	Local, Federal Funding	Low
51M*	Conduct control initiatives, such as the Gypsy Moth Spray Program, and conduct public education and awareness campaigns.	Morgan County	Education and Awareness, Natural System Protection	Infestation	Morgan County, State of West Virginia	Ongoing	Local, State Funding	Low

*Indicates that action was added during 2017 HMP update

Hazard Mitigation Plan Update Comment Form

Please use this form to provide any comments you have based on a review of the draft Hazard Mitigation Plan and the meeting's presentation.

Name:	
Municipality/Agency/Organization:	

1. Planning Process

Do you have comments about the assembly of the planning team, stakeholders, or participation documentation?

2. Mitigation Strategy

Do you have comments about the goals, objectives or types of projects/actions in the plan?

Morgan County 2017 Hazard Mitigation Plan Update

3. Risk Assessment

Do you have comments about the hazards profiled and/or the Risk Factor ranking?

Risk Class	Hazard	Risk Assessment Category (1 = least severe, 4 = most severe)					Calculated Risk Factor
		Probability (1-4)	Severity (1-4)	Spatial Extent (1-4)	Warning Time (1-4)	Duration (1-4)	
High	Source Water Contamination	3	4	4	4	4	3.7
	Winter Storm	4	4	4	1	3	3.6
	Transportation Accidents	4	4	3	4	2	3.6
	Wind Storm, Tornado	4	4	4	2	1	3.5
	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5
	Hazardous Materials	4	2	4	4	4	3.4
	Terrorism	2	3	4	4	2	2.9
	Hurricane, Tropical Storm, Nor'easter	3	3	4	1	2	2.9
	Radon Exposure	3	3	2	3	1	2.6
Mod	Extreme Temperature	2	2	3	3	1	2.2
	Flooding	4	2	1	1	1	2.2
Low	Epidemic	1	2	2	3	3	1.9
	Drought	1	1	3	3	3	1.8
	Utility Interruption	1	2	1	3	1	1.5
	Wildfire	1	1	1	3	1	1.2
	Hailstorm	1	1	2	1	1	1.2
	Earthquake	1	1	1	1	1	1.0
	Land Subsidence	1	1	1	1	1	1.0
	Infestation	1	1	1	1	1	1.0
	Dam and Levee Failure	1	1	1	1	1	1.0

4. Other

Please provide any other comments or feedback you may have about the Hazard Mitigation Plan Update.

Appendix C-8 Berkeley County Hazard and Risk Identification Worksheets

Evaluation of Identified Hazards and Risk: Berkeley County

Name: Bill Clark

Title: Executive Director

Affiliation: Region 9

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	Low occur over 10 years
Earthquake	NC	USGS bas Hazard - Geological Zones - risk
Epidemic	NC I	Lyme Mosquito Education / Property Maintenance Plan
Flooding	NC / I <u>Urban</u>	32 m. tr. sub repetitive losses / more urbanized Flood (Data)
Hailstorm	NC / I <u>South Berkeley</u>	Edward AG
Infestation	I	pests
Land Subsidence	NC St. in rdg	Karst areas 2 Kings Quarries
Thunderstorm, Lightning Strike	NC	
Wildfire	NC	Full time
Wind Storm, Tornado	Wind shear NC NC	10-year
Winter Storm	NC	Local Equipment Need

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
Dam and Levee Failure	NC	Steep Grade
Hazardous Materials	OR	
Terrorism	NC	

Dams

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

- | | |
|---|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input checked="" type="checkbox"/> Landslide - <i>Small locality locality</i> | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|---|
| <input checked="" type="checkbox"/> Building or Structure Collapse <i>Post</i> | <input type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input checked="" type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents <i>AD</i> | <input checked="" type="checkbox"/> Urban Fire and Explosion <i>metl labs</i> |
| <input checked="" type="checkbox"/> Utility Interruption | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Berkeley County

Name: MICHAEL COVELL

Title: CITY ENGINEER

Affiliation: CITY OF MARTINSBURG

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC low occurrence	
Earthquake	NC	
Epidemic	? West Nile / Lyme	
Flooding	Increase - moderate Urbanized Flooding in City	Climate producing flash flooding events
Hailstorm	NC	
Infestation	I Coyotes	
Land Subsidence	NC Karst; well impacts	
Thunderstorm, Lightning Strike	NC	
Wildfire	NC (or D?)	
Wind Storm, Tornado	NC Wind shears; Tornadoes	
Winter Storm	NC	

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
Dam and Levee Failure	NC	
Hazardous Materials	I-81; Rail	
Terrorism	NC	

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? *(If so, check box)*

Natural

- | | | | |
|---|---|---|--|
| N | <input type="checkbox"/> Avalanche/Glacier | N | <input type="checkbox"/> Coastal Erosion |
| N | <input type="checkbox"/> Dust, Sand Storm | ? | <input checked="" type="checkbox"/> Expansive Soils |
| N | <input type="checkbox"/> Extreme Temperature | Y | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter #3 |
| N | <input checked="" type="checkbox"/> Landslide | Y | <input checked="" type="checkbox"/> Radon Exposure #2 |
| N | <input type="checkbox"/> Tsunami | N | <input type="checkbox"/> Volcano |

Human-Made

- | | | | |
|---|---|---|---|
| N | <input type="checkbox"/> Building or Structure Collapse | N | <input type="checkbox"/> Civil Disturbance |
| N | <input type="checkbox"/> Disorientation | N | <input type="checkbox"/> Drowning |
| N | <input type="checkbox"/> Mass Food/Animal Feed Contamination | Y | <input checked="" type="checkbox"/> Natural Resource Extraction Processes |
| N | <input type="checkbox"/> Nuclear Incident | Y | <input checked="" type="checkbox"/> Source Water Contamination #4 |
| Y | <input checked="" type="checkbox"/> Transportation Accidents #1 | N | <input type="checkbox"/> Urban Fire and Explosion |
| N | <input type="checkbox"/> Utility Interruption | N | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Berkeley County

Name: Rachel Snowdy

Title: Project Mgr.

Affiliation: region 9

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	no change	
Earthquake	fault line east of hedgesville increase	2011 appx. records from 80's
Epidemic ↑	west nic lyme west nic	vectors mosq monitor
Flooding	↑ urbanized flooding nc in county	96-97 potomac river sportsman's paradise
Hailstorm	nc	orchards
Infestation	I	coyote/bears
Land Subsidence	nc	subdiv. ord. - bc
Thunderstorm, Lightning Strike	nc	s. berkeley limestone beds(?)
Wildfire	nc	inc # of developments FT fire staff
Wind Storm, Tornado	nc	10 10+ yrs ago - tornado
Winter Storm	nc	low capability

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
Dam and Levee Failure	nc	
Hazardous Materials		
Terrorism	nc	

→ in process to do commodity flow study
 , 481, CSX
 tier II reporting
 ↳ sept. @ (ates)

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

Avalanche/Glacier

Dust, Sand Storm

Extreme Temperature

Landslide *not likely*

Tsunami

Human-Made

Building or Structure Collapse

Disorientation

Mass Food/Animal Feed Contamination

Nuclear Incident

#1 Transportation Accidents

Utility Interruption

Other Hazards

Climate Change

~~Coastal Erosion *not likely*~~

Expansive Soils *not likely*

#2 Hurricane, Tropical Storm, Nor'easter

#3 Radon Exposure *health dept - radon test kit bldg. codes*

Volcano

Civil Disturbance

Drowning

Natural Resource Extraction Processes *quarries*

#4 Source Water Contamination *air quality*

Urban Fire and Explosion

War and Criminal Activity

Part III

Comments

*meth laboratories
↳ decreased*

Evaluation of Identified Hazards and Risk: Berkeley County

Name: Matthew Pennington

Title: Environmental Program Coordinator

Affiliation: Region 9

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake		
Epidemic	NC	West Nile Lyme Disease
Flooding	No Change Rural / Increase URBAN	Flash Flooding
Hailstorm	No Change / Localized	ORCHARDS / Ag Community
Infestation	I	Emerald Ash Borer
Land Subsidence	NC	KARST Concerns
Thunderstorm, Lightning Strike	NC	
Wildfire	NC	Increased Capabilities have leveled off
Wind Storm, Tornado	NC	
Winter Storm	NC	

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
Dam and Levee Failure	NC	
Hazardous Materials		I=01 Com
Terrorism	NC # Compare to NATIONAL	TRENDS

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

- | | |
|---|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input checked="" type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input checked="" type="checkbox"/> Landslide - Not high Priority | <input checked="" type="checkbox"/> Radon Exposure High Priority * |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|---|--|
| <input type="checkbox"/> Building or Structure Collapse | <input type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input checked="" type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination * High Priority |
| <input checked="" type="checkbox"/> Transportation Accidents #1 High Priority | <input type="checkbox"/> Urban Fire and Explosion |
| No <input checked="" type="checkbox"/> Utility Interruption | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Meth Lab explosions
Drug Related Health Hazards

Evaluation of Identified Hazards and Risk: Berkeley County

Name: James Barnhart

Title: Co Councilman

Affiliation: Berk Co Council

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	NC	
Epidemic	NC	
Flooding	NC	
Hailstorm	NC	
Infestation	I	
Land Subsidence	NC	
Thunderstorm, Lightning Strike	NC	
Wildfire	NC	
Wind Storm, Tornado	NC	
Winter Storm	NC	

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
<i>Dam and Levee Failure</i>	NC	
<i>Hazardous Materials</i>	NC	
<i>Terrorism</i>	NC	

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? *(If so, check box)*

Natural

- | | |
|---|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input checked="" type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input checked="" type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|--|
| <input type="checkbox"/> Building or Structure Collapse | <input type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input type="checkbox"/> Urban Fire and Explosion |
| <input checked="" type="checkbox"/> Utility Interruption | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Berkeley County

Name: Alan J. Davis

Title: County Administrator

Affiliation: Berkeley County Council

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	N/C	
Earthquake	N/C	1284 minor 2011
Epidemic	N/C	Leading County in US for Swine H1N1
Flooding	N/C	30 acre rezoned mitigation buy-out E Spentans Paradise.
Hailstorm	N/C	Damage to agriculture? orchards.
Infestation	N/C	
Land Subsidence	N/C	
Thunderstorm, Lightning Strike	N/C	
Wildfire	N/C	
Wind Storm, Tornado	N/C	
Winter Storm	N/C	

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
<i>Dam and Levee Failure</i>	n/c	
<i>Hazardous Materials</i>	n/c	
<i>Terrorism</i>	n/c	

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

Avalanche/Glacier

Coastal Erosion

Dust, Sand Storm

Expansive Soils (no occurrences but clay soil)

Extreme Temperature

Hurricane, Tropical Storm, Nor'easter

Landslide (extremely low)

Radon Exposure (house-by-house Building codes. Public education.)

Tsunami

Volcano

Human-Made

Building or Structure Collapse

Civil Disturbance

Disorientation

Drowning

Mass Food/Animal Feed Contamination

Natural Resource Extraction Processes (air quality issues from quarries.)

Nuclear Incident

Source Water Contamination

Transportation Accidents (I-67? v. 2.1.2017)

Urban Fire and Explosion

Utility Interruption

War and Criminal Activity

Other Hazards

Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Berkeley County

Name: Rouvie Good

Title: Town Council Member

Affiliation: Town of Hedgesville

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	I	Recent Activity
Epidemic	I Lyme	Lyme
Flooding	I	Flash Flooding
Hailstorm	NC	
Infestation	IN	Zika
Land Subsidence	NC	
Thunderstorm, Lightning Strike	NC	
Wildfire	NC	
Wind Storm, Tornado Wind Shears	NC I	wind shears
Winter Storm	NC	

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
<i>Dam and Levee Failure</i>	<i>NC</i>	
<i>Hazardous Materials</i>	<i>NC</i>	
<i>Terrorism</i>	<i>NC</i>	<i>Heroin</i>

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? *(If so, check box)*

Natural

- | | |
|---|--|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|--|
| <input type="checkbox"/> Building or Structure Collapse | <input type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input type="checkbox"/> Urban Fire and Explosion |
| <input type="checkbox"/> Utility Interruption | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Berkeley County

Name: Heather Williams

Title: Planner & CFM

Affiliation: Berkeley County Planning

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	2011 I	Hedgesville Guy geo studies in 1980s when they bought the land
Epidemic	I	Leading County in state for Lyme B.C. educational awareness & "vector control"
Flooding	I	underserved old infrastructure 1996-97 Potomac River talk to Pennington for repetitive loss data
Hailstorm	NC	orchards - check on insurance data Sportsman's crop insurance education
Infestation	I	tree pests coyote - back creek valley black bear
Land Subsidence	NC NC	Karst topography need county old quarries
Thunderstorm, Lightning Strike	NC	Derecho limestone beds (south berkley) worst storms
Wildfire	NC	there are full-time fire personnel now
Wind Storm, Tornado	NC NC	wind shear check data
Winter Storm	NC	Winter Storm Jonas no county roads crew state roads crews can't handle

Flash-Floods
Urbanized
Flooded
Needs
attention
Snow melt

West Nile too
- property maint
- Health Dept
mosquito monitoring
Mike says we have a more current one.
slowed response time for "ho. roads" leading to new subdivisions

(Jet Stream has changed)
climate change

Infiltration of chemicals into Martinsburg water source - Don't know cause of this yet. Facility

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
Dam and Levee Failure	NC	Journal Article 4/28/16 on dams
Hazardous Materials	NC	Commodity flow reports
Terrorism	NC	Hazardous materials National trends raise concerns

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

- Avalanche/Glacier
- Coastal Erosion
- Dust, Sand Storm
- Expansive Soils *possible has not been a hazard*
- Extreme Temperature
- Hurricane, Tropical Storm, Nor'easter
- Landslide *FEMA definition is very specific. I don't think our region matches definition.*
- Radon Exposure *Health Dept. actively educating community*
- Tsunami
- Volcano

Human-Made

- Building or Structure Collapse
 - Civil Disturbance
 - Disorientation
 - Drowning
 - Mass Food/Animal Feed Contamination
 - Natural Resource Extraction Processes *Air Quality*
 - Nuclear Incident
 - Source Water Contamination *Karst & Martinsburg supply*
 - Transportation Accidents
 - Urban Fire and Explosion *Meth Labs*
 - Utility Interruption
 - War and Criminal Activity
- Get Data from State Police*
- Heroin Addictions*
- more so than meth*

Other Hazards

- Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Berkeley County

Name: W. BRIAN COSTELLO

Title: EMS DIRECTOR

Affiliation: BERKELEY COUNTY EMERGENCY AMBULANCE AUTHORITY

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	HEDGESVILLE	
Epidemic	SARS WEST NILE EBOLA IZEKE LIME DISEASE	
Flooding		
Hailstorm	NC	
Infestation	BLACK BEAR COYOTE Population PEST	
Land Subsidence		
Thunderstorm, Lightning Strike	NC	
Wildfire	NC / DECREASE	
Wind Storm, Tornado	NC	
Winter Storm		

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
<i>Dam and Levee Failure</i>		
<i>Hazardous Materials</i>		
<i>Terrorism</i>		

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? *(If so, check box)*

Natural

- | | |
|---|--|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|---|
| <input type="checkbox"/> Building or Structure Collapse | <input type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input checked="" type="checkbox"/> Urban Fire and Explosion (Methodone Labs) |
| <input type="checkbox"/> Utility Interruption | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Berkeley County

Name: Sam McGovern Title: Officer

Affiliation: Martinsburg Police Department

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	NC	
Epidemic	NC	
Flooding	NC	
Hailstorm	NC	
Infestation	I	
Land Subsidence	NC	
Thunderstorm, Lightning Strike	NC	
Wildfire	NC	
Wind Storm, Tornado	NC	
Winter Storm	NC	

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
<i>Dam and Levee Failure</i>	<i>NC</i>	
<i>Hazardous Materials</i>	<i>NC</i>	
<i>Terrorism</i>	<i>NC</i>	

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? *(If so, check box)*

Natural

- | | |
|---|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|--|
| <input type="checkbox"/> Building or Structure Collapse | <input type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input type="checkbox"/> Urban Fire and Explosion |
| <input type="checkbox"/> Utility Interruption | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Berkeley County

Name: Michael Thompson

Title: Planning Director

Affiliation: Berkeley County

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	LOW INTENSITY LAST 2011	OLD STUDIES
Epidemic	WEST NILE - LIME DISEASE	EDUCATION
Flooding	1996-1997 last major localized - In older areas	MIDGAM 137 COUNTY
Hailstorm	localized - orchards impacted NC	CROP INSURANCE
Infestation	ELM + ASH TREES ISSUES MEDUSA - BURN BEARS, PEST	NO STATE AGENCIES NOW
Land Subsidence	KROST REGION - wellhead for public, private, just wellhead	STATE CONSTRUCTION PUBLIC - SINKHOLE -
Thunderstorm, Lightning Strike	limestone south Berkeley attacks NC	
Wildfire	GRAND FIREFIGHTERS UNIT HELPED recent NC	Education Access + RESPONSE TURNS
Wind Storm, Tornado	some in past NC	
Winter Storm	2015 - JUNKS - road clearing capability issue	

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
Dam and Levee Failure	3 in county, 15 state Stonebridge high hazard NC	
Hazardous Materials	Study underway - commodity Hazmat study	
Terrorism	NC	

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

Avalanche/Glacier

Coastal Erosion

Dust, Sand Storm

Expansive Soils

Extreme Temperature

(2) Hurricane, Tropical Storm, Nor'easter

? Landslide

(3) Radon Exposure *structure by structure
HD - hazard out + building codes*

Tsunami

Volcano

Human-Made

Building or Structure Collapse

Civil Disturbance

Disorientation

Drowning

Mass Food/Animal Feed Contamination

Natural Resource Extraction Processes *air quality*

Nuclear Incident

(4) Source Water Contamination

(1) Transportation Accidents

Urban Fire and Explosion *(not friendly upward)*

Utility Interruption

War and Criminal Activity *no*

Other Hazards

Climate Change

*meth labs - down
HEROIN more*

Part III

Comments

Berkeley County Hazard Mitigation Plan 2017 Update

Evaluation of Identified Hazards and Risk: Berkeley County

Name: Chad Winebrenner

Title: Chief

Affiliation: Berkeley Co. Ambulance Authority

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	NC	
Epidemic	I	Leading county for West Lyme disease
Flooding	I - Flash flooding increasing	Heavy rains occur more often
Hailstorm	NC	
Infestation	I - Coyotes & Harmful Insects	
Land Subsidence	NC	
Thunderstorm, Lightning Strike	NC	
Wildfire	NC D - increase in fire starting	Mitigation
Wind Storm, Tornado	NC	
Winter Storm	I - Winter Storm Zones	

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
<i>Dam and Levee Failure</i>	NC	
<i>Hazardous Materials</i>	NC	
<i>Terrorism</i>	NC	

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? *(If so, check box)*

Natural

- | | |
|---|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input checked="" type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|---|---|
| <input checked="" type="checkbox"/> Building or Structure Collapse | <input checked="" type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input checked="" type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input type="checkbox"/> Urban Fire and Explosion |
| <input checked="" type="checkbox"/> Utility Interruption | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- ~~Climate Change~~

Part III

Comments

Transportation Accidents

Hurricane

Radon

Source Water Contamination

Evaluation of Identified Hazards and Risk: Berkeley County

Name: Randy Lilly

Title: Emergency Manager

Affiliation: Berkeley County Homeland Security & Emergency Management

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	NC	
Epidemic	NC	
Flooding	NC	Flash Flooding
Hailstorm	NC	
Infestation	I	Crooks, Ash Borer
Land Subsidence	NC	
Thunderstorm, Lightning Strike	NC	
Wildfire	NC	Paid Staffing Has Been added to VFD'S
Wind Storm, Tornado	NC	
Winter Storm	I	Not Enough Snow Removal Equip for Major Snow

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
<i>Dam and Levee Failure</i>	NC	
<i>Hazardous Materials</i>	NC	
<i>Terrorism</i>	NC	

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? *(If so, check box)*

Natural

- | | |
|---|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|--|
| <input type="checkbox"/> Building or Structure Collapse | <input type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input type="checkbox"/> Urban Fire and Explosion |
| <input type="checkbox"/> Utility Interruption | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Berkeley County

Name: Jason Hoover

Title: Lieutenant / Emergency Management Coordinator

Affiliation: City of Martinsburg

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	NC	
Epidemic	NC	
Flooding	NC NC	
Hailstorm	NC	
Infestation	NC I	
Land Subsidence	NC	
Thunderstorm, Lightning Strike	NC	
Wildfire	NC	
Wind Storm, Tornado	NC	
Winter Storm	NC	

Berkeley County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
<i>Dam and Levee Failure</i>	NC	
<i>Hazardous Materials</i>	NC	
<i>Terrorism</i>	NC	

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? *(If so, check box)*

Natural

- | | |
|--|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input type="checkbox"/> Extreme Temperature | (2) <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input type="checkbox"/> Landslide | (4) <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|--|
| <input checked="" type="checkbox"/> Building or Structure Collapse | <input checked="" type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | (3) <input checked="" type="checkbox"/> Source Water Contamination |
| (1) <input checked="" type="checkbox"/> Transportation Accidents | <input checked="" type="checkbox"/> Urban Fire and Explosion |
| <input checked="" type="checkbox"/> Utility Interruption | <input type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Appendix C-9 Morgan County Hazard and Risk Identification Worksheets

Evaluation of Identified Hazards and Risk: Morgan County

Name: Diek Myers

Title: Director

Affiliation: Morgan County OHSEM

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	(slight ↑) I	
Epidemic	(Slight ↑) I	Avian Bird Flu, Lyme Disease
Flooding	NC	
Hailstorm	NC	
Infestation	↑ I	CWD, Ash Bore (Trees)
Land Subsidence	NC	
Thunderstorm, Lightning Strike	(↑ slight) I	
Wildfire	↑ I	
Wind Storm, Tornado	NC	
Winter Storm	NC	

Morgan County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
Dam and Levee Failure	NC	? Cacapon State Park
Hazardous Materials	NC	
Terrorism	NC	

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

- | | |
|---|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|---|
| <input checked="" type="checkbox"/> Building or Structure Collapse | <input checked="" type="checkbox"/> Civil Disturbance (Low) |
| <input checked="" type="checkbox"/> Disorientation | <input checked="" type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input checked="" type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input checked="" type="checkbox"/> Urban Fire and Explosion (Low) |
| <input checked="" type="checkbox"/> Utility Interruption | <input checked="" type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Meth Labs

Evaluation of Identified Hazards and Risk: Morgan County

Name: Matthew Pennington

Title: Environmental Program Coordinator

Affiliation: _____

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	I	*Slight Increase
Epidemic	I	Lyme Disease
Flooding	No Change	Still a high concern
Hailstorm	No Change	
Infestation	I	Emerald Ash Borer
Land Subsidence	NC	* Erosion from Stormwater Runoff
Thunderstorm, Lightning Strike	Slight Increase	
Wildfire	I	
Wind Storm, Tornado	No Change	Frequency No Change
Winter Storm	No Change	

Morgan County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
Dam and Levee Failure	No Change	↓ 8 - WARW SPRINGS * 2 - Cacapon State PARK
Hazardous Materials	No Change	Mobile is Always High Possible Pipeline Proposed
Terrorism		

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

- | | |
|---|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input checked="" type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|---|
| <input checked="" type="checkbox"/> Building or Structure Collapse | <input checked="" type="checkbox"/> Civil Disturbance *Low Risk |
| <input checked="" type="checkbox"/> Disorientation | <input checked="" type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input checked="" type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input checked="" type="checkbox"/> Urban Fire and Explosion In Town |
| <input checked="" type="checkbox"/> Utility Interruption | <input checked="" type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Drug related Criminal Activity ; Health related issues.

Evaluation of Identified Hazards and Risk: Morgan County

Name: Betsy Heath

Title: EDA Director

Affiliation: EDA Director

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	N/C	
Earthquake	I	
Epidemic	N/C - (Pathogens) Bird Flu I - (Lyme)	
Flooding	N/C - (still high)	2012 - Labor Day wed Flash Flood ↳ downtown B.S. Flood
Hailstorm	N/C	
Infestation	I	Emerald Ash Borer Deer CWD
Land Subsidence	N/C	
Thunderstorm, Lightning Strike	I	DEBECAO - July - 2012? - POWER OUTAGE - 4/5 Days
Wildfire	I	
Wind Storm, Tornado	N/C	2008-09? Sleepy Creek tornado
Winter Storm	N/C	

Morgan County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
Dam and Levee Failure	N/C	
Hazardous Materials	N/C N/C	Natural Gas Pipeline Potential is being planned for 2017
Terrorism	N/C	

Mountain
 Gas
 Natural Gas
 about 20 miles
 → no commodity flow
 information

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

- | | |
|---|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input checked="" type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|---|
| <input checked="" type="checkbox"/> Building or Structure Collapse | <input checked="" type="checkbox"/> Civil Disturbance |
| <input checked="" type="checkbox"/> Disorientation | <input checked="" type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input checked="" type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input checked="" type="checkbox"/> Urban Fire and Explosion |
| <input checked="" type="checkbox"/> Utility Interruption | <input checked="" type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Heroin / Meth Lab - Criminal Activity / Health / Epidemic

Evaluation of Identified Hazards and Risk: Morgan County

Name: Stefanie Allemong

Title: Grants Administrator

Affiliation: Morgan County Commission

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	2006
Earthquake	I (Slight)	2011
Epidemic	I (Lyme)	Ongoing
Flooding	NC	Derecho - June storm Labor Day } 2012 1996 - 2 storms
Hailstorm	NC	1985?
Infestation	I Ash Boer Deer CWD	
Land Subsidence	NC	
Thunderstorm, Lightning Strike	I	
Wildfire	I	
Wind Storm, Tornado	NC	
Winter Storm	NC	

Morgan County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
<i>Dam and Levee Failure</i>	NC	
<i>Hazardous Materials</i>	NC	
<i>Terrorism</i>	NC	

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

- | | |
|---|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|--|
| <input checked="" type="checkbox"/> Building or Structure Collapse | <input type="checkbox"/> Civil Disturbance |
| <input checked="" type="checkbox"/> Disorientation | <input checked="" type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input checked="" type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input checked="" type="checkbox"/> Urban Fire and Explosion |
| <input checked="" type="checkbox"/> Utility Interruption | <input checked="" type="checkbox"/> War and Criminal Activity
Meth labs |

Other Hazards

- Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Morgan County

Name: Jody McCointock Title: _____

Affiliation: County Administrator
Morgan County Commission

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	NC	
Earthquake	Increase	Earthquake in 2011 in VA -- felt
Epidemic	Increase in Lyme	bird flu Lyme disease along east coast
Flooding	NC - always an issue	County wide - Town of BS - 1996 Sept 2012
Hailstorm	NC	
Infestation	Increase	
Land Subsidence	NC	
Thunderstorm, Lightning Strike	NC?	
Wildfire	Increase	
Wind Storm, Tornado	NC	2008-09? Sleepy Creek
Winter Storm	NC	

Morgan County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
Dam and Levee Failure	NC	- 8 in WS watershed - Cacapon State Park
Hazardous Materials	NC - potential for future	- Great Cacapon
Terrorism		

- ↓
- 522 traffic
 - CSX
 - proposed pipe line

- Commodity Flow Study (?)
- Tier 2 reports

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

- Avalanche/Glacier
- Coastal Erosion
- Dust, Sand Storm
- Expansive Soils
- Extreme Temperature
- * Hurricane, Tropical Storm, Nor'easter
- Landslide
- Radon Exposure
- Tsunami
- Volcano

Human-Made

- * Building or Structure Collapse
- Civil Disturbance - large parties "advertised" on social media
- Disorientation
- Drowning
- Mass Food/Animal Feed Contamination
- Natural Resource Extraction Processes (US Silica)
- Nuclear Incident
- * Source Water Contamination
- * Transportation Accidents
- Urban Fire and Explosion
- * Utility Interruption
- War and Criminal Activity

Other Hazards

- Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Morgan County

Name: Tom Gouse

Title: County Planner

Affiliation: MC

FLM

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	N/C	2006/2007
Earthquake	I	2011
Epidemic	I	Bird Flu Lyme
Flooding	N/C	
Hailstorm	N/C	
Infestation	I	CWD / ASH BORE
Land Subsidence	NC	E
Thunderstorm, Lightning Strike	NC Slight INC	CW/NWAA
Wildfire	I	MAN MADE VS ACT OF NATURE
Wind Storm, Tornado	N/C	
Winter Storm	N/C	

Morgan County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Human-made Hazards		
Dam and Levee Failure	NC	
Hazardous Materials	NC	Comm. Plan
Terrorism	NC	See Appendix

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? *(If so, check box)*

Natural

- | | |
|---|---|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, Nor'easter |
| <input checked="" type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|---|
| <input checked="" type="checkbox"/> Building or Structure Collapse | <input type="checkbox"/> Civil Disturbance |
| <input checked="" type="checkbox"/> Disorientation | <input type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input checked="" type="checkbox"/> Natural Resource Extraction Processes |
| <input type="checkbox"/> Nuclear Incident | <input type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input checked="" type="checkbox"/> Urban Fire and Explosion |
| <input checked="" type="checkbox"/> Utility Interruption | <input checked="" type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

Evaluation of Identified Hazards and Risk: Morgan County

Name: Rachel Snowden

Title: project mng.

Affiliation: region 9

Part I

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
Natural Hazards		
Drought	no change	06-07 moratorium on water
Earthquake	↑ slight	2011 earthquake
Epidemic	↑ Lyme	bird flu (NC) Lyme
Flooding	no change	9th county flooding (snow) 13' thunderstorm (pics)
Hailstorm	no change	late late 80's
Infestation	increase	Sapsy moth ash bore deer → chronic wasting
Land Subsidence	no change	
Thunderstorm, Lightning Strike	slight increase	tower outages chm w/ NWS
Wildfire	increase	some could be human induced
Wind Storm, Tornado	no change	
Winter Storm	no change	

Morgan County Hazard Mitigation Plan 2017 Update

Identified Hazards 2012 HMP	How has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community? NC=No Change, I=Increase, D=Decrease	Additional Comments (Please provide an explanation for any hazards marked I or D in this column)
---------------------------------------	--	--

Human-made Hazards

Dam and Levee Failure	no change	conservation agency reports
Hazardous Materials	no change	500 soon pass. CSX natural gas pipeline
Terrorism	no change	do blast zone power grid failures

click has threat assessment



→ dams @ cacapon state park having issues
 alma to some reports

commodity flow study not done

Part II

Other Hazards:

Do any of these hazards not previously profiled in the county hazard mitigation plan have the potential to affect your community significantly? (If so, check box)

Natural

- | | |
|---|--|
| <input type="checkbox"/> Avalanche/Glacier | <input type="checkbox"/> Coastal Erosion |
| <input type="checkbox"/> Dust, Sand Storm | <input type="checkbox"/> Expansive Soils |
| <input checked="" type="checkbox"/> Extreme Temperature | <input checked="" type="checkbox"/> Hurricane, Tropical Storm, <u>Nor'easter</u> |
| <input checked="" type="checkbox"/> Landslide | <input checked="" type="checkbox"/> Radon Exposure |
| <input type="checkbox"/> Tsunami | <input type="checkbox"/> Volcano |

Human-Made

- | | |
|--|---|
| <input checked="" type="checkbox"/> Building or Structure Collapse | <input checked="" type="checkbox"/> Civil Disturbance (low risk) |
| <input checked="" type="checkbox"/> Disorientation | <input checked="" type="checkbox"/> Drowning |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input checked="" type="checkbox"/> Natural Resource Extraction Processes
US Silica timber |
| <input type="checkbox"/> Nuclear Incident | <input checked="" type="checkbox"/> Source Water Contamination |
| <input checked="" type="checkbox"/> Transportation Accidents | <input checked="" type="checkbox"/> Urban Fire and Explosion (low risk) |
| <input checked="" type="checkbox"/> Utility Interruption | <input checked="" type="checkbox"/> War and Criminal Activity |

Other Hazards

- Climate Change

Part III

Comments

drug use

Appendix C-10 Berkeley County Jurisdictional Risk Assessment Worksheets

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization: CITY OF MARTINSBURG
 Name: MICHAEL COVELL

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4	4	4	4	3.7	<
N	Winter Storm	4	4	4	1	3	3.6	
M	Transportation Accidents*	4	4	3	4	2	3.6	
N	Wind Storm, Tornado	4	4	4 ↓	2	1	3.5	<
N	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5	
M	Hazardous Materials	4	2	4 ↓	4	4	3.4	
M	Terrorism	2	3	4	4	2	2.9	> larger impact in urban areas
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	
N	Radon Exposure*	3	3	2	3 ↓	1	2.6	< not severe warning time
N	Extreme Temperature	2	2	3	3	1	2.2	
N	Flooding	4	2	1	1	1 ↑	2.2	> good to be mid-rank
N	Epidemic	1	2	2	3 ↓	3	1.9	< do not include "drug epidemic"
N	Drought	1	1	3	3	3	1.8	
M	Utility Interruption*	1	2	1 ↑	3	1	1.5	> Spatial = 3
N	Wildfire	1	1	1	3	1	1.2	
N	Hailstorm	1	1	2	1	1	1.2	
N	Earthquake	1	1	1	1	1	1.0	
N	Land Subsidence	↑ 1 2	1	1	↑ 1 3	1	1.0	>
N	Infestation	1	1	1	1	1	1.0	
M	Dam and Levee Failure	1	1	1	1	1	1.0	>

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization: Region 9 - City of Mt. Airy Resident
 Name: Michael Spivey

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4.3	4	4	4	3.7	=
N	Winter Storm	4	4	4	1	3	3.6	=
M	Transportation Accidents*	4	4	3	4	2	3.6	>
N	Wind Storm, Tornado	4	4	4	2	1	3.5	<
N	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5	<
M	Hazardous Materials	4	2	4	4	4	3.4	>
M	Terrorism "western gateway"	2	3	4	4	2	2.9	=
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	<
N	Radon Exposure*	3	3	2	3	cust 1?	2.6	=
N	Extreme Temperature	2	2	3	3	1	2.2	<
N	Flooding	4	2	1	1	1	2.2	>
N	Epidemic	1	2	2	3	3	1.9	<
N	Drought	1	1	3	3	3	1.8	=
M	Utility Interruption*	1	2	1.3	3	1	1.5	>
N	Wildfire	1	1	1	3	1	1.2	<
N	Hailstorm	1	1	2	1	1	1.2	>
N	Earthquake	1	1	1	1	1	1.0	=
N	Land Subsidence	1.2	1	1	3.1	2.1	1.0	>
N	Infestation	1	1	1	1	1	1.0	=
M	Dam and Levee Failure	1	1	1	1	1	1.0	=

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:	Berkeley Medical Center
Name:	DONALD GRUBB

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4 ³	4	4	4	3.7	=
N	Winter Storm	4	4	4	1	3	3.6	<
M	Transportation Accidents*	4	4	3	4	2	3.6	>
N	Wind Storm, Tornado	4	4	4	2	1	3.5	<
N	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5	<
M	Hazardous Materials	4	2	4	4	4	3.4	>
M	Terrorism	2	3	4	4	2	2.9	> CITY county =
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	<
N	Radon Exposure*	3	3	2	3	1	2.6	=
N	Extreme Temperature	2	2	3	3	1	2.2	>=
N	Flooding	4	2	1	1	1	2.2	=
N	Epidemic	1	2	2	3	3	1.9	< LOW
N	Drought	1	1	3	3	3	1.8	=
M	Utility Interruption*	1	2	3	3	1	1.5	>
N	Wildfire	1	1	1	3	1	1.2	=
N	Hailstorm	1	1	2	1	1	1.2	=
N	Earthquake	1	1	1	1	1	1.0	=
N	Land Subsidence	1	1	1	3	1	1.0	>
N	Infestation	1	1	1	1	1	1.0	=
M	Dam and Levee Failure	1	1	1	1	1	1.0	=

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Donna VanMetre
James Rumsey Technical Inst.
dvanmetre@k12.wv.us

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:

Name:

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4 ³	4	4	4	3.7	=
N	Winter Storm	4 ³	4	4	1	3	3.6	<
M	Transportation Accidents*	4	4	3	4	2	3.6	>
N	Wind Storm, Tornado	4	4	4 ²	2	1	3.5	<
N	Thunderstorm, Lightning Strike	4	4	4 ²	2	1	3.5	<
M	Hazardous Materials	4	2	4	4	4	3.4	>
M	Terrorism	2	3	4	4	2	2.9	=
N	Hurricane, Tropical Storm, Nor'easter*	3 ²	3 ²	4	1	2	2.9	<
N	Radon Exposure*	3 ²	3	2	3 ¹	1 ³	2.6	=
N	Extreme Temperature	2	2	3	3 ²	1	2.2	<
N	Flooding	4	2	1	1	1 ³	2.2	=
N	Epidemic (medical)	1	2	2	3	3	1.9	<
N	Drought	1 ³	1 ³	3	3 ³	3	1.8	=
M	Utility Interruption*	1	2 ³	1 ³	3	1	1.5	>
N	Wildfire	1	1	1	3	1	1.2	=
N	Hailstorm	1	1	2	1	1	1.2	=
N	Earthquake	1	1	1	1	1	1.0	=
N	Land Subsidence	1 ²	1	1	3 ^{1³}	1 ²	1.0	>
N	Infestation	1	1	1	1	1	1.0	=
M	Dam and Levee Failure	1	1	1	1	1	1.0	=

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:	Region 9
Name:	Bill Clark

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4	4	4	4	3.7	< =
N	Winter Storm	4	4	4	1	3	3.6	=
M	Transportation Accidents*	4	4	3	4	2	3.6	=
N	Wind Storm, Tornado	4	4	4	2	1	3.5	= <
N	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5	<
M	Hazardous Materials	4	2	4	4	4	3.4	=
M	Terrorism	2	3	4	4	2	2.9	<
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	=
N	Radon Exposure*	3	3	2	3	1	2.6	=
N	Extreme Temperature	2	2	3	3	1	2.2	>
N	Flooding	4	2	1	1	1	2.2	>
N	Epidemic	1	2	2	3	3	1.9	=
N	Drought	1	1	3	3	3	1.8	<
M	Utility Interruption*	1	2	3	3	1	1.5	<
N	Wildfire	1	2	1	3	1	1.2	<
N	Hailstorm	1	1	2	1	1	1.2	<
N	Earthquake	1	1	1	1	1	1.0	<
N	Land Subsidence	1	1	1	1	1	1.0	=
N	Infestation	1	1	1	1	1	1.0	<
M	Dam and Levee Failure	1	1	1	1	1	1.0	=

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization: *Berkeley County Homeland Security + Emergency Management*
 Name: *Randy Lly*

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4/3	4	4	4	3.7	<i>Less still is red</i>
N	Winter Storm	4/3	4	4	1	3	3.6	<i>Less</i>
M	Transportation Accidents*	4	4	3	4	2	3.6	<i>=</i>
N	Wind Storm, Tornado	4	4	4	2	1	3.5	<i>Less</i>
N	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5	<i>Less</i>
M	Hazardous Materials	4	2	4	4	4	3.4	<i>=</i>
M	Terrorism	2	3	4	4	2	2.9	
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	
N	Radon Exposure*	3	3	2	3	1	2.6	<i>=</i>
N	Extreme Temperature	2	2	3	3	1	2.2	<i>Lower</i>
N	Flooding	4	2	1	1	1	2.2	<i>Higher</i>
N	Epidemic	1	2	2	3	3	1.9	<i>Lower</i>
N	Drought	1	1	3	3	3	1.8	<i>=</i>
M	Utility Interruption*	1	2	3/3	3	1	1.5	<i>Higher</i>
N	Wildfire	1	1	1	3	1	1.2	<i>=</i>
N	Hailstorm	1	1	2	1	1	1.2	<i>=</i>
N	Earthquake	1	1	1	1	1	1.0	<i>=</i>
N	Land Subsidence	1/2	1	1	3/3	1	1.0	<i>Higher</i>
N	Infestation	1	1	1	1	1	1.0	<i>=</i>
M	Dam and Levee Failure	1	1	1	1	1	1.0	<i>=</i>

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:	REGION 9
Name:	MATTHEW PENNINGTON

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4.5	4.3	4.3	4.5 <i>KARST RIS River Draw</i>	3.7	< less
N	Winter Storm	4.2	4	4	1	3	3.6	< less
M	Transportation Accidents*	4	4	3	4	2	3.6	=
N	Wind Storm, Tornado	4	4	4.2	2	1	3.5	< less
N	Thunderstorm, Lightning Strike	4.2	4.2	4.1	2	1	3.5	< less
M	Hazardous Materials	4.3	2.3	4.2	4.3	4.3	3.4	< less
M	Terrorism	2	3	4.2	4	2	2.9	< less
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	< less
N	Radon Exposure*	3	3	2	3	1	2.6	=
N	Extreme Temperature	2	2	3.4	3	1	2.2	> Greater
N	Flooding	4	2.3	1.3	1.3	1.3	2.2	> Greater
N	Epidemic	1	2	2	3	3	1.9	> less
N	Drought	1	1	3.4	3	3	1.8	> less
M	Utility Interruption*	1.2	2	1	3	1	1.5	> Greater
N	Wildfire	1	1	1	3	1	1.2	=
N	Hailstorm	1	1	2	1	1	1.2	=
N	Earthquake	1	1	1	1	1	1.0	=
N	Land Subsidence	1	1	1	1	1	1.0	=
N	Infestation	1	1	1	1	1	1.0	=
M	Dam and Levee Failure	1	1	1	1	1	1.0	=

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization: Berkeley Co
 Name: Mike Thompson Jan 2012

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4 ³	4	4	4	3.7	
N	Winter Storm	4 ³	4	4	1	3	3.6	- maybe not top - in H - maybe lower - in H
M	Transportation Accidents*	4	4	3	4	2	3.6	> the
N	Wind Storm, Tornado	4	4	4 ³	2	1	3.5	loss <
N	Thunderstorm, Lightning Strike	4	4	4 ³	2	1	3.5	
M	Hazardous Materials	4	2	4	4	4	3.4	<> in city
M	Terrorism	2	3	4	4	2	2.9	<
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	<
N	Radon Exposure*	3	3	2	3	1	2.6	stay in middle
N	Extreme Temperature	2	2	3	3 ¹	1	2.2	<
N	Flooding	4	2 ³	1	1	1 ³ ⁴	2.2	<
N	Epidemic <small>time enough to get treatment disease slow to develop</small>	1	2 <small>yellow</small>	2	3	3 <small>lower</small>	1.9	not least more up > High Category
N	Drought	1	1	3	3 [?]	3	1.8	aka
M	Utility Interruption*	1 ⁴	2	1 ⁴	3	1	1.5	gold, but higher
N	Wildfire	1	1	1	3	1	1.2	< now than previously
N	Hailstorm	1	1	2	1	1	1.2	
N	Earthquake	1	1	1	1	1	1.0	
N	Land Subsidence	1 ²	1	1	1 ³	1 ²	1.0	> sink holes
N	Infestation	1	1	1	1	1	1.0	
M	Dam and Levee Failure	1	1	1	1	1	1.0	

could be lower with exploration - needs to be in plan, part actions

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization: Berkeley County Planning & Floodplain Administrator
 Name: Heather Williams

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4	4	4	4	3.7	= red
N	Winter Storm	4	4	4	1	3	3.6	< red
M	Transportation Accidents*	4	4	3	4	2	3.6	= red
N	Wind Storm, Tornado	4	4	4	2	1	3.5	< orange
N	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5	< orange
M	Hazardous Materials	4	2	4	4	4	3.4	> red
M	Terrorism	2	3	4	4	2	2.9	= orange
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	> red
N	Radon Exposure*	3	3	2	3	1	2.6	< yellow/orange
N	Extreme Temperature	2	2	3	3	1	2.2	< yellow/orange
N	Flooding	4	2	1	1	① 4	2.2	> orange
N	Epidemic	1	2	2	3	3	1.9	= orange
N	Drought	1	1	3	3	3	1.8	> orange
M	Utility Interruption*	1	3 ②	4 ① ↑	3	1	1.5	> orange ↑
N	Wildfire	1	1	1	3	1	1.2	= yellow
N	Hailstorm	1	1	2	1	1	1.2	= yellow
N	Earthquake	1	1	1	1	1	1.0	= yellow
N	Land Subsidence = Karst	2 ①	1	1	3 ①	1	1.0	> yellow/orange
N	Infestation	1	1	1	1	1	1.0	= yellow
M	Dam and Levee Failure	1	1	1	①	1	1.0	> orange

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

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Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:	<i>AIRPORT AUTHORITY</i>
Name:	<i>Tom MCKENZIE</i>

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4	4	4	4	3.7	=
N	Winter Storm	4	4	4	1	3	3.6	>
M	Transportation Accidents*	4	4	3	4	2	3.6	>
N	Wind Storm, Tornado	4	4	4	2	1	3.5	>
N	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5	>
M	Hazardous Materials	4	2	4	4	4	3.4	=
M	Terrorism	2	3	4	4	2	2.9	>
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	=
N	Radon Exposure*	3	3	2	3	1	2.6	=
N	Extreme Temperature	2	2	3	3	1	2.2	=
N	Flooding	4	2	1	1	1	2.2	>
N	Epidemic	1	2	2	3	3	1.9	>
N	Drought	1	1	3	3	3	1.8	=
M	Utility Interruption*	1	2	1	3	1	1.5	=
N	Wildfire	1	1	1	3	1	1.2	X
N	Hailstorm	1	1	2	1	1	1.2	=
N	Earthquake	1	1	1	1	1	1.0	=
N	Land Subsidence	1	1	1	1	1	1.0	=
N	Infestation	1	1	1	1	1	1.0	=
M	Dam and Levee Failure	1	1	1	1	1	1.0	=

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:	Town of Hedgesville
Name:	Ronnie Good

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4	4	4	4	3.7	
N	Winter Storm	4	4	4	1	3	3.6	Less
M	Transportation Accidents*	4	4	3	4	2	3.6	
N	Wind Storm, Tornado	4	4	4	2	1	3.5	
N	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5	
M	Hazardous Materials	4	2	4	4	4	3.4	
M	Terrorism	2	3	4	4	2	2.9	
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	
N	Radon Exposure*	3	3	2	3	1	2.6	
N	Extreme Temperature	2	2	3	3	1	2.2	Lower
N	Flooding	4	2	1	1	1	2.2	Higher Red
N	Epidemic	1	2	2	3	3	1.9	
N	Drought	1	1	3	3	3	1.8	
M	Utility Interruption*	1	2	1	3	1	1.5	Higher
N	Wildfire	1	1	1	3	1	1.2	
N	Hailstorm	1	1	2	1	1	1.2	
N	Earthquake	1	1	1	1	1	1.0	
N	Land Subsidence	1	1	1	1	1	1.0	Higher 2
N	Infestation	1	1	1	1	1	1.0	
M	Dam and Levee Failure	1	1	1	1	1	1.0	

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

✉ Email electronic copy to Keith

Berkeley County 2017 Hazard Mitigation Plan Update

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:	Tabler Station / Procter & Gamble
Name:	Keith Busby

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a low-ranked hazard with a countywide ranking of 1.0. The presence of a high hazard dam in your community may result in a different risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
M	Source Water Contamination*	3	4 3	4 3	4	4	3.7	<
N	Winter Storm	4	4	4	1	3	3.6	=
M	Transportation Accidents*	4	4	3	4	2	3.6	=
N	Wind Storm, Tornado	4	4	4	2	1	3.5	<
N	Thunderstorm, Lightning Strike	4	4	4	2	1	3.5	<
M	Hazardous Materials	4	2	4	4	4	3.4	=
M	Terrorism	2 1	3	4 1	4	2	2.9	>
N	Hurricane, Tropical Storm, Nor'easter*	3	3	4	1	2	2.9	=
N	Radon Exposure*	3	3	2	3	1	2.6	=
N	Extreme Temperature	2	2	3	3	1	2.2	>
N	Flooding	4	2	1	1	4	2.2	=
N	Epidemic	1	2	2	3	3	1.9	>
N	Drought	1	1	3	3	3	1.8	=
M	Utility Interruption* top 5	1	4 3	4 3	3	2	1.5	>
N	Wildfire	1	1	1	3	1	1.2	=
N	Hailstorm	1	1	2	1	1	1.2	=
N	Earthquake	1	1	1	1	1	1.0	=
N	Land Subsidence	1	1	1	3	1	1.0	=
N	Infestation	1	1	1	1	1	1.0	>
M	Dam and Levee Failure	1	1	1	1	1	1.0	=

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Appendix C-11 Morgan County Jurisdictional Risk Assessment Worksheets

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:

Name:

Anna Gorse Morgan Co

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? Ex. Dam failure is a moderate hazard with a countywide ranking of 1.9. The presence or absence of a high hazard dam in your community may result in higher or lower risk.
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
N	Flooding	3	2	3	3	2	2.6	
M	Utility Interruption*	3	2	2	3	2	2.4	
N	Epidemic	2	3	2	1	4	2.4	
N	Winter Storm	3	2	2	2	2	2.3	
M	Hazardous Materials	2	2	2	4	3	2.3	
N	Wind Storm, Tornado	2	2	2	4	2	2.2	
N	Hailstorm	2	2	2	4	2	2.2	
M	Transportation Accidents*	4	1	1	4	1	2.2	
N	Hurricane, Tropical Storm, Nor'easter*	2	2	3	1	3	2.2	
M	Source Water Contamination*	2	2	2	2	2	2.0	
N	Wildfire	2	2	1	4	2	2.0	
N	Drought	1	1	4	1	4	1.9	
M	Dam and Levee Failure	1	2	2	4	2	1.9	
M	Terrorism	1	1	1	4	2	1.4	
N	Extreme Temperature	1	2	1	1	2	1.4	
N	Infestation	1	1	2	2	2	1.4	
N	Thunderstorm, Lightning Strike	1	1	1	4	1	1.3	
N	Earthquake	1	1	1	4	1	1.3	
N	Land Subsidence	1	1	1	4	1	1.3	
N	Radon Exposure*	1	1	1	1	1	1.0	

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:

SLEEPY CREEK WATERSHED ASSOCIATION

Name:

CHARLES MARSH

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? Ex. Dam failure is a moderate hazard with a countywide ranking of 1.9. The presence or absence of a high hazard dam in your community may result in higher or lower risk.
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
N	Flooding	3	2	3	3	2	2.6	=
M	Utility Interruption*	3	2	2	3	2	2.4	=
N	Epidemic	2	3	2	1	4	2.4	<
N	Winter Storm	3	2	2	2	2	2.3	=
M	Hazardous Materials	2	2	2	4	3	2.3	=
N	Wind Storm, Tornado	2	2	2	4	2	2.2	<
N	Hailstorm	2	2	2	4	2	2.2	=
M	Transportation Accidents*	4	1	1	4	1	2.2	>
N	Hurricane, Tropical Storm, Nor'easter*	2	2	3	1	3	2.2	= HEAVY TRUCK TRAFFIC
M	Source Water Contamination*	2	2	2	2	2	2.0	=
N	Wildfire	2	2	1	4	2	2.0	> EXTENSIVE FOREST
N	Drought	1	1	4	1	4	1.9	=
M	Dam and Levee Failure	1	2	2	4	2	1.9	> DETERIORATING DAMS
M	Terrorism	1	1	1	4	2	1.4	= AROUND BECKLEY SPRINGS
N	Extreme Temperature	1	2	1	1	2	1.4	=
N	Infestation	1	1	2	2	2	1.4	=
N	Thunderstorm, Lightning Strike	1	1	1	4	1	1.3	>
N	Earthquake	1	1	1	4	1	1.3	=
N	Land Subsidence	1	1	1	4	1	1.3	=
N	Radon Exposure*	1	1	1	1	1	1.0	>

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Morgan County 2017 Hazard Mitigation Plan Update

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:

Name:

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a moderate hazard with a countywide ranking of 1.9. The presence or absence of a high hazard dam in your community may result in higher or lower risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
N	Flooding	3	2 3	3	Flash Flood 3 4	2 3	2.6	> Greater
M	Utility Interruption*	3	2	2	3	2	2.4	=
N	Epidemic	2	3	2	1	4	2.4	=
N	Winter Storm	3 2	2	2	2	2	2.3	< less
M	Hazardous Materials	2 3	2	2	4	3	2.3	> Greater
N	Wind Storm, Tornado	2	2	2	4	2	2.2	=
N	Hailstorm	2	2	2 1	4	2	2.2	< less
M	Transportation Accidents*	4	1	1	4	1	2.2	=
N	Hurricane, Tropical Storm, Nor'easter*	2	2	3	1	3	2.2	< less
M	Source Water Contamination*	2	2 3	2	2	2	2.0	> Greater
N	Wildfire	2	2	1	4	2	2.0	> Greater
N	Drought	1	1	4	1	4	1.9	=
M	Dam and Levee Failure	1	2 3	2	4	2	1.9	> Greater
M	Terrorism	1	1	1	4	2	1.4	=
N	Extreme Temperature	1	2	1	1	2	1.4	=
N	Infestation	1	1	2	2	2	1.4	=
N	Thunderstorm, Lightning Strike	1 2	1	1	4	1	1.3	> Greater
N	Earthquake	1	1	1	4	1	1.3	=
N	Land Subsidence	1	1	1	4	1	1.3	=
N	Radon Exposure*	1 2	1	1 2	1	1	1.0	> Greater

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:

Name:

R-9
Bill Clark

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? Ex. Dam failure is a moderate hazard with a countywide ranking of 1.9. The presence or absence of a high hazard dam in your community may result in higher or lower risk.
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
N	Flooding	3	2	3	3	2	2.6	=
M	Utility Interruption*	3	2	2	3	2	2.4	=
N	Epidemic	2	3	2	1	4	2.4	=
N	Winter Storm	3	2	2	2	2	2.3	=
M	Hazardous Materials	2	2	2	4	3	2.3	=
N	Wind Storm, Tornado	2	2	2	4	2	2.2	=
N	Hailstorm	2	2	2	4	2	2.2	=
M	Transportation Accidents*	4	1	1	4	1	2.2	<
N	Hurricane, Tropical Storm, Nor'easter*	2	2	3	1	3	2.2	>
M	Source Water Contamination*	2	2	2	2	2	2.0	=
N	Wildfire	2	2	1	4	2	2.0	=
N	Drought	1	1	4	1	4	1.9	=
M	Dam and Levee Failure	1	2	2	4	2	1.9	=
M	Terrorism	1	1	1	4	2	1.4	=
N	Extreme Temperature	1	2	1	1	2	1.4	>
N	Infestation	1	1	2	2	2	1.4	<
N	Thunderstorm, Lightning Strike	1	1	1	4	1	1.3	=
N	Earthquake	1	1	1	4	1	1.3	=
N	Land Subsidence	1	1	1	4	1	1.3	>
N	Radon Exposure*	1	1	1	1	1	1.0	=

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization: Sleepy Creek & Warm Springs Watershed Association
 Name: Jeff Duff

NATURAL OR MAN-MADE (N or M)	HAZARD <i>what about combinations like Hazardous Materials, Transportation, and source water contamination. Ex: Tanker truck of hazardous materials wrecks + spills near source water.</i>	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? Ex. Dam failure is a moderate hazard with a countywide ranking of 1.9. The presence or absence of a high hazard dam in your community may result in higher or lower risk.
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
N	Flooding	3	2	3	3	2	2.6 =	=
M	Utility Interruption*	3	2	2	3	2	2.4 <	<
N	Epidemic	2	3	2	1	4	2.4 <	<
N	Winter Storm	3	2	2	2	2	2.3 =	=
M	Hazardous Materials	2	2	2	4	3	2.3 >	>
N	Wind Storm, Tornado	2	2	2	4	2	2.2 =	=
N	Hailstorm	2	2	2	4	2	2.2 <	<
M	Transportation Accidents*	4	1	1	4	1	2.2 >	>
N	Hurricane, Tropical Storm, Nor'easter*	2	2	3	1	3	2.2 =	=
M	Source Water Contamination*	2	2	2	2	2	2.0 >	>
N	Wildfire	2	2	1	4	2	2.0 >	>
N	Drought	1	1	4	1	4	1.9 =	=
M	Dam and Levee Failure	1	2	2	4	2	1.9 =	=
M	Terrorism	1	1	1	4	2	1.4 =	=
N	Extreme Temperature	1	2	1	1	2	1.4 >	>
N	Infestation	1	1	2	2	2	1.4 =	=
N	Thunderstorm, Lightning Strike	1	1	1	4	1	1.3 =	=
N	Earthquake	1	1	1	4	1	1.3 =	=
N	Land Subsidence	1	1	1	4	1	1.3 >	>
N	Radon Exposure*	1	1	1	1	1	1.0 =	=

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:	Chamber of Commerce
Name:	Lon Hansroth

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a moderate hazard with a countywide ranking of 1.9. The presence or absence of a high hazard dam in your community may result in higher or lower risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
N	Flooding	3	2	3	3	2	2.6	>
M	Utility Interruption* Pipeline	3	2	2	3	2	2.4	>
N	Epidemic	2	3	2	1	4	2.4	<
N	Winter Storm	3	2	2	2	2	2.3	>
M	Hazardous Materials	2	2	2	4	3	2.3	>
N	Wind Storm, Tornado	2	2	2	4	2	2.2	>
N	Hailstorm	2	2	2	4	2	2.2	=
M	Transportation Accidents* Includes Pipeline	4	1	1	4	1	2.2	>
N	Hurricane, Tropical Storm, Nor'easter*	2	2	3	1	3	2.2	=
M	Source Water Contamination*	2	2	2	2	2	2.0	>
N	Wildfire	2	2	1	4	2	2.0	=
N	Drought	1	1	4	1	4	1.9	=
M	Dam and Levee Failure	1	2	2	4	2	1.9	<
M	Terrorism	1	1	1	4	2	1.4	=
N	Extreme Temperature	1	2	1	1	2	1.4	=
N	Infestation	1	1	2	2	2	1.4	=
N	Thunderstorm, Lightning Strike	1	1	1	4	1	1.3	=
N	Earthquake	1	1	1	4	1	1.3	>
N	Land Subsidence	1	1	1	4	1	1.3	>
N	Radon Exposure*	1	1	1	1	1	1.0	=

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Jurisdictional Risk Evaluation

Use this worksheet to identify the unique impacts of hazards in your municipality and provide any additional comments on hazard profiles or ranking. The hazards are listed in the order that they have been ranked for the 2017 Hazard Mitigation Plan Update.

Municipality/Organization:	PE
Name:	Matthew Rosensteel

NATURAL OR MAN-MADE (N or M)	HAZARD	RISK ASSESSMENT CATEGORY (1 = least severe, 4 = most severe)					CALCULATED RISK FACTOR	Does your jurisdictional risk differ from the County's? Is it greater than >, less than <, or equal to =? <i>Ex. Dam failure is a moderate hazard with a countywide ranking of 1.9. The presence or absence of a high hazard dam in your community may result in higher or lower risk.</i>
		PROBABILITY (1-4)	SEVERITY (1-4)	SPATIAL EXTENT (1-4)	WARNING TIME (1-4)	DURATION (1-4)		
N	Flooding	3	2	3	3	2	2.6	=
M	Utility Interruption*	3	2	2	3	2	2.4	=
N	Epidemic	2	3	2	1	4	2.4	=
N	Winter Storm	3	2	2	2	2	2.3	=
M	Hazardous Materials	2	2	2	4	3	2.3	=
N	Wind Storm, Tornado	2	2	2	4	2	2.2	=
N	Hailstorm	2	2	2	4	2	2.2	<
M	Transportation Accidents*	4	1	1	4	1	2.2	=
N	Hurricane, Tropical Storm, Nor'easter*	2	2	3	1	3	2.2	=
M	Source Water Contamination*	2	2	2	2	2	2.0	=
N	Wildfire	2	2	1	4	2	2.0	=
N	Drought	1	1	4	1	4	1.9	=
M	Dam and Levee Failure	1	2	2	4	2	1.9	=
M	Terrorism	1	1	1	4	2	1.4	=
N	Extreme Temperature	1	2	1	1	2	1.4	>
N	Infestation	1	1	2	2	2	1.4	=
N	Thunderstorm, Lightning Strike	1	1	1	4	1	1.3	<
N	Earthquake	1	1	1	4	1	1.3	=
N	Land Subsidence	1	1	1	4	1	1.3	=
N	Radon Exposure*	1	1	1	1	1	1.0	=

*Hazard was not in the 2012 plan but will be added to the 2017 plan.

Appendix C-12 Berkeley County Mitigation Progress Report Worksheets

Region 9 Planning and Development Council Mitigation Action Progress Report Form

ACTION	STATUS				STATUS UPDATE NOTES
	Completed	Canceled	Deferred	Ongoing	What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
Maintain compliance with the National Flood Insurance Program (NFIP) at the jurisdictional level by attending training, monitoring development, and ensuring that local floodplain regulations are as current and applicable as possible.				X	-Floodplain Administrator is a CFM; has attended, and will continue to attend training provided through the State NFIP office and the EMI in Emmitsburg, MD in order to maintain certification. -Floodplain Ordinance was adopted in 2009. An update to this has been provided by the State NFIP office and it needs to be adopted in 2016.
Undertake buyout, elevation, and/or relocation projects in the Region 9 Planning and Development Council area when and if funding is available.					This seems to be a repeat of the item on the next page with the only difference being the reference to Region 9 in this one.
Coordinate, as appropriate, with partners throughout the region to identify the location of privately-owned dams.	X				We are aware of 1 private dam located in Berkeley County located off of Fegan Road/Specks Run Road/Winchester Avenue in Bunker Hill. (Stonebridge Subdivision – Caledonia Dr)

Berkeley County - Mitigation Action Progress Report Form

ACTION	STATUS				STATUS UPDATE NOTES
	Completed	Canceled	Deferred	Ongoing	What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
Develop an informational brochure to distribute to local farmers and residents regarding the agricultural effects of drought, as well as the ramifications of drought to the public water supply.				X	This is ongoing thru the Farm Bureau & the West Virginia Extension
Evaluate current public water system to identify the most feasible locations to construct upgrades that would reduce or eliminate the effects of drought.					
Consider upgrades or extensions to the current public water service district.					
Develop an informational brochure explaining the potential for earthquakes, as well as the potential damages from those earthquakes. The brochure should include information on measures to take to safeproof homes and other structures from the potential effects of earthquakes.	X				Berkeley County is using the FEMA brochure
Develop stringent storm water management codes for future development.				X	Waiting on approvals of Berkeley counties subdivision ordinance & waiting on final approvals from EPA & DEP for the counties MS4 permit
Consider conducting acquisition and relocation projects (buyouts) in flood-prone areas. This includes repetitive, severe repetitive loss and non-repetitive and severe repetitive loss structures.				X	Berkeley County Specific Update -Sportsman's Paradise buyout project is in its 4th and final phase. Of the parcels remaining, many are vacant lots. -Evaluation of other subdivisions (Horner, Little Georgetown, Trees Bottom) mentioned in Hazard Mitigation plan might reveal additional hazard mitigation grant opportunities.

Berkeley County 2017 Hazard Mitigation Plan Update

ACTION	STATUS				STATUS UPDATE NOTES
	Completed	Canceled	Deferred	Ongoing	
Coordinate county efforts to meet the requirements of becoming a participant in the Community Rating System.	X			X	What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments? See New Action Plan submission. Could be a continuation of this one, or mark this one complete and replace with the "Continue Coordinating County Efforts to Meet the Requirements of Participation in the Community Rating System."
Assess the feasibility of erecting floodwalls in flood prone areas.		X			Floodwalls are bad. I don't believe Berkeley County would benefit from erecting floodwalls.
Coordinate efforts with local media to post advance warnings of hailstorms.				X	Using WHAG TV, WEPM & WRNR radio & Martinsburg Journal newspaper. Also currently looking into possible opting into a mass notification system.
Develop an informational brochure to distribute to local farmers and residents concerning the potential effects of an infestation.				X	This is ongoing thru the Farm Bureau & the Health Department
Instate or update countywide building codes, which will regulate the number of buildings and the materials used in buildings that are constructed.					
Enforce existing building codes that are already in place.	X				Berkeley County adopted the 2015 Building Codes which the State of West Virginia adopted with the effective date of August 1 2016
Educate the public as to the benefits of building codes and advantages to mitigation planning.	X				A class was offered through EPHBA for the transition to the new codes
Construct a stabilization wall or safety fence along roadways which pass through areas that are prone to landslides.				X	This is ongoing thru the Department of Highways

Berkeley County 2017 Hazard Mitigation Plan Update

ACTION	STATUS				STATUS UPDATE NOTES
	Completed	Canceled	Deferred	Ongoing	
					What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
Coordinate with the National Weather Service in Sterling, Virginia to warn residents of impending severe thunderstorm conditions.				X	We are currently looking into possible opting into a mass notification system
Instate or update countywide building codes, which will regulate the materials used in buildings that are constructed with respect to design wind speeds.					
Instate or update countywide building codes, which will regulate the materials used in construction with respect to snow and ice weight.					
Educate local residents on the benefits of conserving water during a heat wave.				X	This is ongoing thru the county & city water authorities
Distribute information concerning the leading causes of wildfires and steps the general public can take to avoid starting wildfires.				X	This is ongoing thru the Department of Forestry
Work with airport safety officials to determine how best to respond to a crash involving larger planes.				X	This is ongoing thru the 167 th Air National Guard
Coordinate with railroad companies to provide more emergency access to railroad rights-of-way for emergency response activities in the event of a train wreck.				X	Currently working with CSX on this
Consider updating the existing Tier 2 report to include agricultural substances such as herbicides.				X	LEPC is reaching out to local farmers & orchards

Appendix C-13 Morgan County Mitigation Progress Report Worksheets

Region 9 Planning and Development Council Mitigation Action Progress Report Form

ACTION	STATUS				STATUS UPDATE NOTES What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
	Completed	Canceled	Deferred	Ongoing	
Maintain compliance with the National Flood Insurance Program (NFIP) at the jurisdictional level by attending training, monitoring development, and ensuring that local floodplain regulations are as current and applicable as possible.				X	- CRS Eligibility - 2013 - Compliance of FL Regs enforcement
Undertake buyout, elevation, and/or relocation projects in the Region 9 Planning and Development Council area when and if funding is available.				X	
Coordinate, as appropriate, with partners throughout the region to identify the location of privately-owned dams.				X	

Morgan County - Mitigation Action Progress Report Form

ACTION	STATUS				STATUS UPDATE NOTES
	Completed	Canceled	Deferred	Ongoing	What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
Ensure that flood insurance policies remain affordable through the county and municipal government programs.				X	CRS program - key to improvement planning
Support Morgan County's efforts in the Community Rating System (CRS) program, and provide training to municipalities on the CRS program and encourage them to participate.				X	MC Planner is FP mgr for both municipalities - difficult to accomplish w/ very limited staff -
Collect updated information on the number and location of all repetitive loss properties throughout the county and develop a database and maps for storage.				X	Reviewed each yr as part of CRS reporting
Identify owners of repetitive and severe repetitive loss properties that may be willing to participate in future property acquisition and relocation projects.				X	I
Review all existing regulations to ensure adequacy in reducing the amount of future identified hazard areas.				X	
Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.				X	updating MC Comp Plan for 2017 (Every 10 yrs required)
Provide training to municipalities on the CRS program and encourage them to participate.					

Morgan County 2017 Hazard Mitigation Plan Update

ACTION	STATUS				STATUS UPDATE NOTES What was accomplished for this action during this reporting period? What obstacles, problems, or delays were encountered? If not completed, is the action still relevant? Should the action and/or the anticipated completion date be revised? Do you have any other comments?
	Completed	Canceled	Deferred	Ongoing	
Continue to enforce ordinances that new structures do not interfere with flood mitigation measures.				X	Done - (BE Like NICE)
Obtain updated information on the number of NFIP policyholders in Morgan County and its municipalities.				X	Part of CRS Reporting
Develop mitigation strategies to protect any at-risk historic properties.				X	FP Regs Applicable in areas where most historic structures are
Conduct a survey of all historic sites that are located in hazard areas.					most sites located w/ a T.O.B.

Morgan County Hazard Mitigation Strategies

Work with WV Department of Highways to identify areas of frequent roadway flooding and develop mitigation strategies.

This is an ongoing effort, especially when new development is being proposed in an area known for having flooding/drainage issues. FPM works with our District office during the permitting process. FPM also reviews and makes recommendations for highway road improvements proposed by WVDOH that are located within a flood prone area.

Identify strategies to mitigate risks from the transportation and/or storage of hazardous materials in Morgan County. The Morgan County LEPC has monthly meetings to establish, identify and mitigate transportation and/or storage of hazardous material issues. The planning and exercise subcommittees work together to determine and test our current plans through our yearly training exercises. Changes are made accordingly when the After Action Report is completed.

Develop a plan to implement the Needs Assessment recommendations developed by the Public Safety System Consultant. Who is the public safety system consultant?

Develop adequate emergency shelter and evacuation plans for citizens and animals (domestic pets, livestock and wildlife). This is an ongoing process with the ARC and Health Department. We are working with the ARC to update shelter locations to meet the needs within Morgan County. The Morgan County OHSEM has applied for grant request (Pet Trailer) for a temporary shelter for pets but have been denied such request. We do have a regional Pet Trailer available located in Jefferson County. The Morgan County OHSEM and Morgan County Animal Control will continue to search for additional financial support and resources.

Establish a formal process for the city and the Park Service to coordinate disaster related efforts, which will include defining boundaries and establishing responsibilities.

Conduct training exercises that include representatives from the city and the Park Service to facilitate increased coordination. Morgan County OHSEM conducts annual exercises that range from tabletop, functional and full scale. We have participated in a joint search and rescue training with the park service in the past year and will continue to conduct annual training.

Obtain updated information on the number of NFIP policyholders in Morgan County and its municipalities.

FPM works closely with the WVDHS NFIP Office and receives updates on flood policies regularly. FPM sends annual mailing to repetitive loss owners and surrounding property owners informing them on programs available for possible acquisitions and flood proofing information.

Conduct a survey of all historic sites that are located in hazard areas.

The majority of historic sites/buildings are located within the two municipalities. The Town of Bath is currently updating their Comprehensive Plan and has been working with FPM on adequately addressing floodplain information and listing historic sites and means of preservation, The Town of Paw Paw has completed their Comprehensive Plan which provides floodplain information and historic site preservation.

Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter and the Morgan County Office of Emergency Services. Morgan County is working closely with the ARC to update existing and new shelter sites within Morgan County. Once the

agreements are established between the shelter sites and the ARC a protocol can be put in place for information sharing.

Appendix C-14 Berkeley County Mitigation Action Forms

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency County Council, Planning Department, Floodplain Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title: Utilize Electronic Tools and/or Broadcast Systems to Communicate to Citizens	
Assessing the Risk	
Hazard(s) addressed	Evacuation related to Flooding, Damage to Property, Loss of Life
Describing the Action	
Background/Issue action addresses	A large portion of the SFHAs (Special Flood Hazard Areas) in Berkeley County is used for recreational purposes. While this is a preferred use of these areas, communicating to individuals within these areas, in a timely manner, regarding impending hazards, is crucial to their safety.
Action description	Utilizing electronic tools such as Facebook, Twitter, Instagram, etc. could be beneficial in spreading the word quickly regarding hazards and, if necessary, recovery information (ex. Greenbrier County OEMHS has been using Facebook as one of their tools to communicate with citizens regarding flood response information.) A broadcast announcement system could also be beneficial in concentrated recreational areas such as Riverbend, where individuals might not be “connected” to electronic communication devices.
Action category	Communications
Existing, Future, or NA	Existing and Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Advance notification could reduce the number of water rescues needed during a

Berkeley County 2017 Hazard Mitigation Plan Update

	flood event. It could also reduce the damage to property, if individuals are given enough notice to pull their RVs from the campsites.
Cost estimate	Unknown
Cost effectiveness (i.e., benefit/cost)	Unknown
Priority	Intermediate
Implementing the Action	
Responsible party	OEMHS & IT
Potential Partners	County Council/Planning/Floodplain Manager
Potential funding sources	Unknown
Timeline	Dependent upon
Integration Opportunities (if any)	The electronic tools could be used for non-emergency county communications as well, such as public hearing notices, educational information, on-line brochures, event postings, etc. This would grow the number of participants, subscribers, followers, etc. and provide the ability to communicate the county's hazard response information to a broader audience.
Worksheet completed by (name/title)	Heather Williams, Floodplain Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency County Council, Planning Department, Floodplain Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title: Continue Coordinating County Efforts to Meet the Requirements of Participation in the Community Rating System

Assessing the Risk

Hazard(s) addressed	Loss of Life, Damage to property
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Describing the Action

Background/Issue action addresses	The county has achieved a CRS Class ranking of 07 and will need to continue working to maintain this rating. While a ranking of 07 is a great achievement, maintaining this ranking through continued floodplain monitoring and education is equally important.
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Action description	Adoption and enforcement of the Floodplain Ordinance and corresponding updates as provided periodically by the State NFIP office. On-going training of the Floodplain Administrator in order to maintain certifications. Participation in audits conducted by CRS representatives.
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Action category	Prevention, Property Protection, Public Education and Awareness
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Existing, Future, or NA	Existing and Future
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Evaluating the Action

Losses avoided (i.e., benefits)	Loss of life reduced, loss of property reduced, Natural function of the floodplain to manage flood waters returned and/or improved.
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Berkeley County 2017 Hazard Mitigation Plan Update

Cost estimate	No additional funding necessary
Cost effectiveness (i.e., benefit/cost)	Lower insurance costs; lower property replacement costs
Priority	High
Implementing the Action	
Responsible party	County Council and Floodplain Administrator
Potential Partners	OEMHS
Potential funding sources	
Timeline	On-going
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Heather Williams, Floodplain Administrator

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency County Council, Planning Department, Floodplain Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title: Complete Sportsman's Paradise Park	
Assessing the Risk	
Hazard(s) addressed	Flooding, Damage to Property, Loss of Life
Describing the Action	
Background/Issue action addresses	Berkeley County has acquired over 32 acres of land in the Sportsman's Paradise area, and is currently working on the 4 th phase of this land acquisition Hazard Mitigation project. Now that the land has been acquired, the next step in the project is to turn this acreage into a green space park area that can be utilized by county residents.
Action description	County owned land use, land maintenance
Action category	Park Project
Existing, Future, or NA	Existing and Future
Evaluating the Action	
Losses avoided (i.e., benefits)	This park could be constructed to improve the natural function of the floodplain in this area, act as a resource tool for floodplain education, and provide greenspace, and/or trail areas for the residents of the county.
Cost estimate	Unknown
Cost effectiveness (i.e., benefit/cost)	Unknown
Priority	Intermediate
Implementing the Action	

Berkeley County 2017 Hazard Mitigation Plan Update

Responsible party	County Council
Potential Partners	Martinsburg-Berkeley County Parks and Recreation
Potential funding sources	Unknown
Timeline	
Integration Opportunities (if any)	Education, hiking, biking, greenspace
Worksheet completed by (name/title)	Heather Williams, Floodplain Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Dam & Levee Failure
Describing the Action	
Background/Issue action addresses	Better identify hazard areas
Action description	Coordinate with partners throughout the region to identify the location of privately owned dams.
Action category	Education & awareness
Existing, Future, or NA	Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	Knowledge of location of dams to identify possible risks
Cost estimate	Little to no cost to identify location
Cost effectiveness (i.e., benefit/cost)	
Priority	Low
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM, property owners where dam is located
Potential funding sources	
Timeline	Ongoing
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Drought
Describing the Action	
Background/Issue action addresses	A drought can pose threat on communities, agriculture and livestock.
Action description	Create an informational brochure and/or digital media to inform/educate community members on the effects of a drought. Information should include water conservation initiatives.
Action category	Natural Disaster
Existing, Future, or NA	Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	Allows residents to be better prepared prior to an event as well as what to do during an event.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	
Priority	Medium
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM, Public Water Authorities, Farm Bureau, WV Extension
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Earthquake
Describing the Action	
Background/Issue action addresses	Earthquakes in West Virginia are not common but is a rare occurrence that could be detrimental to communities.
Action description	Create an informational brochure and/or digital media as to the potential of earthquakes in West Virginia as well as potential damages from those earthquakes. Brochure should include information on measures to take to prepare for prior to, during and after an earthquake.
Action category	Natural Disaster
Existing, Future, or NA	Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	Avoid loss of life.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	Enhance community safety.
Priority	Low
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Epidemic
Describing the Action	
Background/Issue action addresses	An epidemic can pose a health threat on community members and add stress to emergency responders and medical facilities.
Action description	Create an informational brochure and/or digital media to inform/educate community members on the effects of an epidemic. Information should include how to prevent the spread during an event.
Action category	Natural Disaster
Existing, Future, or NA	Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	Allows residents to be better prepared prior to an event as well as keep them in better health and possibly spreading the problem during an event.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	Possibly reduce the load on emergency services and keep the community members in better health during an event.
Priority	Medium
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM, Health Department
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Extreme Temperature
Describing the Action	
Background/Issue action addresses	Extreme temperature can pose a health threat on community members and outdoor pets.
Action description	Create an informational brochure and/or digital media to inform/educate community members on the effects that extreme temperatures can have on them as well as outside pets. Information should include how to be prepared for an event as well as what to do during an event.
Action category	Natural Disaster
Existing, Future, or NA	Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	Allows residents to be better prepared prior to an event as well as keep them in better health during an event.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	Possibly reduce the load on emergency services during an event.
Priority	Medium
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM, Health Department
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Hazardous Materials
Describing the Action	
Background/Issue action addresses	Identification of hazardous materials in the event of an event of a spill
Action description	In the event of a release of a hazardous material it is imperative to quickly & safely identify what the material is to ensure responder and community safety.
Action category	Material Identification
Existing, Future, or NA	
Evaluating the Action	
Losses avoided (i.e., benefits)	The knowledge of what material & how much material will enable us to be better prepared in the event of an accident involving hazardous material.
Cost estimate	\$75,000.00
Cost effectiveness (i.e., benefit/cost)	Enhance responder and community safety.
Priority	High
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	
Potential funding sources	Grant
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Hazardous Materials
Describing the Action	
Background/Issue action addresses	Identify hazardous materials that are transported through Berkeley County
Action description	Conduct a study to determine what hazardous materials & how much is transported on the roadways and rail.
Action category	Transportation
Existing, Future, or NA	Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	The knowledge of what material & how much material will enable us to be better prepared in the event of an accident involving hazardous material.
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	Enhance responder and community safety.
Priority	High
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM, DOH, Winchester & Western, CSX
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Infestation
Describing the Action	
Background/Issue action addresses	An infestation can pose threat on communities and agriculture.
Action description	Create an informational brochure and/or digital media to inform/educate local farmers and residents on the potential effects of an infestation.
Action category	Natural Disaster
Existing, Future, or NA	Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	Allows residents and local farmers to be better prepared prior to an event as well as what to do during an event.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	
Priority	Low
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM, Farm Bureau, WV Extension
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Winter Storm, Windstorm, Tornado, Thunderstorm, Lightning Strike, Hurricane, Tropical Storm, Nor'easter, Extreme Temperature, Flooding, Epidemic, Drought, Hailstorm, Infestation
Describing the Action	
Background/Issue action addresses	Often we are impacted by weather events that leaves residents unable to get out of their residences for up to 4 or 5 days or leaves residents in need of assistance.
Action description	Opt into a mass notification system that can warn residents of potential incoming weather events so that they me be better prepared prior to the event. Mass notification can also be used to send community members information on how to prepare for other potential threats and community awareness events.
Action category	Software/digital media implementation project.
Existing, Future, or NA	Existing & ongoing in the future
Evaluating the Action	
Losses avoided (i.e., benefits)	Avoid residents overwhelming emergency services with community service calls. Allows residents to be better prepared in the event of a potential threat.
Cost estimate	\$40,000 annual subscription Mass notification systems are priced based on population.
Cost effectiveness (i.e., benefit/cost)	With prior notification residents can better prepare themselves for an event. This would help to reduce the number of community service requests during an event.
Priority	High
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	There is potential for other county entities such as law enforcement, water districts, school system & others to opt into using the system to get information out to the community members.
Potential funding sources	
Timeline	Depending on funding
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Terrorism
Describing the Action	
Background/Issue action addresses	Terrorism continues to be an issue across the country
Action description	Create an informational brochure and/or digital media as to how to prepare for a terrorism event and what to do if a terrorism event occurs.
Action category	Disaster
Existing, Future, or NA	Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	Avoid loss of life and property.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	Enhance community safety.
Priority	Low
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM, Law Enforcement
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Transportation Accidents
Describing the Action	
Background/Issue action addresses	In the event of an accident on a major roadway or interstate that requires the roadway to be shut down traffic backs up quickly and causes major delays.
Action description	Develop a plan with cooperation from all agencies that may be directly or indirectly involved that would manage traffic in the event of an accident that requires roadways to be shut down.
Action category	Transportation
Existing, Future, or NA	Existing & Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	Avoid large traffic backups and keep traffic moving.
Cost estimate	Little to no cost
Cost effectiveness (i.e., benefit/cost)	Keep traffic moving & enhance responder safety.
Priority	High
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM, DOH, Law enforcement, Fire & EMS
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Utility Interruption
Describing the Action	
Background/Issue action addresses	Reduce the effects of an electrical power interruption
Action description	Educate the community members on how to be prepared for a power interruption as well as reporting and handling a power outage with First Energy through digital media and/or brochures.
Action category	Utility
Existing, Future, or NA	Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	Would benefit by being better prepared and knowing how to report an outage using tools available through First Energy to get power restored as quickly as possible.
Cost estimate	Little to no cost
Cost effectiveness (i.e., benefit/cost)	
Priority	Medium
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM, Potomac Edison/First Energy
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Wildfire
Describing the Action	
Background/Issue action addresses	Wildfires in West Virginia are not common but is a concern given the amount of forested/wooded areas.
Action description	Create an informational brochure and/or digital media as to the potential of wildfire. Brochure should include information on how wildfires are commonly started and steps to take to prevent wildfires.
Action category	Disaster
Existing, Future, or NA	Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	Avoid loss of life, property and environment.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	Enhance community safety and preserve forestry.
Priority	Low
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM, County Fire Departments, Division of Forestry
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Homeland Security & Emergency Management

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Winter Storm
Describing the Action	
Background/Issue action addresses	Winter storms can pose a stress on emergency services when community members are not prepared with enough essentials to last them in the event that they are immobile for a few days.
Action description	Create an informational brochure and/or digital media to inform/educate community members on how to be prepared for an event that may render them immobile for a period of time. Brochure should include suggested items and quantities of goods to have on hand.
Action category	Natural Disaster
Existing, Future, or NA	Ongoing
Evaluating the Action	
Losses avoided (i.e., benefits)	Avoid residents overwhelming emergency services with community service calls. Allows residents to be better prepared in the event of a potential threat.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	Allows emergency service personnel to not get overwhelmed in an event.
Priority	High
Implementing the Action	
Responsible party	Berkeley County Homeland Security & Emergency Management
Potential Partners	BCHSEM
Potential funding sources	
Timeline	
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Randy Lilly - Emergency Manager

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Berkeley County Public Service Water District

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	SOURCE WATER CONTAMINATION
Describing the Action	
Background/Issue action addresses	Ground and Surface water sources are susceptible to contamination because they are exposed to the atmosphere and other sources of pollution. Accidental or other-wise. Spill releases can enter the bodies of water and potentially contaminate the source of drinking water.
Action description	Under amended and newly added codes to the State Regulatory requirements, each public water utility operating surface water and/or GWUDI sources must have completed or updated a Source Water protection Plan (SWPP) by July 1, 2016 and must be updated every 3 years. Berkeley County PSWD has completed and maintains there plan. Berkeley County PSWD is also involved in the Group ICPRB Which is an advisory, non-regulatory interstate compact agency of the Potomac Basin states of Maryland, Pennsylvania, Virginia, West Virginia and District of Columbia.
Action category	Infrastructure
Existing, Future, or NA	Existing/ Future
Evaluating the Action	
Losses avoided (i.e., benefits)	By working with the groups such as The office of Emergency services and ICPRB the water district is able to be notified of potential contamination before it reaches the Intake of our drinking water sources.
Cost estimate	Would greatly depend on the contamination and resources used.
Cost effectiveness (i.e., benefit/cost)	It is very Difficult to put a price on the continuing efforts of maintaining safe sources of water for our public use
Priority	High
Implementing the Action	
Responsible party	Berkeley County Public Service Water District
Potential Partners	BPH, OES, DEP, Public
Potential funding sources	
Timeline	This is an ongoing practice for Berkeley County PSWD
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Steve De Ridder Water production Superintendent Berkeley County PSWD

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Hedgesville

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Radon Exposure
Describing the Action	
Background/Issue action addresses	Many existing homes do not have radon testing systems installed; homes in area are exposed to radon.
Action description	Assist Berkeley County in educating the public regarding radon systems and home testing available.
Action category	Public Education
Existing, Future, or NA	Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Public can help prevent/mitigate radon contamination in home by being made aware of tests available and the hazards of radon exposure.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	High
Implementing the Action	
Responsible party	Town of Hedgesville
Potential Partners	Berkeley County Health Department/County Council
Potential funding sources	Local
Timeline	Short-term implementation timeline
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Ronnie Good, Councilman

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Hedgesville

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Source Water Contamination
Describing the Action	
Background/Issue action addresses	Inform public of ramifications of source water contamination
Action description	Work with area school/libraries/public facilities to include source water protection curriculum/classroom events/public education events.
Action category	Public Education/Early Education
Existing, Future, or NA	Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Public can help prevent/mitigate source water contamination through environmentally conscious actions that preserve our waterway.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	Medium
Implementing the Action	
Responsible party	Town of Hedgesville
Potential Partners	Berkeley County watershed groups/BCPSD/Berkeley County Council
Potential funding sources	Local, Education grants, DEP grants, BPH grants
Timeline	Short-term implementation timeline
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Ronnie Good, Councilman

Berkeley County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency City of Martinsburg

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Multiple Hazards (includes flooding and subsidence)
Describing the Action	
Background/Issue action addresses	Prevent Development in Hazard Areas
Action description	Prohibiting new facilities for persons with special needs or mobility concerns in hazard areas
Action category	Regulatory
Existing, Future, or NA	Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Avoids unnecessary injury or loss of life. Reduces unnecessary costs of emergency responses and exposure of first responders to hazards.
Cost estimate	No cost if research and drafting regulatory program performed by City staff.
Cost effectiveness (i.e., benefit/cost)	Highly effective. Life safety and welfare of the public is increased at no additional cost to City.
Priority	Yes
Implementing the Action	
Responsible party	City of Martinsburg
Potential Partners	Martinsburg Planning Department, Martinsburg City Council
Potential funding sources	None
Timeline	24 months to present draft regulation
Integration Opportunities (if any)	Unknown, to be determined.
Worksheet completed by (name/title)	Michael Covell, City Engineer/Planning Director

Appendix C-15 Morgan County Mitigation Action Forms

Morgan County 2017 Hazard Mitigation Plan Update

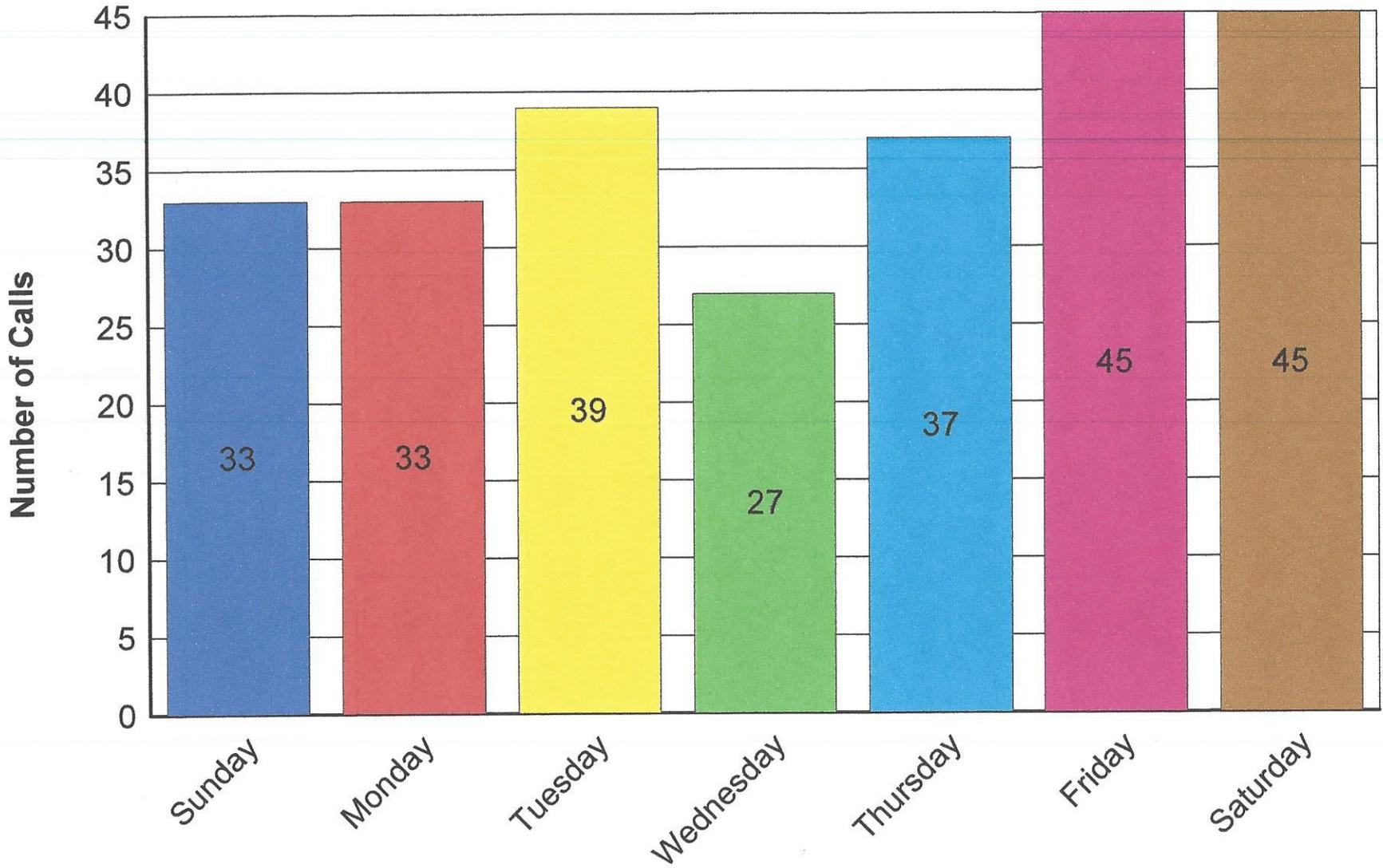
Municipality/Organization/Agency: Morgan County, West Virginia

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Transportation Accidents
Describing the Action	
Background/Issue action addresses	U.S. 522 is used as a major artery/route for transportation that connects Virginia - WV - Maryland. Due to high traffic volume Rt. 522 has had numerous injuries, fatalities and Haz Mat incidents. See attachment
Action description	Reduce impacts to roadways utilizing a bypass Local/State officials,
Action category	Conduct meetings with DOT and LEPC to formulate plans to lessen the impact of Transportation accidents.
Existing, Future, or NA	Existing and Future
Evaluating the Action	
Losses avoided (i.e., benefits)	
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	
Priority	High Priority
Implementing the Action	
Responsible party	West Virginia DOT
Potential Partners	WV Governor's office, County Commission, LEPC, MC OHSEM, EE planning commission
Potential funding sources	Grant Funding, FHA
Timeline	ON going
Integration Opportunities (if any)	
Worksheet completed by (name/title)	DM

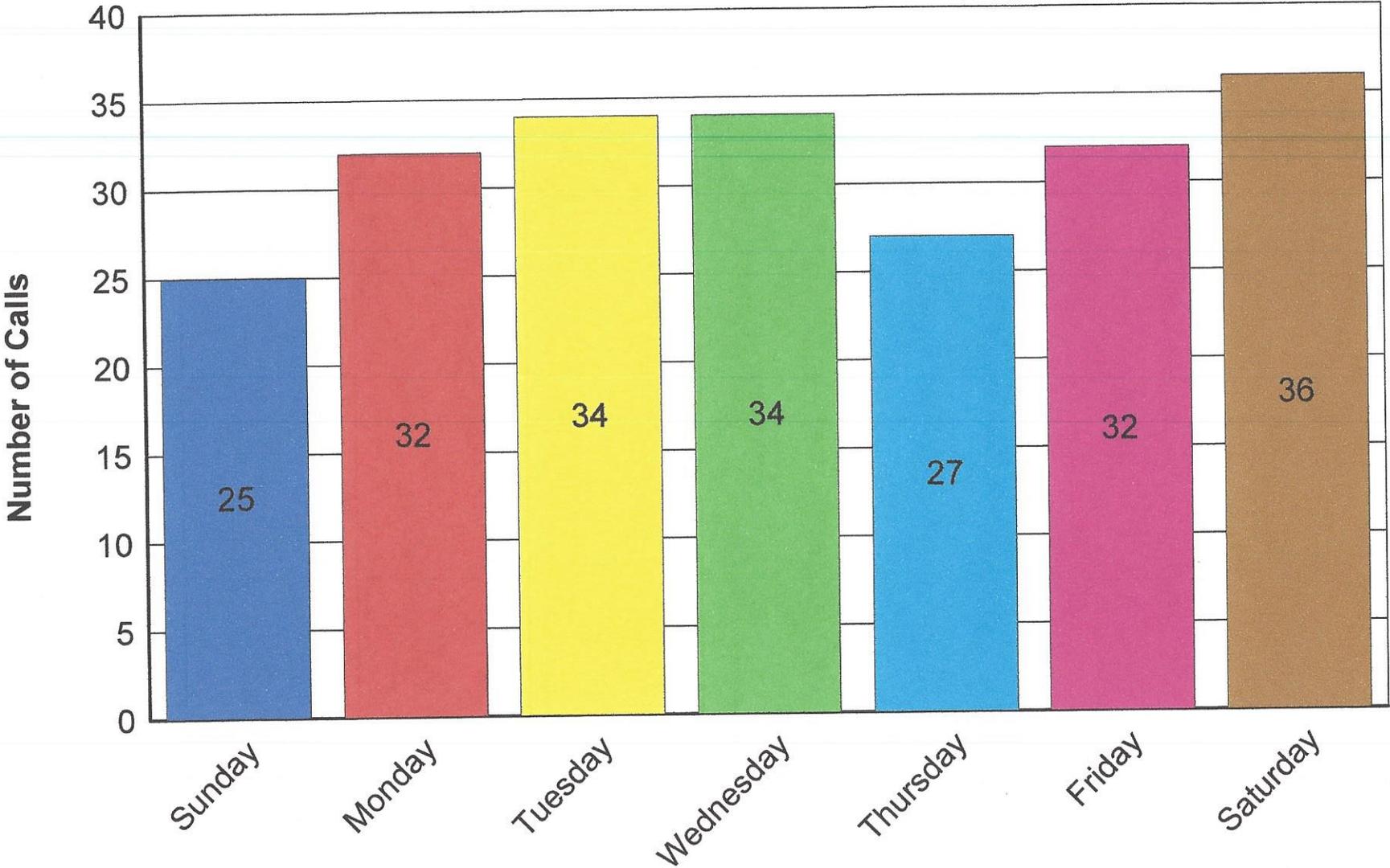
CAD Incidents by Day of Week

For Period from 1/1/2016 to 8/22/2016



CAD Incidents by Day of Week

For Period from 1/1/2015 to 12/31/2015



Morgan County 2017 Hazard Mitigation Plan Update

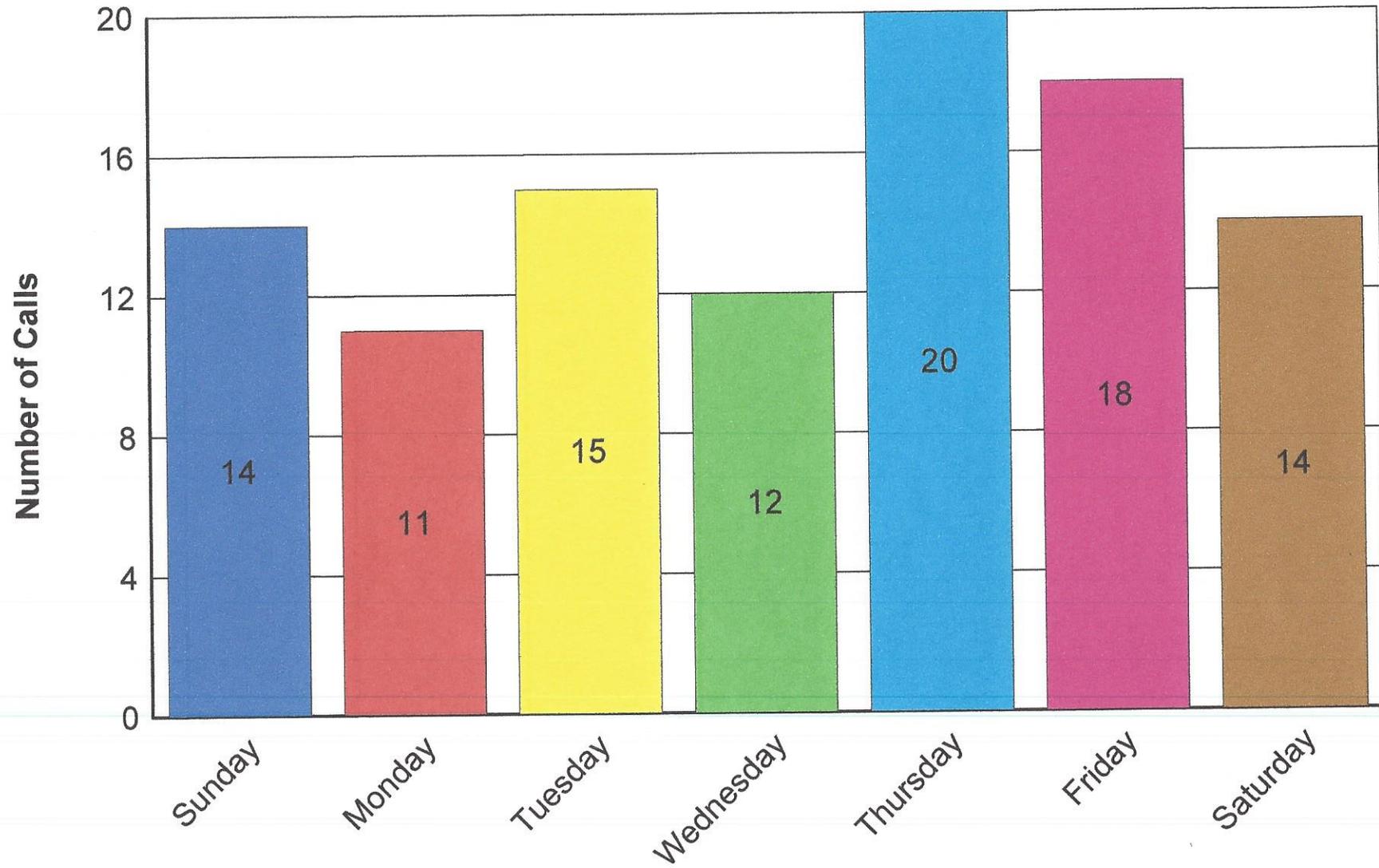
Municipality/Organization/Agency: Morgan County, West Virginia

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	UTILITY INTERRUPTION
Describing the Action	
Background/Issue action addresses	There are several reasons for utility interruption however the most common is caused by weather related events. See attached graph - (Doesn't constitute all power outages only ones that were reported through 911.)
Action description	Protect Power Lines
Action category	Establish standards for tree trimming, Bury overhead power lines, install redundancies and loop feeds
Existing, Future, or NA	Existing and Future
Evaluating the Action	
Losses avoided (i.e., benefits)	
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	
Priority	High Priority
Implementing the Action	
Responsible party	First Energy
Potential Partners	Private Contractors
Potential funding sources	
Timeline	Ongoing
Integration Opportunities (if any)	
Worksheet completed by (name/title)	DM

CAD Incidents by Day of Week

For Period from 1/1/2015 to 8/22/2016



Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Morgan County, West Virginia

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Terrorism
Describing the Action	
Background/Issue action addresses	Morgan County has not seen any acts of Terrorism within our community. We do have to stay vigilant and prepared with the ever increasing attacks around us.
Action description	Provide community with information on preparedness.
Action category	Post and distribute preparedness information on current data
Existing, Future, or NA	Existing + Future
Evaluating the Action	
Losses avoided (i.e., benefits)	
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	
Priority	Low
Implementing the Action	
Responsible party	OHSEM (wv)
Potential Partners	Local, state and Federal LE
Potential funding sources	
Timeline	on going
Integration Opportunities (if any)	
Worksheet completed by (name/title)	DMyers

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Morgan County, West Virginia

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Hurricane, Tropical Storm, Nor'easter
Describing the Action	
Background/Issue action addresses	These types of storms cause numerous issues ranging from high winds, heavy rain/fall, snow, sleet, and freezing rain. This type of weather would have the potential widespread power outages, damaging of property which could also cause injuries and/or fatalities.
Action description	Conduct weather related activities.
Action category	Provide NWS sponsored weather related classes, produce and distribute emergency preparedness information on severe weather hazards. Provide classes on how to become prepared before, during and after an incident.
Existing, Future, or NA	Existing and Future
Evaluating the Action	
Losses avoided (i.e., benefits)	
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	
Priority	Low Priority
Implementing the Action	
Responsible party	MC OISEM
Potential Partners	NWS, WV READY, + FEMA
Potential funding sources	Due to budget issues with local, state, and federal funding has become limited. Grants and community partners may be some potential funding sources.
Timeline	ONGOING - CONTINUOUS
Integration Opportunities (if any)	
Worksheet completed by (name/title)	DW

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Morgan County, West Virginia

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	RADON Exposure
Describing the Action	
Background/Issue action addresses	Morgan County has not had any major issues with RADON. However, there are small sections throughout Morgan County that have shown high levels of Radon.
Action description	Promote awareness for testing of Radon.
Action category	Provide pamphlets and educational materials to county residences to encourage residence to due annual testing
Existing, Future, or NA	Future
Evaluating the Action	
Losses avoided (i.e., benefits)	
Cost estimate	\$ 2000.00
Cost effectiveness (i.e., benefit/cost)	
Priority	Low
Implementing the Action	
Responsible party	County Commission
Potential Partners	WV STATE FM
Potential funding sources	
Timeline	DM GOING
Integration Opportunities (if any)	
Worksheet completed by (name/title)	DM

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County/Town of Bath

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Action Title:		<u>Source Water Contamination</u>
Assessing the Risk		
Hazard(s) addressed	<u>Source Water Contamination</u>	
Describing the Action		
Background/Issue action addresses	<u>Awareness of importance of safe water + available water</u>	
Action description	<u>Plans for SWPP for all public water systems - Educate workers/operators</u>	
Action category	<u>H</u> <u>Public Awareness</u>	
Existing, Future, or NA	<u>Existing</u>	
Evaluating the Action		
Losses avoided (i.e., benefits)	<u>Lack of clean drinking water</u>	
Cost estimate		
Cost effectiveness (i.e., benefit/cost)		
Priority	<u>H</u>	
Implementing the Action		
Responsible party	<u>LOCAL, STATE, FED</u>	
Potential Partners	<u>WV DEP, FEMA</u>	
Potential funding sources	<u>↓ ↓</u>	
Timeline	<u>ongoing</u>	
Integration Opportunities (if any)		
Worksheet completed by (name/title)	<u>[Signature]</u>	

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Drought
Describing the Action	
Background/Issue action addresses	pg 52 - Extended period of deficient rainfall - conserve water / monitor DROUGHT
Action description	monitor water supply / conserve water pg. 52 VIA public awareness / NEWS + RADIO
Action category	L
Existing, Future, or NA	-
Evaluating the Action	
Losses avoided (i.e., benefits)	Loss of crops - FED ASSISTANCE Loss of water - STATE / LOCAL ASSIST.
Cost estimate	pg 53 - Crops / wells drying up - ? Potential for
Cost effectiveness (i.e., benefit/cost)	?
Priority	L
Implementing the Action	
Responsible party	LOCAL, STATE, FED.
Potential Partners	WV DEP, Conservation District, MC Health Dept.
Potential funding sources	LOCAL, STATE, FED
Timeline	Weeks ongoing
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alma

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Dam and Levee Failure
Describing the Action	
Background/Issue action addresses	PS46 - DAM Failure - prolonged rainfall or prolonged Drought -
Action description	ANNUAL INSPECTION OF BERMS / MONTHLY RAINFALL
Action category	4 categories AS per WDEP - PS47
Existing, Future, or NA	N/A
Evaluating the Action	
Losses avoided (i.e., benefits)	Inundation of property / LOSS OF LIFE (POSS) PS46
Cost estimate	PS49 - Don't really know
Cost effectiveness (i.e., benefit/cost)	?
Priority	L - VARIES
Implementing the Action	
Responsible party	LOCAL / prop owners - STATE / FED.
Potential Partners	LOCAL, WDEP, FEMA
Potential funding sources	↓ ↓ ↓
Timeline	Ongoing
Integration Opportunities (if any)	
Worksheet completed by (name/title)	ALMA - Morgan

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Earthquake
Describing the Action	
Background/Issue action addresses	Public outreach of Bldg Codes
Action description	ADOPT/enforce Building Codes/ ¹³⁶⁶ INSPECTIONS outreach to public/Builders that permits
Action category	L
Existing, Future, or NA	
Evaluating the Action	
Losses avoided (i.e., benefits)	PROPERTY DAMAGE
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	
Priority	L
Implementing the Action	
Responsible party	LOCAL
Potential Partners	w Fire Marshall office
Potential funding sources	LOCAL / STATE
Timeline	we have very few of these —
Integration Opportunities (if any)	ongoing?
Worksheet completed by (name/title)	AW

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Extreme Temperatures
Describing the Action	
Background/Issue action addresses	pamphlets, public announcements via RADIO website
Action description	Increase public Awareness of Extreme temps
Action category	L
Existing, Future, or NA	N/A
Evaluating the Action	
Losses avoided (i.e., benefits)	possible loss of life -
Cost estimate	5,000 -
Cost effectiveness (i.e., benefit/cost)	
Priority	L
Implementing the Action	
Responsible party	LOCAL
Potential Partners	mc Health Dept. -
Potential funding sources	LOCAL / GRANT -
Timeline	when occurring (?)
Integration Opportunities (if any)	
Worksheet completed by (name/title)	<i>[Signature]</i>

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Epidemic
Describing the Action	
Background/Issue action addresses	Disease, Rescues within community (1959) Pamphlets / News + web Articles
Action description	Immunization / Quarantine pamphlets / Articles
Action category	L
Existing, Future, or NA	Existing / Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Loss of Life / Loss of Livestock
Cost estimate	?
Cost effectiveness (i.e., benefit/cost)	.
Priority	L
Implementing the Action	
Responsible party	MC Health Dept, LOCAL, State, FED
Potential Partners	↓ ↓ ↓
Potential funding sources	State / FED
Timeline	on going
Integration Opportunities (if any)	
Worksheet completed by (name/title)	ALMA

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Flooding
Describing the Action	
Background/Issue action addresses	FP ordinances, NFIP, CRS participation mitigation + removal of existing
Action description	prop. in HAZARD Areas educate public monitor Rep Loss Activity
Action category	H
Existing, Future, or NA	Exist / Future -
Evaluating the Action	
Losses avoided (i.e., benefits)	Loss of life/property
Cost estimate	?
Cost effectiveness (i.e., benefit/cost)	
Priority	H
Implementing the Action	
Responsible party	LOCAL, STATE, FEMA
Potential Partners	↓ ↓ ↓
Potential funding sources	↓ ↓ ↓
Timeline	ongoing
Integration Opportunities (if any)	
Worksheet completed by (name/title)	[Signature]

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Hail Storm (Pg 75)
Describing the Action	
Background/Issue action addresses	Damage to critical facilities infrastructure
Action description	Building/Infrastructure Protection Holy Hail Awareness - public Announcements
Action category	L-M
Existing, Future, or NA	
Evaluating the Action	
Losses avoided (i.e., benefits)	PROP DAMAGE / CROPS / PERSONAL INJURY
Cost estimate	?
Cost effectiveness (i.e., benefit/cost)	.
Priority	L-M
Implementing the Action	
Responsible party	LOCAL / INSURANCE
Potential Partners	INSURANCE
Potential funding sources	N/A
Timeline	ongoing - when possibly occurring
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alma

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Land Subsidence Pg 87
Describing the Action	
Background/Issue action addresses	POSS. LOSS of Utility, AGRICULTURE, INFRASTRUCTURE
Action description	WORK w/ WV STATE AGENCIES/UTILITIES protect ROADWAYS/REMOVE Bldgs from
Action category	L Potential danger areas
Existing, Future, or NA	EXISTING/FUTURE
Evaluating the Action	
Losses avoided (i.e., benefits)	INFRASTRUCTURE/AGRICULTURE/PROP DAMAGE
Cost estimate	?
Cost effectiveness (i.e., benefit/cost)	
Priority	L
Implementing the Action	
Responsible party	LOCAL, WV DEP, STATE, FED
Potential Partners	WV DEP, FORESTRY, FEMA, LOCAL, WV DUTY
Potential funding sources	STATE / FED
Timeline	ongoing
Integration Opportunities (if any)	
Worksheet completed by (name/title)	AMA

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Thunderstorm, Lightning Strike
Describing the Action	
Background/Issue action addresses	Protection of Utilities - Critical Infrastructure ^{we}
Action description	Lightning Awareness Pamphlets/Articles Warnings when potential
Action category	L
Existing, Future, or NA	
Evaluating the Action	
Losses avoided (i.e., benefits)	Protection of Critical Infrastructure Life
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	
Priority	L
Implementing the Action	
Responsible party	LOCAL / NOAA / NWS
Potential Partners	↓ ↓ ↓
Potential funding sources	↓ ↓ ↓
Timeline	on going
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alma

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Wind Storm, Tornado
Describing the Action	
Background/Issue action addresses	Protection of property/infrastructure utilities
Action description	Bldg Codes/protect utility lines/infrastructure / retrofits/ Risk Awareness
Action category	M
Existing, Future, or NA	Existing/future
Evaluating the Action	
Losses avoided (i.e., benefits)	Utility loss / property Damage
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	
Priority	M (?)
Implementing the Action	
Responsible party	Local/Utilities
Potential Partners	PSC
Potential funding sources	
Timeline	on going
Integration Opportunities (if any)	
Worksheet completed by (name/title)	<i>[Signature]</i>

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Hazardous Material PG 78
Describing the Action	
Background/Issue action addresses	Awareness of H.M. transport/storage conduct Drills w/ local Agencies/TIER II
Action description	Focus on High Risk Areas - 522/49 Railroad - / Drills / LERC Involvement.
Action category	M-H
Existing, Future, or NA	Existing, Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Loss of Life/property
Cost estimate	?
Cost effectiveness (i.e., benefit/cost)	
Priority	M-H
Implementing the Action	
Responsible party	Local, LERC/CC / WVDOT
Potential Partners	WVDOT, WUDEP
Potential funding sources	Local
Timeline	Ongoing
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alma

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

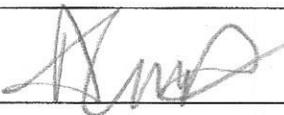
Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Infestation PS 84
Describing the Action	
Background/Issue action addresses	Loss of crops / Forested LAND
Action description	Cyflax moth spray program / other
Action category	Flights - Education / Public Awareness
Existing, Future, or NA	Ex & Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Crops, Forestry
Cost estimate	?
Cost effectiveness (i.e., benefit/cost)	?
Priority	L
Implementing the Action	
Responsible party	LOCAL, STATE
Potential Partners	W Forestry, MC HP
Potential funding sources	LOCAL, STATE
Timeline	on going / or when potential to occur
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alma

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Winter Storm
Describing the Action	
Background/Issue action addresses	ADVANCE WARNING / Risk Awareness
Action description	Asst. vulnerable populations / news updates via newspaper / RADIO - Road conditions
Action category	H
Existing, Future, or NA	Existing Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Loss of Life / Property (Bldgs)
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	
Priority	H
Implementing the Action	
Responsible party	LOCAL
Potential Partners	WVDOH, FEMA
Potential funding sources	LOCAL, FEMA
Timeline	on going
Integration Opportunities (if any)	
Worksheet completed by (name/title)	

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency Morgan County

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Wildfire
Describing the Action	
Background/Issue action addresses	MAP/Assess Vulnerable Areas/ Firewise Program/Increase Awareness
Action description	Burning Regulations - Publicize more pamphlets/news articles
Action category	M
Existing, Future, or NA	Existing/Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Loss of property, lives + Infrastructure
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	
Priority	M
Implementing the Action	
Responsible party	Local
Potential Partners	Fire Depts/ Fire MARSHALL
Potential funding sources	Local
Timeline	ongoing
Integration Opportunities (if any)	
Worksheet completed by (name/title)	<i>[Signature]</i>

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Bath

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Flooding
Describing the Action	
Background/Issue action addresses	Numerous road closures due to flooding on 522; traffic backup; safety issue
Action description	Work with WVDOH to find solution to flood impacted parts of 522 in town limits (S. Washington Street)
Action category	
Existing, Future, or NA	Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Prevent road closures/erosion of roadway
Cost estimate	High
Cost effectiveness (i.e., benefit/cost)	Study required
Priority	Medium
Implementing the Action	
Responsible party	Town of Bath
Potential Partners	WVDOH
Potential funding sources	WVDOH/Local
Timeline	Long-term
Integration Opportunities (if any)	Green infrastructure/stormwater management
Worksheet completed by (name/title)	Scott Merki, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Bath

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Flooding
Describing the Action	
Background/Issue action addresses	Unable to fund floodplain management position for municipality
Action description	Review and maintain agreement with Morgan County Planning Commission to provide floodplain management
Action category	Prevention
Existing, Future, or NA	Existing
Evaluating the Action	
Losses avoided (i.e., benefits)	Flood damage mitigation and maintenance of CRS status
Cost estimate	No cost
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	High
Implementing the Action	
Responsible party	Town of Bath
Potential Partners	Morgan County Planning Commission
Potential funding sources	N/A
Timeline	Immediate
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Scott Merki, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Bath

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	All natural hazards
Describing the Action	
Background/Issue action addresses	Need to provide safe haven for citizens in event of disaster
Action description	Establish shelters within existing government facilities
Action category	Safety
Existing, Future, or NA	Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Provide protection to citizens who are unable to remain at their homes during or as a result of a disaster
Cost estimate	\$100,000
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	Medium
Implementing the Action	
Responsible party	Town of Bath
Potential Partners	Morgan County Commission
Potential funding sources	FEMA/WVDHSEM/Local and State Government
Timeline	Long-term
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Scott Merki, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Bath

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Utility Interruption
Describing the Action	
Background/Issue action addresses	Utility interruption in the event of a disaster would disable certain essential operations of government; there is a need to have mechanisms in place in order to continue security/safety operations
Action description	Seek funding for generators and other equipment to aid in the continuation of essential services in the event of utility interruption
Action category	Equipment/Safety
Existing, Future, or NA	
Evaluating the Action	
Losses avoided (i.e., benefits)	Ability to continue essential operations of government in the event of a disaster
Cost estimate	80,000
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	Medium
Implementing the Action	
Responsible party	Town of Bath
Potential Partners	WVDHSEM
Potential funding sources	WVDHSEM
Timeline	Continual
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Scott Merki, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: **Sleepy Creek Watershed Association (SCWA)**

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Flooding
Describing the Action	
Background/Issue action addresses	Riparian buffer tree plantings along major streams and tributaries help mitigate potential flooding from seasonal and unexpected storm rainfall. Trees not only absorb large quantities of rainfall, but their root structure helps stabilize streambanks to prevent erosion and sediment building up in streams and on flood plains. The SCWA in coordination with the Eastern Panhandle Conservation District and WV Division of Forestry (Chesapeake Bay Forester) coordinates and accomplishes one or more riparian buffer tree planting annually.
Action description	Between 2013 and 2016, 1,611 trees were planted within the Sleepy Creek Watershed of Morgan County, WV. This equates to 11.4 acres of tree coverage.
Action category	Implementation
Existing, Future, or NA	Existing & Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Undetermined.
Cost estimate	Invoiced cost equaled \$26,000. Matching volunteer labor and in-kind contribution equaled \$18,000. Total equaled \$44,000.
Cost effectiveness (i.e., benefit/cost)	

Morgan County 2017 Hazard Mitigation Plan Update

Priority	On-going based on funding availability.
Implementing the Action	
Responsible party	Sleepy Creek Watershed Association (SCWA)
Potential Partners	Eastern Panhandle Conservation District (EPCD), WV Conservation Agency, WV Division of Forestry
Potential funding sources	U.S. Environmental Protection Agency Section 319 Appropriations.
Timeline	On-going
Integration Opportunities (if any)	Identifying potential high risk flooding locations.
Worksheet completed by (name/title)	Charles W. Marsh, President, SCWA

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency__Warm Springs Watershed Association

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Flood, Flash Flood
Describing the Action	
Background/Issue action addresses	<p>Downtown Berkeley Springs has experienced flooding during heavy rain events.</p> <p>The steep hillsides and impermeable surfaces of roads and buildings make this area particularly prone to flooding when a large amount of rain falls in a very short time.</p>
Action description	<p>Warm Springs Watershed Association (WSWA) plants about 100 trees per year in an effort to increase tree canopy and create riparian buffers to slow the flow of storm water. The roots of these trees also help stabilize the soil to help reduce erosion.</p>
Action category	Green Infrastructure
Existing, Future, or NA	<p>Existing: Ongoing tree plantings. In Progress: WSWA is in the process of constructing storm water retention zones in some areas that are prone to flooding.</p> <p>Future: Rain Barrel program to reduce storm water runoff from rooftops.</p>
Evaluating the Action	
Losses avoided (i.e., benefits)	Avoid flooding in the downtown area that is home to a State Park and many

Morgan County 2017 Hazard Mitigation Plan Update

	small businesses crucial to our tourist industry.
Cost estimate	\$10,000 per year for trees, equipment, and labor.
Cost effectiveness (i.e., benefit/cost)	Avoiding floods will save tens of thousands of dollars in structural damages and losses to businesses due to closures for clean up and repairs.
Priority	Intermediate
Implementing the Action	
Responsible party	Warm Springs Watershed Association
Potential Partners	Cacapon Institute, Town of Bath Public Works Dept., WV Division of Forestry
Potential funding sources	319 grants, Chesapeake Bay Program
Timeline	Tree plantings are an ongoing annual practice for WSWA
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Jeff Iliff, Warm Springs Watershed Board Member

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Paw Paw, WV

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	Flooding
Describing the Action	
Background/Issue action addresses	Unable to fund floodplain management position for municipality
Action description	Review and maintain agreement with Morgan County Planning Commission to provide floodplain management
Action category	Prevention
Existing, Future, or NA	Existing
Evaluating the Action	
Losses avoided (i.e., benefits)	Flood damage mitigation and maintenance of CRS status
Cost estimate	No cost
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	High
Implementing the Action	
Responsible party	Town of Paw Paw
Potential Partners	Morgan County Planning Commission
Potential funding sources	N/A
Timeline	Immediate
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alton Wolfe, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Paw Paw

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	All natural hazards
Describing the Action	
Background/Issue action addresses	Need to provide safe haven for citizens in event of disaster
Action description	Establish shelters within existing government facilities
Action category	Safety
Existing, Future, or NA	Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Provide protection to citizens who are unable to remain at their homes during or as a result of a disaster
Cost estimate	\$100,000
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	Medium
Implementing the Action	
Responsible party	Town of Paw Paw
Potential Partners	Morgan County Commission
Potential funding sources	FEMA/WVDHSEM/Local and State Government
Timeline	Long-term
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alton Wolfe, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Paw Paw, WV

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Source Water Contamination
Describing the Action	
Background/Issue action addresses	Public Education
Action description	Post information about sourcewater protection on town website & consider sending brochures to residents/businesses in Zone of Critical Concern, alerting public of need for conservation and protection. Include information re: proper disposal of prescriptions and regular septic maintenance. Follow similar recommendations as outlined in 2016 Source Water Protection Plan.
Action category	Education
Existing, Future, or NA	N/A
Evaluating the Action	
Losses avoided (i.e., benefits)	Public education and awareness improves conservation efforts and aides in the prevention of possible contamination.
Cost estimate	Minimal
Cost effectiveness (i.e., benefit/cost)	Effective – minimal cost provides thorough public education
Priority	Medium
Implementing the Action	
Responsible party	Town of Paw Paw
Potential Partners	WVU Extension Service/Region 9 Planning & Development Council
Potential funding sources	Local, DEP, BPH
Timeline	Immediate
Integration Opportunities (if any)	Incorporate similar recommendations as made in 2016 Source Water Protection Plan.
Worksheet completed by (name/title)	Alton Wolfe, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Paw Paw, WV

Please complete this worksheet for each new mitigation action. See *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards* for sample mitigation actions to reduce risk from environmental hazards. This resource is available at <https://www.fema.gov/media-library/assets/documents/30627>.

Action Title:	
Assessing the Risk	
Hazard(s) addressed	All hazards
Describing the Action	
Background/Issue action addresses	No safe means of accessible egress in the event of a disaster; aging sidewalks and stormwater drainage systems create flooding hazards throughout town.
Action description	Apply for TAP grant through DOH to fund the addition and repair of sidewalks within town; include stormwater management practices to reduce flooding events on town/state roads.
Action category	Public safety/prevention
Existing, Future, or NA	Future
Evaluating the Action	
Losses avoided (i.e., benefits)	Handicapped-accessible means of egress in the event of a disaster. Reduce damage from heavy rains on existing roadways and businesses.
Cost estimate	120K design; 400K construction
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	High
Implementing the Action	
Responsible party	Town of Paw Paw
Potential Partners	Region 9 Planning & Development Council
Potential funding sources	WV DOH
Timeline	1-4 years from design to completion
Integration Opportunities (if any)	Additional WVDEP stormwater management grants integrated into design
Worksheet completed by (name/title)	Alton Wolfe, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency: Town of Paw Paw

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	Utility Interruption
Describing the Action	
Background/Issue action addresses	Utility interruption in the event of a disaster would disable certain essential operations of government; there is a need to have mechanisms in place in order to continue security/safety operations
Action description	Seek funding for generators and other equipment to aid in the continuation of essential services in the event of utility interruption
Action category	Equipment/Safety
Existing, Future, or NA	
Evaluating the Action	
Losses avoided (i.e., benefits)	Ability to continue essential operations of government in the event of a disaster
Cost estimate	80,000
Cost effectiveness (i.e., benefit/cost)	Highly effective
Priority	Medium
Implementing the Action	
Responsible party	Town of Paw Paw
Potential Partners	WVDHSEM
Potential funding sources	WVDHSEM
Timeline	Continual
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alton Wolfe, Mayor

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency MORGAN COUNTY

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	LACK OF GIS ADDRESS DATA all hazards
Describing the Action	
Background/Issue action addresses	MC Actively Assigns Addresses NO GIS DATA
Action description	collect address data to assist all create accurate mapping
Action category	infrastructure / data disaster
Existing, Future, or NA	future
Evaluating the Action	
Losses avoided (i.e., benefits)	better response to properties during disaster / mitigation mapping
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	high
Priority	HIGH
Implementing the Action	
Responsible party	OES/911
Potential Partners	CC
Potential funding sources	state / local
Timeline	short term / continued
Integration Opportunities (if any)	
Worksheet completed by (name/title)	Alma

Morgan County 2017 Hazard Mitigation Plan Update

Municipality/Organization/Agency MORGAN County

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Action Title:	
Assessing the Risk	
Hazard(s) addressed	UPDATED AERIAL PHOTOGRAPHY all hazards
Describing the Action	
Background/Issue action addresses	HAVE 2012
Action description	assist in analyzing risk to property in event of disaster
Action category	
Existing, Future, or NA	Future(?)
Evaluating the Action	
Losses avoided (i.e., benefits)	better response to ? mitigation of disaster through property identification
Cost estimate	
Cost effectiveness (i.e., benefit/cost)	high
Priority	MSP/HIGH
Implementing the Action	
Responsible party	OES/911
Potential Partners	CC DHSEM
Potential funding sources	STATE/LOCAL WV DHSEM
Timeline	continued
Integration Opportunities (if any)	
Worksheet completed by (name/title)	<i>[Signature]</i>

Appendix C-16 Berkeley County NFIP Compliance and Capabilities Worksheets

Berkeley County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **Berkeley County**

Name and Title: **Heather Williams, CFM, Floodplain Administrator, Planner**

Phone: **304-267-5000 x8165**

Email: **HWilliams@berkeleywv.org**

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
How many NFIP policies are in the community?	CIS (provided by consultant)	200	
What is the total premium and coverage?	CIS (provided by consultant)	\$156,836 (total premium), \$36,928,500 (total coverage)	
How many claims have been paid in the community?	CIS (provided by consultant)	331	
What is the total amount of paid claims?	CIS (provided by consultant)	\$5,251,184	
How many of the claims were for substantial damage?	CIS (provided by consultant)	106	
Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.	Community floodplain administrator	I'm no familiar with who has the policies. Floods have not occurred recently but when they do, BFEs for the 1% chance flood are around 15ft above ground elevation, in some areas.	
Staff Resources			
Is the Community Floodplain Administrator or NFIP Coordinator certified?	Community floodplain administrator	Yes, previous CFM changed jobs in late 2015. I took the E273 course in March and the CFM exam in April and became certified April 2016.	
Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?	Community floodplain administrator	We have a standalone ordinance, but it is referenced in the subdivision regulations.	
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).	Community floodplain administrator	The planning department provides permit reviews and map creation. The engineering and permitting department provides inspections and engineering evaluations. A poster and brochures are available in the planning commission office to provide information on funding programs and how to build safer, stronger structures. I am evaluating additional opportunities for education and outreach such as a brochure or electronic post regarding the proper methods for anchoring (including mobile homes, sheds, fuel storage tanks, etc.)	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

Berkeley County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
<i>What are the barriers to running an effective NFIP program in the community?</i>	Community floodplain administrator	1) Floodplain Administrator is new to the role, still learning, and has other assigned responsibilities in addition to this role. 2) Availability of resources (vehicle/time/funds) for enforcement, outreach & education.	
Compliance History			
<i>Is the community in good standing with the NFIP?</i>	CIS (provided by consultant)	Yes (Routine Audit Scheduled for October 2016)	
<i>Are there any outstanding compliance issues (i.e., current violations)?</i>	CIS (provided by consultant)	No	
<i>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</i>	CIS (provided by consultant)	CAV: 03/18/2009 CAC: NA	
<i>Is a CAV or CAC scheduled or needed?</i>	CIS (provided by consultant)	No	
Regulation			
<i>When did the community enter the NFIP?</i>	CIS (provided by consultant)	08/04/1988	
<i>Are the FIRMS digital or paper?</i>	CIS (provided by consultant)	Digital	
<i>Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?</i>	Community floodplain administrator	Yes, currently utilizing the adopted 2009 Berkeley County floodplain Ordinance. The updated county ordinance based upon the updated state model ordinance provided to the county in 2015 is in draft format and will be submitted to County Council for approval and adoption in 2016.	
<i>Provide an explanation of the permitting process.</i>	Community floodplain administrator	Floodplain verification is required for all building permits. If parcel is in the floodplain, a floodplain parcel map is created by the floodplain administrator. If structure/construction is near or in the floodplain additional information is required per the ordinance.	
Community Rating System (CRS)			
<i>Does the community participate in CRS?</i>	CIS (provided by consultant)	Yes	
<i>What is the community's CRS Class Ranking?</i>	CIS (provided by consultant)	07 (15%)	
<i>What categories and activities provide CRS points and how can the class be improved?</i>	CIS (provided by consultant)	<ul style="list-style-type: none"> • Higher regulatory standards • Acquisition and Relocation • Map Information • Flood Data Maintenance 	

Berkeley County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **City of Martinsburg**

Name and Title: _____

Phone: _____

Email: _____

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
<i>How many NFIP policies are in the community?</i>	CIS (provided by consultant)	23	
<i>What is the total premium and coverage?</i>	CIS (provided by consultant)	\$36,026 (total premium), \$5,262,400 (total coverage)	
<i>How many claims have been paid in the community?</i>	CIS (provided by consultant)	22	
<i>What is the total amount of paid claims?</i>	CIS (provided by consultant)	\$307,759	
<i>How many of the claims were for substantial damage?</i>	CIS (provided by consultant)	0	
<i>Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.</i>	Community floodplain administrator		
Staff Resources			
<i>Is the Community Floodplain Administrator or NFIP Coordinator certified?</i>	Community floodplain administrator		
<i>Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?</i>	Community floodplain administrator		
<i>Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).</i>	Community floodplain administrator		

Berkeley County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
<i>What are the barriers to running an effective NFIP program in the community?</i>	Community floodplain administrator		
Compliance History			
<i>Is the community in good standing with the NFIP?</i>	CIS (provided by consultant)	Yes	
<i>Are there any outstanding compliance issues (i.e., current violations)?</i>	CIS (provided by consultant)	No	
<i>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</i>	CIS (provided by consultant)	CAV: 03/12/2014 CAC:NA	
<i>Is a CAV or CAC scheduled or needed?</i>	CIS (provided by consultant)	No	
Regulation			
<i>When did the community enter the NFIP?</i>	CIS (provided by consultant)	12/18/1979	
<i>Are the FIRMS digital or paper?</i>	CIS (provided by consultant)	Digital	
<i>Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?</i>	Community floodplain administrator		
<i>Provide an explanation of the permitting process.</i>	Community floodplain administrator		
CRS			
<i>Does the community participate in CRS?</i>	CIS (provided by consultant)	No	
<i>What is the community's CRS Class Ranking?</i>	CIS (provided by consultant)	NA	
<i>What categories and activities provide CRS points and how can the class be improved?</i>	CIS (provided by consultant)	NA	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

Berkeley County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **Town of Hedgesville**

Name and Title: _____

Phone: _____

Email: _____

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
<i>How many NFIP policies are in the community?</i>	CIS (provided by consultant)	0	
<i>What is the total premium and coverage?</i>	CIS (provided by consultant)	0	
<i>How many claims have been paid in the community?</i>	CIS (provided by consultant)	0	
<i>What is the total amount of paid claims?</i>	CIS (provided by consultant)	0	
<i>How many of the claims were for substantial damage?</i>	CIS (provided by consultant)	0	
<i>Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.</i>	Community floodplain administrator		
Staff Resources			
<i>Is the Community Floodplain Administrator or NFIP Coordinator certified?</i>	Community floodplain administrator		
<i>Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?</i>	Community floodplain administrator		
<i>Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).</i>	Community floodplain administrator		

Berkeley County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
<i>What are the barriers to running an effective NFIP program in the community?</i>	Community floodplain administrator		
Compliance History			
<i>Is the community in good standing with the NFIP?</i>	CIS (provided by consultant)	NA	
<i>Are there any outstanding compliance issues (i.e., current violations)?</i>	CIS (provided by consultant)	NA	
<i>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</i>	CIS (provided by consultant)	NA	
<i>Is a CAV or CAC scheduled or needed?</i>	CIS (provided by consultant)	NA	
Regulation			
<i>When did the community enter the NFIP?</i>	CIS (provided by consultant)	Not Participating	
<i>Are the FIRMS digital or paper?</i>	CIS (provided by consultant)	No published FIRM	
<i>Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?</i>	Community floodplain administrator		
<i>Provide an explanation of the permitting process.</i>	Community floodplain administrator		
CRS			
<i>Does the community participate in CRS?</i>	CIS (provided by consultant)	No	
<i>What is the community's CRS Class Ranking?</i>	CIS (provided by consultant)	NA	
<i>What categories and activities provide CRS points and how can the class be improved?</i>	CIS (provided by consultant)	NA	

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Berkeley County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **City of Martinsburg**

Name and Title: _____

Phone: _____

Email: _____

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
How many NFIP policies are in the community?	CIS (provided by consultant)	23	
What is the total premium and coverage?	CIS (provided by consultant)	\$36,026 (total premium), \$5,262,400 (total coverage)	
How many claims have been paid in the community?	CIS (provided by consultant)	22	
What is the total amount of paid claims?	CIS (provided by consultant)	\$307,759	
How many of the claims were for substantial damage?	CIS (provided by consultant)	0	
Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.	Community floodplain administrator	To the best of my knowledge, no, not from identified flood hazard areas.	
Staff Resources			
Is the Community Floodplain Administrator or NFIP Coordinator certified?	Community floodplain administrator	Yes, the floodplain administrator is a CFM, as is the Building Code Official.	
Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?	Community floodplain administrator	Primary Floodplain Ordinance is stand-alone but we also have a Zoning Ordinance component.	
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).	Community floodplain administrator	Permit review, outreach, CRS management, GIS, inspections, site-visits, in-house review,	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

Berkeley County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
What are the barriers to running an effective NFIP program in the community?	Community floodplain administrator	Time, funds, staffing.	
<i>Compliance History</i>			
Is the community in good standing with the NFIP?	CIS (provided by consultant)	Yes	
Are there any outstanding compliance issues (i.e., current violations)?	CIS (provided by consultant)	No	
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CIS (provided by consultant)	CAV: 03/12/2014 CAC:NA	
Is a CAV or CAC scheduled or needed?	CIS (provided by consultant)	No	
Regulation			
When did the community enter the NFIP?	CIS (provided by consultant)	12/18/1979	
Are the FIRMS digital or paper?	CIS (provided by consultant)	Digital	
Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?	Community floodplain administrator	We use the WV model floodplain ordinance	
Provide an explanation of the permitting process.	Community floodplain administrator	All permits are first reviewed at intake for location then identified as either in or out of the FP. The Building Code Official reviews for compliance with assistance from the City Planner if needed (both are CFMs). This includes site visits if applicable. All new construction, enlargements, additions, etc. require Board of Zoning Appeals approval.	
Does the community participate in CRS?			
What is the community's CRS Class Ranking?	CIS (provided by consultant)	Yes	
What categories and activities provide CRS points and how can the class be improved?	CIS (provided by consultant)	8	
What categories and activities provide CRS points and how can the class be improved?	CIS (provided by consultant)	Activities 310, 330, 340, 350, 410, 420, 430, 440, 450, 502, 510, 710 (details attached)	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110



COMMUNITY
RATING
SYSTEM

VERIFICATION
REPORT

City of Martinsburg, WV

NFIP Number: 540006

Date of Verification Visit: April 2, 2015

Verified Class 8

New Application

This Verification Report is provided to explain the recommendations of Insurance Services Office, Inc. (ISO) to DHS/FEMA concerning credits under the Community Rating System (CRS) for the above named community.

A total of 1124 credit points are verified which results in a recommendation that the community improve from a CRS Class 10 to a CRS Class 8. The following is a summary of our findings with the total credit points for each activity noted in parenthesis:

Activity 310 – Elevation Certificates: The Planning Department maintains elevation certificates for new and substantially improved buildings. Copies of elevation certificates are made available upon request. (38 points)

Activity 330 – Outreach Projects: Credit is provided for informational outreach projects that include brochures at public buildings, general outreach projects that include community events, and targeted outreach projects that include outreach to the repetitive loss areas. These projects are disseminated annually. (46 points)

Activity 340 – Hazard Disclosure: Real estate agents provide a brochure advising prospective buyers about insurance and checking property flood hazards. (8 points)

Activity 350 – Flood Protection Information: Documents relating to floodplain management are available in the reference section of the Berkeley County Library. Credit is also provided for floodplain information displayed on the community's website. (16 points)

Activity 410 – Floodplain Mapping: Credit is provided for conducting and adopting flood studies for areas not included on the Flood Insurance Rate Maps and that exceed minimum mapping standards. (9 points)

Activity 420 – Open Space Preservation: Credit is provided for preserving approximately 11 percent of the Special Flood Hazard Area (SFHA) as open space. Credit is also provided for regulations and incentives that minimize development in the SFHA. (179 points)

Activity 430 – Higher Regulatory Standards: Credit is provided for enforcing regulations that require development limitations, freeboard for new and substantial improvement construction, foundation protection, cumulative substantial improvement, lower substantial improvement, enclosure limits, and local drainage protection. Credit is also provided for the enforcement of building codes, state mandated regulatory standards, and regulations administration. (550 points)

Activity 440 – Flood Data Maintenance: Credit is provided for maintaining and using digitized maps in the day to day management of the floodplain. (119 points)

Activity 450 – Stormwater Management: The community enforces regulations for soil and erosion control. (11 points)

Section 502 – Repetitive Loss Category: Based on the updates made to the NFIP Report of Repetitive Losses as of December 31, 2014, the City of Martinsburg, WV has 6 repetitive loss properties and is a Category B community for CRS purposes. All requirements for a Category B community have been met. (No credit points are applicable to this section)

Activity 510 – Floodplain Management Planning: Credit is provided for the adoption and implementation of the Region 9 Planning and Development Council Multi-Jurisdictional Hazard Mitigation Plan for Berkeley and Morgan Counties, adopted April 12, 2012. A progress report must be submitted on an annual basis. An update to the credited plan will be due by October 1, 2017. (148 points)

Activity 710 – County Growth Adjustment: All credit in the 400 series is multiplied by the growth rate of the county to account for growth pressures. The growth rate for Berkeley County is 1.08.

Attached is the Community Calculations Worksheet that lists the verified credit points for the Community Rating System.

CEO Name / Address:

The Honorable George Karos
Mayor of Martinsburg
232 North Queen Street
Martinsburg, West Virginia 25401

CRS Coordinator Name / Address:

Tracy Smith
City Planner
232 North Queen Street
Martinsburg, West Virginia 25401
(304) 264-2131

Date Report Prepared: August 20, 2015

Appendix C-17 Morgan County NFIP Compliance and Capabilities Worksheets

Morgan County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **Morgan County**

Name and Title: **Angela Gore** *County Planner*
PL Manager

Phone: **304.258.8840**

Email: **agorse@morgancountywv.gov**

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
How many NFIP policies are in the community?	CIS (provided by consultant)	138	
What is the total premium and coverage?	CIS (provided by consultant)	\$156,265 (total premium), \$24,186,800 (total coverage)	
How many claims have been paid in the community?	CIS (provided by consultant)	175	
What is the total amount of paid claims?	CIS (provided by consultant)	\$2,717,720	
How many of the claims were for substantial damage?	CIS (provided by consultant)	50	
Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.	Community floodplain administrator	Along Warm Springs Run - only a few ^{residences} businesses/AE	NFIP policies
Staff Resources			
Is the Community Floodplain Administrator or NFIP Coordinator certified?	Community floodplain administrator	NO, NOT A CFM (Kunderf)	
Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?	Community floodplain administrator	standalone / with ^{to} with Improvement Location Permit Ordinance	
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).	Community floodplain administrator	- Application reviewed by Consulting Engineer Inspections + Elev. cert Required upon completion Do AD's in summer about requirements Do mailing to ALL Rep Loss + Admining prop. in Fall / Do both @ Fall - NFIP	

Morgan County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
What are the barriers to running an effective NFIP program in the community?	Community floodplain administrator	"It's my property - I can do what I want" mountainers are free grow know	
Compliance History			
Is the community in good standing with the NFIP?	CIS (provided by consultant)	Yes	
Are there any outstanding compliance issues (i.e., current violations)?	CIS (provided by consultant)	No	
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CIS (provided by consultant)	CAV:06/14/2012 CAC:NA	
Is a CAV or CAC scheduled or needed?	CIS (provided by consultant)	No	
Regulation			
When did the community enter the NFIP?	CIS (provided by consultant)	07/01/1987	
Are the FIRMS digital or paper?	CIS (provided by consultant)	Digital	
Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?	Community floodplain administrator	WE DID USE MODEL - WE EXCEEDED IN FREE BOARD - INCORPORATED F.P. RESTRICTIONS IN SUBDIVISION ORD.	
Provide an explanation of the permitting process.	Community floodplain administrator	Appl Received / Reg Engineer Designed foundation/H&CRAS if necessary/ Reviewed / PERMIT ISSUED / INSPECTIONS / E.C.	
Community Rating System (CRS)			
Does the community participate in CRS?	CIS (provided by consultant)	YES	
What is the community's CRS Class Ranking?	CIS (provided by consultant)	09 (5%)	
What categories and activities provide CRS points and how can the class be improved?	CIS (provided by consultant)	<ul style="list-style-type: none"> • Higher Regulatory Standards • Map Information • Floodplain Management Planning • Flood Data Maintenance 	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

Morgan County 2017 Hazard Mitigation Plan Update

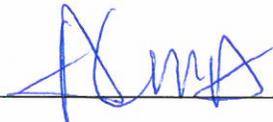
NFIP Topic	Source of Information	Response	Community Comments
<i>What are the barriers to running an effective NFIP program in the community?</i>	Community floodplain administrator		
Compliance History			
<i>Is the community in good standing with the NFIP?</i>	CIS (provided by consultant)	Yes	
<i>Are there any outstanding compliance issues (i.e., current violations)?</i>	CIS (provided by consultant)	No	
<i>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</i>	CIS (provided by consultant)	CAV:NA CAC: NA	
<i>Is a CAV or CAC scheduled or needed?</i>	CIS (provided by consultant)	No	
Regulation			
<i>When did the community enter the NFIP?</i>	CIS (provided by consultant)	11/02/1984	
<i>Are the FIRMS digital or paper?</i>	CIS (provided by consultant)	Digital	
<i>Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?</i>	Community floodplain administrator		
<i>Provide an explanation of the permitting process.</i>	Community floodplain administrator		
CRS			
<i>Does the community participate in CRS?</i>	CIS (provided by consultant)	No	
<i>What is the community's CRS Class Ranking?</i>	CIS (provided by consultant)	NA	
<i>What categories and activities provide CRS points and how can the class be improved?</i>	CIS (provided by consultant)	NA	

Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

Morgan County 2017 Hazard Mitigation Plan Update

National Flood Insurance Program (NFIP) Compliance and Capabilities Worksheet

Jurisdiction: **Town of Bath**

Name and Title: _____ 

Phone: _____

Email: _____

Use the following worksheet to collect information on your community's participation in and continued compliance with the NFIP and identify areas for improvement that could be potential mitigation actions.

NFIP Topic	Source of Information	Response	Community Comments
Insurance Summary			
How many NFIP policies are in the community?	CIS (provided by consultant)	21	
What is the total premium and coverage?	CIS (provided by consultant)	\$29,501 (total premium), \$4,062,000 (total coverage)	
How many claims have been paid in the community?	CIS (provided by consultant)	20	
What is the total amount of paid claims?	CIS (provided by consultant)	\$380,219	
How many of the claims were for substantial damage?	CIS (provided by consultant)	1	
Do any areas of your community regularly flood, but do not have NFIP policies? Please describe.	Community floodplain administrator		
Staff Resources			
Is the Community Floodplain Administrator or NFIP Coordinator certified?	Community floodplain administrator	NO	
Do you have a standalone floodplain management ordinance, or is it part of your zoning/subdivision regulations?	Community floodplain administrator	County has MOU w/ T.O.B. - own ORDINANCE Applies -	
Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability).	Community floodplain administrator	Same as 1st -	

Morgan County 2017 Hazard Mitigation Plan Update

NFIP Topic	Source of Information	Response	Community Comments
<i>What are the barriers to running an effective NFIP program in the community?</i>	Community floodplain administrator		
Compliance History			
<i>Is the community in good standing with the NFIP?</i>	CIS (provided by consultant)	Yes	
<i>Are there any outstanding compliance issues (i.e., current violations)?</i>	CIS (provided by consultant)	No	
<i>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</i>	CIS (provided by consultant)	CAV:07/01/2010 CAC:NA	
<i>Is a CAV or CAC scheduled or needed?</i>	CIS (provided by consultant)	No	
Regulation			
<i>When did the community enter the NFIP?</i>	CIS (provided by consultant)	01/02/1980	
<i>Are the FIRMS digital or paper?</i>	CIS (provided by consultant)	Digital	
<i>Does your community use the WV model floodplain ordinance? If it does not, do your floodplain development regulations exceed State minimum requirements or are they lower than state minimum requirements? In what ways?</i>	Community floodplain administrator		
<i>Provide an explanation of the permitting process.</i>	Community floodplain administrator		
CRS			
<i>Does the community participate in CRS?</i>	CIS (provided by consultant)	No	
<i>What is the community's CRS Class Ranking?</i>	CIS (provided by consultant)	NA	
<i>What categories and activities provide CRS points and how can the class be improved?</i>	CIS (provided by consultant)	NA	

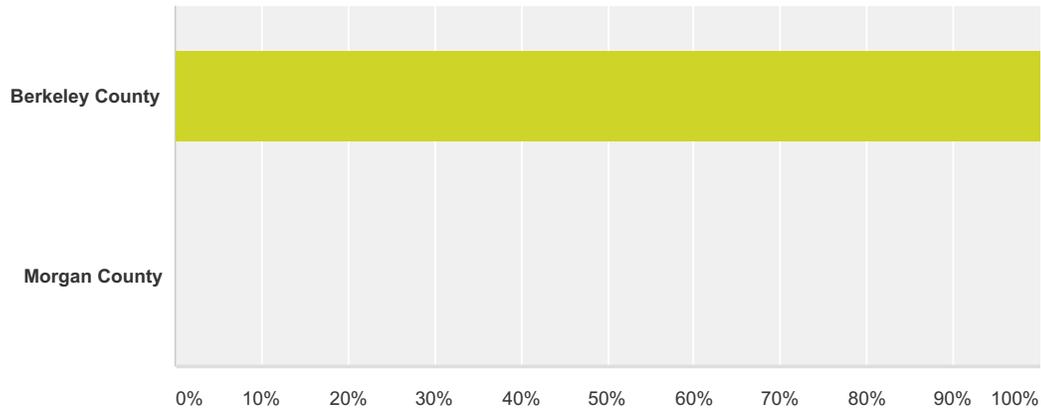
Forms can be submitted to Angela Welt at: awelt@mbakerintl.com or 4431 N. Front Street, 2nd Floor, Harrisburg, PA 17110

Appendix C-18 Berkeley County HMP Public Survey

Multi-Jurisdictional Hazard Mitigation Plan Survey

Q1 Please select the jurisdiction in which you live.

Answered: 44 Skipped: 0



Answer Choices	Responses
Berkeley County	100.00% 44
Morgan County	0.00% 0
Total	44

Q2 Please enter your zipcode.

Answered: 44 Skipped: 0

#	Responses	Date
1	25427	8/30/2016 11:54 AM
2	25401	7/27/2016 7:47 AM
3	25405	7/18/2016 5:05 PM
4	25419	7/18/2016 11:53 AM
5	25419	7/18/2016 11:24 AM
6	25405	7/15/2016 4:37 PM
7	25420	7/15/2016 12:51 PM
8	25402	7/15/2016 8:25 AM
9	25427	7/15/2016 8:19 AM
10	25405	7/1/2016 8:44 AM
11	25428	6/30/2016 9:23 PM
12	25404	6/30/2016 8:08 PM
13	25403	6/30/2016 7:31 PM
14	25405	6/30/2016 4:04 PM
15	25403	6/30/2016 11:43 AM
16	25427	6/30/2016 11:32 AM

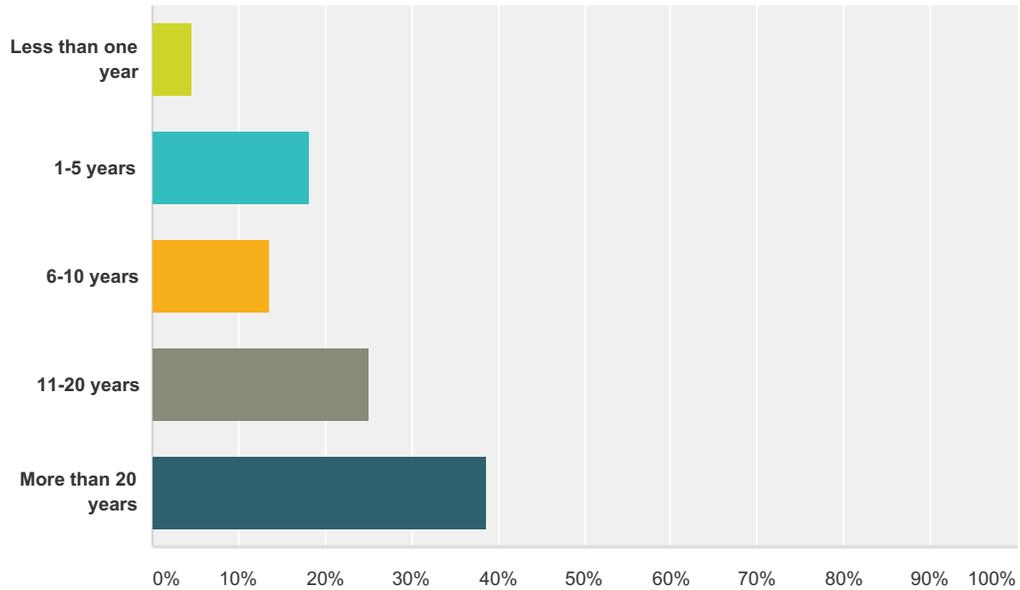
Multi-Jurisdictional Hazard Mitigation Plan Survey

17	25401	6/30/2016 10:25 AM
18	25403	6/30/2016 8:35 AM
19	25427	6/30/2016 8:29 AM
20	25427	6/30/2016 8:23 AM
21	25420	6/29/2016 8:47 PM
22	25404	6/29/2016 5:48 PM
23	25404	6/29/2016 4:56 PM
24	25403	6/29/2016 4:45 PM
25	25403	6/29/2016 4:09 PM
26	25401	6/29/2016 4:03 PM
27	25401	6/29/2016 3:43 PM
28	25428	6/29/2016 3:43 PM
29	25427	6/29/2016 3:25 PM
30	25427	6/29/2016 3:24 PM
31	25427	6/29/2016 3:20 PM
32	25405	6/29/2016 3:17 PM
33	25401	6/29/2016 3:10 PM
34	25427	6/29/2016 3:08 PM
35	25404	6/29/2016 11:33 AM
36	25413	6/29/2016 11:31 AM
37	25419	6/29/2016 10:57 AM
38	25403	6/29/2016 10:33 AM
39	25428	6/29/2016 10:32 AM
40	25427	6/29/2016 6:41 AM
41	25403	6/28/2016 4:41 PM
42	25404	6/28/2016 4:33 PM
43	25404	6/24/2016 9:17 AM
44	25404	6/23/2016 2:30 PM

Q3 How long have you resided in your community?

Answered: 44 Skipped: 0

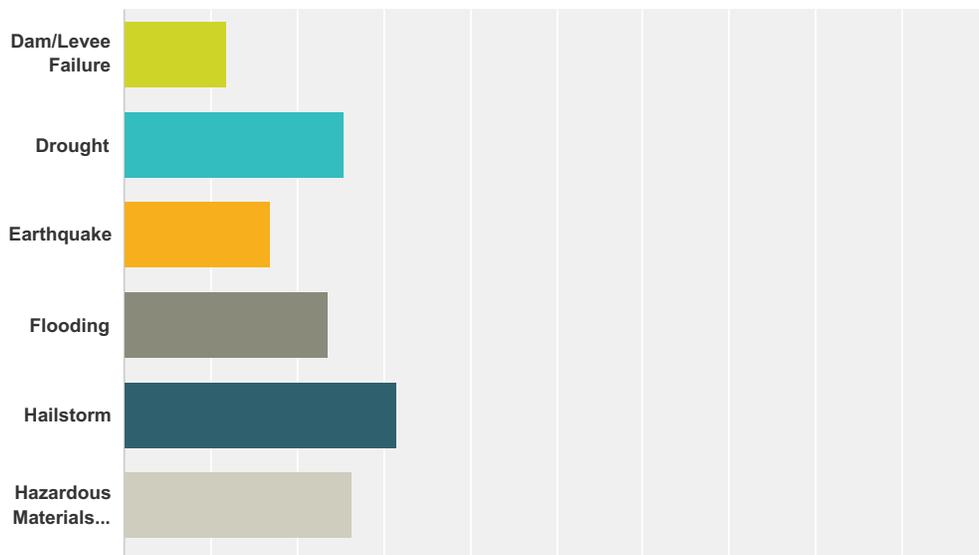
Multi-Jurisdictional Hazard Mitigation Plan Survey



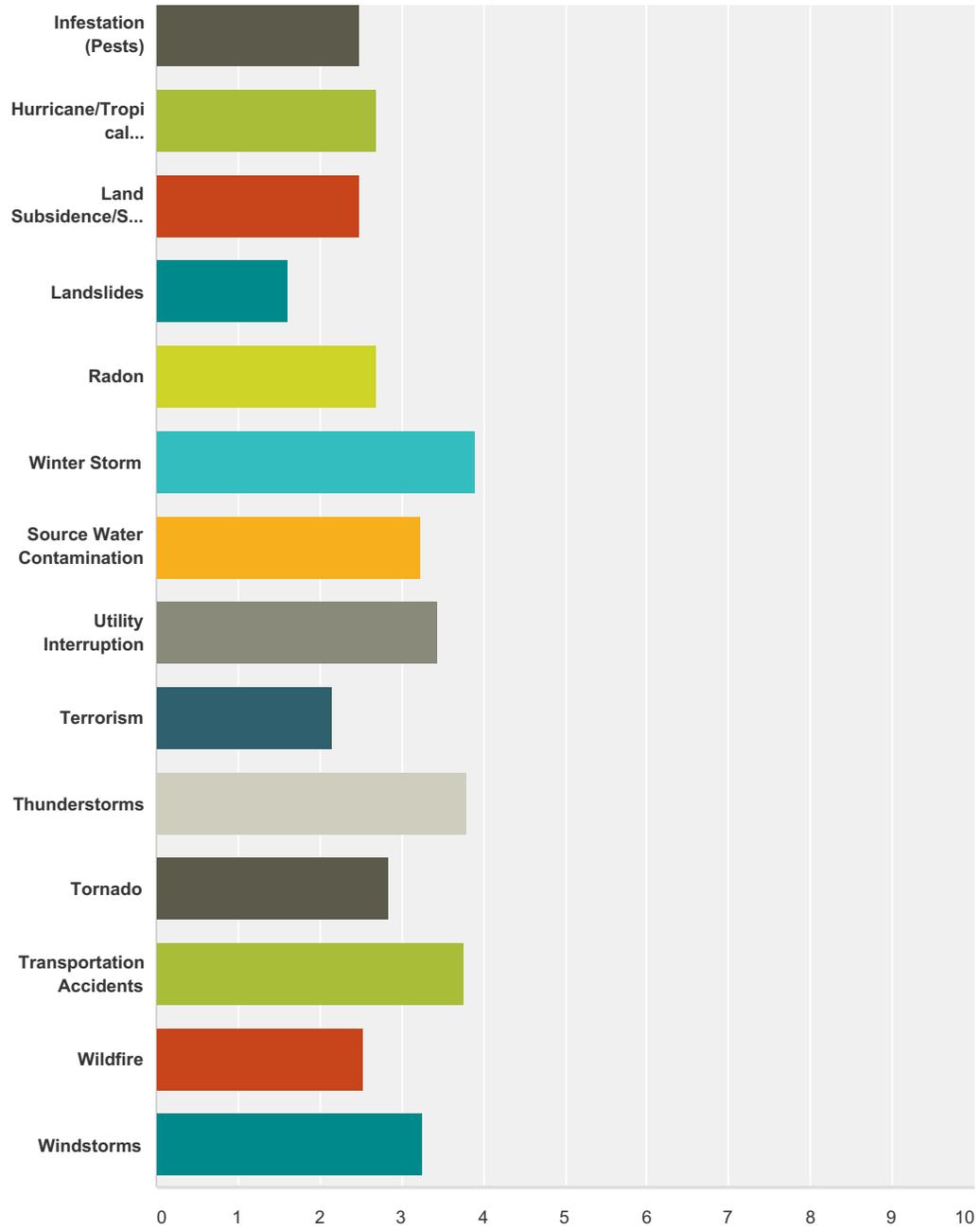
Answer Choices	Responses	Count
Less than one year	4.55%	2
1-5 years	18.18%	8
6-10 years	13.64%	6
11-20 years	25.00%	11
More than 20 years	38.64%	17
Total		44

Q4 Please rate each of the following hazards on a scale of 1 (low) to 5 (high) indicating the level of threat you feel each presents to your neighborhood or home.

Answered: 44 Skipped: 0



Multi-Jurisdictional Hazard Mitigation Plan Survey



	Low	Medium-Low	Medium	Medium-High	High	Total	Weighted Average
Dam/Levee Failure	88.37% 38	6.98% 3	2.33% 1	2.33% 1	0.00% 0	43	1.19
Drought	20.45% 9	29.55% 13	34.09% 15	6.82% 3	9.09% 4	44	2.55
Earthquake	45.45% 20	40.91% 18	11.36% 5	2.27% 1	0.00% 0	44	1.70
Flooding	27.27% 12	31.82% 14	22.73% 10	13.64% 6	4.55% 2	44	2.36
Hailstorm	2.27% 1	27.27% 12	34.09% 15	25.00% 11	11.36% 5	44	3.16

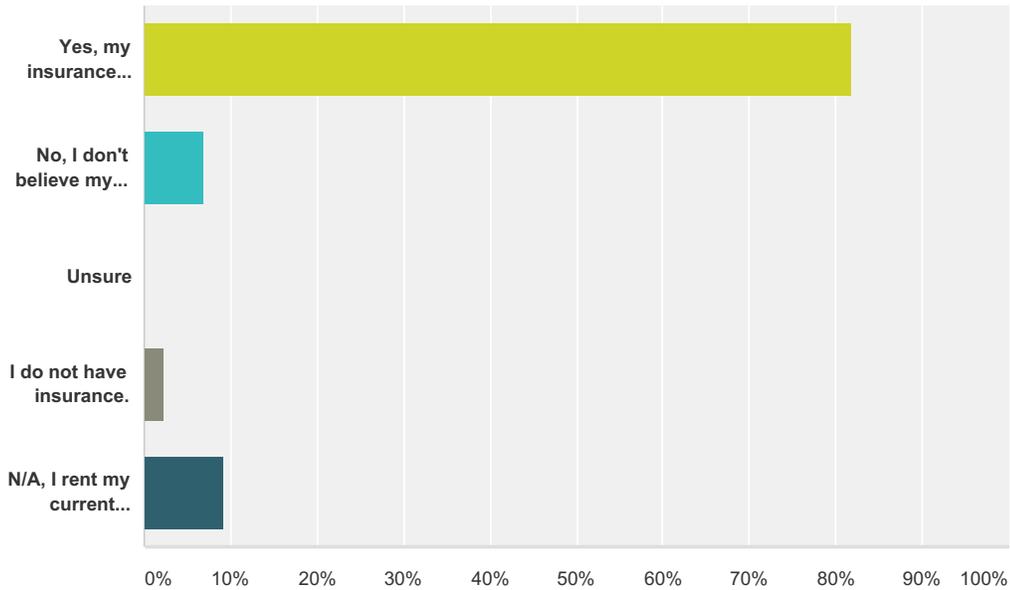
Multi-Jurisdictional Hazard Mitigation Plan Survey

Hazardous Materials Release	20.45% 9	25.00% 11	27.27% 12	25.00% 11	2.27% 1	44	2.64
Infestation (Pests)	13.64% 6	45.45% 20	25.00% 11	11.36% 5	4.55% 2	44	2.48
Hurricane/Tropical Storm/Nor'Easter	16.28% 7	34.88% 15	13.95% 6	32.56% 14	2.33% 1	43	2.70
Land Subsidence/Sinkholes	22.73% 10	31.82% 14	25.00% 11	15.91% 7	4.55% 2	44	2.48
Landslides	61.36% 27	22.73% 10	11.36% 5	2.27% 1	2.27% 1	44	1.61
Radon	27.27% 12	18.18% 8	22.73% 10	20.45% 9	11.36% 5	44	2.70
Winter Storm	0.00% 0	7.14% 3	23.81% 10	40.48% 17	28.57% 12	42	3.90
Source Water Contamination	11.36% 5	18.18% 8	29.55% 13	18.18% 8	22.73% 10	44	3.23
Utility Interruption	4.55% 2	20.45% 9	22.73% 10	29.55% 13	22.73% 10	44	3.45
Terrorism	40.48% 17	26.19% 11	16.67% 7	11.90% 5	4.76% 2	42	2.14
Thunderstorms	0.00% 0	13.64% 6	22.73% 10	34.09% 15	29.55% 13	44	3.80
Tornado	11.63% 5	39.53% 17	16.28% 7	18.60% 8	13.95% 6	43	2.84
Transportation Accidents	11.36% 5	4.55% 2	22.73% 10	20.45% 9	40.91% 18	44	3.75
Wildfire	29.55% 13	20.45% 9	27.27% 12	13.64% 6	9.09% 4	44	2.52
Windstorms	2.27% 1	29.55% 13	27.27% 12	22.73% 10	18.18% 8	44	3.25

Q5 If you are a homeowner, do you have adequate basic homeowner's insurance to cover the hazards that could impact your home?

Answered: 44 Skipped: 0

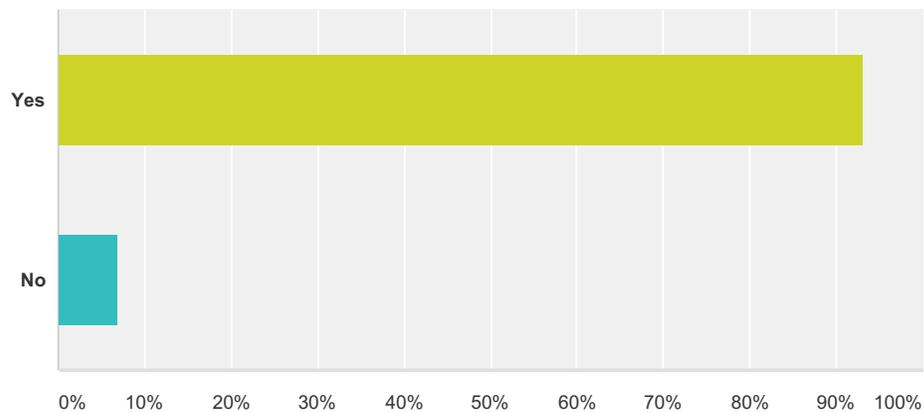
Multi-Jurisdictional Hazard Mitigation Plan Survey



Answer Choices	Responses
Yes, my insurance coverage should be adequate.	81.82% 36
No, I don't believe my insurance coverage would be adequate for a major disaster.	6.82% 3
Unsure	0.00% 0
I do not have insurance.	2.27% 1
N/A, I rent my current residence.	9.09% 4
Total	44

Q6 Did you know that most homeowner insurance policies do not cover flooding or minor subsidence (sinkholes)?

Answered: 44 Skipped: 0



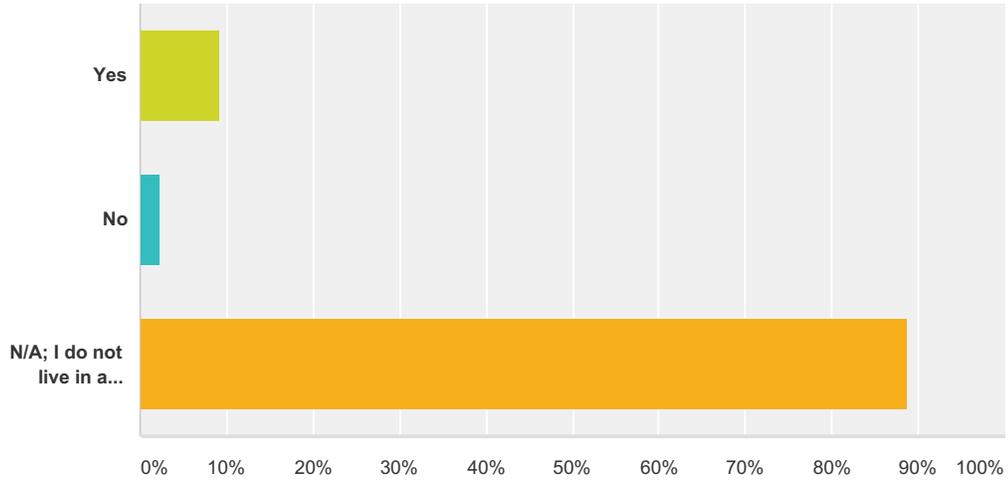
Answer Choices	Responses
Yes	93.18% 41

Multi-Jurisdictional Hazard Mitigation Plan Survey

No	6.82%	3
Total		44

Q7 If you live in a floodplain, do you carry flood insurance?

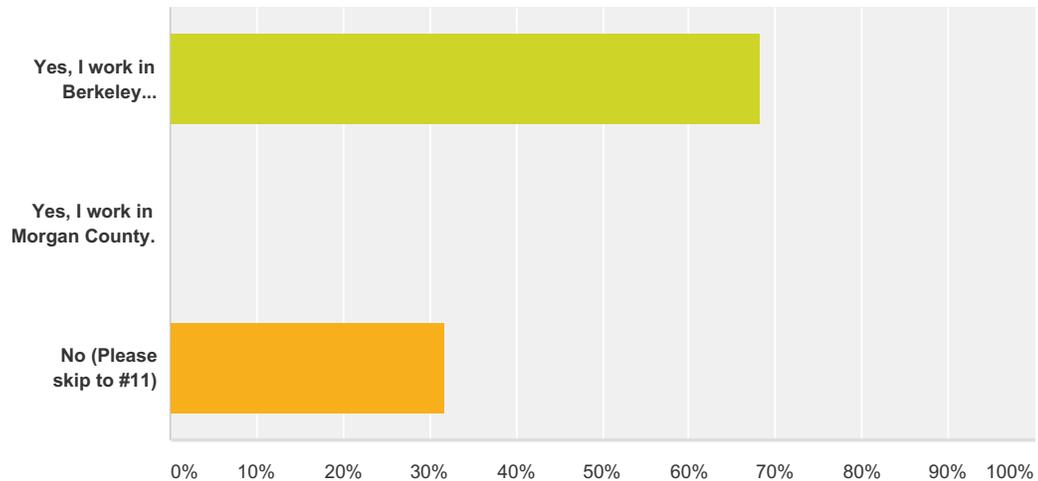
Answered: 44 Skipped: 0



Answer Choices	Responses	Count
Yes	9.09%	4
No	2.27%	1
N/A; I do not live in a floodplain.	88.64%	39
Total		44

Q8 Do you work in Berkeley or Morgan County?

Answered: 44 Skipped: 0



Multi-Jurisdictional Hazard Mitigation Plan Survey

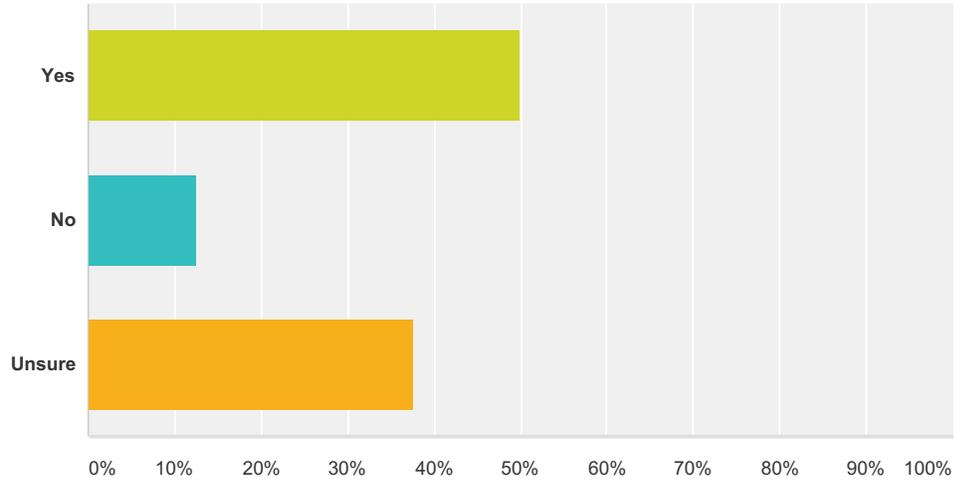
Answer Choices	Responses	
Yes, I work in Berkeley County.	68.18%	30
Yes, I work in Morgan County.	0.00%	0
No (Please skip to #11)	31.82%	14
Total		44

#	If yes, please enter the zipcode where you work.	Date
1	25427	8/30/2016 11:54 AM
2	25401	7/15/2016 4:37 PM
3	22150	7/15/2016 12:51 PM
4	25402	7/15/2016 8:25 AM
5	25427	6/30/2016 7:31 PM
6	25428	6/30/2016 4:04 PM
7	25401	6/30/2016 11:43 AM
8	25427	6/30/2016 11:32 AM
9	25401	6/29/2016 4:56 PM
10	25401	6/29/2016 4:09 PM
11	25401	6/29/2016 4:03 PM
12	25404	6/29/2016 3:43 PM
13	25405	6/29/2016 3:25 PM
14	25403	6/29/2016 3:24 PM
15	25430	6/29/2016 3:20 PM
16	25401	6/29/2016 10:33 AM
17	25428	6/29/2016 6:41 AM
18	25401	6/28/2016 4:41 PM
19	25404	6/28/2016 4:33 PM
20	25401	6/24/2016 9:17 AM
21	25401	6/23/2016 2:30 PM

Q9 Does your employer have a plan for disaster recovery in place?

Answered: 32 Skipped: 12

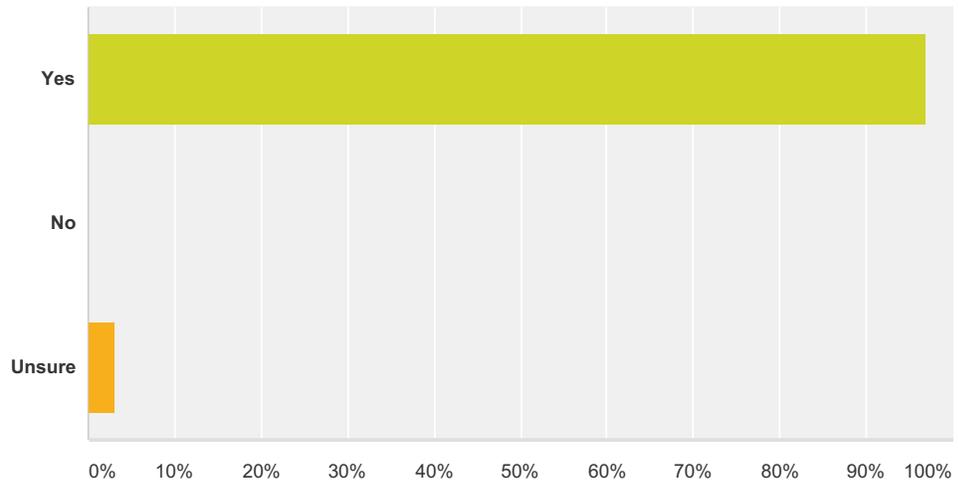
Multi-Jurisdictional Hazard Mitigation Plan Survey



Answer Choices	Responses	
Yes	50.00%	16
No	12.50%	4
Unsure	37.50%	12
Total		32

Q10 Does your employer have a means of getting in touch with you following a disaster?

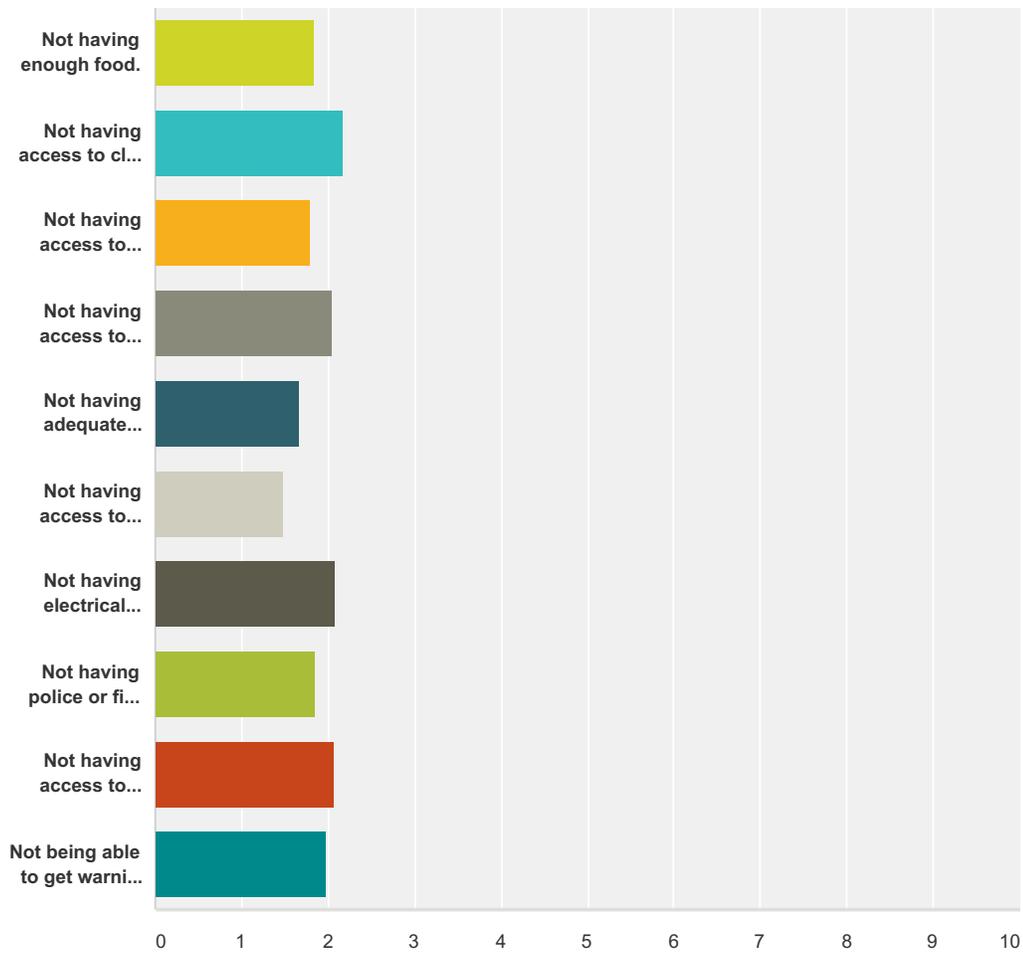
Answered: 32 Skipped: 12



Answer Choices	Responses	
Yes	96.88%	31
No	0.00%	0
Unsure	3.13%	1
Total		32

Q11 How concerned are you about the following effects of natural hazards?

Answered: 44 Skipped: 0



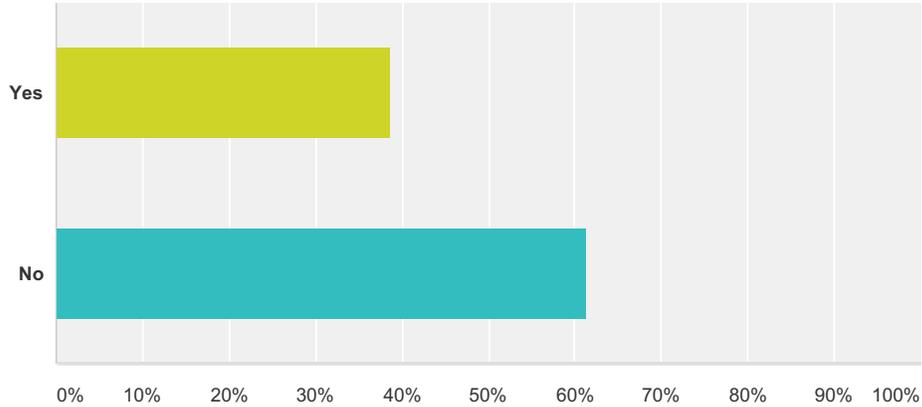
	Not concerned	Somewhat concerned	Extremely concerned	Total	Weighted Average
Not having enough food.	30.23% 13	55.81% 24	13.95% 6	43	1.84
Not having access to clean water.	15.91% 7	50.00% 22	34.09% 15	44	2.18
Not having access to required medicine.	40.91% 18	38.64% 17	20.45% 9	44	1.80
Not having access to medical services.	22.73% 10	50.00% 22	27.27% 12	44	2.05
Not having adequate shelter.	52.27% 23	29.55% 13	18.18% 8	44	1.66
Not having access to transportation in the event of evacuation.	63.64% 28	25.00% 11	11.36% 5	44	1.48
Not having electrical power for an extended time.	15.91% 7	59.09% 26	25.00% 11	44	2.09

Multi-Jurisdictional Hazard Mitigation Plan Survey

Not having police or fire protection.	31.82% 14	50.00% 22	18.18% 8	44	1.86
Not having access to communication services.	18.18% 8	56.82% 25	25.00% 11	44	2.07
Not being able to get warning messages or other information regarding the hazard.	22.73% 10	56.82% 25	20.45% 9	44	1.98

Q12 Do you have an emergency/disaster response kit?

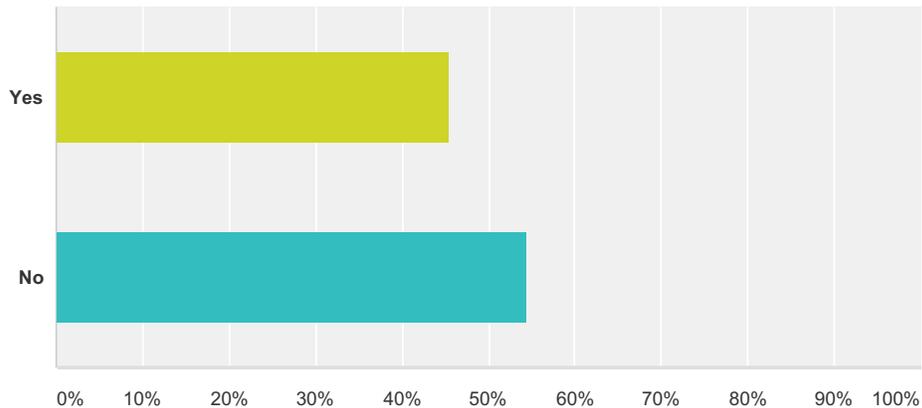
Answered: 44 Skipped: 0



Answer Choices	Responses
Yes	38.64% 17
No	61.36% 27
Total	44

Q13 Would you like information on how to assemble an emergency/disaster response kit?

Answered: 44 Skipped: 0

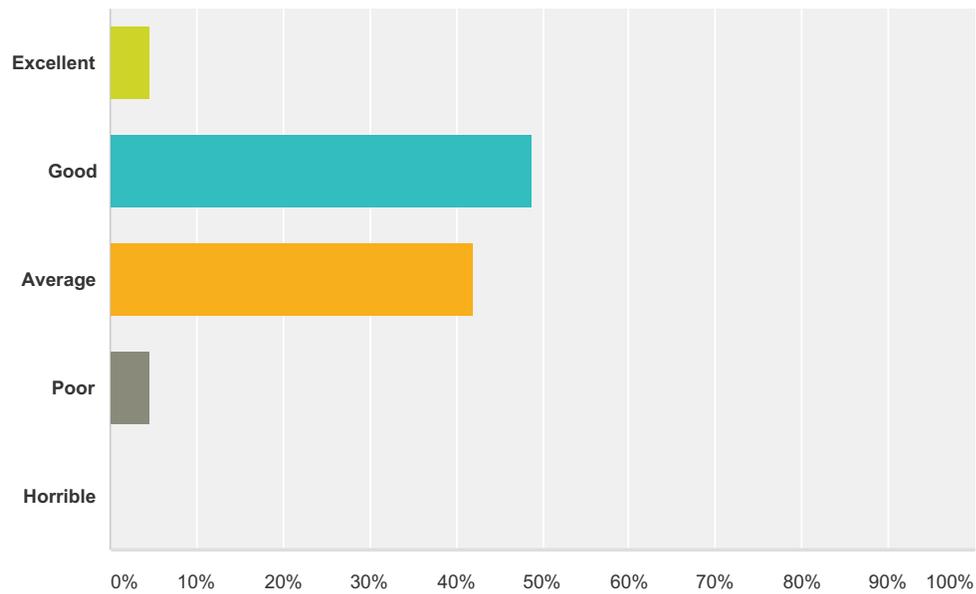


Multi-Jurisdictional Hazard Mitigation Plan Survey

Answer Choices	Responses	
Yes	45.45%	20
No	54.55%	24
Total		44

Q14 Think back to a recent hazard occurrence (any from question #4). How would you rate your community's ability to handle the hazard event?

Answered: 43 Skipped: 1

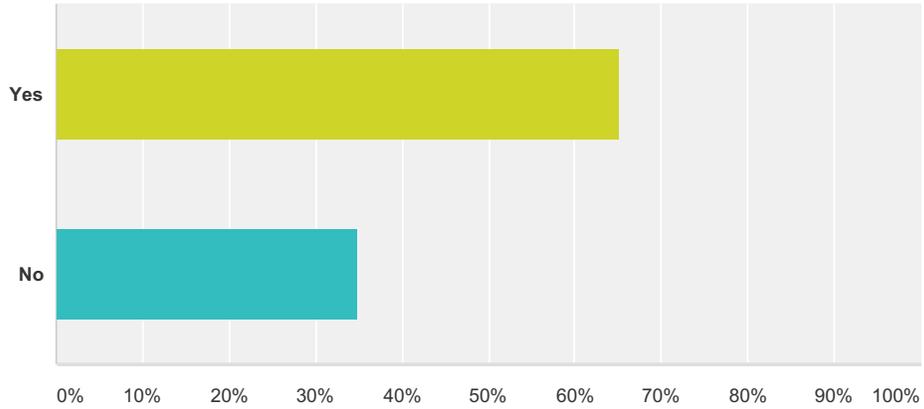


Answer Choices	Responses	
Excellent	4.65%	2
Good	48.84%	21
Average	41.86%	18
Poor	4.65%	2
Horrible	0.00%	0
Total		43

Q15 During this event, did you receive information or warnings from your local public officials/emergency management officials?

Answered: 43 Skipped: 1

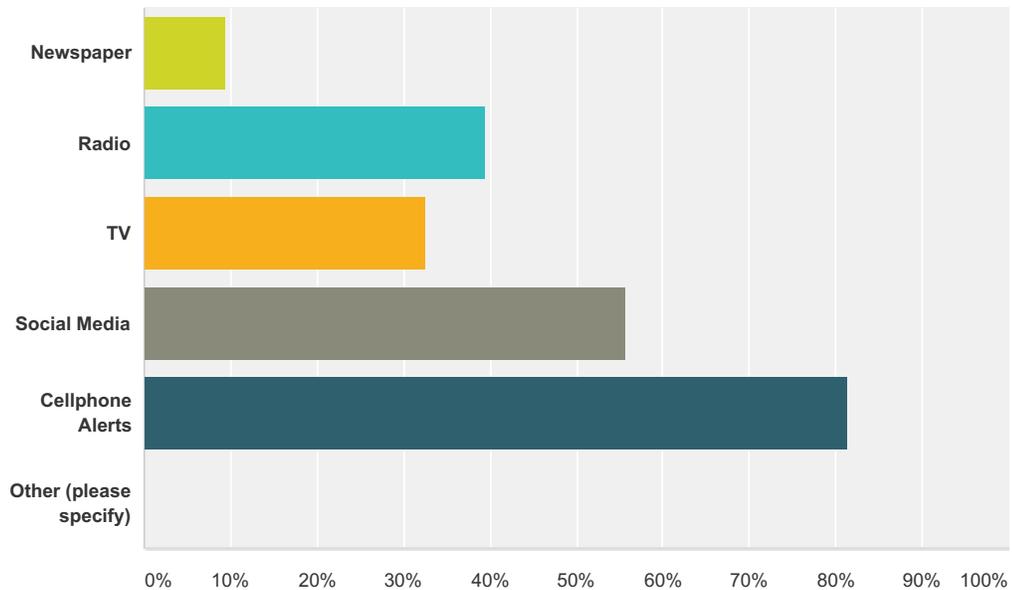
Multi-Jurisdictional Hazard Mitigation Plan Survey



Answer Choices	Responses	
Yes	65.12%	28
No	34.88%	15
Total		43

Q16 What is the most effective way for your community to alert/advise you during a hazard event?

Answered: 43 Skipped: 1



Answer Choices	Responses	
Newspaper	9.30%	4
Radio	39.53%	17
TV	32.56%	14
Social Media	55.81%	24

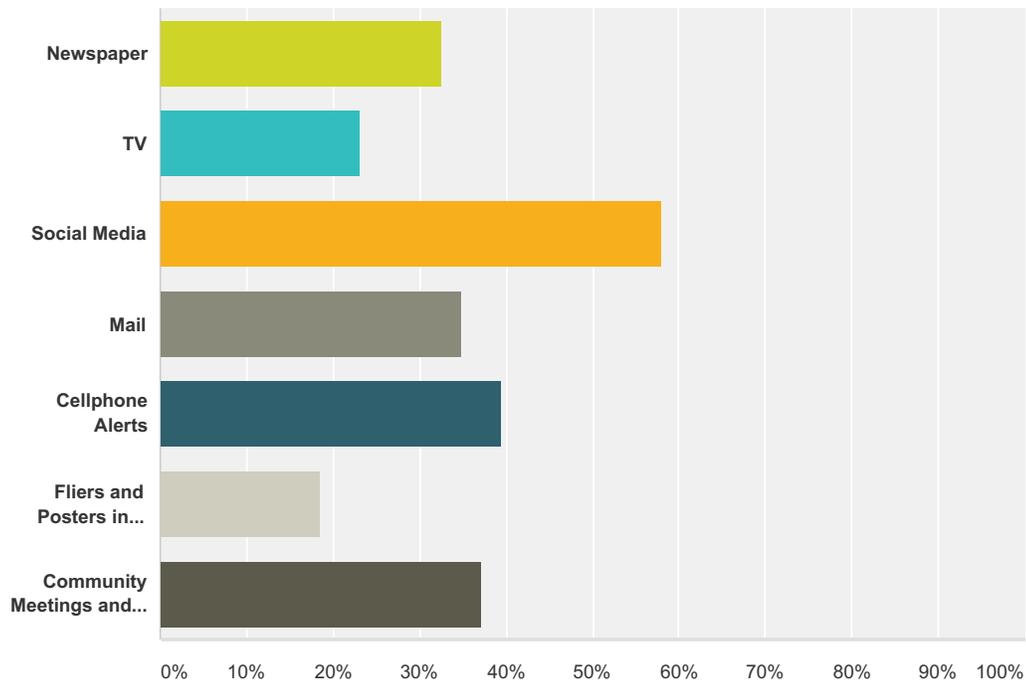
Multi-Jurisdictional Hazard Mitigation Plan Survey

Cellphone Alerts	81.40%	35
Other (please specify)	0.00%	0
Total Respondents: 43		

#	Other (please specify)	Date
	There are no responses.	

Q17 What are the most effective ways for you to receive information about how to make your home and neighborhood more hazard resistant?

Answered: 43 Skipped: 1



Answer Choices	Responses	Count
Newspaper	32.56%	14
TV	23.26%	10
Social Media	58.14%	25
Mail	34.88%	15
Cellphone Alerts	39.53%	17
Fliers and Posters in Public Locations	18.60%	8
Community Meetings and Events	37.21%	16
Total Respondents: 43		

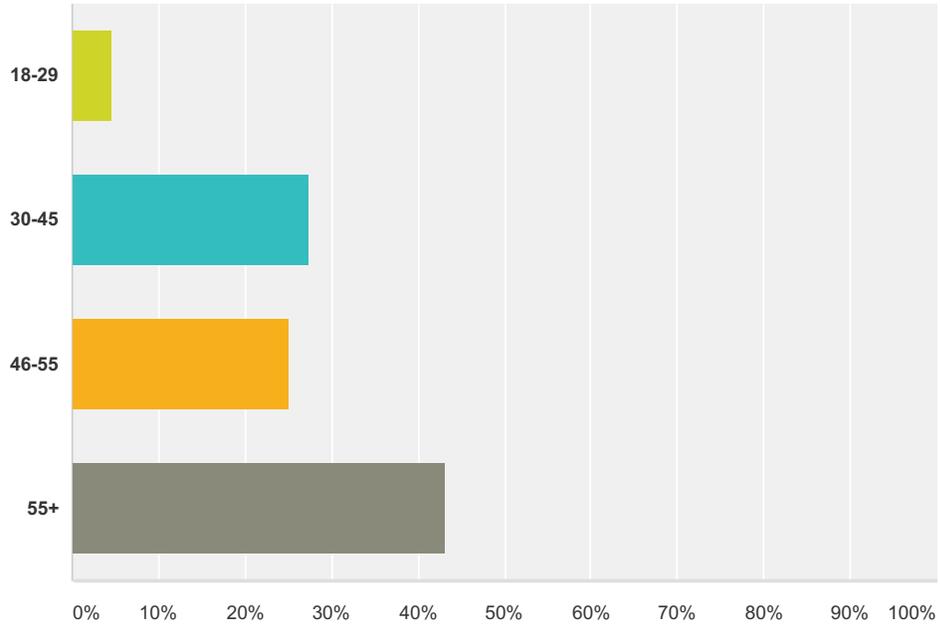
#	Other (please specify)	Date
---	------------------------	------

Multi-Jurisdictional Hazard Mitigation Plan Survey

1	blast emails (from Chamber of Commerce, etc.)	8/30/2016 11:56 AM
2	;) Tell someone it is a secret and the message will spread like wildfire. The rumor mill is alive and well in Martinsburg!	6/29/2016 4:06 PM
3	Email	6/29/2016 3:26 PM

Q18 Please indicate your age.

Answered: 44 Skipped: 0

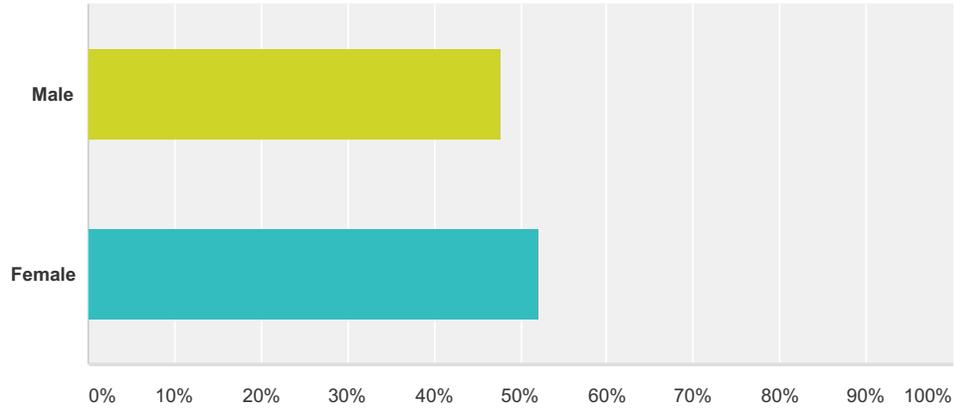


Answer Choices	Responses
18-29	4.55% 2
30-45	27.27% 12
46-55	25.00% 11
55+	43.18% 19
Total	44

Q19 Gender:

Answered: 44 Skipped: 0

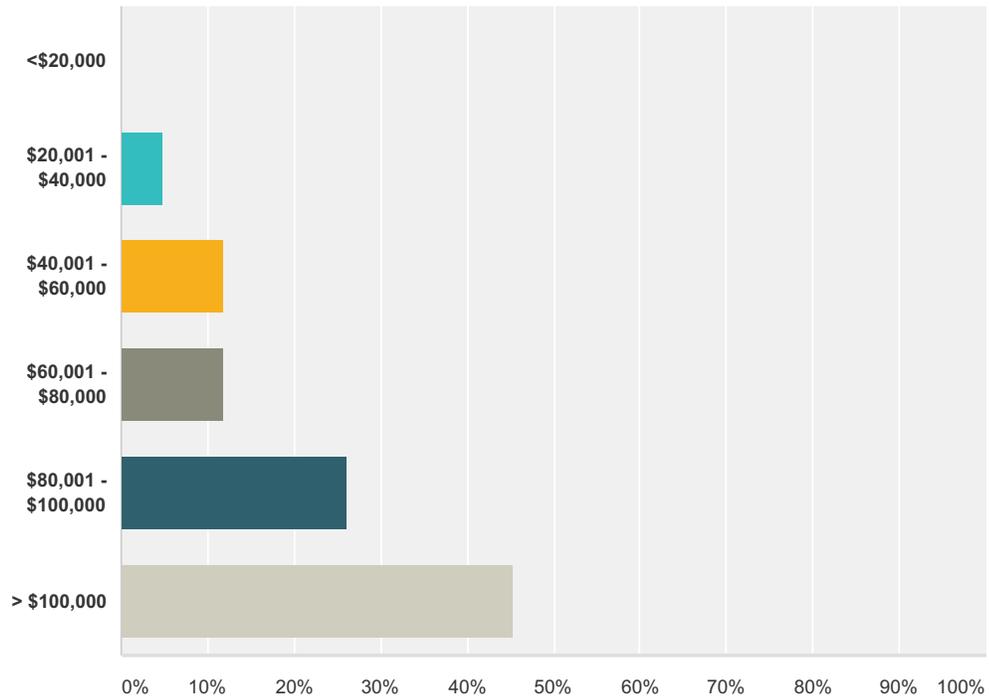
Multi-Jurisdictional Hazard Mitigation Plan Survey



Answer Choices	Responses	
Male	47.73%	21
Female	52.27%	23
Total		44

Q20 Please indicate your household income.

Answered: 42 Skipped: 2



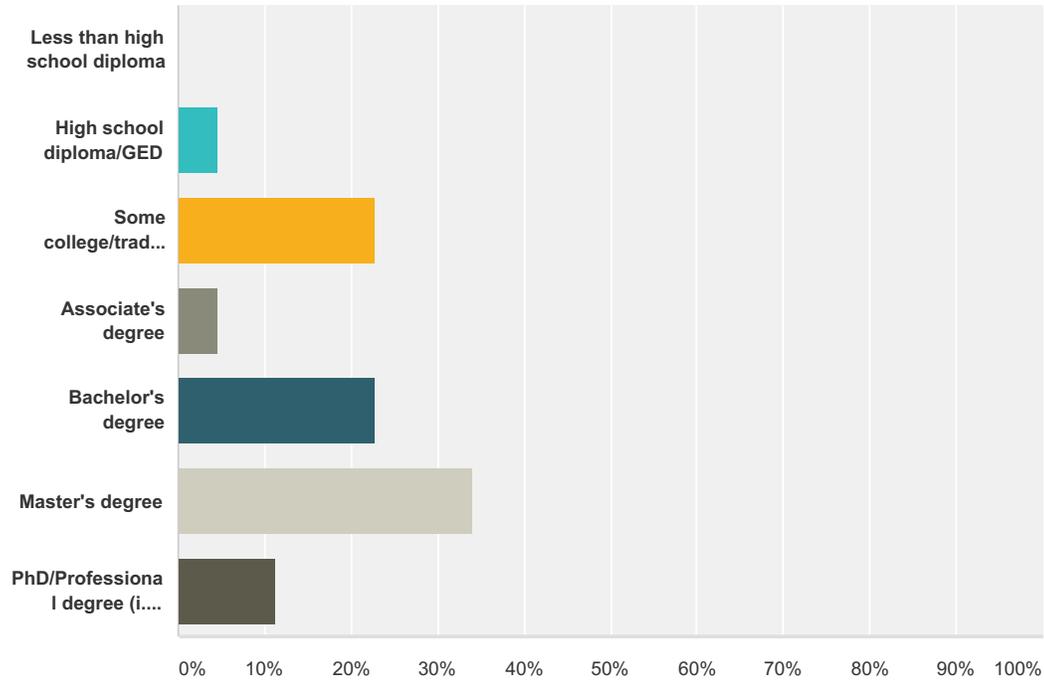
Answer Choices	Responses	
<\$20,000	0.00%	0
\$20,001 - \$40,000	4.76%	2
\$40,001 - \$60,000	11.90%	5

Multi-Jurisdictional Hazard Mitigation Plan Survey

\$60,001 - \$80,000	11.90%	5
\$80,001 - \$100,000	26.19%	11
> \$100,000	45.24%	19
Total		42

Q21 Please indicate your level of education.

Answered: 44 Skipped: 0



Answer Choices	Responses
Less than high school diploma	0.00% 0
High school diploma/GED	4.55% 2
Some college/trade school	22.73% 10
Associate's degree	4.55% 2
Bachelor's degree	22.73% 10
Master's degree	34.09% 15
PhD/Professional degree (i.e. JD, MD)	11.36% 5
Total	44

Q22 What is one action your community could take to reduce the long-term impact of disasters to the community?

Answered: 25 Skipped: 19

Multi-Jurisdictional Hazard Mitigation Plan Survey

#	Responses	Date
1	better communication: email, cell phone alerts, etc.	8/30/2016 11:57 AM
2	communication	7/18/2016 5:07 PM
3	Multi jurisdiction exercises with cross agency communications with access to county wide sirens, social media, amateur radio operators and over the air broadcasters with back up antennas/power.	7/18/2016 12:00 PM
4	More sirens that are LOUD enough for all to hear!	7/18/2016 11:27 AM
5	Better communication	7/15/2016 8:24 AM
6	I think the utilities have good plans for natural disasters. Blockages of I-81 due to accidents (whether hazardous or not) are a large issue, due to lack of alternative traffic routes.	7/1/2016 8:50 AM
7	Make the community more aware of the hazards we face i.e terrorism and what plan is in place for such an event.	6/30/2016 9:27 PM
8	Hold periodic meetings about how to cope with the most seriously ranked/scored disasters.	6/30/2016 8:14 PM
9	Preparedness	6/30/2016 11:45 AM
10	education and information to the public on how to handle a disaster	6/30/2016 8:35 AM
11	not much	6/29/2016 8:51 PM
12	Improved communication	6/29/2016 5:51 PM
13	Better planning by community to include a printed disaster plan.	6/29/2016 4:58 PM
14	Cooperation between county and city entities. Information on dedicated shelter facilities in case of disaster.	6/29/2016 4:21 PM
15	Making sure the current physical infrastructure is well maintained so as to lessen the results of a disaster (ie: well maintained bridges are less likely to collapse in a flood than one that is in deteriorated shape)	6/29/2016 4:10 PM
16	Have better communication between agencies	6/29/2016 3:51 PM
17	Clear instructions on evacuation routes so that people don't head into the disaster.	6/29/2016 3:14 PM
18	More community meetings	6/29/2016 3:10 PM
19	needed repairs to current infrastructure	6/29/2016 11:33 AM
20	Update infrastructure Stricter guidelines for clean water	6/29/2016 11:01 AM
21	Qtrly meetings awareness, mailings	6/29/2016 10:39 AM
22	Improve storm drainage infrastructure.	6/29/2016 10:35 AM
23	To be ready for the worst case event at all time.	6/29/2016 6:48 AM
24	Establish multiple emergency shelter locations that are always stocked with generators, medical supplies, non-perishable food, and water. Advise residents where these centers are located.	6/28/2016 4:37 PM
25	teaching citizens to be prepared	6/23/2016 2:34 PM

Q23 Please provide us with any additional comments/suggestions that you have regarding natural disasters and the Multi-Jurisdictional Hazard Mitigation Plan for Berkeley and Morgan Counties.

Answered: 11 Skipped: 33

#	Responses	Date
1	Phone app for mass notifications	7/27/2016 7:50 AM
2	na	7/18/2016 5:07 PM

Multi-Jurisdictional Hazard Mitigation Plan Survey

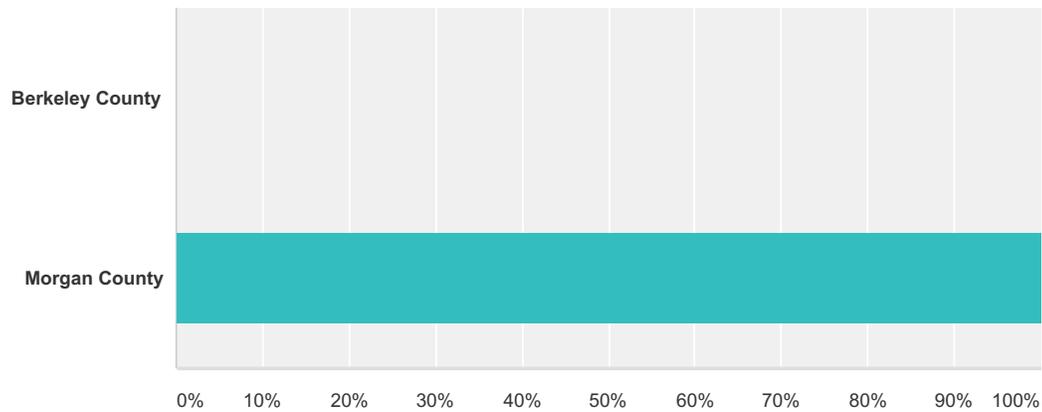
3	Expand amateur radio participation in exercises; tie in social media; improve local WHAG television antenna ability to remain on the air during lightning and strong storms.	7/18/2016 12:00 PM
4	People who live in the boonies of Berkeley county are often ignored by the people who live in Martinsburg itself!	7/18/2016 11:27 AM
5	Need better internet communications and a back up to that such as local AM radio.	7/15/2016 8:24 AM
6	1. Publicize its availability. I am unaware of the current version. 2. Mail it to every resident.	6/30/2016 8:14 PM
7	Due to where I live outside of the Martinsburg city limits, I am extremely concerned about the response time of volunteer fire companies should our home, which is located on a wooded lot, catch fire. Baker Heights would respond which is at minimum 15-20 mins away.	6/29/2016 4:21 PM
8	I have been pleased with the speed that the City of Martinsburg handled clean-up from the dereccho and the recent large snowfalls.	6/29/2016 4:10 PM
9	More practice sessions and optimum collective information sharing	6/29/2016 11:01 AM
10	N/a	6/29/2016 10:35 AM
11	More info. Social media is the place to get local info. And this area is way behind in the times. I use to live in Uniontown Pa. You cant find out all local info on Facebook like events to emergency shelter location. Its time for this area to embrace the online tech, and use it to their advantage.	6/29/2016 6:48 AM

Appendix C-19 Morgan County HMP Public Survey

Multi-Jurisdictional Hazard Mitigation Plan Survey

Q1 Please select the jurisdiction in which you live.

Answered: 85 Skipped: 0



Answer Choices	Responses
Berkeley County	0.00% 0
Morgan County	100.00% 85
Total	85

Q2 Please enter your zipcode.

Answered: 85 Skipped: 0

#	Responses	Date
1	25411	8/19/2016 1:23 PM
2	25411	8/13/2016 12:23 PM
3	25411	8/11/2016 2:09 PM
4	25411	8/11/2016 8:59 AM
5	25427	8/10/2016 11:55 AM
6	25411	8/10/2016 9:40 AM
7	25411	8/9/2016 9:23 AM
8	25411	8/4/2016 2:38 PM
9	25422-3381	8/3/2016 11:36 AM
10	25411	8/3/2016 10:57 AM
11	25411	8/1/2016 2:11 PM
12	25427	7/15/2016 5:34 PM
13	25427	7/12/2016 8:59 AM
14	25411	7/8/2016 12:09 PM
15	25427	7/8/2016 9:59 AM
16	25422	7/6/2016 10:13 AM

Multi-Jurisdictional Hazard Mitigation Plan Survey

17	25427-3343	7/5/2016 1:32 PM
18	25411	7/5/2016 9:48 AM
19	25 11	7/2/2016 9:33 AM
20	25427	7/1/2016 11:23 AM
21	25411	7/1/2016 8:50 AM
22	25411	7/1/2016 2:58 AM
23	25411	6/30/2016 8:47 PM
24	25411	6/30/2016 8:38 PM
25	25411	6/30/2016 8:20 PM
26	25411	6/30/2016 4:19 PM
27	25411	6/30/2016 1:44 PM
28	25411	6/30/2016 1:08 PM
29	25411	6/30/2016 12:44 PM
30	25411	6/30/2016 12:30 PM
31	25411	6/30/2016 12:06 PM
32	25411	6/30/2016 11:16 AM
33	25411	6/30/2016 9:19 AM
34	25411	6/30/2016 7:28 AM
35	25411	6/30/2016 5:26 AM
36	25411	6/29/2016 6:53 PM
37	25411	6/29/2016 6:18 PM
38	25411	6/29/2016 6:05 PM
39	25411	6/29/2016 5:25 PM
40	25427	6/29/2016 5:22 PM
41	25411	6/29/2016 4:13 PM
42	25411	6/29/2016 3:56 PM
43	25411	6/29/2016 3:16 PM
44	25422	6/29/2016 2:52 PM
45	25422	6/29/2016 2:44 PM
46	25411	6/29/2016 2:41 PM
47	25411	6/29/2016 2:41 PM
48	25411	6/29/2016 2:30 PM
49	25411	6/29/2016 2:27 PM
50	25434	6/29/2016 2:26 PM
51	25411	6/29/2016 1:56 PM
52	25411	6/29/2016 1:53 PM
53	25411	6/29/2016 1:41 PM
54	21154	6/29/2016 1:41 PM
55	25411	6/29/2016 1:32 PM
56	25411	6/29/2016 1:32 PM
57	25411	6/29/2016 1:30 PM

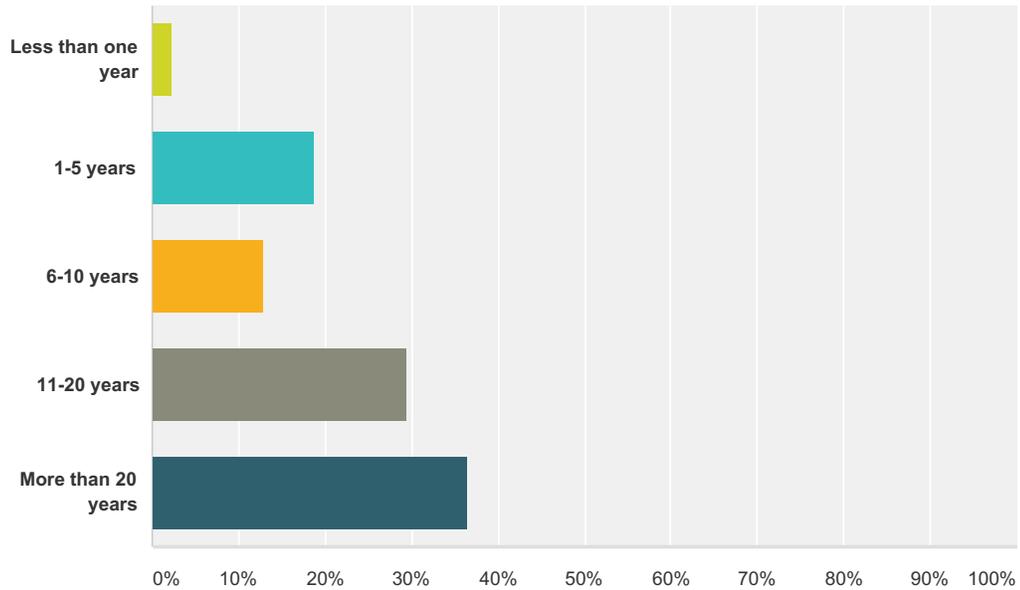
Multi-Jurisdictional Hazard Mitigation Plan Survey

58	25411	6/29/2016 1:28 PM
59	25411	6/29/2016 1:19 PM
60	25411	6/29/2016 1:01 PM
61	25427	6/29/2016 12:51 PM
62	25422	6/29/2016 12:50 PM
63	25411	6/29/2016 11:54 AM
64	25411	6/29/2016 11:27 AM
65	25411	6/29/2016 11:25 AM
66	25411	6/29/2016 11:10 AM
67	25411	6/29/2016 11:07 AM
68	25411	6/29/2016 11:03 AM
69	25411	6/29/2016 10:54 AM
70	25411	6/29/2016 10:53 AM
71	25411	6/29/2016 10:48 AM
72	25422	6/29/2016 10:44 AM
73	25422	6/29/2016 10:41 AM
74	25411	6/29/2016 10:37 AM
75	25411	6/29/2016 10:35 AM
76	25434	6/29/2016 10:35 AM
77	25411	6/29/2016 10:35 AM
78	25411	6/29/2016 10:33 AM
79	25422	6/29/2016 10:29 AM
80	25422	6/29/2016 10:28 AM
81	25411	6/29/2016 10:28 AM
82	25427	6/29/2016 10:25 AM
83	25411	6/29/2016 10:25 AM
84	25434	6/29/2016 10:20 AM
85	25411	6/29/2016 10:20 AM

Q3 How long have you resided in your community?

Answered: 85 Skipped: 0

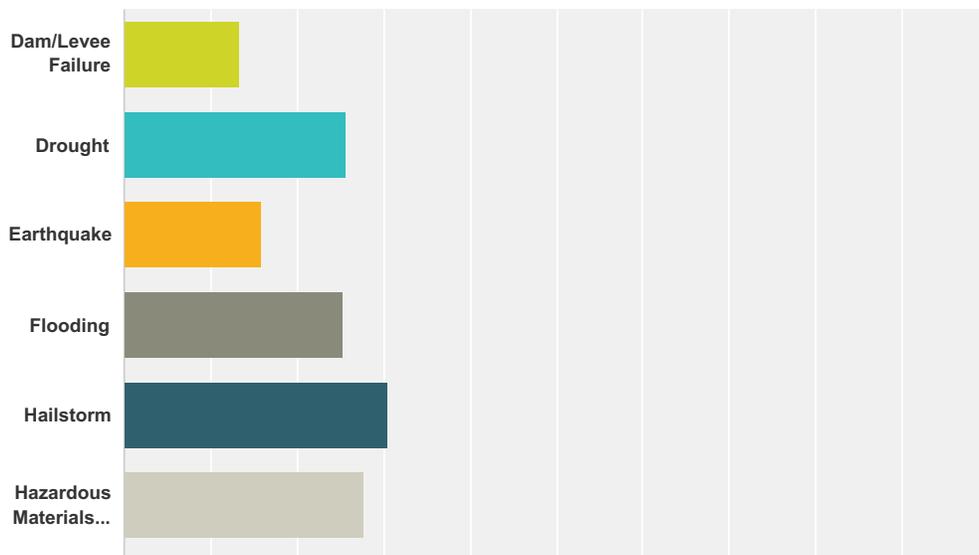
Multi-Jurisdictional Hazard Mitigation Plan Survey



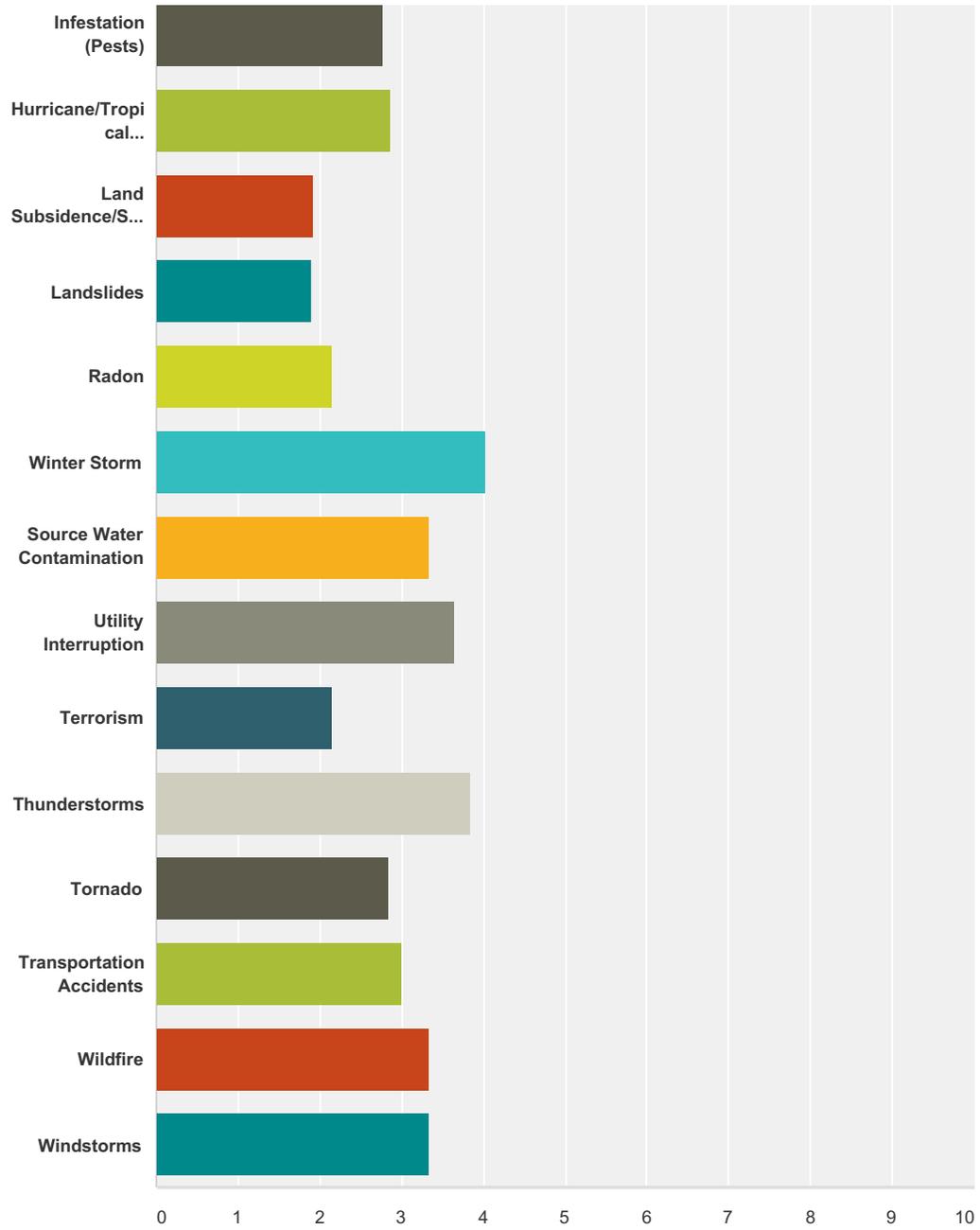
Answer Choices	Responses	Count
Less than one year	2.35%	2
1-5 years	18.82%	16
6-10 years	12.94%	11
11-20 years	29.41%	25
More than 20 years	36.47%	31
Total		85

Q4 Please rate each of the following hazards on a scale of 1 (low) to 5 (high) indicating the level of threat you feel each presents to your neighborhood or home.

Answered: 85 Skipped: 0



Multi-Jurisdictional Hazard Mitigation Plan Survey



	Low	Medium-Low	Medium	Medium-High	High	Total	Weighted Average
Dam/Levee Failure	83.95% 68	7.41% 6	2.47% 2	3.70% 3	2.47% 2	81	1.33
Drought	22.22% 18	24.69% 20	33.33% 27	14.81% 12	4.94% 4	81	2.56
Earthquake	59.26% 48	24.69% 20	13.58% 11	2.47% 2	0.00% 0	81	1.59
Flooding	37.35% 31	15.66% 13	18.07% 15	15.66% 13	13.25% 11	83	2.52
Hailstorm	10.84% 9	22.89% 19	28.92% 24	26.51% 22	10.84% 9	83	3.04
Hazardous Materials Release	25.30% 21	16.87% 14	24.10% 20	21.69% 18	12.05% 10	83	2.78

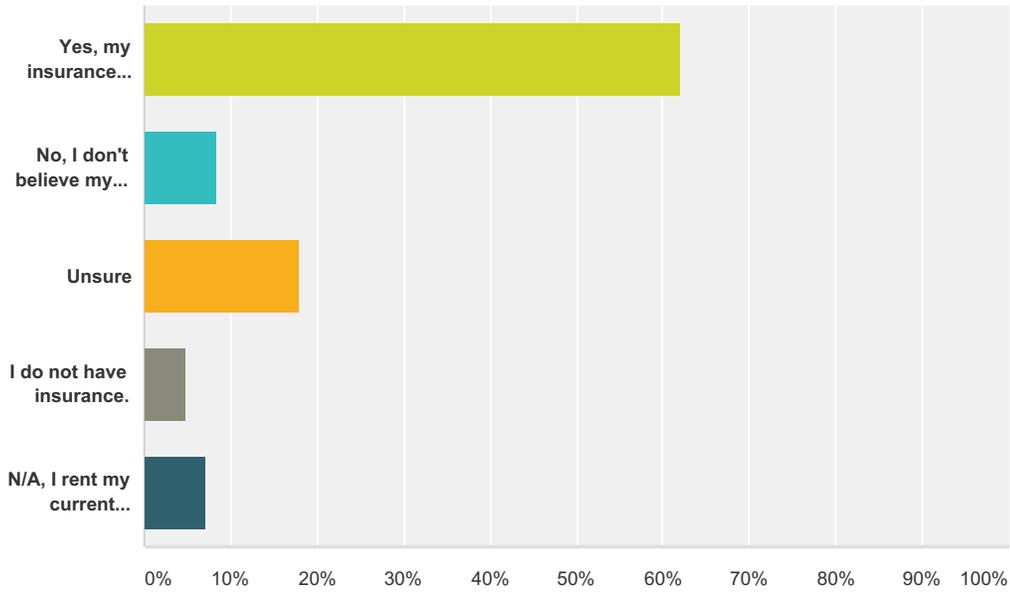
Multi-Jurisdictional Hazard Mitigation Plan Survey

Infestation (Pests)	12.20% 10	26.83% 22	40.24% 33	13.41% 11	7.32% 6	82	2.77
Hurricane/Tropical Storm/Nor'Easter	9.76% 8	24.39% 20	39.02% 32	23.17% 19	3.66% 3	82	2.87
Land Subsidence/Sinkholes	40.96% 34	34.94% 29	18.07% 15	3.61% 3	2.41% 2	83	1.92
Landslides	49.40% 41	24.10% 20	18.07% 15	4.82% 4	3.61% 3	83	1.89
Radon	39.51% 32	23.46% 19	24.69% 20	7.41% 6	4.94% 4	81	2.15
Winter Storm	0.00% 0	8.43% 7	18.07% 15	36.14% 30	37.35% 31	83	4.02
Source Water Contamination	9.88% 8	18.52% 15	23.46% 19	24.69% 20	23.46% 19	81	3.33
Utility Interruption	2.41% 2	12.05% 10	28.92% 24	30.12% 25	26.51% 22	83	3.66
Terrorism	43.90% 36	21.95% 18	17.07% 14	9.76% 8	7.32% 6	82	2.15
Thunderstorms	2.44% 2	7.32% 6	23.17% 19	36.59% 30	30.49% 25	82	3.85
Tornado	12.20% 10	20.73% 17	45.12% 37	14.63% 12	7.32% 6	82	2.84
Transportation Accidents	22.50% 18	11.25% 9	30.00% 24	15.00% 12	21.25% 17	80	3.01
Wildfire	3.66% 3	17.07% 14	37.80% 31	24.39% 20	17.07% 14	82	3.34
Windstorms	4.88% 4	17.07% 14	31.71% 26	32.93% 27	13.41% 11	82	3.33

Q5 If you are a homeowner, do you have adequate basic homeowner's insurance to cover the hazards that could impact your home?

Answered: 84 Skipped: 1

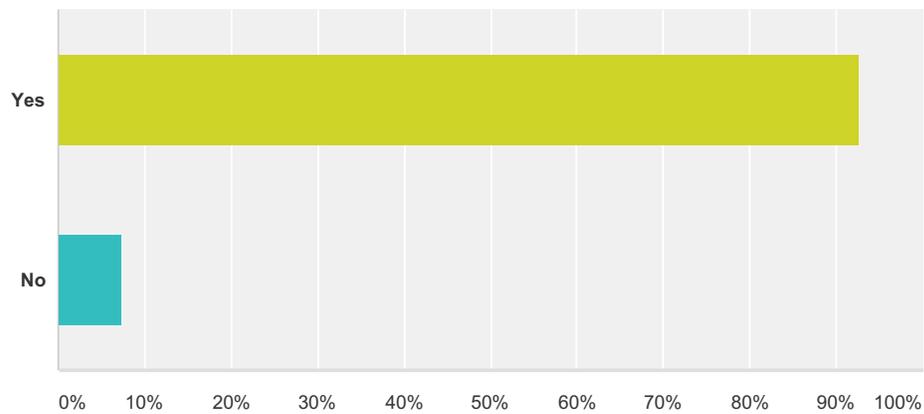
Multi-Jurisdictional Hazard Mitigation Plan Survey



Answer Choices	Responses
Yes, my insurance coverage should be adequate.	61.90% 52
No, I don't believe my insurance coverage would be adequate for a major disaster.	8.33% 7
Unsure	17.86% 15
I do not have insurance.	4.76% 4
N/A, I rent my current residence.	7.14% 6
Total	84

Q6 Did you know that most homeowner insurance policies do not cover flooding or minor subsidence (sinkholes)?

Answered: 82 Skipped: 3



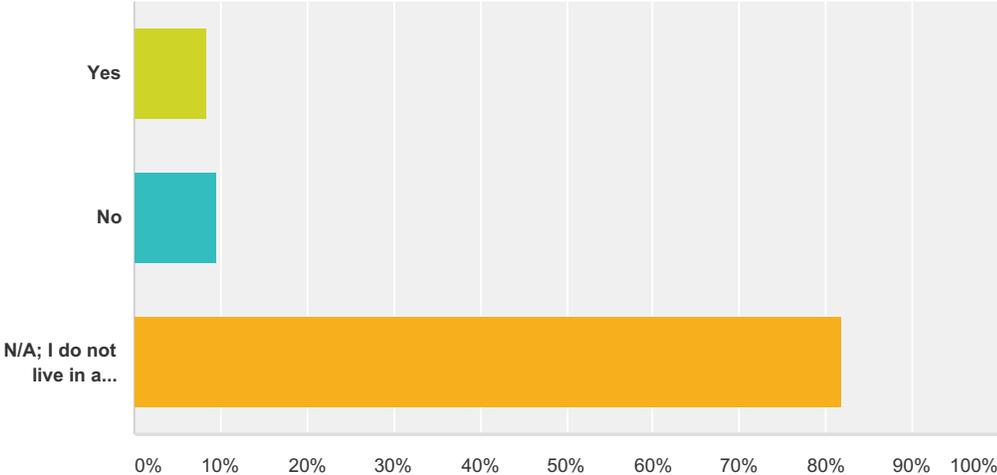
Answer Choices	Responses
Yes	92.68% 76

Multi-Jurisdictional Hazard Mitigation Plan Survey

No	7.32%	6
Total		82

Q7 If you live in a floodplain, do you carry flood insurance?

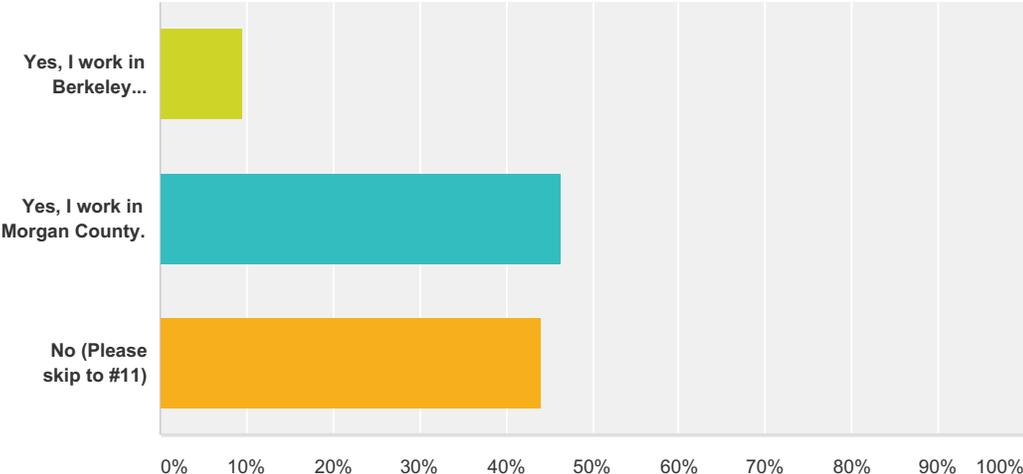
Answered: 83 Skipped: 2



Answer Choices	Responses
Yes	8.43% 7
No	9.64% 8
N/A; I do not live in a floodplain.	81.93% 68
Total	83

Q8 Do you work in Berkeley or Morgan County?

Answered: 84 Skipped: 1



Multi-Jurisdictional Hazard Mitigation Plan Survey

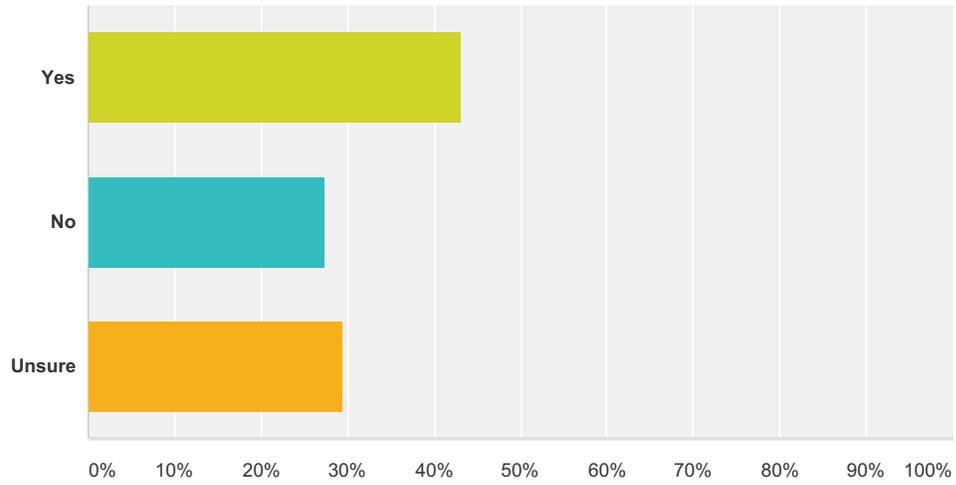
Answer Choices	Responses	
Yes, I work in Berkeley County.	9.52%	8
Yes, I work in Morgan County.	46.43%	39
No (Please skip to #11)	44.05%	37
Total		84

#	If yes, please enter the zipcode where you work.	Date
1	25411	8/19/2016 1:23 PM
2	25411	8/10/2016 11:55 AM
3	25411	8/9/2016 9:23 AM
4	25411	8/4/2016 2:38 PM
5	25411	8/3/2016 10:57 AM
6	21740	7/15/2016 5:34 PM
7	25404	7/12/2016 8:59 AM
8	25401	7/8/2016 12:09 PM
9	25411	7/5/2016 9:48 AM
10	25411	7/2/2016 9:33 AM
11	25401	7/1/2016 8:50 AM
12	25403	6/30/2016 8:47 PM
13	25411	6/30/2016 8:38 PM
14	25411	6/30/2016 12:06 PM
15	21740	6/30/2016 9:19 AM
16	25405	6/30/2016 7:28 AM
17	25411	6/30/2016 5:26 AM
18	25422	6/29/2016 2:44 PM
19	25411	6/29/2016 2:41 PM
20	25411	6/29/2016 2:27 PM
21	25411	6/29/2016 1:53 PM
22	25411 primary office - service all of the panhandle	6/29/2016 1:01 PM
23	25411	6/29/2016 12:51 PM
24	25411	6/29/2016 11:54 AM
25	25411	6/29/2016 11:03 AM
26	25411	6/29/2016 10:53 AM
27	25411	6/29/2016 10:35 AM
28	25411	6/29/2016 10:28 AM
29	25411	6/29/2016 10:25 AM

Q9 Does your employer have a plan for disaster recovery in place?

Answered: 51 Skipped: 34

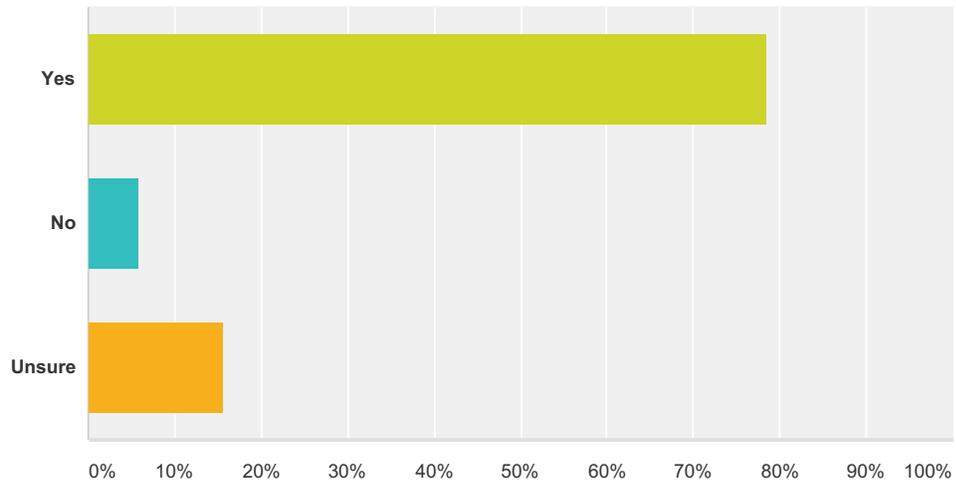
Multi-Jurisdictional Hazard Mitigation Plan Survey



Answer Choices	Responses	
Yes	43.14%	22
No	27.45%	14
Unsure	29.41%	15
Total		51

Q10 Does your employer have a means of getting in touch with you following a disaster?

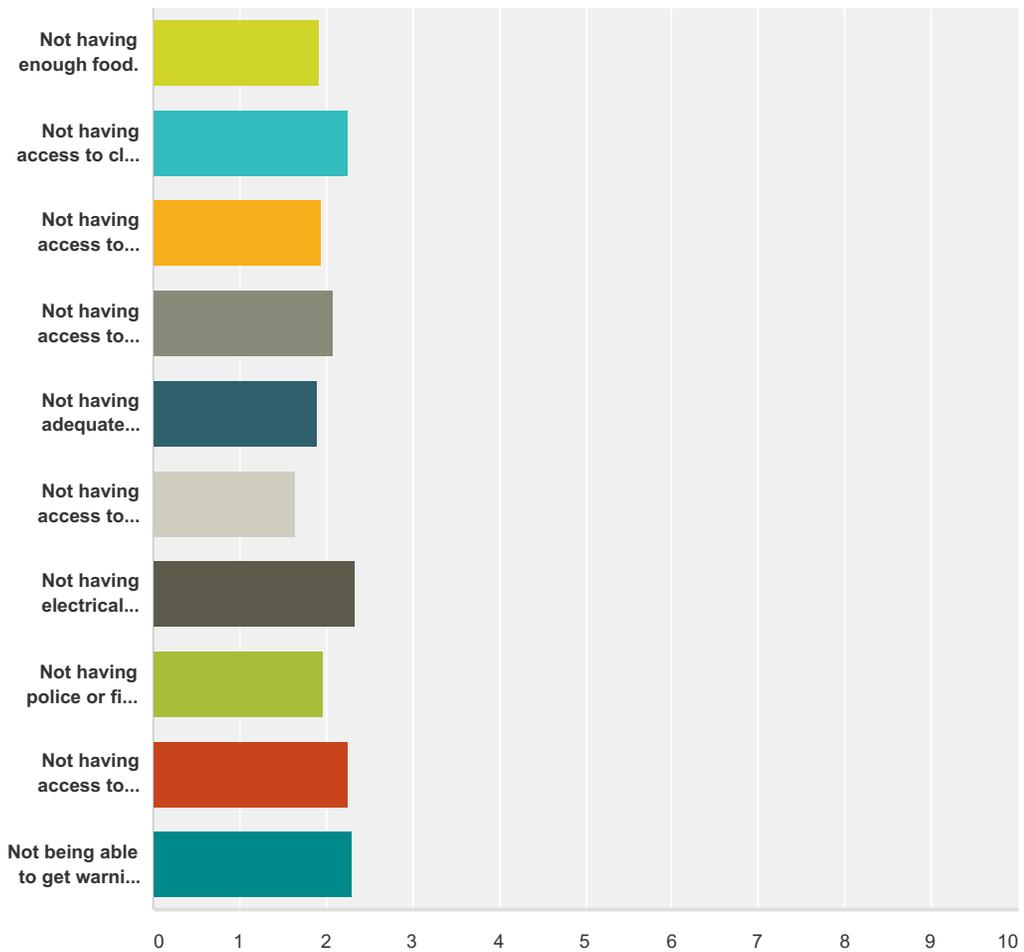
Answered: 51 Skipped: 34



Answer Choices	Responses	
Yes	78.43%	40
No	5.88%	3
Unsure	15.69%	8
Total		51

Q11 How concerned are you about the following effects of natural hazards?

Answered: 80 Skipped: 5



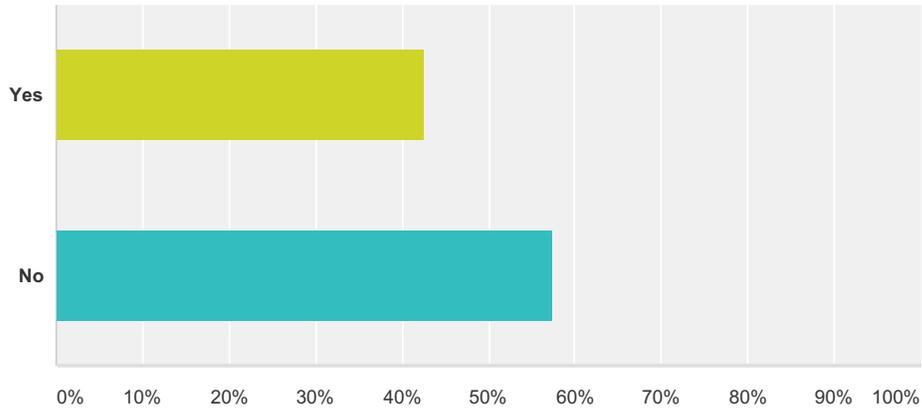
	Not concerned	Somewhat concerned	Extremely concerned	Total	Weighted Average
Not having enough food.	22.08% 17	63.64% 49	14.29% 11	77	1.92
Not having access to clean water.	11.25% 9	51.25% 41	37.50% 30	80	2.26
Not having access to required medicine.	28.21% 22	50.00% 39	21.79% 17	78	1.94
Not having access to medical services.	17.72% 14	55.70% 44	26.58% 21	79	2.09
Not having adequate shelter.	25.64% 20	58.97% 46	15.38% 12	78	1.90
Not having access to transportation in the event of evacuation.	47.44% 37	41.03% 32	11.54% 9	78	1.64
Not having electrical power for an extended time.	7.59% 6	51.90% 41	40.51% 32	79	2.33

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Not having police or fire protection.	27.85% 22	46.84% 37	25.32% 20	79	1.97
Not having access to communication services.	7.50% 6	58.75% 47	33.75% 27	80	2.26
Not being able to get warning messages or other information regarding the hazard.	16.25% 13	38.75% 31	45.00% 36	80	2.29

Q12 Do you have an emergency/disaster response kit?

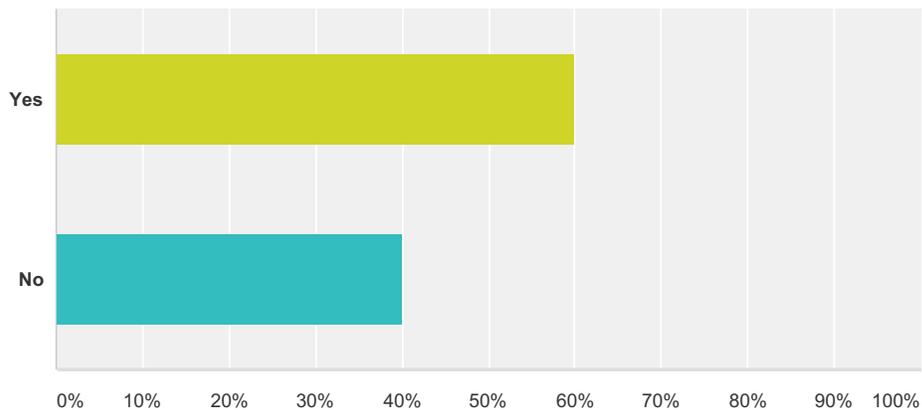
Answered: 80 Skipped: 5



Answer Choices	Responses
Yes	42.50% 34
No	57.50% 46
Total	80

Q13 Would you like information on how to assemble an emergency/disaster response kit?

Answered: 80 Skipped: 5

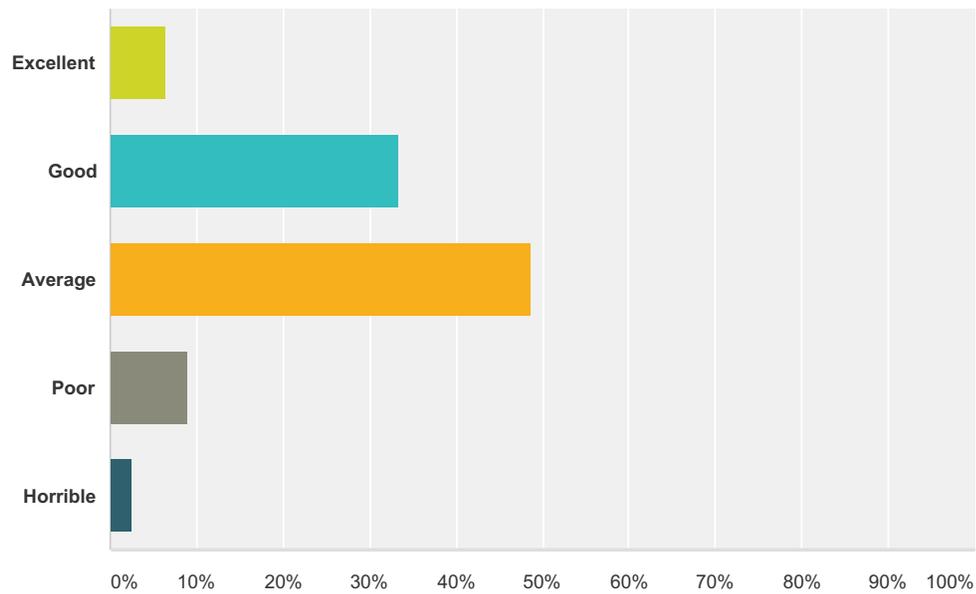


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Answer Choices	Responses
Yes	60.00% 48
No	40.00% 32
Total	80

Q14 Think back to a recent hazard occurrence (any from question #4). How would you rate your community's ability to handle the hazard event?

Answered: 78 Skipped: 7

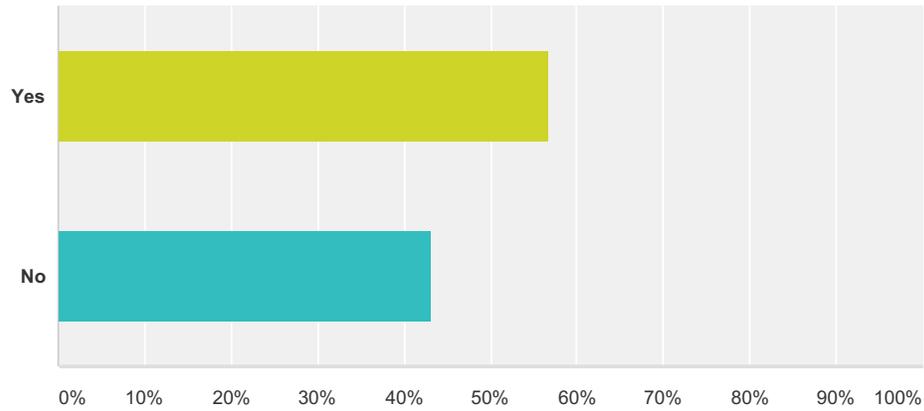


Answer Choices	Responses
Excellent	6.41% 5
Good	33.33% 26
Average	48.72% 38
Poor	8.97% 7
Horrible	2.56% 2
Total	78

Q15 During this event, did you receive information or warnings from your local public officials/emergency management officials?

Answered: 74 Skipped: 11

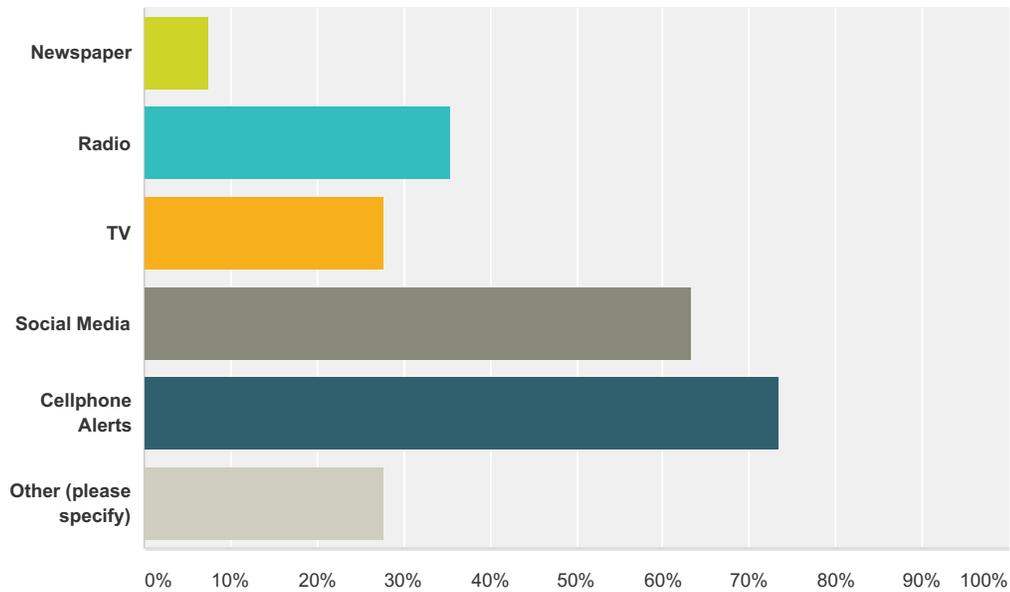
Multi-Jurisdictional Hazard Mitigation Plan Survey



Answer Choices	Responses	
Yes	56.76%	42
No	43.24%	32
Total		74

Q16 What is the most effective way for your community to alert/advise you during a hazard event?

Answered: 79 Skipped: 6



Answer Choices	Responses	
Newspaper	7.59%	6
Radio	35.44%	28
TV	27.85%	22
Social Media	63.29%	50

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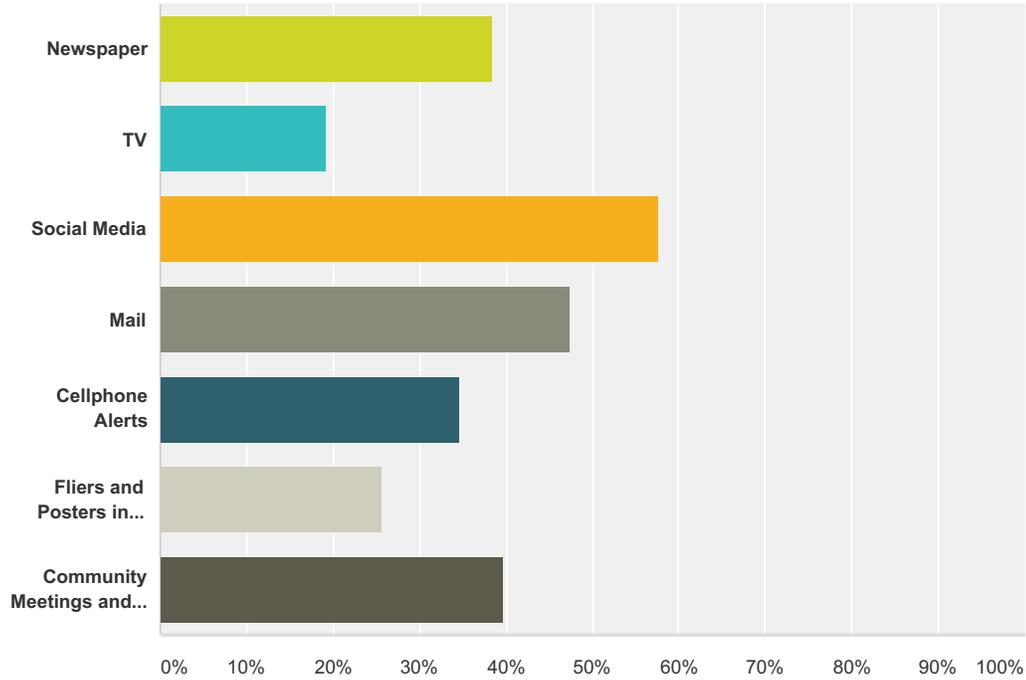
Cellphone Alerts	73.42%	58
Other (please specify)	27.85%	22
Total Respondents: 79		

#	Other (please specify)	Date
1	Private Community Email blast	8/13/2016 12:25 PM
2	Email	8/11/2016 2:15 PM
3	private/CB radio	8/10/2016 11:58 AM
4	satellite internet via Hughesnet	8/3/2016 11:40 AM
5	All the above	7/2/2016 9:36 AM
6	ham radio and scanner monitoring 911 dispatch	7/1/2016 3:02 AM
7	firehouse signal	6/30/2016 8:49 PM
8	Fire Department pager & scanner	6/30/2016 12:52 PM
9	Blasts of fire siren.	6/29/2016 6:12 PM
10	Cannot get a local channel for Alerts	6/29/2016 5:25 PM
11	No cell coverage where I live	6/29/2016 2:54 PM
12	Fire whistle / scanner	6/29/2016 2:29 PM
13	Highway signs	6/29/2016 1:43 PM
14	Public announcements	6/29/2016 1:34 PM
15	Door to door	6/29/2016 12:52 PM
16	neighbor to neighbor	6/29/2016 11:57 AM
17	Combination of siren signaling and broadcast on 92.9 FM	6/29/2016 11:35 AM
18	Telephone	6/29/2016 10:57 AM
19	needs to be another siren in the outer parts of Morgan Co not just in downtown as you can't hear it or make out the warning sound as you don't hear them enough to reconize the difference..if you are not part of the EMS community regular citizens can't tell the difference between a normal fire call and a weather warning. If you have people standing on the streets doing nothing to protect themselves from the potential weather hazard this should tell you they can't or don't know the difference in the sounding siren	6/29/2016 10:49 AM
20	land line telephone	6/29/2016 10:37 AM
21	Fire siren	6/29/2016 10:37 AM
22	reverse 911	6/29/2016 10:35 AM

Q17 What are the most effective ways for you to receive information about how to make your home and neighborhood more hazard resistant?

Answered: 78 Skipped: 7

Multi-Jurisdictional Hazard Mitigation Plan Survey



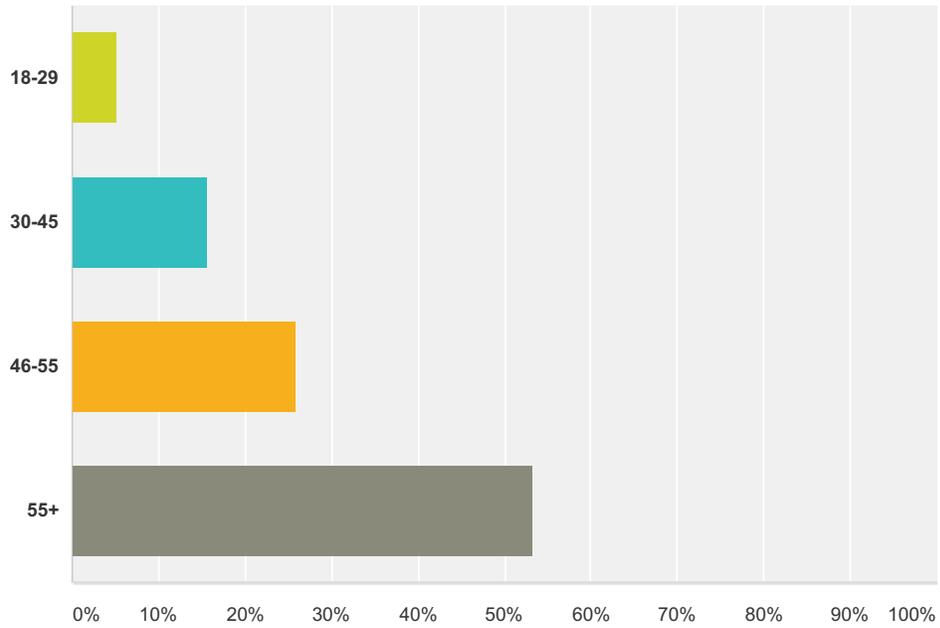
Answer Choices	Responses
Newspaper	38.46% 30
TV	19.23% 15
Social Media	57.69% 45
Mail	47.44% 37
Cellphone Alerts	34.62% 27
Fliers and Posters in Public Locations	25.64% 20
Community Meetings and Events	39.74% 31
Total Respondents: 78	

#	Other (please specify)	Date
1	Email	8/11/2016 2:15 PM
2	E-mail	6/30/2016 7:29 AM
3	The Weather Channel provides very good alerts for pending events.	6/29/2016 6:12 PM
4	Email	6/29/2016 4:20 PM
5	e-mail	6/29/2016 11:57 AM
6	Morgan Messenger	6/29/2016 11:35 AM
7	Email	6/29/2016 11:13 AM
8	CERT training	6/29/2016 10:35 AM

Q18 Please indicate your age.

Answered: 77 Skipped: 8

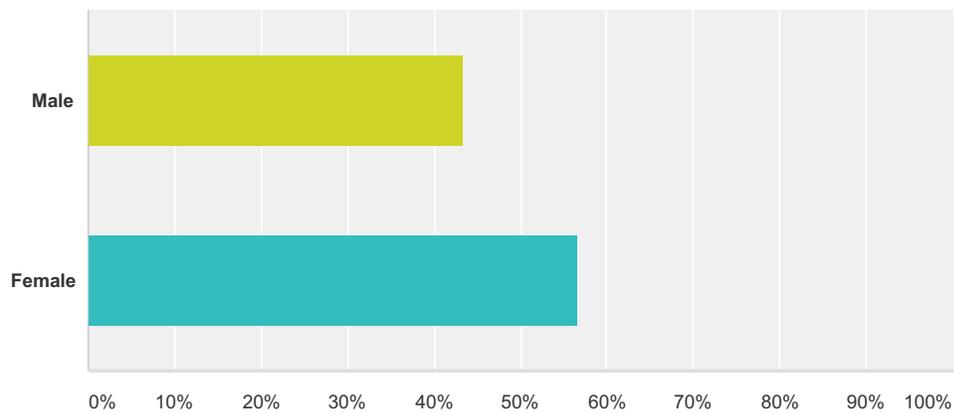
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Answer Choices	Responses
18-29	5.19% 4
30-45	15.58% 12
46-55	25.97% 20
55+	53.25% 41
Total	77

Q19 Gender:

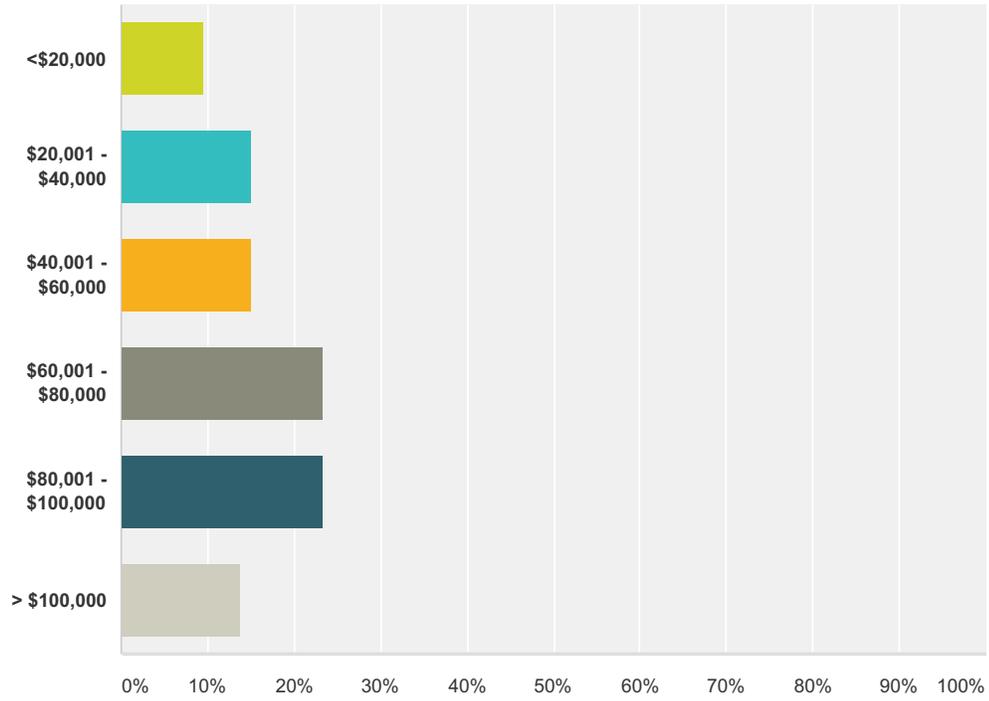
Answered: 76 Skipped: 9



Answer Choices	Responses
Male	43.42% 33
Female	56.58% 43
Total	76

Q20 Please indicate your household income.

Answered: 73 Skipped: 12

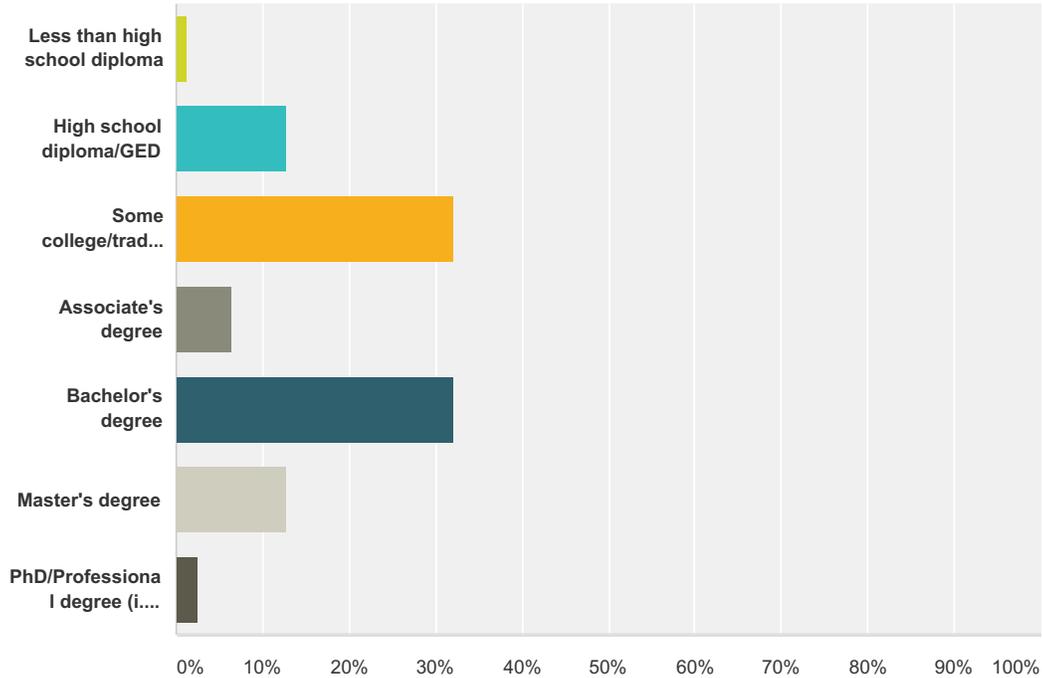


Answer Choices	Responses	
<\$20,000	9.59%	7
\$20,001 - \$40,000	15.07%	11
\$40,001 - \$60,000	15.07%	11
\$60,001 - \$80,000	23.29%	17
\$80,001 - \$100,000	23.29%	17
> \$100,000	13.70%	10
Total		73

Q21 Please indicate your level of education.

Answered: 78 Skipped: 7

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Answer Choices	Responses
Less than high school diploma	1.28% 1
High school diploma/GED	12.82% 10
Some college/trade school	32.05% 25
Associate's degree	6.41% 5
Bachelor's degree	32.05% 25
Master's degree	12.82% 10
PhD/Professional degree (i.e. JD, MD)	2.56% 2
Total	78

Q22 What is one action your community could take to reduce the long-term impact of disasters to the community?

Answered: 55 Skipped: 30

#	Responses	Date
1	one go to place on radio or online where up to the minute alerts will actually be posted and updated	8/19/2016 1:27 PM
2	Better Communication about closed or delayed roads. Especially access to Interstate 70	8/13/2016 12:27 PM
3	Organize ourselves to help each other door-to-door.	8/11/2016 2:20 PM
4	Cell coverage in south Morgan County is still not so great. Verizon in particular needs to step it up. Technology has been available way too long to not have it solidly in place even in a rural setting. Way too many dead spots to count on it. Still too many people isolated	8/11/2016 9:37 AM
5	Do a better job of clearing trees etc around power lines. Even when notified they do not take down dangerous trees unless they have then scheduled or they fall. Clear main roads faster. Berkeley Co is much better at this than Morgan.	8/10/2016 12:04 PM

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6	Planning for what to do in the event of such disasters	8/9/2016 9:26 AM
7	weekly articles covering suggestions for preparing for and dealing with power outages and natural disaster actions the private citizens ought to take which help emergency responders have a easier time rescuing the most in need and getting the correct help to each affected household by having a current listing	8/3/2016 11:55 AM
8	Upgrade infrastructure now to withstand disaster conditions.	8/1/2016 2:17 PM
9	let us know ahead of time..to prepare and the alarm on TV that says disaster...and of course cell phones..I think they do good ..I have no problem thinking otherwise..And thank u for that.	7/15/2016 5:39 PM
10	Provide community contact and location information for the community property owners	7/12/2016 9:04 AM
11	Really stress to residents that they should be prepared for any disaster at any time. Money will not save you in a disaster. Planning ahead for short/long term survival is key. Learn basic medical, agriculture, home maker, and mechanical skills in advance.	7/8/2016 12:16 PM
12	Improve emergency teams. additional staff for ambulance, police and some level of paid staff for fire dep't response	7/6/2016 10:36 AM
13	Provide zones or districts for responders to be familiar with conditions to work with residents in that area.	7/5/2016 1:38 PM
14	More funding for public service agencies and preparedness.	7/5/2016 9:53 AM
15	Effective Leadership and updated Emergency Plans	7/2/2016 9:40 AM
16	Additional tree trimming.	7/1/2016 11:26 AM
17	Use and support the FEMA Home Buyer program more to purchase properties in the floodplains for more public uses	7/1/2016 9:00 AM
18	Awareness as to where and how different disasters can happen in our community and proper warning when available	6/30/2016 8:43 PM
19	A central location for supplies and assistance known to all	6/30/2016 1:47 PM
20	Neighborhood meetings	6/30/2016 1:13 PM
21	Train first responders and emergency management agencies to work together, creating plans and conducting drills.	6/30/2016 12:55 PM
22	get along better	6/30/2016 11:18 AM
23	Just to have our citizens prepared but we have a fair amount of low income residents that just cannot afford to be prepared	6/30/2016 9:22 AM
24	Improve cell communication / internet connectivity.	6/30/2016 7:30 AM
25	more awareness	6/30/2016 5:28 AM
26	Take planning for a disaster seriously...	6/29/2016 6:23 PM
27	Provide written instructions in case of disaster. ie: where to go and what to expect.	6/29/2016 6:21 PM
28	??	6/29/2016 6:07 PM
29	We live in Sleepy Hollow SD, we have the Dam on Audubon Rd crossing the Lake. Seems poorly maintained by the HOA in the event of having Emergency Vehicles to come in if necessary, there would not be an alternate route.	6/29/2016 5:28 PM
30	Not sure.	6/29/2016 4:22 PM
31	We need cell phone coverage in great Cacapon. We also need access to public transportation.	6/29/2016 2:57 PM
32	Long Term impacts could be addressed if timely and adequate funding and resources we assured to address the results. An emergent response team	6/29/2016 2:49 PM
33	Be ready, early warning system.	6/29/2016 2:35 PM
34	To prevent diaster limit trucks through Berk Spr.	6/29/2016 2:31 PM
35	Fire/rescue availability in this part of the county	6/29/2016 2:30 PM
36	Fund Emergency Services to be better equipped to mitigate all Hazardous situations.	6/29/2016 1:57 PM
37	People preparing to be on their own to sustain life. The area covered is large rural areas with limited alternate routes accessible to many people. Limited funds for some may make stocking supplies difficult. Involve churches, schools and other local public buildings in planning and execution of diasater support as they are in the local area.	6/29/2016 1:55 PM
38	Preplanning and distribution of plan	6/29/2016 1:47 PM

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39	Set up a local community cooperative essentials supply cache to include water, long term food & basic medical supplies. Work with several local fuel suppliers to have back-up generators and oversized fuel storage to ensure that fuel is available when electric power is out & resupply is temporarily unavailable.	6/29/2016 1:37 PM
40	Make sure there is a shelter for people and pets.	6/29/2016 12:56 PM
41	Increase community communication regarding preparedness...what to have on hand, what to store.... Pre designated Community hubs for food, water, medical, shelter, information.	6/29/2016 12:03 PM
42	Plan ahead on how massive, California-style wild fires would be handled using airborne assistance.	6/29/2016 11:43 AM
43	Support the Red Cross, maintain our infrastructure and public utilities	6/29/2016 11:36 AM
44	Subsidizing the cost of flood insurance would be helpful - it is extremely expensive. Could there be a county provided policy to cover those in floodplains that we could pay into instead of having to go through FEMA? The flood insurance through FEMA will take forever to be reimbursed for claims - there are people in New Orleans who are still waiting to be reimbursed for Hurricane Katrina even though they paid their flood policies -- that is very concerning since this is the only insurance option. Also, big storms bring down a lot of trees on personal property, and they can be difficult to deal with unless residents own equipment and are able to handle themselves. Having a county tree service to help clear trees out of driveways after storms would be helpful.	6/29/2016 11:21 AM
45	reliable internet for communication, reliable cell phone towers, wind power	6/29/2016 11:09 AM
46	create the by pass around Berkeley Springs as one traffic accident on 522 or 9 shuts down the road ways for hours and if it is a hazard material event it can go from hours to days	6/29/2016 11:05 AM
47	All agencies having a plan in place to come together when a disaster hits. Medical, fire, police, and ems. Not having people in charge that whine and complain and actually don't have a clue what they are doing.	6/29/2016 10:55 AM
48	Do public education informing citizens about what to do, have, etc. in case of long term disasters. Let them know that they have a level of responsibility to take care of themselves. During the last snowstorm, too many people felt that someone else needed to come "rescue" them.	6/29/2016 10:53 AM
49	proper planning to be prepared for this events is key but every event will present a new and different challenge that has to be handled differently. I do not think there is one single action that could be put into place to reduce the impact for every event. i.e. the actions required to rebuild from a fire are not the same as the action required to clean the ground water from being contaminated by fracking.	6/29/2016 10:51 AM
50	Train citizens to be prepared to take care of their own needs post disaster, including the needs of pets.	6/29/2016 10:39 AM
51	Have emergency stores available and transportation.	6/29/2016 10:39 AM
52	Be more aware of what the residents need more then anything. I'm disabled and have to stay on oxygen 24/7 and IF and when the power goes out, I'm stuck using a portable tank and if the power is out for several days, my tanks may not last that long..	6/29/2016 10:33 AM
53	Community education	6/29/2016 10:32 AM
54	Communication	6/29/2016 10:29 AM
55	Educate and encourage residents to be prepared - Have a plan for themselves and their families.	6/29/2016 10:28 AM

Q23 Please provide us with any additional comments/suggestions that you have regarding natural disasters and the Multi-Jurisdictional Hazard Mitigation Plan for Berkeley and Morgan Counties.

Answered: 35 Skipped: 50

#	Responses	Date
1	make us silica stop polluting the air with so much dust.	8/19/2016 1:27 PM
2	Since residents get their TV coverage from any of 3 providers...a County wide program that would be picked up by Comcast/Direct/Dish would be invaluable!	8/13/2016 12:27 PM

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3	Do not reinvent the wheel! Instead, develop emergency plans based on this info AND the experience and lessons learned around the state AND around the country!	8/11/2016 2:20 PM
4	1st responders and local government will only be able to help a small number of people at any given moment. Federal government will get involved too late to be helpful until later. National guard / military will only get involved in certain types of situations and cannot be relied on until later if at all. There needs to be a citizen level network of responders that can use their talents and abilities parallel to trained responders to react at the instant a crisis presents itself. Most West Virginians are a self sufficient bunch. I think they will come out of the wood work if they knew they would be welcomed to do so. I believe the floods down south proved it can work. I think it is worth looking in to...	8/11/2016 9:37 AM
5	Provide info so people are aware of problems that could possibly happen in their area due to residence location etc such a flooding danger. Public education is important since people have to rely on each other to get through problems rather than gov help.	8/10/2016 12:04 PM
6	living within a half mile of CSX rail system traffic a derailment or intentional attack on rail road traffic could endanger a wide area including the Potomac River and polute said waterway down stream.. a county controlled down aircraft could be very helpful to emergency services in assessing major events such as wild fires or rail road derailments. . terrorism can not be ruled out even tho we are fairly distant from major metropolitan areas.. such terror acts could still impact more distant areas and resources.	8/3/2016 11:55 AM
7	Encourage disaster response agencies to develop communication plans and practice them before a disaster. Direct communication to the public.	8/1/2016 2:17 PM
8	Stress to people that they need to be prepared to take care of themselves as best they can and to include their neighbors and the elderly in their plans.	7/8/2016 12:16 PM
9	Man each fire station with at least 1 paid driver during the daytime shift when staffing is scarce. Put a paid responder in the Co 2 station for ambulance response and give ambulance fee funding to Co 2 BLS	7/6/2016 10:36 AM
10	continue the mutual aid arrangements and pre-position materials in logical locations.	7/5/2016 1:38 PM
11	Keep Federal regulations and agencies out of it as long as possible. Their red tape only slows recovery process!	7/2/2016 9:40 AM
12	None at this time.	7/1/2016 11:26 AM
13	Be prepared to deal with the issues locally ..	7/1/2016 9:00 AM
14	Preparedness by each household, business, schools and churches so when it happens everyone is somewhat prepared	6/30/2016 8:43 PM
15	Concerned about possible hazmat issues with tractor trailers that use Rt 522 through morgan county, particularly in and around the town of bath, with possible contamination the the springs as our only water source	6/30/2016 1:13 PM
16	None at this time.	6/30/2016 12:55 PM
17	I just think the majority of residents would help out others, its a pretty tight knit community.	6/30/2016 9:22 AM
18	I haven't a clue what to do in case of disaster. How to get help or who to contact. Is there a county plan set up? The only info now is the alert on the Weather Channel and the local media.	6/29/2016 6:21 PM
19	We need quicker emergency response time . Ambulance service may take too long for survival for accident or heart attack.	6/29/2016 2:57 PM
20	Email, text, and phone alerts, like robo calls the schools have .	6/29/2016 2:35 PM
21	Fund contingency plans for your responders to safely mitigate the broad spectrum of disasters that are highly probable for this geographic area	6/29/2016 1:57 PM
22	Wider use of social media to alert of incidents including hazardous accidents, road closures and alternate routes. Plans for tourists with information provided to local tourist hotels and places in case of sudden disaster. It is difficult to find one place online to get up to date information- perhaps a disaster App, website, Twitter and Facebook with updates. I noticed during the heavy snow the 911 kept saying ion their Facebook to not call, understandably but in advance provide people with current resources for an their needs to make them more self reliant.	6/29/2016 1:55 PM
23	My biggest concern is for the local community to be prepared with a minimal reliance on the Federal Government or outside sources wherever possible.	6/29/2016 1:37 PM
24	what to do if no electric for extended period of time? what are best water purification methods, filters, etc if no way to boil water. What are the "must have on hand" items?	6/29/2016 12:03 PM
25	How will Berkeley and Morgan handle the impact of fracking (since it's under control of the State government) on our fresh water supply and the damage the heavy trucks will have on our already deteriorating roads.	6/29/2016 11:43 AM

Multi-Jurisdictional Hazard Mitigation Plan Survey

26	Please don't use the word terrorist for people who break the law or interfere with public services or are enemies of our government. Please don't use fear to motivate people in hazard mitigation planning.	6/29/2016 11:36 AM
27	Having weather alerts for individualized areas within each county would be very important. For example, sometimes storms pass through small sections of Morgan County. I live on Sleepy Creek, and I need to know if I should worry about flooding. Also, having a USGS flood gage on Sleepy Creek would be extremely helpful. It is not monitored at this point as the Potomac and Great Cacapon are.	6/29/2016 11:21 AM
28	Without knowledge of the current plan at this moment. The main concern I see is for the elderly and disabled/wheelchair bound and those on special medical needs i.e. oxygen in this county. Does the county know who they are and where they are located. These are the people who need to be helped 1st for it will take time to assist them and get them to safety. If it isn't available yet, Morgan County's communications needs to have the ability to place a "hazard id" in CAD so that these people can be attended to first. This can be coordinated through Communications and Morgan County EMA. The county further needs to procure military surplus 4wd vehicles, like the Hummer type, to be able to render aid immediately, not waiting on the National Guard to be mobilized and deployed. These and other emergency type of items can be obtained through grants from the federal government. The recent flooding in the Greenbriar area should be a wake up call to the state as to how vulnerable we are.	6/29/2016 11:05 AM
29	Consider implementing the CERT (Community Emergency Response Team) program other areas use to train and organize citizens to help with simple jobs (directing traffic, first aid, triage, turning off gas lines, etc) during disasters so professional responders are free to focus on higher priority tasks.	6/29/2016 10:56 AM
30	Where can I get a copy of the 2012 plan?	6/29/2016 10:53 AM
31	Provide every resident with a copy of the hazard plan. You do not need to mail everyone a printed copy but post on the community websites, social media websites, etc. so anyone that wants a copy can get one easily.	6/29/2016 10:51 AM
32	Could the County please get more drainage culverts cleaned out so that rain water doesn't pool across roads - especially Rock Gap Road?	6/29/2016 10:39 AM
33	Paw Paw, Largent and Great Cacapon are on the western part of the county and need more information from the county seat on all fronts.	6/29/2016 10:39 AM
34	Warning sirens could be a little louder out in the mountain area OR have more placed through-out the county	6/29/2016 10:33 AM
35	Have none	6/29/2016 10:29 AM

Appendix C-20 Radio Interview on Eastern Panhandle Talk with Rob and Dave (August 15, 2016)

The screenshot shows a webpage for 'Talk Radio WRNR FM106.5 AM740'. The navigation bar includes 'Radio Shows', 'Talk Radio', 'Sports Radio', 'WRNR News', 'Our Team', 'About Us', and 'Listen Live'. The main header features a scenic image of a river valley with a bridge and the text 'Eastern Panhandle Talk With Rob Mario & David Welch'. Below this is a section titled 'EPT with Rob & Dave and guests: Buzz Poland, Phil McCoy, Bill Clark & Troy Truax', dated '15 August 2016'. A paragraph describes the show's content, mentioning Buzz Poland's Labor Day Breakfast, Phil McCoy's insurance discussion, and Bill Clark & Troy Truax's regional plans. At the bottom is a SoundCloud audio player for the episode, with a play button, the station logo, and a progress bar.

Talk Radio WRNR FM106.5 AM740

Radio Shows Talk Radio Sports Radio WRNR News Our Team About Us Listen Live

LOCAL TALK SHOW PROGRAMS

Eastern Panhandle Talk

With Rob Mario & David Welch

EPT with Rob & Dave and guests: Buzz Poland, Phil McCoy, Bill Clark & Troy Truax

15 August 2016 Local Talk Show Programs

Monday's EPT with Rob & Dave featured Buzz Poland with the War Memorial Park Labor Day Breakfast, Phil McCoy talking long term care insurance and Bill Clark & Troy Truax from Region IX, discussing how the eastern panhandle plans for both natural and man made disasters.

TalkRadioWRNR
8 - 15 - 16 Buzz Poland, Phil McCoy, Bill Clark & Troy Truax

SOUNDCLOUD Share

1:40:20

Cookie policy

Appendix C-21 Radio Interview on Mid Mornings with Hannah (August 25, 2016)

TalkRadio WRNR FM106.5 AM740 Radio Shows Talk Radio Sports Radio WRNR News Our Team About Us Listen Live

Home > Mid Mornings with Hannah and guests Mike Noll and Bill Clark and Troy Truax

LOCAL TALK SHOW PROGRAMS

Mid Mornings With Hannah

Mid Mornings with Hannah and guests Mike Noll and Bill Clark and Troy Truax

25 August 2016 Local Talk Show Programs

On Thursday's Mid Mornings with Hannah, Mike Noll spoke about the upcoming season and Bill Clark and Troy Truax spoke about hazard mitigation.



TalkRadioWRNR
8 - 25 - 16 Mike Noll And Bill Clark And Troy Truax

SOUNDCLOUD
Share

53:48

6

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**Appendix C-22 Journal News Article Regarding Addition of Hazards to HMP
(June 1, 2016)**

Four hazards added to updated plan

June 1, 2016

BY TODD BOWMAN (tbowman@journal-news.net) , Journal News
[Save](#) |

MARTINSBURG - Committee members working on the Berkeley County Hazard Mitigation Plan update project meet Tuesday at Shepherd University's Martinsburg campus to update the 2012 plan in preparation for January 2017.

"We are required by FEMA to update the plan every five years," said Troy Truax of Michael Baker International. "Attendance and input to these meetings that cover Berkeley and Morgan counties are very important."

The committee will be adding four additional hazards to the county's plan: natural causes including hurricane, tropical storms, nor'easters and radon exposure; and human-made causes that include transportation accidents and source water contamination.

The committee is comprised of members of Berkeley County government, planning, emergency management, Martinsburg Fire Department, Martinsburg City Police Department, and the Berkeley County Ambulance Authority. Morgan County has a similar committee and the two will work together for a final report.

"It is multi-jurisdictional by virtue (that) it covers both counties," Truax said.

Jefferson County is part of its own district with its own hazard mitigation plan.

Radon exposure, a natural occurrence, was a major concern to Berkeley County Councilman Jim Barnhart.

"It is silent, but deadly," Barnhart said. "It really (varies) structure by structure, building design and location"

Barnhart said that older or poorly constructed homes have areas for the radon gases to escape, making it less harmful to humans. New homes have escapes or monitors.

"The county health department does a great job in educating with hand outs at local home shows," Barnhart said.

Another major concern discussed was transportation accidents on Interstate 81 and other major roads running through Berkeley County.

Emergency management officials said a study is currently underway looking at the number of accidents involving interstate highways, railways, tractor-trailer and other modes of transportation. Officials say the study should be ready by mid-to late summer for review.

"The environment is changing," Hedgesville Planning Commission member and town councilman Ronnie Good said. "This area is changing."

Good, a self-proclaimed environmentalist, addressed his concerns with the seesawing changes in the climate.

"The jet stream is coming farther south," Good said.

With Good's input, the committee added hurricane, tropical storm and nor'easter hazards to their 2017 plan.

A hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property resulting from natural and human-caused hazards.

Truax said that it is important for communities to have a plan to apply and receive mitigation funding. He added that in order to get funding, the cause of the incident had to be on the plan list.

The 2012 plan includes drought, earthquake, epidemic, hailstorm, infestation, land subsidence, thunderstorm/lightning strike, windstorm/tornado, winter storm, dam or levee failure, hazardous materials and terrorism.

The group agreed that Berkeley County is at risk for many hazardous materials, drug and criminal activity because of its close proximity to I-81 and close Interstate 70.

Truax said that the goal of the committee is to have the plan complete, including public input by October with a final draft by November. The plan will be submitted to FEMA and ready for implementation by January 2017.

"This document is important to update and update regularly," Truax said. "Plans should be looked at on a frequent bases and to monitor how the plan is implemented."

Staff writer Todd Bowman can be reached at 304-263-3381, ext. 128 or on Twitter @todd_bowman87.

Appendix C-23 Journal News Article Regarding HMP Meetings and Public Survey (July 27, 2016)

Risks still being identified in regional emergency plan

July 27, 2016

By Mary Stortstrom (mstortstrom@journal-news.net) , Journal News

MARTINSBURG - Representatives from several municipalities, counties and agencies in Morgan and Berkeley counties gathered to identify potential risks to public health and safety as they prepared a regional emergency plan.

The meeting and subsequent training exercise, held Monday at Shepherd University's Martinsburg center, is part of the update to the Region 9 Multi-jurisdictional Hazard Mitigation Plan. Region 9 is a regional planning and development council created by the state government and updates its emergency plans every five years. The last plan was published in 2012.

Troy Truax with consulting firm Michael Baker and Associates, led the meeting, which included representatives from: James Rumsey Technical Institute, Berkeley Medical Center, Shenandoah Community Health, the Berkeley County Emergency Ambulance Authority, Berkeley County E-911, the Martinsburg police and fire departments, Berkeley County Office of Homeland Security and Emergency Management, the Local Emergency Planning Commission, the Martinsburg-Berkeley County Chamber of Commerce, Procter & Gamble, the Eastern Regional Airport Authority, and municipal officials from Martinsburg and Hedgesville.

Truax said it was good to have such a diverse group of stakeholders represented at the meeting, since the hazard mitigation plan spans two counties.

"A hazard mitigation plan is a community-driven, living document, so the more input we get, the better. Counties must have hazard mitigation plans in place to be able to access grants through FEMA or leverage additional funding sources," he said.

Though Region 9 is updating its existing plan for 2017 using input from stakeholders and the public via online surveys, Truax said there have been events and incidents since 2012 that caused Region 9 members to add new potential risks to the plan.

In addition to the lists of naturally occurring and man-made risks to public health and safety included in the 2012 plan, Truax said new risks - source water contamination, transportation accidents, hurricanes and tropical storms, radon exposure and utility interruption - have been added to the list of risks to assess and consider for the update. Truax said when identifying potential risks, it is important to consider the location and extent of a possible risk, the range of magnitude of the incident, any past occurrences of similar events, the likelihood of the event being repeated in the future and what areas and populations might be at risk for such an event.

During an exercise, the group was asked to rank a list of potential risks, as identified in the 2012 Hazard Mitigation Plan. There was much discussion as people with different work backgrounds used their own experiences and knowledge to rank each risk.

"A lot of these are tough to rank because a lot of the risks are related, or could happen in a chain-reaction effect," Truax said. "For example, a tornado could cause a hail storm, which could cause utility interruption via power outage. In the days following the tornado, you could have flooding, which could lead to dam or levee failure."

While winter storms had been identified as a high-priority risk for the region in 2012, several people at Monday's meeting said they saw winter storms as a low risk, since they can only happen for a few months of the year.

Transportation accidents were ranked a low priority in 2012, but many of the people participating in the exercise said construction and accidents along Interstate 81, along with trains carrying hazardous materials through the area, moved the risk further up in rank.

"It seems like there are a lot of varying opinions as to what our top priorities should be," Truax said. "It's also a sign that we need to rethink our goals and priorities from 2012."

There will be more worksessions regarding the Region 9 Hazard Mitigation Plan in the months to come. The survey that allows the public to give input on the plan is available at www.surveymonkey.com/r/27X5Q3R or on the Region 9 website, www.region9wv.com.

Staff writer Mary Stortstrom can be reached at 304-263-8931 ext. 138 or www.twitter.com/mstortstromJN.

**Appendix C-24 Morgan Messenger Article Regarding Public Survey
(August 3, 2016)**

Morgan Messenger

Hazard mitigation survey asks for residents' input

August 3, 2016

by Trish Rudder

A survey to help determine what risks exist in [Morgan County](#)'s communities is being used by the [Morgan County Commission](#) to update their 2012 Hazard Mitigation Plan.

According to the Commission, "this survey is designed to help the region, and your community, to gauge public perceptions of hazard vulnerability." The information will help local leaders "as they prioritize mitigation projects."

The survey asks what residents consider the greatest risks during a natural or manmade disaster event, and what aspects of their personal safety and daily life would be most severely impacted by an event. A committee meeting was held on July 25 at the Morgan County Commission Room, and Rachel Snively, project manager of the Eastern Panhandle [Regional Planning & Development Council \(Region 9\)](#) in [Martinsburg](#), said the major hazard concerns for Morgan County are flooding, source water contamination and utility interruption.

"The (updated) plan will provide our communities with a clear picture of the risks we face and will outline strategies for reducing those risks and reducing losses in the future," said county officials.

The survey about local hazard vulnerabilities can be found at <https://surveymonkey.com/r/27X5Q3R> or on Region 9's website at www.region9wv.com.

Snively said the survey will close by September 1, and any questions about the survey or the plan update should be directed to Region 9 at 304-263-1743.

The updated Hazard Mitigation Plan must be submitted to the West Virginia Department of Homeland Security [Emergency Management](#) by January 7, 2017, and the plan must be updated every five years, Snively said.

Appendix C-25 Morgan Messenger Article Regarding Public Survey and Emergency Preparedness (August 4, 2016)

Prepare & plan when we can

Regional planners are asking local residents to take a hazard mitigation survey to rank what they consider the biggest threats to health and safety here in [Morgan County](#). The survey, which is pretty limited, does raise interesting questions, such as what raises the greatest concern in the event of a catastrophe – loss of clean water, access to transportation for evacuation, lack of access to medical care. These are all very real issues, as our neighbors in southern [West Virginia](#) faced them during last month's raging floods. They continue to struggle with many.

Residents here should take a few minutes to go through the hazard survey, which is available online at www.region9wv.com. As far as we know, the survey is not available in paper form.

It's our responsibility to prepare for emergencies as much as possible – to secure water, food and medicine to sustain our families. No one can think of every possible need, or be ready for every catastrophe. But each step we take to prepare and care for ourselves helps make us safer, and reduces the burden on first responders and disaster crews during a major event.

Think about assembling an emergency kit for yourself and a neighbor this month. Include enough water and non-perishable food for several days for the people in your household, plus batteries, a weather radio, a light source, dust masks, garbage bags and wipes, first aid supplies and medicine. Nobody likes to think about what life would be like without our modern conveniences, but a little bit of preparation goes a long way.

On a bigger scale, it's clear that upgrading infrastructure – roads, bridges, public buildings, electrical grids, dams, drainage systems – helps reduce the impact of major catastrophes in the long term. Aging bridges and roads give way when floods strike. Power and communications systems need backup systems. Fuel, transportation and medical services have to get help to operate under dire circumstances. Connecting these pieces of the puzzle can make or break a community during times of disaster. [Southern West Virginia](#) is evidence enough. We must learn from their struggles.